APPENDIX 36

Apex Companies, LLC.

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

REVISIONS

#	DATE	DESCRIPTION
1	10/28/10	BORING PROG. & NUM.
2	11/22/10	BORINGS PLACED BY OUTFALL LOC.

THESE DRAWINGS PREPARED BY APEX FOR THIS PROJECT ARE INSTRUMENTS OF APEX'S SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT, AND APEX SHALL BE DEEMED THE AUTHOR OF THE DRAWING AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS WITH RESPECT THERETO, INCLUDING COPYRIGHT. THE DOCUMENTS SHALL NOT BE USED ON OTHER PROJECTS, FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO APEX.

NOTES:

1. THE PROPOSED BORING LOCATIONS SHOWN HEREON ARE APPROXIMATE. ACTUAL LOCATIONS OF SAMPLES WILL VARY DURING THE SITE INVESTIGATION.
2. PROPERTY LINES AND OWNERSHIP SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON DATA PROVIDED BY THE ASSESSORS OFFICE OF THE CITY OF NEW BEDFORD.
3. BACKGROUND IMAGES SHOWN HEREON ARE PROVIDED COURTESY OF MASSGIS.
4. BORING LOCATIONS FROM PREVIOUS ENVIRONMENTAL INVESTIGATIONS ARE APPROXIMATE AND WERE SCALED INTO LOCATION FROM RECORD PLANS.
5. EXISTING AND POSSIBLE EXISTING STORM DRAIN AND COMBINED SEWER OVERFLOW (CSO) LOCATIONS AND SIZES SHOWN ARE FROM RECORD PLANS AND HAVE NOT BEEN FIELD VERIFIED.

PEAT CORER AND WATER COLUMN LOCATION

VIBRACORE AND PEAT CORER SIDE-BY-SIDE LOCATIONS

PEAT CORER ONLY LOCATION

PREPARED FOR:

COMMONWEALTH OF MASSACHUSETTS

DRAWING TITLE:

NEW BEDFORD MARINE COMMERCE TERMINAL INTER-TIDAL AND SUB-TIDAL SAMPLING AS-BUILT LOCATIONS PLAN

Scale: 1"=100'

0 50 100 200 300 FEET

Date	10/28/10
Proj. Mgr.	
Design	CWM
Check	JAB
Drawn	GCD
Job. No.	6615
Last Rev.	2/8/11

Drawing No.

FIG. 1

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PEAT CORER AND WATER COLUMN LOCATION

VIBRACORE AND PEAT CORER SIDE-BY-SIDE LOCATIONS

PEAT CORER ONLY LOCATION

5.6 ppm PEAT CORER OR VIBRACORE LOCATION WITH CONCENTRATION OF PCBs DETECTED IN 0-1 FOOT INTERVAL (PPM = mg/Kg) – VERTICAL DELINEATION, IF ANY, NOTED IN SEPARATE LEADER

PREPARED FOR:

COMMONWEALTH OF MASSACHUSETTS

DRAWING TITLE:

NEW BEDFORD MARINE COMMERCE TERMINAL INTER-TIDAL AND SUB-TIDAL PCB ANALYSIS RESULTS

Scale: 1"=100'

0 50 100 200 300 FEET

Date	10/28/10
Proj. Mgr.	
Design	CWM
Check	JAB
Drawn	GCD
Job. No.	6615
Last Rev.	2/8/11

Drawing No.

FIG. 2

P:\Jobs\6690 NBH_ Phase IV\PLANS\SOUTHTERMINAL_SAMPLING_AND_ANALYSIS_PLAN3-28-11.DWG, 9/23/2011 11:58:21 AM, DWG To PDF.pc3

Table 1A:
PCBs (26 NOAA Congeners) Water Column Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		PCB Congeners - 18 NOAA Congeners Shaded Green (µg/L)																											
Sample Name	Collection Date	Cl2-BZ#5/#8	Cl3-BZ#18	Cl3-BZ#28/#31	Cl4-BZ#44	Cl4-BZ#43/#49	Cl4-BZ#52	Cl4-BZ#66	Cl5-BZ#77	Cl5-BZ#87	Cl5-BZ#101/#84	Cl5-BZ#105	Cl5-BZ#118	Cl7-BZ#126	Cl6-BZ#167/#128	Cl6-BZ#138/#163	Cl6-BZ#153	Cl7-BZ#156	Cl7-BZ#169	Cl7-BZ#170/#190	Cl7-BZ#180	Cl7-BZ#183	Cl7-BZ#184	Cl7-BZ#182/#187	Cl8-BZ#195	Cl9-BZ#206	Cl10-BZ#209	Total PCBs (Summation of all 26 NOAA Congeners analyzed) (µg/L)	Total PCBs (Summation of only the 18 NOAA Congeners - Shaded in Green) (µg/L)
PC13E_01A	12/15/2010	0.0011	0.0011	0.0027	0.001 U	0.0024	0.0045	0.001 U	0.001 U	0.001 U	0.0015	0.001 U	0.0012	0.001 U	0.001 U	0.0012	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0169	0.0145
PC13E_01B	12/15/2010	0.001 U	0.0011	0.0031	0.001 U	0.0028	0.0043	0.0012	0.001 U	0.001 U	0.0024	0.001 U	0.0014	0.001 U	0.001 U	0.0018	0.0014	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0195	0.0167
PC13E_01C	12/15/2010	0.001 U	0.0013	0.0046	0.0011	0.0033	0.0055	0.0018	0.001 U	0.001 U	0.0041	0.001	0.0035	0.001 U	0.001 U	0.0044	0.0031	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0337	0.0304
PC13E_02A	12/15/2010	0.001 U	0.0014	0.0085	0.001 U	0.0025	0.0049	0.0012	0.001 U	0.001 U	0.0018	0.001 U	0.0017	0.001 U	0.001 U	0.002	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0252	0.0227
PC13E_02B	12/15/2010	0.001 U	0.001 U	0.0031	0.001 U	0.0027	0.0048	0.001 U	0.001 U	0.001 U	0.0018	0.001 U	0.0015	0.001 U	0.001 U	0.0014	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.0176	0.0149
PC13E_02C	12/16/2010	0.001 U	0.001 U	0.0012	0.001 U	0.001 U	0.0015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0027	0.0027
PC13E_03A	12/16/2010	0.001 U	0.001 U	0.0012	0.001 U	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0025	0.0025
PC13E_03B	12/16/2010	0.001 U	0.001 U	0.0014	0.001 U	0.001 U	0.0019	0.001 U	0.001 U	0.001 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0044	0.0044
PC13E_03C	12/16/2010	0.001 U	0.0012	0.0024	0.001 U	0.0016	0.0034	0.001 U	0.001 U	0.001 U	0.0014	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0100	0.0084
PC13E_04A	12/16/2010	0.001 U	0.0013	0.0019	0.001 U	0.0016	0.0029	0.001 U	0.001 U	0.001 U	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0090	0.0074
PC13E_04A_D	12/16/2010	0.001 U	0.001 U	0.0014	0.001 U	0.0014	0.0025	0.001 U	0.001 U	0.001 U	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0063	0.0049
PC13E_04B	12/16/2010	0.001 U	0.0011	0.0018	0.001 U	0.0017	0.0033	0.001 U	0.001 U	0.001 U	0.0015	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0094	0.0077
PC13E_04C	12/16/2010	0.001 U	0.0013	0.0014	0.001 U	0.0014	0.0035	0.001 U	0.001 U	0.001 U	0.0012	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0088	0.0074

Notes:
U = Concentration is below the laboratory's method detection limit. One half of the method detection limit is utilized in the summation.
Total PCB concentation is estimated by summing 18 specific NOAA Congeners (highlighted in green) or all 26 NOAA Congeners analyzed. If a constituent was not detected above the Reporting Limit, it was not added to the total.

Table 1B:
Semi-Volatile Organics Water Column Analytical Data
South Terminal CDF
New Bedford, Massachusetts

Semivolatile Organics (μg/L)

Sample Name	Collection Date	N-nitrosodimentylamine	phenol	2-chlorophenol	bis(2-chloroethyl)ether	1,3 diclorobenzene	1,4 diclorobenzene	1,2 diclorobenzene	benzyl alcohol	2-methylphenol (m-cresol)	bis(2-chloroisopropyl)ether	hexachloroethane	N-nitroso-di-n-propylamine	3-and 4- methylphenol (p- and o-cresol	nitrobenzene	isophorone	2-nitrophenol	2,4 dimethylphenol	bis(2-chloroethoxy)methane	2,4-dichlorophenol	2,6-dichlorophenol	1,2,4-trichlorobenzene	naphthalene	benzoic acid	4-chloroaniline
PC13E_01A	12/15/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_01B	12/15/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_01C	12/15/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_02A	12/15/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_02B	12/15/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_02C	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_03A	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_03B	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_03C	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_04A	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_04A_D	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_04B	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U
PC13E_04C	12/16/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U

Sample Name	hexachloro-1,3-butadiene	4-chloro-3-methylphenol	2-methylnaphthalene	haxachlorocyclopentadiene	2,4,6-trichlorophenol	2,4,5-trichlorophenol	2-chloronaphthalene	2-nitroaniline	acenaphthylene	dimethylphthalate	2,6- dinitrotoluene	2,4- dinitrotoluene	acenaphthene	3-nitroaniline	2,4-dinitrophenol	dibenzofuran	4-nitrophenol	fluorene	4-chlorophenyl phenyl ether	diethyl phthalate	4-nitroaniline	4,6-dinitro-2-methylphenol	4-bromophenyl-phenylether	N-nitrosodiphenylamine
PC13E_01A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_01B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_01C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_02A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_02B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_02C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_03A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_03B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_03C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_04A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_04A_D	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_04B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U
PC13E_04C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U

Sample Name	1,2-diphenylhydrazine (azobenzene)	4-bromophenyl phenyl ether	hexachlorobenzene	pentochlorophenol	phenanthrene	anthracene	carbazole	di-n-butylphthalate	fluoranthene	benzidine	pyrene	butylbenzylphthalate	benzo(a)anthracene	chrysene	3,3'-dichlorobenzidine	bis(2-ethylhexyl)phthalate	di-n-octylhthalate	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	indeno(1,2,3-cd)pyrene	dibenz(a.h)anthracene	benzo(g,h,i)perylene
PC13E_01A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	5.0	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_01B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	8.3	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_01C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	7.5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_02A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	3.0	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_02B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	7.7	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_02C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.3 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_03A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.3 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_03B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.5 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_03C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.8	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_04A	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.4 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_04A_D	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.4 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_04B	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.2 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
PC13E_04C	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	2 U	0.5U	0.5U	0.5U	0.5U	0.5U	1.3 B	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U

Notes:
U = Concentration is below the laboratory's method detection limit.
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

Table 1C:
13 Priority Pollutant Metals Water Column Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		13 Priority Pollutant Metals (mg/L)												
Sample Name	Collection Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
PC13E_01A	12/15/2010	0.0005 U	0.002	0.0005 U	0.0028	0.001 U	0.0034	0.0012	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.027
PC13E_01B	12/15/2010	0.0005 U	0.002	0.0005 U	0.0023	0.001	0.0096	0.0054	0.00001 U	0.0025	0.001 U	0.0002 U	0.0002 U	0.046
PC13E_01C	12/15/2010	0.0005 U	0.001	0.0005 U	0.0005	0.001	0.0076	0.0055	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.02
PC13E_02A	12/15/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.003	0.0009	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.024
PC13E_02B	12/15/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0078	0.0015	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.024
PC13E_02C	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0019	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.017
PC13E_03A	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0017	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.021
PC13E_03B	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0016	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.02
PC13E_03C	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0016	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.02
PC13E_04A	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0017	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.019
PC13E_04A_D	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0014	0.0005 U	0.00001 U	0.0006	0.001 U	0.0002 U	0.0002 U	0.02
PC13E_04B	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0015	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.019
PC13E_04C	12/16/2010	0.0005 U	0.001	0.0005 U	0.0005 U	0.001 U	0.0015	0.0005 U	0.00001 U	0.0005 U	0.001 U	0.0002 U	0.0002 U	0.019

Notes:

U = below quntitation limit

Table 1D:
Total Petroleum Hydrocarbon and Turbidity Water Column Analytical Data
South Terminal CDF
New Bedford, Massachusetts

Total Petroleum Hydrocarbons (µg/L)

Sample Name	Collection Date	Diesel Range Organics	Lube Oil Organics	Total Petroleum Hydrocarbons	Turbidity*
PC13E_01A	12/15/2010	50 U	50 U	50 U	0.57
PC13E_01B	12/15/2010	50 U	50 U	50 U	4.29
PC13E_01C	12/15/2010	50 U	50 U	50 U	1.55
PC13E_02A	12/15/2010	50 U	50 U	50 U	0.16
PC13E_02B	12/15/2010	50 U	50 U	50 U	3.28
PC13E_02C	12/16/2010	50 U	50 U N1	80 U N1	2.54
PC13E_03A	12/16/2010	60 U	60 U N1	60 U N1	6.06
PC13E_03B	12/16/2010	80 U	80 U N1	80 U N1	3.49
PC13E_03C	12/16/2010	50 U	150 U N1	150 U N1	0.61
PC13E_04A	12/16/2010	50 U	90 U N1	90 U N1	3.79
PC13E_04A_D	12/16/2010	50 U	90 U N1	90 U N1	N/A
PC13E_04B	12/16/2010	50 U	90 U N1	90 U N1	2.35
PC13E_04C	12/16/2010	50 U	70 U N1	70 U N1	6.08

Notes:
N/A = Not applicable.
U = below quntitation limit
N1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
* - Turbidity measurements made in field via LaMotte 2020 turbidimeter (units are NTU - Nephelometric Turbidity Units).

Table 2A:
PCBs (26 NOAA Congeners) - [PC13 and PC13E Samples]
Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		PCB Congeners - 18 NOAA Congeners Shaded Green (µg/kg)																										
Sample Name	Collection Date	Cl2-BZ#5/#8	Cl3-BZ#18	Cl3-BZ#28/#31	Cl4-BZ#44	Cl4-BZ#43/#49	Cl4-BZ#52	Cl4-BZ#66	Cl5-BZ#77	Cl5-BZ#87	Cl5-BZ#101/#84	Cl5-BZ#105	Cl5-BZ#118	Cl7-BZ#126	Cl6-BZ#167/#128	Cl6-BZ#138/#163	Cl6-BZ#153	Cl7-BZ#156	Cl7-BZ#169	Cl7-BZ#170/#190	Cl7-BZ#180	Cl7-BZ#183	Cl7-BZ#184	Cl7-BZ#182/#187	Cl8-BZ#195	Cl9-BZ#206	Cl10-BZ#209	Estimate of Total PCBs (Summation of 18 NOAA Congeners Multiplied by a Harbor Specific Correction of 2.6) (mg/kg)
NBH_PH4SAP_PC13E_01D	12/17/2010	65	81	440	77	280	330	240	32	140	330	140	390	2.4 U	88	340	270	32	2.4 U	49	44	17	2.4 U	41	3.2	4	3	7.6
NBH_PH4SAP_PC13E_02D	12/16/2010	92	110	410	110	250	320	390	37	140	370	140	410	2.1 U	73	330	220	31	2.1 U	32	35	14	2.1 U	27	3.6	3	2.1 U	8.0
NBH_PH4SAP_PC13E_02A	12/21/2010	45	48	280	39	180	210	130	19	67	210	79	270	10	60	240	190	21	1.3 U	27	29	11	1.3 U	27	2.2	2.8	1.3 U	4.9
NBH_PH4SAP_PC13E_03D	12/16/2010	2.8	10	29	10	22	44	21	0.39 U	28	77	25	65	0.39 U	15	52	46	4.2	0.39 U	4.7	6.8	1.9	0.39 U	3.4	0.39 U	1.5	1.1	1.1
NBH_PH4SAP_PC13E_04D	12/16/2010	140	180	670	120	360	430	540	58	210	500	170	670	12	110	500	310	39	2.8 U	47	57	20	2.8 U	41	4.7	4.2	2.8 U	11.7
NBH_PH4SAP_PC13_01A	12/17/2010	69	85	350	81	240	320	310	39	150	360	130	410	1.8 U	95	330	260	33	1.8 U	39	42	17	1.8 U	34	3	3.4	1.8 U	7.6
NBH_PH4SAP_PC13_02A	12/21/2010	8.7	12	43	9.6	37	54	30	4.1	14	37	11	47	1.7	9.8	44	31	3	0.43 U	4.9	4.8	1.9	0.43 U	4.1	0.43 U	0.43 U	0.43 U	0.91
NBH_PH4SAP_PC13_03A	12/17/2010	58	71	290	67	200	270	260	32	120	300	110	350	1.5 U	79	270	220	27	1.5 U	33	35	14	1.5 U	28	2.5	2.9	1.5 U	6.4
NBH_PH4SAP_PC13_04A	12/21/2010	1.1	2.9	11	2.2	8	12	7.9	1.1	5.2	13	4.6	15	0.31 U	3.6	14	9	1.3	0.31 U	1.2	1.5	0.62	0.31 U	1.4	0.31 U	0.31 U	0.31 U	0.26
NBH_PH4SAP_PC13_05_0-1	2/16/2011	0.59 U	1.4	4.3	2.2	5.3	6.6	3.5	0.59 U	1.5	6.6	1.8	7.4	0.59 U	1.9	5.8	5.8	0.66	0.59 U	0.64	0.81	0.59 U	0.59 U	0.66	0.59 U	0.59 U	0.59 U	0.13
NBH_PH4SAP_PC13_06_0-1	2/16/2011	0.64 U	2.8	14	4.1	8.8	11	6.5	0.64 U	3.5	9.7	3.2	12	0.64 U	2.7	9	7.5	0.64 U	0.64 U	1	0.88	0.64 U	0.64 U	0.95	0.64 U	0.64 U	0.64 U	0.23
NBH_PH4SAP_PC13_07A	12/21/2010	5.9	7.9	32	5.6	19	29	20	2.4	11	27	10	32	0.36 U	6.7	30	20	2.1	0.36 U	3.1	3.3	1.2	0.36 U	3.2	0.36 U	0.36 U	0.36 U	0.61
NBH_PH4SAP_PC13_08A	12/17/2010	160	180	770	140	420	480	610	79	270	680	270	790	3 U	160	610	420	66	3 U	66	67	26	3 U	53	4.4	3.8	3 U	14.2
NBH_PH4SAP_PC13_08_2-3	10/18/2011	6.2	8.5	3.9	38	34	84	33	0.44U	52	82	37	95	0.44U	38	130	49	NA	NA	13	12	5.3	0.44U	6.7	0.44U	4.8	3.7	1.7
NBH_PH4SAP_PC13_08_3-3.3	10/18/2011	0.12 U	0.12 U	0.44	1.2	0.79	3.1	1.00	0.12 U	3.0	5.0	2.8	6.1	0.12 U	1.8	6.6	2.5	NA	NA	0.64	0.51	0.12 U	0.12 U	0.42	0.12 U	0.12 U	0.12 U	0.08
NBH_PH4SAP_PC_09D_0-1	2/16/2011	25	43	160	68	110	150	97	12	52	140	61	160	7.7	37	130	110	13	0.93 U	17	18	6.5	0.93 U	15	1.2	1.9	0.93 U	3.21
NBH_PH4SAP_DUP14*	2/16/2011	14	28	100	40	59	80	60	5.2	27	72	24	80	0.76 U	17	69	58	5.9	0.76 U	12	14	4.6	0.76 U	11	1.3	1.1	0.76 U	1.77
NBH_PH4SAP_PC13_10_0-1	2/16/2011	0.64 U	0.89	2.1	3.1	3.4	4.3	2.4	0.64 U	0.66	4.2	0.97	3.7	0.64 U	0.78	3.4	3.5	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.08
NBH_PH4SAP_PC13_11_0-1	1/19/2011	14	19	51	25	44	79	28	3.7	26	67	18	68	0.33 U	12	48	37	4.2	0.33 U	5.3	5.3	2.4	0.33 U	3.8	0.33 U	0.7	0.46	1.3
NBH_PH4SAP_PC13_14A	12/17/2010	20	29	150	23	110	120	95	14	46	130	33	160	2.4	27	120	97	12	0.78 U	14	16	6.1	0.78 U	13	1.2	1.3	0.78 U	2.7
NBH_PH4SAP_PC13_23A	12/21/2010	0.33 U	1.1	6	1.5	5.4	7.2	3.7	0.33 U	1.5	6.9	1.8	5.7	0.33 U	1.5	5.9	4.7	0.33 U	0.33 U	0.46	0.96	0.33 U	0.33 U	0.65	0.33 U	0.33 U	0.33 U	0.13
NBH_PH4SAP_PC13_32A	12/21/2010	0.38 U	1.2	3.6	0.97	3.8	4.2	3.9	0.38 U	2.2	6.4	2.5	9	0.38 U	2.4	8.5	5.0	0.73	0.38 U	1	1	0.4	0.38 U	0.78	0.38 U	0.38 U	0.38 U	0.13
NBH_PH4SAP_PC13_33A	12/21/2010	0.89	8.6	20.0	5.8	23	32	12	0.62	8.8	33	8.5	27	0.34 U	5.1	23	20	1.6	0.34 U	2.1	3.4	0.93	0.34 U	2.1	0.34 U	0.34 U	0.34 U	0.53

Notes:
U = Concentration is below the laboratory's method detection limit. One half of the method detection limit is utilized in the summation.
Total PCB concentation is estimated by summing 18 specific NOAA Congeners and multiplying by a Harbor Specific Correction factor of 2.6.
This harbor-specific correction is based upon a statistical analysis conducted by USEPA within New Bedford Harbor.
*NBH_PH4SAP_DUP14 is a duplicate sample of sample NBH_PH4SAP_PC_09D_0-1.

Table 2B:
PCBs (26 NOAA Congeners) - [VC Samples]
and Chromium, Copper, and Zinc
Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		PCB Congeners - 18 NOAA Congeners Shaded Green (µg/kg)																												
Sample Name	Collection Date	Cl2-BZ#5/#8	Cl3-BZ#18	Cl3-BZ#28/#31	Cl4-BZ#44	Cl4-BZ#43/#49	Cl4-BZ#52	Cl4-BZ#66	Cl5-BZ#77	Cl5-BZ#87	Cl5-BZ#101/#84	Cl5-BZ#105	Cl5-BZ#118	Cl7-BZ#126	Cl6-BZ#167/#128	Cl6-BZ#138/#163	Cl6-BZ#153	Cl7-BZ#156	Cl7-BZ#169	Cl7-BZ#170/#190	Cl7-BZ#180	Cl7-BZ#183	Cl7-BZ#184	Cl7-BZ#182/#187	Cl8-BZ#195	Cl9-BZ#206	Cl10-BZ#209	Estimate of Total PCBs (Summation of 18 NOAA Congeners Multiplied by a Harbor Specific Correction of 2.6) (mg/kg)	Chromium	Copper	Zinc
NBH_PH4SAP_VC_01_0-1	2/11/2011	49	80	280	110	240	300	200	19	100	290	110	360	12	73	270	210	19	1.3 U	37	37.0	15.0	1.3 U	33	4.4	5.7	1.6 U	6.4	140	310	430
NBH_PH4SAP_VC_01_1-2	2/11/2011	120	140	660	250	330	500	480	62	240	600	240	670	1.2 U	130	530	360	25	1.2 U	62	56	19	1.2 U	36	8	5.3	1.7	12.6	260	440	410
NBH_PH4SAP_VC_01_2-3	2/11/2011	280	390	1400	600	650	1000	720	46	420	750	330	800	2.3 U	160	770	430	51	2.3	74	77	25	2.3 U	52	8.1	9	2.3	20.4	410	610	340
NBH_PH4SAP_VC_01_3-4	2/11/2011	50	76	120	29	53	79	56	1.9	16	42	15	43	0.92	9	26	20	2.2	0.66 U	3.9	3.5	1.2	0.66 U	2.2	1.3	0.79	0.66 U	1.5	23	36	36
NBH_PH4SAP_VC_01_4-5	2/11/2011	21	44	84	26	34	58	34	0.68 U	15	33	11	36	0.84	7.3	24	16	1.6	0.68 U	3	3.1	1.2	0.68 U	2.3	0.68 U	0.68 U	0.68 U	1.0	21	33	39
NBH_PH4SAP_VC_01_5-6	2/11/2011	3.1	5.9	13	2.8	5.2	8.8	5.6	0.57 U	1.6	4.2	1.1	3.4	0.57 U	1	3.5	2.1	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.1	26	14	20
NBH_PH4SAP_VC_02_0-1	2/11/2011	56	95	250	100	160	240	170	8.8	75	210	78	230	1.1 U	51	180	140	20	1.1 U	21	24	6.8	1.1 U	18	2.1	3.3	1.1	4.9	93	200	330
NBH_PH4SAP_DUP4*	2/11/2011	53	81	160	100	190	250	180	0.8 U	120	300	170	350	0.8 U	54	260	190	19	0.8 U	27	25	8.2	0.8 U	18	0.94	2.7	1.2	5.8	94	150	170
NBH_PH4SAP_VC_02_1-2	2/11/2011	320	530	1800	570	740	1000	810	47	360	700	250	680	3.8 U	120	440	310	32	3.8 U	53	54	21.0	3.8 U	35	4.1	5.1	3.8 U	20.0	270	430	270
NBH_PH4SAP_VC_02_2-3	2/11/2011	110	200	320	210	310	670	91	1.6 U	170	260	85	230	6.1	71	270	140	19	1.6 U	28	28	12	1.6 U	17	1.9	3.2	4	7.1	90	190	170
NBH_PH4SAP_VC_02_3-4	2/11/2011	8.6	12	26	16	18	37	12	1.8	17	26	9	25	0.75	6.2	23	14	2.1	0.58 U	1.7	2.2	0.85	0.58 U	1.5	0.73	0.58 U	0.58 U	0.58	11	17	22
NBH_PH4SAP_VC_03_0-1	2/11/2011	38	50	190	72	120	190	120	6.2	79	210	68	230	6.6	43	170	130	12	0.99 U	18	18	6.5	0.99 U	15	1.5	1.5	1.1	4.07	68	180	250
NBH_PH4SAP_DUP8*	2/11/2011	34	45	180	65	110	170	110	6.1	76	190	65	210	7	41	170	120	12	0.94 U	16	17	6.2	0.94 U	14	1.9	1.7	0.94 U	3.8	64	160	230
NBH_PH4SAP_VC_03_1-2	2/11/2011	220	340	1000	430	520	760	880	72	310	670	300	740	1 U	150	550	340	51	1 U	70	65	17	1 U	33	3.3	4.0	1.6	17.05	290	450	300
NBH_PH4SAP_VC_03_2-3	2/11/2011	260	380	450	170	230	430	180	0.8 U	99	170	66	150	5.7	38	140	80	11	0.8 U	17	17	5.4	0.8 U	10	0.95	1.5	0.8 U	5.98	79	140	120
NBH_PH4SAP_VC_03_3-4	2/11/2011	36	68	110	63	77	150	67	1.3	51	74	33	80	3.1	19	73	45	5.3	0.61 U	8	8.2	3	0.61 U	5.8	0.8	0.76	0.61 U	2.19	39	69	58
NBH_PH4SAP_VC_04_0-1	2/11/2011	32	43	160	63	100	140	110	12	61	150	57	190	4.9	31.0	130	97	8.5	0.83 U	11	13	4.1	0.83 U	10	0.83 U	1.2	0.83 U	3.22	57	130	170
NBH_PH4SAP_DUP7*	2/16/2011	54	82	250	110	170	250	160	10	72	210	64	240	4.7	43	160	150	15	1 U	22	24	6.7	1 U	19	2.1	3	3.4	4.8	81	200	300
NBH_PH4SAP_VC_04_1-2	2/11/2011	0.97 U	0.97 U	2.9	16	9.9	46	0.97 U	0.97 U	35	64	30	58	0.97 U	16	54	31	4.2	0.97 U	5.7	4.5	1.4	0.97 U	2	0.97 U	4.5	4.4	0.89	55	240	240
NBH_PH4SAP_VC_04_2-3	2/11/2011	0.99	2.4	11	14	13	51	0.97 U	0.97 U	34	63	27	58	0.97 U	16	62	33	4	0.97 U	4.6	5.3	2	0.97 U	2.5	0.97 U	4.3	3	0.93	60	230	240
NBH_PH4SAP_VC_04_3-4	2/11/2011	0.58 U	0.58 U	2.3	8.9	10	29	0.58 U	0.58 U	13	31	8.2	25	0.58 U	4.8	23	13	1.8	0.58 U	1.8	1.5	0.6	0.58 U	1	0.58 U	0.58 U	0.58 U	0.39	4.6	11	17
NBH_PH4SAP_VC_04_4-4.9	2/11/2011	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.00	4	1.9	8.6
NBH_PH4SAP_VC_05_0-1	2/11/2011	95	110	420	170	210	370	320	0.89 U	190	400	150	420	4.1	77	330	200	28	0.89 U	30	33	11	0.89 U	21	2	2.1	0.91	8.19	130	250	230
NBH_PH4SAP_DUP6*	2/11/2011	46	78	300	120	260	290	190	1.4 U	100	260	100	390	9.1	61	260	240	19	1.4 U	30	33	11	1.4 U	27	2.2	3.8	1.6	6.3	130	300	450
NBH_PH4SAP_VC_05_1-2	2/11/2011	0.59	1.1	2.1	1.9	2.3	4.1	4	0.54 U	1.8	4.3	1.3	4.5	0.54 U	0.89	4.2	2.1	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.035	6.2	6.8	13
NBH_PH4SAP_VC_05_2-2.3	2/11/2011	2.7	4.7	13	6.8	8.9	14	12	0.57 U	6.4	15	6.8	15	0.57 U	3.5	14	8.6	1.1	0.57 U	1.2	1.3	0.57 U	0.57 U	0.84	0.57 U	0.57 U	0.57 U	0.12	11	14	18

Notes:
U = Concentration is below the laboratory's method detection limit. One half of the method detection limit is utilized in the summation (unless all analytes are below the method detection limit, in which case 0 is used).
Total PCB concentation is estimated by summing 18 specific NOAA Congeners and multiplying by a Harbor Specific Correction factor of 2.6.
This harbor-specific correction is based upon a statistical analysis conducted by USEPA within New Bedford Harbor.
* - NBH_PH4SAP_DUP8 is a duplicate of NBH_PH4SAP_VC_03_0-1.
* - NBH_PH4SAP_DUP7 is a duplicate of NBH_PH4SAP_VC_04_0-1.
* - NBH_PH4SAP_DUP6 is a duplicate of NBH_PH4SAP_VC_05_0-1.
* - NBH_PH4SAP_DUP4 is a duplicate of NBH_PH4SAP_VC_02_0-1.

Table 2C:
PCBs (26 NOAA Congeners) - [PC Samples]
Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		PCB Congeners - 18 NOAA Congeners Shaded Green (µg/kg)																									
Sample Name	Collection Date	Cl2-BZ#5/#8	Cl3-BZ#18	Cl3-BZ#28/#31	Cl4-BZ#44	Cl4-BZ#43/#49	Cl4-BZ#52	Cl4-BZ#66	Cl5-BZ#77	Cl5-BZ#87	Cl5-BZ#101/#84	Cl5-BZ#105	Cl5-BZ#118	Cl7-BZ#126	Cl6-BZ#167/#128	Cl6-BZ#138/#163	Cl6-BZ#153	Cl7-BZ#156	Cl7-BZ#169	Cl7-BZ#170/#190	Cl7-BZ#180	Cl7-BZ#183	Cl7-BZ#184	Cl7-BZ#182/#187	Cl8-BZ#195	Cl9-BZ#206	Cl10-BZ#209	Estimate of Total PCBs (Summation of 18 NOAA Congeners Multiplied by a Harbor Specific Correction of 2.6) (mg/kg)
NBH_PH4SAP_PC_01_0-1	2/14/2011	57	87	270	120	220	310	140	16	120	280	99	310	11	63	240	220	19	1.5 U	25	30.0	11.0	1.5 U	29	1.8	3	1.5 U	5.9
NBH_PH4SAP_DUP5*	2/14/2011	40	80	280	110	200	310	160	13	110	290	120	310	15	65	260	240	18	1.5 U	33	41	11	1.5 U	38	3.2	5.5	1.6	6.2
NBH_PH4SAP_PC_02_0-1	2/14/2011	61	100	410	140	270	360	240	31	130	360	120	410	1.4 U	72	310	260	24	1.4 U	38	39	14	1.4 U	32	3.6	5.4	1.7	7.7
NBH_PH4SAP_PC_03_0-1	2/15/2011	51	75	280	98	230	280	170	33	120	310	170	380	1.1 U	86	290	250	31	1.1 U	41	41	14	1.1 U	38	2.3	4.4	1.6	6.7
NBH_PH4SAP_PC_04_0-1	2/16/2011	19	42	79	51	59	120	50	2	55	110	41	100	0.67 U	30	100	68	8.9	0.67 U	12	13	4.8	0.67 U	8.5	0.93	0.9	0.67 U	2.2
NBH_PH4SAP_PC_05_0-1	2/16/2011	14	29	78	34	49	69	49	4.2	22	63	20	67	0.67 U	13	53	49	4.3	0.67 U	10	12	3.6	0.67 U	9.8	0.96	1.1	0.67 U	1.5
NBH_PH4SAP_PC_06_0-1	2/16/2011	8.3	17	52	27	49	81	34	2.9	30	74	25	72	0.77 U	19	65	46	5.6	0.77 U	8.2	7.7	3.3	0.77 U	5.5	1.3	0.77 U	0.79	1.4
NBH_PH4SAP_PC_07_0-1	2/16/2011	29	48	120	54	84	130	67	6.4	34	100	34	120	0.79 U	29	92	71	8.3	0.79 U	10	12	3.7	0.79 U	9.6	0.92	1.6	0.79 U	2.4
NBH_PH4SAP_PC_08_0-1	2/16/2011	11	21	76	25	50	68	44	3.8	25	59	17	61	0.77 U	17	52	39	4	0.77 U	5.6	6.9	2.3	0.77 U	6.3	0.77 U	0.77 U	0.77 U	0.51
NBH_PH4SAP_PC_09_0-1	1/31/2011	69	94	390	130	290	430	240	0.71 U	110	360	260	530	0.71 U	85	300	310	22	0.71 U	38	40	13	0.71 U	34	3.3	3.7	1.8	8.6
NBH_PH4SAP_PC_10_0-1	1/20/2011	47	77	330	110	220	290	190	11	110	280	110	400	0.59 U	73	240	200	26	0.59 U	30	29	8.9	0.59 U	24	2.5	4	1.6	6.3
NBH_PH4SAP_PC_11_0-1	1/20/2011	44	74	270	82	200	230	150	10	69	230	190	270	0.57 U	51	190	170	21	0.57 U	23	21	9.3	0.57 U	19	1.6	4.1	1.3	5.3
NBH_PH4SAP_PC_12_0-1	1/20/2011	48	68	290	97	210	280	170	11	96	280	110	360	0.6 U	63	230	210	27	0.6 U	28	29	9.0	0.6 U	26	2	3.7	1.6	6.0
NBH_PH4SAP_PC_13_0-1	1/20/2011	25	45	200	61	140	200	91	7	47	180	51	190	0.5 U	41	140	120	7.3	0.5 U	18	18	5.5	0.5 U	14	1.2	1.7	1.1	3.6
NBH_PH4SAP_PC_15_0-1	1/20/2011	39	61	260	92	200	270	160	0.47 U	74	250	130	340	0.47 U	50	200	190	18	0.47 U	23	26	8.1	0.47 U	20	1.7	3.4	1.6	5.5
NBH_PH4SAP_PC_16_0-1	1/20/2011	46	120	240	190	180	390	180	22	260	580	210	530	1.3 U	110	460	270	39	1.3 U	47	43	15	1.3 U	25	4.4	6.1	3.3	9.0
NBH_PH4SAP_PC_16_2-3	10/18/2011	0.3U	0.35	0.67	0.86	0.71	1.4	0.73	0.3U	0.97	1.9	0.76	2.1	0.3U	0.49	2.1	0.9	NA	NA	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.03
NBH_PH4SAP_PC_17_0-1	1/20/2011	4.7	9.6	33	12	27	38	21	2.9	12	38	11	45	0.33 U	8.6	39	25	2.5	0.33 U	3.9	4.6	1.5	0.33 U	3.4	0.33 U	0.33 U	0.48	0.8
NBH_PH4SAP_PC_18_0-1	1/20/2011	14	22	64	30	45	74	47	5.3	32	83	35	84	0.34 U	19	67	47	5.7	0.34 U	8.3	7.1	2.3	0.34 U	5	1.1	0.93	0.68	1.6
NBH_PH4SAP_PC_19_0-1	2/16/2011	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	ND
NBH_PH4SAP_PC_21_0-1	1/20/2011	2.4	3.1	14	4.2	9.4	13	6.5	0.33 U	3.8	13	3.4	15	0.33 U	2.7	11	9.1	0.74	0.33 U	1.1	1.2	0.51	0.33 U	1	0.35	0.39	0.48	0.26
NBH_PH4SAP_DUP_1-20*	1/20/2011	2.5	4.1	16	5.3	12	17	9.3	0.91	4.9	16	3.8	18	0.32 U	3	13	11	0.95	0.32 U	1.5	1.4	0.54	0.32 U	1.1	0.32 U	0.32 U	0.32 U	0.12
NBH_PH4SAP_PC_22_0-1	1/19/2011	98	160	520	240	300	500	340	30	220	510	190	570	1.1 U	110	450	280	33	1.1 U	44	43	16	1.1 U	28	3	2.8	1.1	10.6
NBH_PH4SAP_PC_22_2-2.6	10/18/2011	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	0.28U	ND
NBH_PH4SAP_PC_24_0-1	1/19/2011	2.1	2.8	14	3.9	8.5	11	6.1	0.33 U	3.3	10	2.6	12	0.33 U	2.4	9.2	7.6	0.84	0.33 U	0.85	0.88	0.36	0.33 U	0.83	0.33 U	0.33 U	0.33 U	0.23
NBH_PH4SAP_DUP2*	1/19/2011	2.1	2.8	15	4.4	9.2	13	6.3	0.33 U	3.3	11	3.1	14	0.33 U	2.3	9.7	8.6	0.73	0.33 U	1	1.1	0.48	0.33 U	0.97	0.33 U	0.33 U	0.33 U	0.25
NBH_PH4SAP_PC_25_0-1	1/19/2011	75	100	340	140	210	320	230	12	150	350	150	370	0.49 U	49	280	200	18	0.49 U	33	31	9.9	0.49 U	20.0	2.3	3.8	1.3	7.0
NBH_PH4SAP_PC_26_0-1	1/19/2011	200	250	960	350	500	670	760	140	370	850	340	1100	0.61 U	190	770	490	68	0.61 U	79	85	27	0.61 U	57	5.2	8.0	2.9	18.6
NBH_PH4SAP_PC_26_2-3	10/18/2011	0.3U	0.44	1	0.78	0.74	1.3	0.97	0.3U	0.76	1.7	0.63	1.7	0.3U	0.53	1.7	0.77	NA	NA	0.3U	0.3U	0.3U	0.3U	0.39	0.3U	0.3U	0.3U	0.03
NBH_PH4SAP_PC_27_0-1	2/16/2011	0.63 U	3.1	9.7	3.1	6.6	9.5	5.4	0.63 U	2.2	8.2	2.1	8	0.63 U	1.8	6	6.2	0.63 U	0.63 U	0.63 U	0.72	0.63 U	0.63 U	0.68	0.63 U	0.63 U	0.63 U	0.17
NBH_PH4SAP_PC_28_0-1	2/16/2011	1.9	3.9	15	4.8	8.8	14	8.5	0.68 U	3.7	13	3.6	14	0.68 U	3.8	13	10	1	0.68 U	1.5	1.5	0.68 U	0.68 U	1.2	0.68 U	0.68 U	0.68 U	0.29
NBH_PH4SAP_PC_29_0-1	1/19/2011	210	200	810	250	430	550	590	96	280	710	260	840	0.58 U	170	650	440	71	0.58 U	71	70	25	0.58 U	51	5.9	6.7	2	15.3
NBH_PH4SAP_PC_29_2-3	10/18/2011	0.69	1.8	1.7	24	20	63	18	0.46U	41	72	30	81	0.46U	50	170	37	NA	NA	11	14	4.7	0.46U	9.5	0.46U	12	8.3	1.6
NBH_PH4SAP_PC_29_3-4	10/18/2011	0.15 U	0.15 U	0.15 U	2.40	1.70	7.30	1.80	0.15 U	6.90	12.00	5.30	15.00	0.15 U	3.40	13.00	5.70	NA	NA	1.30	0.79	0.44	0.15 U	0.31	0.15 U	0.32	0.28	0.18
NBH_PH4SAP_PC_30_0-1	1/19/2011	58	83	270	120	200	330	180	5.4	170	360	120	380	0.49 U	66	300	200	26	0.49 U	31	28	10	0.49 U	21	2.2	3.4	1.3	6.6
NBH_PH4SAP_PC_31_0-1	1/19/2011	150	140	510	170	300	400	360	41	190	460	160	580	0.58 U	100	370	300	33	0.58 U	42	44	13	0.58 U	29	3.6	4.4	2	9.9
NBH_PH4SAP_DUP1*	1/19/2011	150	170	530	180	310	420	380	39	190	480	170	600	0.6 U	100	380	310	35	0.6 U	42	44	14	0.6 U	29	5.3	3.8	2.2	10.4
NBH_PH4SAP_PC_34_0-1	1/18/2011	9.3	25	51	60	68	160	49	1.3	98	200	68	200	0.45 U	42	170	110	15	0.45 U	15	16	6	0.45 U	8.6	0.45 U	1.8	0.72	3.1
NBH_PH4SAP_PC_35_0-1	1/19/2011	68	72	270	90	170	230	190	25	95	270	110	300	0.42 U	63	230	170	21	0.42 U	26	26	8	0.42 U	18	1.5	2.8	2.2	5.6
NBH_PH4SAP_PC_36_0-1	2/16/2011	0.58 U	0.58 U	0.61	0.58 U	0.6	1.1	0.58 U	0.58 U	0.7	4	0.58 U	3.2	0.58 U	1.2	3.9	4.1	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.06
NBH_PH4SAP_PC_37_0-1	1/19/2011	22	25	59	25	48	76	38	3.6	24	67	21	66	0.35 U	13	47	38	3.8	0.35 U	5.7	5	2.2	0.35 U	4.1	0.86	0.52	0.77	1.3
NBH_PH4SAP_PC_38_0-1	1/18/2011	11	21	72	47	56	130	39	4.4	58	130	44	130	0.45 U	36	150	64	11	0.45 U	13	12	3.9	0.45 U	7.9	0.94	1.8	1.1	2.4
NBH_PH4SAP_PC_39_0-1	1/18/2011	130	140	480	180	270	330	400	0.54 U	170	420	170	520	0.54 U	67	300	240	24	0.54 U	30	31	12	0.54 U	24	2.3	2.8	1.3	9.0
NBH_PH4SAP_PC_40_0-1	1/18/2011	200	170	820	230	400	540	550	76	260	660	330	920	1.8 U	150	570	440	53	1.8 U	56	64	20	1.8 U	47	5.3	5.3	1.8 U	15.0
NBH_PH4SAP_PC_40_1-2.1	10/18/2011	3.6	5.8	10	9.3	9.7	17	12	0.3U	12	24	9	24	0.46	6.6	26	11	NA	NA	2.3	2.3	1.1	0.3U	1.9	0.3U	0.3U	0.3U	0.43
NBH_PH4SAP_PC_41_0-1	1/19/2011	30	33	100	33	61	91	48	3.8	26	85	26	90	0.37 U	14	63	47	5.4	0.37 U	6.2	6.8	2.9	0.37 U	5	0.37 U	0.79	0.37 U	1.8
NBH_PH4SAP_PC_42_0-1	2/16/2011	15	23	84	25	43	62	30	2.8	14	44	16	52	0.75 U	11	38	31	3.6	0.75 U	4.6	5.1	1.8	0.75 U	4.1	0.75 U	0.75 U	0.75 U	1.2

Notes:
ND = Not detected at the Method Detection Limits noted.
U = Concentration is below the laboratory's method detection limit. One half of the method detection limit is utilized in the summation (unless all analytes are below the method detection limit, in which case 0 is used).
Total PCB concentation is estimated by summing 18 specific NOAA Congeners and multiplying by a Harbor Specific Correction factor of 2.6.
This harbor-specific correction is based upon a statistical analysis conducted by USEPA within New Bedford Harbor.
* - NBH_PH4SAP_DUP5 is a duplicate of NBH_PH4SAP_PC_01_0-1.
* - NBH_PH4SAP_DUP1-20 is a duplicate of NBH_PH4SAP_PC_21_0-1.
* - NBH_PH4SAP_DUP2 is a duplicate of NBH_PH4SAP_PC_24_0-1.
* - NBH_PH4SAP_DUP1 is a duplicate of NBH_PH4SAP_PC_31_0-1.

Table 2D:
Semi-Volatile Organics Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

Semivolatile Organics (mg/kg)

Sample Name	Collection Dat	N-nitrosodimentylamine	phenol	2-chlorophenol	bis(2-chloroethyl)ether	1,3 diclorobenzene	1,4 diclorobenzene	1,2 diclorobenzene	benzyl alcohol	2-methylphenol (m-cresol)	bis(2-chloroisopropyl)ether	hexachloroethane	N-nitroso-di-n-propylamine	3-and 4- methylphenol (p- and o-cresol	nitrobenzene	isophorone	2-nitrophenol	2,4 dimethylphenol	bis(2-chloroethoxy)methane	2,4-dichlorophenol	2,6-dichlorophenol	1,2,4-trichlorobenzene	naphthalene
NBH_PH4SAP_PC13E_01D	12/17/2010	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U
NBH_PH4SAP_PC13E_02D	12/16/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13E_02A	12/21/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC13E_03D	12/16/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13E_04D	12/16/2010	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U
NBH_PH4SAP_PC13_01A	12/17/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC13_02A	12/21/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_03A	12/17/2010	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U
NBH_PH4SAP_PC13_04A	12/21/2010	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_PC13_07A	12/21/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_08A	12/17/2010	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC_09D 0-1	2/16/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_DUP14*	2/16/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_PC13_14A	12/17/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_23A	12/21/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_32A	12/21/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_33A	12/21/2010	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U

Sample Name	Collection Dat	benzoic acid	4-chloroaniline	hexachloro-1,3-butadiene	4-chloro-3-methylphenol	2-methylnaphthalene	haxachlorocyclopentadiene	2,4,6-trichlorophenol	2,4,5-trichlorophenol	2-chloronaphthalene	2-nitroaniline	acenaphthylene	dimethylphthalate	2,6- dinitrotoluene	2,4- dinitrotoluene	acenaphthene	3-nitroaniline	2,4-dinitrophenol	dibenzofuran	4-nitrophenol	fluorene	4-chlorophenyl phenyl ether	diethyl phthalate	4-nitroaniline
NBH_PH4SAP_PC13E_01D	12/17/2010	6U	0.6U	0.6U	0.6U	0.6U	1U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	1U	0.6U	0.6U	1U	0.6U	1U	0.6U	0.6U	0.6U	0.6U
NBH_PH4SAP_PC13E_02D	12/16/2010	3U	0.3U	0.3U	0.3U	0.3U	0.7U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.7U	0.3U	0.3U	0.7U	0.3U	0.7U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13E_02A	12/21/2010	5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	1U	0.5U	1U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC13E_03D	12/16/2010	3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.6U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13E_04D	12/16/2010	4U	0.4U	0.4U	0.4U	0.4U	0.9U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.9U	0.4U	0.4U	0.9U	0.4U	0.9U	0.4U	0.4U	0.4U	0.4U
NBH_PH4SAP_PC13_01A	12/17/2010	5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	1U	0.5U	1U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC13_02A	12/21/2010	3U	0.3U	0.3U	0.3U	0.3U	0.7U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.7U	0.3U	0.3U	0.7U	0.3U	0.7U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_03A	12/17/2010	4U	0.4U	0.4U	0.4U	0.4U	0.8U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.8U	0.4U	0.4U	0.8U	0.4U	0.8U	0.4U	0.4U	0.4U	0.4U
NBH_PH4SAP_PC13_04A	12/21/2010	2U	0.2U	0.2U	0.2U	0.2U	0.5U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.5U	0.2U	0.2U	0.5U	0.2U	0.5U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_PC13_07A	12/21/2010	3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.6U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_08A	12/17/2010	5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U	1U	0.5U	1U	0.5U	0.5U	0.5U	0.5U
NBH_PH4SAP_PC_09D 0-1	2/16/2011	2U	0.2U	0.2U	0.2U	0.2U	2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.4U	0.2U	0.2U	0.4U	0.2U	0.4U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_DUP14*	2/16/2011	2U	0.2U	0.2U	0.2U	0.2U	2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.3U	0.2U	0.3U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_PC13_14A	12/17/2010	3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.6U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_23A	12/21/2010	3U	0.3U	0.3U	0.3U	0.3U	0.5U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.5U	0.3U	0.3U	0.5U	0.3U	0.5U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_32A	12/21/2010	3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.6U	0.3U	0.3U	0.6U	0.3U	0.6U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_33A	12/21/2010	3U	0.3U	0.3U	0.3U	0.3U	0.5U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.5U	0.3U	0.3U	0.5U	0.3U	0.5U	0.3U	0.3U	0.3U	0.3U

Sample Name	Collection Dat	4,6-dinitro-2-methylphenol	4-bromophenyl-phenylether	N-nitrosodiphenylamine	1,2-diphenylhydrazine (azobenzene)	4-bromophenyl phenyl ether	hexachlorobenzene	pentochlorophenol	phenanthrene	anthracene	carbazole	di-n-butylphthalate	fluoranthene	benzidine	pyrene	butylbenzylphthalate	benzo(a)anthracene	chrysene	3,3'-dichlorobenzidine	bis(2-ethylhexyl)phthalate	di-n-octylhthalate	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	indeno(1,2,3-cd)pyrene	dibenz(a.h)anthracene	benzo(g,h,i)perylene
NBH_PH4SAP_PC13E_01D	12/17/2010	3U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	1.2	6U	1.6	0.6U	0.7	0.8	0.6U	1.8	0.6U	0.8	0.7	0.7	0.7	0.6U	0.6U
NBH_PH4SAP_PC13E_02D	12/16/2010	2U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3	0.7	3U	1	1.4	0.4	0.4	0.3U	1	0.3U	0.7	0.4	0.4	0.3	0.3U	0.4
NBH_PH4SAP_PC13E_02A	12/21/2010	3U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5	0.5U	0.5U	0.5U	1.1	5U	1.3	0.5U	0.6	0.7	0.5U	1.1	0.5U	0.8	0.6	0.6	0.6	0.5U	0.5U
NBH_PH4SAP_PC13E_03D	12/16/2010	2U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	1.4	0.4	0.3U	0.3U	1.5	3U	2.5	0.3U	1	1.1	0.4	0.3U	0.3U	0.7	0.5	0.5	0.8	0.3U	0.6
NBH_PH4SAP_PC13E_04D	12/16/2010	2U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.9	4U	1.1	0.4U	0.5	0.5	0.4U	1.3	0.4U	0.6	0.5	0.5	0.4U	0.4U	0.4U
NBH_PH4SAP_PC13_01A	12/17/2010	2U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.7	5U	1.1	0.5U	0.5	0.6	0.5U	1.2	0.5U	0.6	0.5	0.5	0.5U	0.5U	0.5U
NBH_PH4SAP_PC13_02A	12/21/2010	2U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.5	3U	0.5	0.3U	0.3U	0.3	0.3U	0.5	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_03A	12/17/2010	2U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.5	0.4U	0.4U	0.4U	1.3	4U	1.8	0.4U	0.7	0.8	0.4U	1	0.4U	0.8	0.7	0.7	0.5	0.4U	0.4U
NBH_PH4SAP_PC13_04A	12/21/2010	1U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
NBH_PH4SAP_PC13_07A	12/21/2010	1U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_08A	12/17/2010	2U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5	0.5U	0.5U	0.5U	1.2	5U	1.4	0.5U	0.7	0.8	0.5U	1.6	0.5U	0.7	0.7	0.7	0.5	0.5U	0.5U
NBH_PH4SAP_PC_09D 0-1	2/16/2011	0.9U	0.2U	0.2U	0.2U	0.2U	0.2U	0.4U	0.2	0.2U	0.2U	0.3	0.7	2U	0.7	0.2U	0.4	0.5	0.4U	2.6	0.2U	0.5	0.3	0.3	0.4	0.2U	0.4
NBH_PH4SAP_DUP14*	2/16/2011	0.8U	0.2U	0.2U	0.2U	0.2U	0.2U	0.3U	0.2	0.2U	0.2U	0.2U	0.6	0.6U	0.6	0.2U	0.3	0.3	0.3U	0.4	0.2U	0.3	0.2	0.2	0.3	0.2U	0.2
NBH_PH4SAP_PC13_14A	12/17/2010	2U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.6	0.3U	0.3U	0.3U	0.8	3U	1.2	0.3U	0.6	0.7	0.3U	3.3	0.3U	0.5	0.4	0.4	0.3	0.3U	0.3U
NBH_PH4SAP_PC13_23A	12/21/2010	1U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_32A	12/21/2010	2U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U
NBH_PH4SAP_PC13_33A	12/21/2010	1U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.5	3U	0.4	0.3U	0.3U	0.3U	0.3U	0.3	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U	0.3U

Notes:
U = Concentration is below the laboratory's method detection limit.
*NBH_PH4SAP_DUP14 is a duplicate sample of sample NBH_PH4SAP_PC_09D_0-1.

Table 2E:
13 Priority Pollutant Metals Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

		13 Priority Pollutant Metals (mg/kg)												
Sample Name	Collection Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
NBH_PH4SAP_PC13E_01D	12/17/2010	0.3 B (0.31)	11	0.74	2.6	170	380	220	0.6	25	1	3.3	0.42	460
NBH_PH4SAP_PC13E_02D	12/16/2010	1.2 B (0.31) J5 J8	6.1	0.38	4.1	140	270	120	0.34	21	0.55	3.3	0.22	270
NBH_PH4SAP_PC13E_02A	12/21/2010	0.28 B (0.31)	9.2	0.6	1.7	120	300	140	0.45	20	0.81	2.1	0.33	390
NBH_PH4SAP_PC13E_03D	12/16/2010	0.06 U	4.8	0.33	0.5	35	110	63	0.29	8.8	0.39	0.46	0.16	120
NBH_PH4SAP_PC13E_04D	12/16/2010	0.09 U	8.6	0.53	3.6	190	360	150	0.56	26	0.91	2.7	0.32	330
NBH_PH4SAP_PC13_01A	12/17/2010	0.24 B (0.31)	8.1	0.56	2.3	140	310	140	0.45	20	0.8	2.5	0.32	360
NBH_PH4SAP_PC13_02A	12/21/2010	0.097 B (0.31)	4.1	0.26	1.4	39	150	46	0.22	11	0.25	0.52	0.087	210
NBH_PH4SAP_PC13_03A	12/17/2010	0.23 B (0.31)	7.4	0.47	2.4	110	280	160	0.38	19	0.66	2	0.26	340
NBH_PH4SAP_PC13_04A	12/21/2010	0.05 U	1.6	0.076	0.14	9.3	21	11	0.04	2.6	0.1 U	0.11	0.068	30
NBH_PH4SAP_PC13_07A	12/21/2010	0.05 U	1.9	0.11	0.35	22	56	20	0.07	3.8	0.12	0.27	0.071	67
NBH_PH4SAP_PC13_08A	12/17/2010	0.26 B (0.31)	9.1	0.61	7.8	300	560	200	0.6	35	0.9	3.1	0.35	440
NBH_PH4SAP_PC_09D_0-1	2/16/2011	0.32	5.7	0.3	1.1	64	140	62	0.4	10	0.47	0.78	0.16	190
NBH_PH4SAP_DUP14*	2/16/2011	0.22	4	0.24	0.73	42	99	47	0.23	7.8	0.28	0.43	0.11	120
NBH_PH4SAP_PC13_14A	12/17/2010	0.14 B (0.31)	4.9	0.33	1.2	66	170	74	0.19	13	0.4	1	0.16	270
NBH_PH4SAP_PC13_23A	12/21/2010	0.05 U	1 B (0.23)	0.07	0.09	10	23	11	0.02	2.3	0.1 U	0.13	0.1 U	31
NBH_PH4SAP_PC13_32A	12/21/2010	0.05 U	0.9 B (0.23)	0.09	0.05 U	6.2	9.2	15	0.02 U	2.7	0.1 U	0.053	0.05 U	16
NBH_PH4SAP_PC13_33A	12/21/2010	0.05 U	1.6	0.12	0.28	17	46	23	0.06	3.5	0.1 U	0.22	0.065	56

Notes:

U = below quntitation limit

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

J5 = Estimate. MS %R below limit.

J8 = Estimate. Dup % RR above limit.

*NBH_PH4SAP_DUP14 is a duplicate sample of sample NBH_PH4SAP_PC_09D_0-1.

Table 2F:
Total Petroleum Hydrocarbons Sediment Analytical Data
South Terminal CDF
New Bedford, Massachusetts

Total Petroleum Hydrocarbons (mg/kg)

Sample Name	Collection Date	Diesel Range Organics	Lube Oil Range Organics	Total Petroleum Hydrocarbons
NBH_PH4SAP_PC13E_01D	12/17/2010	50 U N1	1700 N2	50 U N1
NBH_PH4SAP_PC13E_02D	12/16/2010	20 U N1	1200 N2	20 U N1
NBH_PH4SAP_PC13E_02A	12/21/2010	20 U N1	100 N2	20 U N1
NBH_PH4SAP_PC13E_03D	12/16/2010	10 U N1	430 N2	12 U N1
NBH_PH4SAP_PC13E_04D	12/16/2010	60 U N1	1500 N2	60 U N1
NBH_PH4SAP_PC13_01A	12/17/2010	40 U N1	1400 N2	40 U N1
NBH_PH4SAP_PC13_02A	12/21/2010	7 U N1	260 N2	7 U N1
NBH_PH4SAP_PC13_03A	12/17/2010	25 U N1	1000 N2	25 U N1
NBH_PH4SAP_PC13_04A	12/21/2010	4 U	72 N2	4 U
NBH_PH4SAP_PC13_07A	12/21/2010	20 U N1	140 N2	20 U N1
NBH_PH4SAP_PC13_08A	12/17/2010	90 U N1	2500 N2	90 U N1
NBH_PH4SAP_PC_09D_0-1	2/16/2011	14 U N1	160 N2	14 U N1
NBH_PH4SAP_DUP14*	2/16/2011	7 U N1	90 N2	7 U N1
NBH_PH4SAP_PC13_14A	12/17/2010	40 U N1	800 N2	40 U N1
NBH_PH4SAP_PC13_23A	12/21/2010	15 U N1	44 N2	15 U N1
NBH_PH4SAP_PC13_32A	12/21/2010	15 U N1	110 N2	15 U N1
NBH_PH4SAP_PC13_33A	12/21/2010	20 U N1	140 N2	20 U N1

Notes:

U = below quntitation limit

N1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

N2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

*NBH_PH4SAP_DUP14 is a duplicate sample of sample NBH_PH4SAP_PC_09D_0-1.

Sample Date: 12/15/10
Log Date: 12/15/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2690219
Location:	South Terminal	6690.009	E: 816017
Corrected Water Depth (MLW):		Total Boring Depth: 5.0'	
Casing Type:	N/A	Time: 13:00	Boring No:
Casing Dia:	2"	Recovery Length: 5.0'	NBH_PH4SAP_PC_01
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, trace human hair, trace leaves, trace trash. Duplicate Collected: DUP-5	
2.0	1-2	N/A	12/12	Black organic SILT.	
3.0	2-3	N/A	12/12	Black organic SILT.	
4.0	3-4	N/A	12/12	Black organic SILT and interbedded grey inorganic silt.	
5.0	4-5	N/A	12/12	Black organic SILT and interbedded grey inorganic silt. Refusal at 5.1'	

Comments:

Sample Date: 2/14/2011
Log Date: 2/14/2011

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689865
Location:	South Terminal	6690.009	E: 816107
Corrected Water Depth (MLW):		Total Boring Depth: 2.8'	
Casing Type:	N/A	Time: 14:15	Boring No:
Casing Dia:	2"	Recovery Length: 2.8'	NBH_PH4SAP_PC_02
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, trace shell hash.	
2.0	1-2	N/A	12/12	Black organic SILT.	
2.8	2-2.8	N/A	9.6/9.6	Black organic SILT, some fine to coarse sand.	

Comments:

Sample Date: 2/14/2011
Log Date: 2/14/2011

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689635
Location:	South Terminal	6690.009	E: 816175
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:	N/A	Time: 14:15	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC_03
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, trace shell hash. Duplicate Collected: DUP-9	
2.0	1-2	N/A	12/12	Black to dark gray organic SILT, trace shell hash, trace fine sand.	

Comments:

Sample Date: 2/14/2011
Log Date: 2/14/2011

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689153
Location:	South Terminal	6690.009	E: 816199
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:	N/A	Time: 9:31	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_04
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, some to little fine to coarse sand, trace shell hash. Duplicate Collected: DUP-10	

Comments:

Sample Date: 2/14/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689405
Location:	South Terminal	6690.009	E: 816220
Corrected Water Depth (MLW):		Total Boring Depth: 1.5'	
Casing Type:		Time: 9:58	Boring No:
Casing Dia:	2"	Recovery Length: 1.5'	NBH_PH4SAP_PC_05
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black to dark grey organic SILT, trace fine sand, trace shell hash. Duplicate Collected: DUP-11	
1.5	1-1.5	N/A	6/6	Dark grey organic SILT, some fine to coarse sand.	

Comments:

Sample Date: 2/14/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689028
Location:	South Terminal	6690.009	E: 816226
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:37	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_06
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, little fine to coarse sand, trace shell hash. Duplicate Collected: DUP-13	

Comments:

Sample Date: 2/14/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2689056
Location:	South Terminal	6690.009	E: 816326
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:08	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_07
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, little fine to coarse sand, trace shell hash.	

Comments:

Sample Date: 2/14/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2688910
Location:	South Terminal	6690.009	E: 816245
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 12:16	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_08
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT, little fine to coarse sand, trace shell hash.	

Comments:

Sample Date:1/19/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2688942
Location:	South Terminal	6690.009	E: 816354
Corrected Water Depth (MLW):		Total Boring Depth: 2.8'	
Casing Type:		Time: 15:00	Boring No:
Casing Dia:	2"	Recovery Length: 2.8'	NBH_PH4SAP_PC_09
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	12/12	Black organic SILT, some shell hash.	
2.8	1-2.8	N/A	21.6/21.6	Black and dark gray organic SILT, band of dark grey sand. (less than 0.1' thick) at 1.8'.	

Comments:

Sample Date:1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688819
Location:	South Terminal	6690.009	E: 816383
Corrected Water Depth (MLW):		Total Boring Depth: 3.0'	
Casing Type:		Time: 14:40	Boring No:
Casing Dia:	2"	Recovery Length: 3.0'	NBH_PH4SAP_PC_10
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
2.8	0-2.8	N/A	33.6/33.6	Black organic SILT.	
3.0	2.8-3	N/A	2.4/2.4	Dark fray fine to medium SAND, little organic silt.	

Comments:

Sample Date:1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688671
Location:	South Terminal	6690.009	E: 816288
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 14:00	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_11
Drill Co:	N/A	Method: Ponar Dredge	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	N/A	Black organic SILT, little debris, trace shell hash.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688604
Location:	South Terminal	6690.009	E: 816546
Corrected Water Depth (MLW):		Total Boring Depth: 3.5'	
Casing Type:		Time: 11:25	Boring No:
Casing Dia:	2"	Recovery Length: 3.5'	NBH_PH4SAP_PC_13
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	36/36	Black organic SILT and SHELL HASH.	
2.0	1-2	N/A	36/36	Black organic SILT, little shell hash.	
3.0	2-3	N/A	36/36	Interbedded black and dark gray organic SILT, trace shell hash.	
3.5	3-3.5	NA	6/6	Interbeded black and dark gray, organic SILT.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

APEX

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688590
Location:	South Terminal	6690.009	E: 816445
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:48	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_12
Drill Co:	N/A	Method: Ponar Dredge	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	N/A	Black organic SILT, some rope and debris, trace shell hash.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688441
Location:	South Terminal	6690.009	E: 816351
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:48	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_15
Drill Co:	N/A	Method: Ponar Dredge	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	N/A	Black organic SILT, some shell hash.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688471
Location:	South Terminal	6690.009	E: 816474
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:25	Boring No:
Casing Dia:	2"	Recovery Length: 1.0'	NBH_PH4SAP_PC_16
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	0 to 0.8 feet: Black organic SILT, trace shell hash. 0.8 feet to 1 foot: Dark olive-grey organic SILT. Refusal at 1 foot.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688328
Location:	South Terminal	6690.009	E: 816384
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:09	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_17
Drill Co:	N/A	Method: Ponar Dredge	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Black, organic SILT, and fine sand, trace shell hash	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688379
Location:	South Terminal	6690.009	E: 816614
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 10:35	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_18
Drill Co:	N/A	Method: PONAR	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Dark Grey to Black organic SILT, some fine sand , grades to dark grey fine sand.	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688121
Location:	South Terminal	6690.009	E: 816152
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_19
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Grey, fine SAND, little shell hash.	

Comments:

Sample Date:1/20/11
Log Date: 1/20/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688202
Location:	South Terminal	6690.009	E: 816417
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 10:19	Boring No:
Casing Dia:	NA	Recovery Length: 1.0'	NBH_PH4SAP_PC_21
Drill Co:	N/A	Method: PONAR	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Dark Grey to Grey fine SAND linttle to some organic silt. Duplicate Sample Collected: DUP 1-20	

Comments:

APEX

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688275
Location:	South Terminal	6690.01	E: 816644
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:		Time: 13:35 to 13:53	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC_22
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-2	N/A	24/24	Dark Grey to Grey, SILT, trace fine sand, strong odor. Brown varving from 1 to 2 feet	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688096
Location:	South Terminal	6690.01	E: 816444
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 14:27	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_24
Drill Co:	N/A	Method: Ponar Sampler	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Grey to Tan SAND, little odor. Duplicate Collected: DUP-2	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688120
Location:	South Terminal	6690.01	E: 816562
Corrected Water Depth (MLW):		Total Boring Depth: 1.5'	
Casing Type:		Time: 14:00	Boring No:
Casing Dia:	2"	Recovery Length: 1.5'	NBH_PH4SAP_PC_25
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1.5	N/A	18/18	Dark Grey, SILT, little shell hash, trace sand.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688156
Location:	South Terminal	6690.01	E: 816667
Corrected Water Depth (MLW):		Total Boring Depth: 4.0'	
Casing Type:		Time: 13:35	Boring No:
Casing Dia:	2"	Recovery Length: 4.0'	NBH_PH4SAP_PC_26
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3	N/A	36/36	Dark Grey, SILT, trace fine sand, strong odor.	
	3-4	N/A	12/12	Dark Grey, SILT, trace fine sand, strong odor.	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687835
Location:	South Terminal	6690.009	E: 816210
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_27
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Dark grey, fine SAND, little silt, trace shell hash.	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687875
Location:	South Terminal	6690.009	E: 816359
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_28
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Dark grey, fine SAND, little silt, trace shell hash.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688005
Location:	South Terminal	6690.01	E: 816593
Corrected Water Depth (MLW):		Total Boring Depth: 4.5'	
Casing Type:		Time: 12:59	Boring No:
Casing Dia:	2"	Recovery Length: 4.5'	NBH_PH4SAP_PC_29
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3	N/A	36/36	Dark Grey, SILT, trace fine sand, strong odor.	
	3-4.5	N/A	18/18	Dark Grey, SILT, trace fine sand, strong odor.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687863
Location:	South Terminal	6690.01	E: 816505
Corrected Water Depth (MLW):		Total Boring Depth: 6.5'	
Casing Type:		Time: 11:41	Boring No:
Casing Dia:	2"	Recovery Length: 6.5'	NBH_PH4SAP_PC_30
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3'	N/A	36/36	Grey SILT, little/trace sand	
	3-6'	N/A	36/36	Grey SILT, little/trace sand	
	6-6.5	N/A	6/6	Grey SILT, little/trace sand	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687921
Location:	South Terminal	6690.01	E: 816737
Corrected Water Depth (MLW):		Total Boring Depth: 3'	
Casing Type:		Time: 12:36	Boring No:
Casing Dia:	2"	Recovery Length: 3'	NBH_PH4SAP_PC_31
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	24/24	Dark Grey, SILT, trace fine sand, strong odor. Duplicate Collected: DUP-1	
	1-3	N/A	12/12	Dark Grey, SILT, trace fine sand, strong odor. Shell hash and coarse lense at 2'	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687604
Location:	South Terminal	6690.009	E: 816090
Corrected Water Depth (MLW):		Total Boring Depth: 3.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	3"	Recovery Length: 3.0'	NBH_PH4SAP_PC13_32
Drill Co:	N/A	Method: Hand Auger	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Coarse Sand with root and gravel	
	1-2	N/A	12/12	coarse sand grey	
	2-3	N/A	12/12	fine sand and inorganic silts	

Comments:

Sample Date: 1/18/11
Log Date: 1/18/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687753
Location:	South Terminal	6690.01	E: 816533
Corrected Water Depth (MLW):		Total Boring Depth: 4.8'	
Casing Type:		Time: 13:00	Boring No:
Casing Dia:	2"	Recovery Length: 4.8'	NBH_PH4SAP_PC_34
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3	N/A	36/36	Grey to Black SILT, trace sand, heavy organic odor.	
	3-4.8	N/A	21.8/21.8	Grey to Black SILT, trace sand, heavy organic odor.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687806
Location:	South Terminal	6690.01	E: 816767
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 9:27	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_35
Drill Co:	N/A	Method: Ponar Sampler	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Black SILT, trace sand, heavy organic odor. Shell hash in sample.	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687558
Location:	South Terminal	6690.009	E: 816160
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_36
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Grey, fine SAND, some medium to coarse sand, little fine to coarse gravel, trace shell hash.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687542
Location:	South Terminal	6690.01	E: 816283
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:16	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_37
Drill Co:	N/A	Method: Ponar Sampler	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Brown SAND.	

Comments:

Sample Date: 1/18/11
Log Date: 1/18/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687638
Location:	South Terminal	6690.01	E: 816554
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 12:27	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_38
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Grey to Black SILT, trace sand, heavy organic odor.	

Comments:

Sample Date: 1/18/11
Log Date: 1/18/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687663
Location:	South Terminal	6690.01	E: 816671
Corrected Water Depth (MLW):		Total Boring Depth: 5.0'	
Casing Type:		Time: 13:51	Boring No:
Casing Dia:	2"	Recovery Length: 5.0'	NBH_PH4SAP_PC_39
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3	N/A	36/36	Grey to Black SILT, trace sand, heavy organic odor.	
	3-5	N/A	24/24	Grey to Black SILT, trace sand, heavy organic odor.	

Comments:

Sample Date: 1/18/11
Log Date: 1/18/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687707
Location:	South Terminal	6690.01	E: 816766
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:		Time: 14:21	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC_40
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-2	N/A	24/24	Black to Grey SILT, trace sand, heavy organic odor. Shell hash from 1.4' to 1.6'.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687445
Location:	South Terminal	6690.01	E: 816360
Corrected Water Depth (MLW):		Total Boring Depth: 4.5'	
Casing Type:		Time: 10:48	Boring No:
Casing Dia:	2"	Recovery Length: 4.5'	NBH_PH4SAP_PC_41
Drill Co:	N/A	Method: Peat Core	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-3	N/A	36/36	Dark Grey SILT, little sand, varving of light grey silt.	
	3-4.5	N/A	18/18	Dark Grey SILT, little sand.	

Comments:

Sample Date: 2/14/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2689146
Location:	South Terminal	6690.009	E: 816214
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 10:30	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC_42
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Black organic SILT, little fine to coarse sand.	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2689748
Location:	South Terminal	6690.009	E: 816138
Corrected Water Depth (MLW):		Total Boring Depth: 2.2'	
Casing Type:		Time:	Boring No:
Casing Dia:	2"	Recovery Length: 2.2'	NBH_PH4SAP_PC13_01
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Black Organic Silt	A
	1-2	N/A	12/12	Black Organic Silt	B
	2-2.2	N/A	2/12	Start of inorganic silts Refusal at 2.2	C

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688789
Location:	South Terminal	6690.009	E: 816265
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_02
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Black organic silts withsome inorganic silts	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688567
Location:	South Terminal	6690.009	E: 816324
Corrected Water Depth (MLW):		Total Boring Depth: 3.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	2"	Recovery Length: 3.0'	NBH_PH4SAP_PC13_03
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Black Organic Silt	A
	1-2	N/A	12/12	Black Organic Silt, Trace to little grey coarse sand	B
	2-3	N/A	12/12	Black Organic Silt Refusal	C

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688510
Location:	South Terminal	6690.009	E: 816587
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_04
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Fine grained sand with shell hash	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688301
Location:	South Terminal	6690.009	E: 816242
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_05
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Dark grey, fine to coarse SAND, some gravel.	

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688017
Location:	South Terminal	6690.009	E: 816323
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_06
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Dark grey, fine SAND, little silt, trace shell hash.	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687976
Location:	South Terminal	6690.009	E: 816473
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_07
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Fine grained sand	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688034
Location:	South Terminal	6690.009	E: 816704
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC13_08
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Black Organic Silt	A
	1-2	N/A	12/12	Black Organic Silt Refusal	B

Comments:

Sample Date: 2/16/11
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687692
Location:	South Terminal	6690.009	E: 816244
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_10
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
	0-1	N/A	12/12	Dark grey, fine SAND, little silt, trace shell hash.	

Comments:

Sample Date: 1/19/11
Log Date: 1/19/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687585
Location:	South Terminal	6690.01	E: 816436
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time: 11:31	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_11
Drill Co:	N/A	Method: Ponar Sampler	Sheet: 1 of 1
Driller:	N/A	Log By: CWM	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	N/A	Grey to Brown SILT and SAND.	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2688446
Location:	South Terminal	6690.009	E: 816211
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC13_14
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Black Organic Silt	A
	1-2	N/A	12/12	Black Organic Silt Refusal	B

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687973
Location:	South Terminal	6690.009	E: 816197
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_23
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Fine grained SAND.	

Comments:

Sample Date: 12/17/2011
Log Date:

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687729
Location:	South Terminal	6690.009	E: 816402
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:		Time:	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13_33
Drill Co:	N/A	Method: Ponar	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Fine grained sand	

Comments:

Sample Date: 12/15/2010
Log Date: 12/15/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2690105
Location:	South Terminal		E: 816042
Corrected Water Depth (MLW):		Total Boring Depth: 3.4'	
Casing Type:	N/A	Time: 12:00	Boring No:
Casing Dia:	2"	Recovery Length: 3.4'	NBH_PH4SAP_PC13E_01
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT	D
2.0	1-2	N/A	12/12	Black organic SILT	E
3.0	2-3	N/A	12/12	Black organic Silt, trace inorganic SILT	F
3.4	3-3.4	N/A	5/12	Dark gray inorganic SILT and fine SAND Refusal at 3.4	G

Comments: Samples were analysed for polychlorinated biphenyls (PCBs), pollutant metals, total petroleum hydrocarbons (TPHs) and semi-volatile organic compounds (SVOCs.)

Sample Date: 12/15/2010
Log Date: 12/15/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6590.009	N: 2689289
Location:	South Terminal		E: 816246
Corrected Water Depth (MLLW):		Total Boring Depth: 3.0'	
Casing Type:	N/A	Time: 13:30	Boring No:
Casing Dia:	2"	Recovery Length: 3.0'	NBH_PH4SAP_PC13E_02
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT	D
2.0	1-2	N/A	12/12	Black organic SILT	E
3.0	2-3	N/A	12/12	Dark gray organic SILT (increasing inorganic silt content.) Refusal at 3.0'	F

Comments: Samples were analyzed for poluchlorinated biphenyls (PCBs), pollutant metals, total petroleum hydrocarbons (TPHs) and semi-volatile organic compounds (SVOCs.)

Sample Date: 12/15/2010
Log Date: 12/15/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2688165
Location:	South Terminal		E: 816286
Corrected Water Depth (MLW):		Total Boring Depth: 1.0'	
Casing Type:	N/A	Time: 13:30	Boring No:
Casing Dia:	N/A	Recovery Length: 1.0'	NBH_PH4SAP_PC13E_02A
Drill Co:	N/A	Method: PONAR	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
1.0	0-1	N/A	12/12	Black organic SILT	

Comments: Sample was analyzed for ploychlorinated biphenyls (PCBs), pollutant metals, total petroleum hydrocarbons (TPHs) and semi-volatile organic compounds (SVOCs.)

Sample Date: 12/17/2010
Log Date: 12/17/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2688362
Location:	South Terminal		E: 816500
Corrected Water Depth (MLW):		Total Boring Depth: 2.0'	
Casing Type:	N/A	Time:	Boring No:
Casing Dia:	2"	Recovery Length: 2.0'	NBH_PH4SAP_PC13E_03
Drill Co:	N/A	Method: Peat_Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT	D
2.0	1-2	N/A	12/12	Black to dark grey organic SILT (increasing inorganic silt content)	E

Comments: Sample was analyzed for polychlorinated biphenyls (PCBs), pollutant metals, total petroleum hydrocarbons (TPHs) and semi-volatile organic compounds (SVOCs).

Sample Date: 12/16/2010
Log Date: 12/16/2010

BORING LOG

Project:	New Bedford Harbor	Project No: 6690.009	N: 2687783
Location:	South Terminal		E: 816648
Corrected Water Depth (MLW):		Total Boring Depth: 4.0'	
Casing Type:	N/A	Time:	Boring No:
Casing Dia:	2"	Recovery Length: 4.0'	NBH_PH4SAP_PC13E_04
Drill Co:	N/A	Method: Peat Corer	Sheet: 1 of 1
Driller:	N/A	Log By: GCD/JER	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	SAMPLE
1.0	0-1	N/A	12/12	Black organic SILT	D
2.0	1-2	N/A	12/12	Black to dark grey organic SILT	E
3.0	2-3	N/A	12/13	Black to dark grey Organic Silt	F
4.0	3-4	N/A	12/14	Black to dark grey Organic Silt, increasing Inorganinc silt content with depth.	G

Comments: Samples were analyzed for polychlorinated biphenyls (PCBs), pollutant metals, total petroleum hydrocarbons (TPHs) and semi-volatile organic compounds (SVOCs.)

Sample Date:2/11/11

APEX

BORING LOG

Project:	New Bedford Harbor	Project No:		N: 2689980
Location:	South Terminal		6690.009	E: 816074
Corrected Water Depth (MLW):		Total Boring Depth: 6.0'		
Casing Type:		Time:	15:25	Boring No:
Vibracore	4"	Recovery Length Vibracore: 5.2'		NBH_PH4SAP_VC_01
Peat Corer	2"	Recovery Length Peat Corer: 6.0'		
Drill Co:	Apex Cos.	Method:	Vibracore and Peat	Sheet: 1 of 1
Driller:	N/A	Log By:	GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Peat Corer: Black organic SILT.	
	1-2	N/A	12/12	Peat Corer: Black organic SILT.	
	2-3	N/A	12/12	Peat Corer: Black organic SILT.	
	3-4	N/A	12/12	Peat Corer: Black organic SILT.	
	4-5	N/A	12/12	Peat Corer: Black organic SILT interbedded with inorganic silt.	
	5-6	N/A	12/12	Peat Corer: Tan TILL, some inorganic silt.	
				Refusal of Vibracore and Peat Corer at 6 feet.	

Comments:

Peat core collected at same time as vibracore to retrieve uncompressed, relatively undisturbed, fine-grained sediment samples with which to correllate depth intervals of stratigraphic changes within vibracore sample. Depth intervals shown until break noted above are based on stratigraphy revealed in the uncompressed peat core. Peat corer and vibracorer aligned by presence of defining layer (immediately prior to break) in both the peat corer and vibracore. Depth intervals shown after break (if applicable) are based on stratigraphy revealed in the vibracore.

Sample Date:2/11/11

BORING LOG

Project:	New Bedford Harbor	Project No:	N: 2689168
Location:	South Terminal	6690.009	E: 816293
Corrected Water Depth (MLW):		Total Boring Depth: 4.0'	
Casing Type:		Time: 14:45	Boring No:
Vibracore	4"	Recovery Length Vibracore: 3.6'	NBH_PH4SAP_VC_02
Peat Corer	2"	Recovery Length Peat Corer: 4.0'	
Drill Co:	Apex Cos.	Method: Vibracore and Peat	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Peat Corer: Black organic SILT, trace human hair. Duplicate Collected: DUP2	
	1-2	N/A	12/12	Peat Corer: Black organic SILT interbedded with dark grey inorganic silt.	
	2-3	N/A	12/12	Peat Corer: Black to dark grey organic SILT.	
	3-4	N/A	12/12	Peat Corer: Dark grey fine to coarse SAND, some silt, trace fine gravel.	
				Refusal of Vibracore and Peat Corer at 4 feet.	

Comments:

Peat core collected at same time as vibracore to retrieve uncompressed, relatively undisturbed, fine-grained sediment samples with which to correllate depth intervals of stratigraphic changes within vibracore sample. Depth intervals shown until break noted above are based on stratigraphy revealed in the uncompressed peat core. Peat corer and vibracorer aligned by presence of defining layer (immediately prior to break) in both the peat corer and vibracore. Depth intervals shown after break (if applicable) are based on stratigraphy revealed in the vibracore.

Sample Date:2/11/11

APEX

BORING LOG

Project:	New Bedford Harbor	Project No:	N: 2688708
Location:	South Terminal	6690.009	E: 816408
Corrected Water Depth (MLW):		Total Boring Depth: 4.0'	
Casing Type:		Time: 11:30	Boring No:
Vibracore	4"	Recovery Length Vibracore: 3.4'	NBH_PH4SAP_VC_03
Peat Corer	2"	Recovery Length Peat Corer: 4.0'	
Drill Co:	Apex Cos.	Method: Vibracore and Peat	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Peat Corer: Black organic SILT, trace fine sand. Duplicate collected: DUP 8	
	1-2	N/A	12/12	Peat Corer: Black organic SILT interbedded with dark grey silt.	
	2-3	N/A	12/12	Peat Corer: Black organic SILT interbedded with dark grey silt, trace fine to coarse sand.	
	3-4	N/A	12/12	Peat Corer: Black fine to coarse SAND, some organic silt, band of frey fine coarse sand at 3.7'.	
				Refusal of Peat Corer and Vibracore at 4.0'.	

Comments:

Peat core collected at same time as vibracore to retrieve uncompressed, relatively undisturbed, fine-grained sediment samples with which to correllate depth intervals of stratigraphic changes within vibracore sample. Depth intervals shown until break noted above are based on stratigraphy revealed in the uncompressed peat core. Peat corer and vibracorer aligned by presence of defining layer (immediately prior to break) in both the peat corer and vibracore. Depth intervals shown after break (if applicable) are based on stratigraphy revealed in the vibracore.

Sample Date:2/10/11

APEX

BORING LOG

Project:	New Bedford Harbor	Project No:	N: 2688246
Location:	South Terminal	6690.009	E: 816522
Corrected Water Depth (MLW):		Total Boring Depth: 4.9'	
Casing Type:		Time: 14:50	Boring No:
Vibracore	4"	Recovery Length Vibracore: 3.5'	NBH_PH4SAP_VC_04
Peat Corer	2"	Recovery Length Peat Corer: 4.0'	
Drill Co:	Apex Cos.	Method: Vibracore and Peat	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Peat Corer: Black organic SILT, little shell hash. Duplicate collected: DUP 7	
	1-2	N/A	12/12	Peat Corer: Black organic SILT.	
	2-3	N/A	12/12	Peat Corer: Black organic SILT.	
	3-4	N/A	12/12	Peat Corer: Black fine to coarse SAND, little shell hash, some organic silt.	
				Refusal of Peat Core at 4.0'. Depth intervals shown hereon are based upon stratigraphy revealed in vibracore.	
	4-4.9	N/A	10.8/10.8	Vibracore: Tan and dark grey, fine SAND. Grades to fine to coarse SAND, trace gravel.	
				Refusal of Vibracore at 4.9'.	

Comments:

Peat core collected at same time as vibracore to retrieve uncompressed, relatively undisturbed, fine-grained sediment samples with which to correllate depth intervals of stratigraphic changes within vibracore sample. Depth intervals shown until break noted above are based on stratigraphy revealed in the uncompressed peat core. Peat corer and vibracorer aligned by presence of defining layer (immediately prior to break) in both the peat corer and vibracore. Depth intervals shown after break noted above are based on stratigraphy revealed in the vibracore.

Sample Date:2/10/11

BORING LOG

Project:	New Bedford Harbor	Project No: 6515.002	N: 2687895
Location:	South Terminal	6690.009	E: 816611
Corrected Water Depth (MLW):		Total Boring Depth: 3.0'	
Casing Type:		Time: 13:15	Boring No:
Casing Dia:	4"	Recovery Length: 2.3'	NBH_PH4SAP_VC_05
Drill Co:	Apex Cos.	Method: Vibracore	Sheet: 1 of 1
Driller:	N/A	Log By: GCD	

Depth (Feet)	Interval (Feet)	Blow Count	Pen/Rec (in)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
	0-1	N/A	12/12	Black organic SILT, trace shell hash, trace fine to coarse sand. Duplicate collected: DUP 6	
	1-2	N/A	12/12	Dark grey coarse SAND, some fine to medium sand, trace silt.	
	2-2.3	N/A	3.6/3.6	Dark to grey, coarse SAND, some fine to medium sand, trace silt.	

Comments:

ESI

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Suite 502
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PO Number: 6690.009
Report Number: 20509RE
Date Received: 12/16-12/21/10
Date Reported: 01/20/11

Project: NBH-South Terminal 6690.009

Attached please find results for analyses performed on samples received on 12/16/10 thru 12/21/10.

This report is being reissued with revised reporting limits for metals and semi-volatile results and it supercedes report 20509 issued on 01/10/11.

Results for sediment samples received will be provided under seperate cover.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent except where noted.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Date 1/20/11

Authorized
Signature

Attachment
Report

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: PC13E_01A
Matrix: Water
Sampled: 12/15/10 1200

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-016	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-016	0.002	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-016	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-016	0.0028	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-016	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-016	0.0034	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-016	0.0012	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-001	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-016	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-016	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-016	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-016	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-016	0.027	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: PC13E_01B
Matrix: Water
Sampled: 12/15/10 1230

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-017	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-017	0.002	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-017	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-017	0.0023	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-017	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-017	0.0096	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-017	0.0054	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-002	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-017	0.0025	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-017	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-017	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-017	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-017	0.046	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: PC13E_01C
Matrix: Water
Sampled: 12/15/10 1300

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-018	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-018	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-018	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-018	0.0005	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-018	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-018	0.0076	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-018	0.0055	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-003	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-018	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-018	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-018	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-018	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-018	0.02	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: PC13E_02A
Matrix: Water
Sampled: 12/15/10 1330

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-019	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-019	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-019	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-019	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-019	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-019	0.003	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-019	0.0009	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-004	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-019	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-019	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-019	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-019	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-019	0.024	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: PC13E_02B
Matrix: Water
Sampled: 12/15/10 1400

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-020	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-020	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-020	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-020	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-020	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-020	0.0078	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-020	0.0015	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-005	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-020	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-020	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-020	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-020	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-020	0.024	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_02C
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-045	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-045	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-045	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-045	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-045	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-045	0.0019	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-045	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-053	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-045	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-045	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-045	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-045	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-045	0.017	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_03A
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-046	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-046	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-046	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-046	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-046	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-046	0.0017	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-046	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-054	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-046	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-046	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-046	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-046	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-046	0.021	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_03B
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-047	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-047	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-047	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-047	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-047	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-047	0.0016	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-047	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-055	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-047	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-047	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-047	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-047	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-047	0.02	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_03C
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-048	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-048	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-048	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-048	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-048	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-048	0.0016	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-048	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-056	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-048	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-048	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-048	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-048	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-048	0.02	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_04A
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-049	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-049	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-049	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-049	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-049	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-049	0.0017	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-049	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-057	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-049	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-049	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-049	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-049	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-049	0.019	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_04A_D
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-050	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-050	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-050	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-050	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-050	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-050	0.0014	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-050	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-058	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-050	0.0006	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-050	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-050	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-050	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-050	0.02	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_04B
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-051	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-051	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-051	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-051	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-051	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-051	0.0015	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-051	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-059	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-051	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-051	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-051	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-051	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-051	0.019	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_04C
Matrix: Water
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-052	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Arsenic, total	20509-052	0.001	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Beryllium, total	20509-052	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Cadmium, total	20509-052	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Chromium, total	20509-052	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Copper, total	20509-052	0.0015	0.0006	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Lead, total	20509-052	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Mercury, total	20509-060	ND	0.01	ug/L	12/28/10	12/28/10	JLH/EPA 245.7
Nickel, total	20509-052	ND	0.0005	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Selenium, total	20509-052	ND	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Silver, total	20509-052	ND	0.0002	mg/L	12/19/10	12/19/10	JLH/EPA 200.8
Thallium, total	20509-052	ND	0.0002	mg/L	01/18/11	01/18/11	JLH/EPA 200.8
Zinc, total	20509-052	0.019	0.001	mg/L	12/19/10	12/19/10	JLH/EPA 200.8

Notes:

ND = Not Detected

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Lab Number:	20509-006
Sample Designation:	PC13E_01A
Date Sampled:	12/15/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	5.0	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	88	21-100	nitrobenzene-d5	93	35-114
phenol-d5	72	10-102	2-fluorobiphenyl	82	43-116
2,4,6-tribromophenol	78	10-123	terphenyl-d14	75	33-141

U = Below quantitation limit

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Lab Number:	20509-007
Sample Designation:	PC13E_01B
Date Sampled:	12/15/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	8.3	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	86	21-100	nitrobenzene-d5	89	35-114
phenol-d5	77	10-102	2-fluorobiphenyl	79	43-116
2,4,6-tribromophenol	81	10-123	terphenyl-d14	72	33-141

U = Below quantitation limit

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Lab Number:	20509-008
Sample Designation:	PC13E_01C
Date Sampled:	12/15/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	7.5	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	84	21-100	nitrobenzene-d5	76	35-114
phenol-d5	67	10-102	2-fluorobiphenyl	68	43-116
2,4,6-tribromophenol	86	10-123	terphenyl-d14	61	33-141

U = Below quantitation limit

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Lab Number:	20509-009
Sample Designation:	PC13E_02A
Date Sampled:	12/15/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	3.0	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	92	21-100	nitrobenzene-d5	81	35-114
phenol-d5	76	10-102	2-fluorobiphenyl	71	43-116
2,4,6-tribromophenol	81	10-123	terphenyl-d14	64	33-141

U = Below quantitation limit

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Lab Number:	20509-010
Sample Designation:	PC13E_02B
Date Sampled:	12/15/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	7.7	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	90	21-100	nitrobenzene-d5	55	35-114
phenol-d5	67	10-102	2-fluorobiphenyl	48	43-116
2,4,6-tribromophenol	80	10-123	terphenyl-d14	43	33-141

U = Below quantitation limit

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Lab Number:	20509-029
Sample Designation:	NBH_PH4SAP_PC13E_02C
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.3 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	74	21-100	nitrobenzene-d5	92	35-114
phenol-d5	60	10-102	2-fluorobiphenyl	83	43-116
2,4,6-tribromophenol	78	10-123	terphenyl-d14	76	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-030
Sample Designation:	NBH_PH4SAP_PC13E_03A
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.3 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	77	21-100	nitrobenzene-d5	93	35-114
phenol-d5	59	10-102	2-fluorobiphenyl	84	43-116
2,4,6-tribromophenol	82	10-123	terphenyl-d14	76	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-031
Sample Designation:	NBH_PH4SAP_PC13E_03B
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.5 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	70	21-100	nitrobenzene-d5	94	35-114
phenol-d5	55	10-102	2-fluorobiphenyl	85	43-116
2,4,6-tribromophenol	76	10-123	terphenyl-d14	77	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-032
Sample Designation:	NBH_PH4SAP_PC13E_03C
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.8	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	69	21-100	nitrobenzene-d5	100	35-114
phenol-d5	56	10-102	2-fluorobiphenyl	92	43-116
2,4,6-tribromophenol	80	10-123	terphenyl-d14	84	33-141

U = Below quantitation limit

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Lab Number:	20509-033
Sample Designation:	NBH_PH4SAP_PC13E_04A
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.4 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	66	21-100	nitrobenzene-d5	96	35-114
phenol-d5	51	10-102	2-fluorobiphenyl	88	43-116
2,4,6-tribromophenol	79	10-123	terphenyl-d14	80	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-034
Sample Designation:	NBH_PH4SAP_PC13E_04A_D
Date Sampled:	12/16/10
Date Extracted:	12/20/10
Date Analyzed:	12/22/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.4 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	65	21-100	nitrobenzene-d5	97	35-114
phenol-d5	53	10-102	2-fluorobiphenyl	87	43-116
2,4,6-tribromophenol	76	10-123	terphenyl-d14	80	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-035
Sample Designation:	NBH_PH4SAP_PC13E_04B
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.2 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	96	21-100	nitrobenzene-d5	82	35-114
phenol-d5	71	10-102	2-fluorobiphenyl	76	43-116
2,4,6-tribromophenol	100	10-123	terphenyl-d14	70	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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Lab Number:	20509-036
Sample Designation:	NBH_PH4SAP_PC13E_04C
Date Sampled:	12/16/10
Date Extracted:	12/21/10
Date Analyzed:	12/23/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (ug/L)	Reporting Limit (ug/L)		Concentration (ug/L)	Reporting Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.3 (B)	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	21-100	nitrobenzene-d5	101	35-114
phenol-d5	73	10-102	2-fluorobiphenyl	92	43-116
2,4,6-tribromophenol	82	10-123	terphenyl-d14	86	33-141

U = Below quantitation limit
B = Analyte detected in the laboratory blank below reporting limit. Sample value is less than 5 times blank value.

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PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-001
Sample Designation:	PC13E_01A
Date Sampled:	12/15/10 1200
Date Extracted:	12/16/10
Date Analyzed:	12/18/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.0011	
18	2,2',5-trichlorobiphenyl	*	0.0011	
28	2,4,4'-trichlorobiphenyl	*	0.0027	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0024	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0045	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0015	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.0012	
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.0012	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.0012	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.047

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	102	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-002
Sample Designation:	PC13E_01B
Date Sampled:	12/15/10 1230
Date Extracted:	12/16/10
Date Analyzed:	12/18/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0011	
28	2,4,4'-trichlorobiphenyl	*	0.0031	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0028	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0043	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.0012	
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0024	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.0014	
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.0018	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.0014	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.052

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	103	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-003
Sample Designation:	PC13E_01C
Date Sampled:	12/15/10 1300
Date Extracted:	12/16/10
Date Analyzed:	12/18/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0013	
28	2,4,4'-trichlorobiphenyl	*	0.0046	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.0011	
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0033	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0055	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.0018	
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0041	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	
118	2,3',4,4',5-pentachlorobiphenyl	*	0.0035	
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.0044	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.0031	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.078

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	105	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-004
Sample Designation:	PC13E_02A
Date Sampled:	12/15/10 1330
Date Extracted:	12/16/10
Date Analyzed:	12/18/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0014	
28	2,4,4'-trichlorobiphenyl	*	0.0085	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0025	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0049	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.0012	
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0018	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.0017	
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.002	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.0012	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.063

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	109	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-005
Sample Designation:	PC13E_02B
Date Sampled:	12/15/10 1400
Date Extracted:	12/16/10
Date Analyzed:	12/18/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.001	U
28	2,4,4'-trichlorobiphenyl	*	0.0031	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0027	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0048	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0018	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.0015	
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.0014	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.0012	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.0011	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.049

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	107	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-021
Sample Designation:	NBH_PH4SAP_PC13E_02C
Date Sampled:	12/16/10
Date Extracted:	12/17/10
Date Analyzed:	01/01/11
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.001	U
28	2,4,4'-trichlorobiphenyl	*	0.0012	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.001	U
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0015	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.001	U
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.025

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	129	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-022
Sample Designation:	NBH_PH4SAP_PC13E_03A
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.001	U
28	2,4,4'-trichlorobiphenyl	*	0.0012	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.001	U
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0013	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.001	U
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.025

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	40	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-023
Sample Designation:	NBH_PH4SAP_PC13E_03B
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.001	U
28	2,4,4'-trichlorobiphenyl	*	0.0014	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.001	U
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0019	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0011	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.028

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	62	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-024
Sample Designation:	NBH_PH4SAP_PC13E_03C
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0012	
28	2,4,4'-trichlorobiphenyl	*	0.0024	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0016	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0034	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0014	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.037

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	81	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-025
Sample Designation:	NBH_PH4SAP_PC13E_04A
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0013	
28	2,4,4'-trichlorobiphenyl	*	0.0019	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0016	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0029	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0013	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.035

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	88	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-026
Sample Designation:	NBH_PH4SAP_PC13E_04A_D
Date Sampled:	12/16/10
Date Extracted:	12/17/10
Date Analyzed:	12/19/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.001	U
28	2,4,4'-trichlorobiphenyl	*	0.0014	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0014	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0025	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.001	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U
Total PCBs by Sum of congeners (*) multiplied by 2			0.031	

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	108	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-027
Sample Designation:	NBH_PH4SAP_PC13E_04B
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0011	
28	2,4,4'-trichlorobiphenyl	*	0.0018	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0017	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0033	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0015	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.036

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-028
Sample Designation:	NBH_PH4SAP_PC13E_04C
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.001	U
18	2,2',5-trichlorobiphenyl	*	0.0013	
28	2,4,4'-trichlorobiphenyl	*	0.0014	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.001	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.0014	
52	2,2',5,5'-tetrachlorobiphenyl	*	0.0035	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.001	U
77	3,3',4,4'-tetrachlorobiphenyl		0.001	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.001	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.0012	
105	2,3,3',4,4'-pentachlorobiphenyl		0.001	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.001	U
126	3,3',4,4',5-pentachlorobiphenyl		0.001	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.001	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.001	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.001	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.001	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.001	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.001	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.001	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.001	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.001	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.001	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.001	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.001	U

Total PCBs by Sum of congeners (*) multiplied by 2 0.035

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

ESI

Lab Number:	20509-011
Sample Designation:	PC13E_01A
Date Sampled:	12/15/10 1200
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L	Reporting Limit ug/L
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	103	30 - 150
2-fluorobiphenyl	92	30 - 150

U = Below quantitation limit

Lab Number:	20509-012
Sample Designation:	PC13E_01B
Date Sampled:	12/15/10 1230
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L	Reporting Limit ug/L
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	94	30 - 150
2-fluorobiphenyl	82	30 - 150

U = Below quantitation limit

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Lab Number:	20509-013
Sample Designation:	PC13E_01C
Date Sampled:	12/15/10 1300
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L	Reporting Limit ug/L
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	100	30 - 150
2-fluorobiphenyl	88	30 - 150

U = Below quantitation limit

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Lab Number:	20509-014
Sample Designation:	PC13E_02A
Date Sampled:	12/15/10 1330
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L	Reporting Limit ug/L
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	112	30 - 150
2-fluorobiphenyl	102	30 - 150

U = Below quantitation limit

Lab Number:	20509-015
Sample Designation:	PC13E_02B
Date Sampled:	12/15/10 1400
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L	Reporting Limit ug/L
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	103	30 - 150
2-fluorobiphenyl	115	30 - 150

U = Below quantitation limit

Lab Number:	20509-037
Sample Designation:	NBH_PH4SAP_PC13E_02C
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	80
Total Petroleum Hydrocarbons	U	Note 1	80

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	104	30 - 150
2-fluorobiphenyl	94	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-038
Sample Designation:	NBH_PH4SAP_PC13E_03A
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	60
Total Petroleum Hydrocarbons	U	Note 1	60

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	107	30 - 150
2-fluorobiphenyl	92	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-039
Sample Designation:	NBH_PH4SAP_PC13E_03B
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	80
Total Petroleum Hydrocarbons	U	Note 1	80

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	89	30 - 150
2-fluorobiphenyl	105	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-040
Sample Designation:	NBH_PH4SAP_PC13E_03C
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	150
Total Petroleum Hydrocarbons	U	Note 1	150

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	108	30 - 150
2-fluorobiphenyl	98	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

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Lab Number:	20509-041
Sample Designation:	NBH_PH4SAP_PC13E_04A
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	90
Total Petroleum Hydrocarbons	U	Note 1	90

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	111	30 - 150
2-fluorobiphenyl	99	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-042
Sample Designation:	NBH_PH4SAP_PC13E_04A_D
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	90
Total Petroleum Hydrocarbons	U	Note 1	90

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	112	30 - 150
2-fluorobiphenyl	101	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-043
Sample Designation:	NBH_PH4SAP_PC13E_04B
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	90
Total Petroleum Hydrocarbons	U	Note 1	90

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	114	30 - 150
2-fluorobiphenyl	103	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Lab Number:	20509-044
Sample Designation:	NBH_PH4SAP_PC13E_04C
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration ug/L		Reporting Limit ug/L
Diesel Range Organics	U		50
Lube Oil Range Organics	U	Note 1	70
Total Petroleum Hydrocarbons	U	Note 1	70

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	115	30 - 150
2-fluorobiphenyl	105	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.

Quality Control Summary

Parameter: Antimony, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0005	0.0005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.0097	0.010	97	0.0099	0.010	99	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0005	U	0.0005	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.049	0.050	0.0005	U	98		Pass
20509-016SD	70-130	0.049	0.050	0.0005	U	98		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Arsenic, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.001	0.001	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.097	0.100	97	0.098	0.100	98	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0016		0.0020		NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.488	0.500	0.0020		97		Pass
20509-016SD	70-130	0.487	0.500	0.0020		97		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Beryllium, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0005	0.0005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.005	0.005	100	0.005	0.005	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0005	U	0.0005	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.026	0.025	0.0005	U	104		Pass
20509-016SD	70-130	0.025	0.025	0.0005	U	100		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Cadmium, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0005	0.0005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.049	0.050	98	0.050	0.050	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0028		0.0028		0		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.241	0.250	0.0028		95		Pass
20509-016SD	70-130	0.241	0.250	0.0028		95		Pass

NC = Not calculated.

ESI

Quality Control Summary

Parameter: Chromium, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.001	0.001	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.020	0.020	100	0.021	0.020	105	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.010	U	0.010	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.105	0.100	0.001	U	105		Pass
20509-016SD	70-130	0.104	0.100	0.001	U	104		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Copper, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0006	0.0006	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.025	0.025	100	0.025	0.025	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0034		0.0034		0		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.122	0.125	0.0034		95		Pass
20509-016SD	70-130	0.123	0.125	0.0034		96		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Lead, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0005	0.0005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.097	0.100	97	0.099	0.100	99	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0010		0.0012		NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.507	0.500	0.0012		101		Pass
20509-016SD	70-130	0.507	0.500	0.0012		101		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Mercury, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 794W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-001	PC13E_01A	20509-058	NBH_PH4SAP_PC13E_04A_D
20509-002	PC13E_01B	20509-059	NBH_PH4SAP_PC13E_04B
20509-003	PC13E_01C	20509-060	NBH_PH4SAP_PC13E_04C
20509-004	PC13E_02A		
20509-005	PC13E_02B		
20509-053	NBH_PH4SAP_PC13E_02C		
20509-054	NBH_PH4SAP_PC13E_03A		
20509-055	NBH_PH4SAP_PC13E_03B		
20509-056	NBH_PH4SAP_PC13E_03C		
20509-057	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/L	Q		M
PB794W	0.01	0.01	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/L	True Value ug/L	%R	Lab Control Dup Sample Result ug/L	True Value ug/L	%R	
LCS794W	70-130	0.024	0.025	96	0.025	0.025	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/L	Q	Sample Result ug/L	Q	RPD	Q	
20509-016D	30	0.010	U	0.010	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/L	Spike Added ug/L	Sample Result ug/L	Q	%R	Q	
20509-016S	70-130	0.023	0.025	0.010	U	92		Pass
20509-016SD	70-130	0.024	0.025	0.010	U	96		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Nickel, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0005	0.0005	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.050	0.050	100	0.050	0.050	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0005	U	0.0005	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.243	0.250	0.0005	U	97		Pass
20509-016SD	70-130	0.244	0.250	0.0005	U	98		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Selenium, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.001	0.001	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.097	0.100	97	0.098	0.100	98	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.001	U	0.001	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.490	0.500	0.001	U	98		Pass
20509-016SD	70-130	0.489	0.500	0.001	U	98		Pass

NC = Not calculated.

ESI

Quality Control Summary

Parameter: Silver, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0002	0.0002	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.024	0.025	96	0.024	0.025	96	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0002	U	0.0002	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.120	0.125	0.0002	U	96		Pass
20509-016SD	70-130	0.120	0.125	0.0002	U	96		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Thallium, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.0002	0.0002	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.098	0.100	98	0.099	0.100	99	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.0002	U	0.0002	U	NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.503	0.500	0.0002	U	101		Pass
20509-016SD	70-130	0.507	0.500	0.0002	U	101		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Zinc, total
Project: NBH-South Terminal 6690.009
Matrix: Water
QC Batch No: 171W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-016	PC13E_01A	20509-050	NBH_PH4SAP_PC13E_04A_D
20509-017	PC13E_01B	20509-051	NBH_PH4SAP_PC13E_04B
20509-018	PC13E_01C	20509-052	NBH_PH4SAP_PC13E_04C
20509-019	PC13E_02A		
20509-020	PC13E_02B		
20509-045	NBH_PH4SAP_PC13E_02C		
20509-046	NBH_PH4SAP_PC13E_03A		
20509-047	NBH_PH4SAP_PC13E_03B		
20509-048	NBH_PH4SAP_PC13E_03C		
20509-049	NBH_PH4SAP_PC13E_04A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result mg/L	Q		M
PB171W	0.001	0.001	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result mg/L	True Value mg/L	%R	Lab Control Dup Sample Result mg/L	True Value mg/L	%R	
LCS171W	70-130	0.050	0.050	100	0.050	0.050	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result mg/L	Q	Sample Result mg/L	Q	RPD	Q	
20509-016D	30	0.028		0.027		4		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result mg/L	Spike Added mg/L	Sample Result mg/L	Q	%R	Q	
20509-016S	70-130	0.263	0.250	0.027		94		Pass
20509-016SD	70-130	0.263	0.250	0.027		94		Pass

NC = Not calculated.

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Lab Number:	PB488W
Sample Designation:	Laboratory Blank
Date Sampled:	12/20/10
Date Extracted:	12/20/10
Date Analyzed:	12/21/10
Matrix:	Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270.

	Concentration (ug/L)	Quantitation Limit (ug/L)		Concentration (ug/L)	Quantitation Limit (ug/L)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	0.5
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-chlorophenyl phenyl ether	U	0.5
4-methylphenol (p-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	2
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	U	0.5
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.5	pyrene	U	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	U	0.5
2-methylnaphthalene	U	0.5	chrysene	U	0.5
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	U	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	U	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	U	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	U	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	74	21-100	nitrobenzene-d5	99	35-114
phenol-d5	46	10-102	2-fluorobiphenyl	96	43-116
2,4,6-tribromophenol	87	10-123	terphenyl-d14	90	33-141

U = Below quantitation limit

ESI

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Lab Number: LCS488W\LCSD488W
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 12/16/10
Date Extracted: 12/21/10
Date Analyzed: 12/23/10
Matrix: Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/L)	(ug/L)	(%)	(%)	(ug/L)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	NA	U	NA	30-150	U	NA	30-150	NA	30	
phenol	172	96	56	5-112	90	53	5-112	6	30	
2-chlorophenol	165	170	102	23-134	170	103	23-134	1	30	
bis-(2-choroethyl)ether	NA	U	NA	36-166	U	NA	36-166	NA	30	
1,3-dichlorobenzene	NA	U	NA	1-172	U	NA	1-172	NA	30	
1,4-diclorobenzene	74	71	96	20-124	70	95	20-124	1	30	
1,2-dichlorobenzene	NA	U	NA	32-129	U	NA	32-129	NA	30	
benzyl alcohol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-methylphenol (o-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
bis(2-chloroisopropyl)ether	NA	U	NA	53-127	U	NA	53-127	NA	30	
hexachloroethane	NA	U	NA	40-113	U	NA	40-113	NA	30	
N-nitroso-di-n-propylamine	83	86	104	1-150	83	101	1-150	4	30	
4-methylphenol (p-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
nitrobenzene	NA	U	NA	35-180	U	NA	35-180	NA	30	
isophorone	NA	U	NA	21-196	U	NA	21-196	NA	30	
2-nitrophenol	NA	U	NA	29-182	U	NA	29-182	NA	30	
2,4-dimethylphenol	NA	U	NA	32-119	U	NA	32-119	NA	30	
bis(2-chloroethoxy)methane	NA	U	NA	33-184	U	NA	33-184	NA	30	
2,4-dichlorophenol	NA	U	NA	39-135	U	NA	39-135	NA	30	
2,6-dichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
1,2,4-trichlorobenzene	76	69	91	44-142	69	91	44-142	0	30	
naphthalene	90	76	84	21-133	76	84	21-133	0	30	
benzoic acid	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-chloroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachloro-1,3-butadiene	NA	U	NA	24-116	U	NA	24-116	NA	30	
4-chloro-3-methylphenol	188	170	90	22-147	170	91	22-147	0	30	
2-methylnaphthalene	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachlorocyclopentadiene	NA	U	NA	30-150	U	NA	30-150	NA	30	
2,4,6-trichlorophenol	NA	U	NA	37-144	U	NA	37-144	NA	30	
2,4,5-trichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-chloronaphthalene	NA	U	NA	60-118	U	NA	60-118	NA	30	
2-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
acenaphthylene	93	78	84	33-145	77	83	33-145	1	30	
dimethyl phthalate	NA	U	NA	1-112	U	NA	1-112	NA	30	
2,6-dinitrotoluene	NA	U	NA	50-158	U	NA	50-158	NA	30	
2,4-dinitrotoluene	82	U	NA	30-150	62	76	39-139	2	60	
acenaphthene	182	96	56	5-112	160	53	47-145	1	30	
3-nitroaniline	NA	170	102	23-134	U	103	30-150	NA	30	

U = Below quantitation limit

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Lab Number: 20509
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 12/16/10
Date Extracted: 12/21/10
Date Analyzed: 12/23/10
Matrix: Water

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/L)	(ug/L)	(%)	(%)	(ug/L)	(%)	(%)	(%)	(%)	
2,4-dinitrophenol	NA	U	NA	1-191	U	NA	1-191	NA	30	
dibenzofuran	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-nitrophenol	233	110	47	1-132	92	39	1-132	18	40	
fluorene	93	79	85	59-121	78	84	59-121	1	30	
4-chlorophenyl phenyl ether	NA	U	NA	25-158	U	NA	25-158	NA	30	
diethyl phthalate	NA	U	NA	1-114	U	NA	1-114	NA	30	
4-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
4,6-dinitro-2-methylphenol	NA	U	NA	1-181	U	NA	1-181	NA	30	
4-chlorophenyl phenyl ethe	NA	U	NA	25-158	U	NA	25-158	NA	30	
N-nitrosodiphenylamine	NA	U	NA	30-150	NA	NA	30-150	NA	30	
4-bromophenyl phenylether	NA	U	NA	25-158	NA	NA	25-158	NA	30	
hexachlorobenzene	NA	U	NA	30-150	NA	NA	30-150	NA	30	
pentachlorophenol	205	180	86	14-176	170	83	14-176	4	30	
phenanthrene	NA	79	NA	54-120	77	NA	54-120	NA	30	
anthracene	NA	82	NA	27-133	77	NA	27-133	NA	30	
carbazole	NA	U	NA	30-150	U	NA	30-150	NA	30	
di-n-butyl phthalate	93	81	88	1-118	78	84	1-118	4	30	
fluoranthene	87	80	92	26-137	75	87	26-137	6	30	
benzidine	NA	U	NA	30-150	U	NA	30-150	NA	30	
pyrene	184	160	89	52-115	160	88	52-115	2	30	
butyl benzyl phthalate	NA	U	NA	1-152	U	NA	1-152	NA	30	
benzo(a)anthracene	NA	76	NA	33-143	64	NA	33-143	NA	30	
chrysene	93	83	89	17-168	75	81	17-168	10	30	
3,3'-dichlorobenzidine	NA	U	NA	1-262	U	NA	1-262	NA	30	
bis-2-ethylhexyl phthalate	NA	U	NA	1-158	U	NA	1-158	NA	30	
di-n-octyl phthalate	NA	U	NA	1-146	U	NA	1-146	NA	30	
benzo(b)fluoranthene	81	73	91	24-159	26	33	24-159	94	30	
benzo(k)fluoranthene	87	69	79	11-162	62	71	11-162	11	30	
benzo(a)pyrene	84	71	85	17-163	68	80	17-163	6	30	
indeno(1,2,3-cd)pyrene	74	64	86	1-171	61	82	1-171	5	30	
dibenz(a,h)anthracene	78	67	86	1-227	64	82	1-227	6	30	
benzo(g,h,i)perylene	74	65	87	1-219	61	82	1-219	6	30	

SURROGATE STANDARDS	Laboratory Control Sample		Laboratory Control Sample Duplicate	
	Recovery	Limits	Recovery	Limits
	(%)	(%)	(%)	(%)
2-fluorophenol	79	21-100	76	21-100
phenol-d5	52	10-102	49	10-102
2,4,6-tribromophenol	93	10-123	86	10-123
nitrobenzene-d5	104	35-114	105	35-114
2-fluorobiphenyl	98	43-116	96	43-116
terphenyl-d14	88	33-141	87	33-141

U = Below quantitation limit

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Lab Number: 20509-029
Sample Designation: NBH_PH4SAP_PC13E_02C (Laboratory Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/21/10
Date Analyzed: 12/22/10
Matrix: Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample (ug/L)	RL (ug/L)	Duplicate (ug/L)	RL (ug/L)	DIFF (%)	Limit (%)		Sample (ug/L)	RL (ug/L)	Duplicate (ug/L)	RL (ug/L)	DIFF (%)	Limit (%)
N-nitrosodimethylamine	U	2	U	2	NC	30	2,4-dinitrotoluene	U	2	U	2	NC	30
phenol	U	2	U	2	NC	30	acenaphthene	U	2	U	2	NC	30
2-chlorophenol	U	2	U	2	NC	30	3-nitroaniline	U	2	U	2	NC	30
bis-(2-choroethyl)ether	U	2	U	2	NC	30	2,4-dinitrophenol	U	4	U	4	NC	30
1,3-dichlorobenzene	U	2	U	2	NC	30	dibenzofuran	U	2	U	2	NC	30
1,4-diclorobenzene	U	2	U	2	NC	30	4-nitrophenol	U	4	U	4	NC	30
1,2-dichlorobenzene	U	2	U	2	NC	30	fluorene	U	2	U	2	NC	30
benzyl alcohol	U	2	U	2	NC	30	4-chlorophenyl phenyl ether	U	2	U	2	NC	30
2-methylphenol (o-cresol)	U	2	U	2	NC	30	diethyl phthalate	U	2	U	2	NC	30
bis(2-chloroisopropyl)ether	U	2	U	2	NC	30	4-nitroaniline	U	2	U	2	NC	30
hexachloroethane	U	2	U	2	NC	30	4,6-dinitro-2-methylphenol	U	8	U	8	NC	30
N-nitroso-di-n-propylamine	U	2	U	2	NC	30	4-chlorophenyl phenyl ether	U	2	U	2	NC	30
4-methylphenol (p-cresol)	U	2	U	2	NC	30	N-nitrosodiphenylamine	U	2	U	2	NC	30
nitrobenzene	U	2	U	2	NC	30	1,2-diphenylhydrazine	U	2	U	2	NC	30
isophorone	U	2	U	2	NC	30	4-bromophenyl phenyl ether	U	2	U	2	NC	30
2-nitrophenol	U	2	U	2	NC	30	hexachlorobenzene	U	2	U	2	NC	30
2,4-dimethylphenol	U	2	U	2	NC	30	pentachlorophenol	U	2	U	2	NC	30
bis(2-chloroethoxy)methane	U	2	U	2	NC	30	phenanthrene	U	2	U	2	NC	30
2,4-dichlorophenol	U	2	U	2	NC	30	anthracene	U	2	U	2	NC	30
2,6-dichlorophenol	U	2	U	2	NC	30	carbazole	U	2	U	2	NC	30
1,2,4-trichlorobenzene	U	2	U	2	NC	30	di-n-butylphthalate	U	2	U	2	NC	30
naphthalene	U	2	U	2	NC	30	fluoranthene	U	2	U	2	NC	30
benzoic acid	U	20	U	20	NC	30	benzidine	U	8	U	8	NC	30
4-chloroaniline	U	2	U	2	NC	30	pyrene	U	2	U	2	NC	30
hexachloro-1,3-butadiene	U	2	U	2	NC	30	butylbenzylphthalate	U	2	U	2	NC	30
4-chloro-3-methylphenol	U	2	U	2	NC	30	benzo(a)anthracene	U	2	U	2	NC	30
2-methylnaphthalene	U	2	U	2	NC	30	chrysene	U	2	U	2	NC	30
hexachlorocyclopentadiene	U	4	U	4	NC	30	3,3'-dichlorobenzidine	U	4	U	4	NC	30
2,4,6-trichlorophenol	U	2	U	2	NC	30	bis(2-ethylhexyl)phthalate	U	2	U	2	NC	30
2,4,5-trichlorophenol	U	2	U	2	NC	30	di-n-octylphthalate	U	2	U	2	NC	30
2-chloronaphthalene	U	2	U	2	NC	30	benzo(b)fluoranthene	U	2	U	2	NC	30
2-nitroaniline	U	2	U	2	NC	30	benzo(k)fluoranthene	U	2	U	2	NC	30
acenaphthylene	U	2	U	2	NC	30	benzo(a)pyrene	U	2	U	2	NC	30
dimethyl phthalate	U	2	U	2	NC	30	indeno(1,2,3-cd)pyrene	U	2	U	2	NC	30
2,6-dinitrotoluene	U	2	U	2	NC	30	dibenz(a,h)anthracene	U	2	U	2	NC	30
							benzo(g,h,i)perylene	U	2	U	2	NC	30

SURROGATE STANDARDS

	Recovery (%)	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Recovery (%)	Acceptance Limits (%)
2-fluorophenol	74	71	21-100	nitrobenzene-d5	92	88	35-114
phenol-d5	60	55	10-102	2-fluorobiphenyl	83	80	43-116
2,4,6-tribromophenol	78	76	10-123	terphenyl-d14	76	78	33-141

U = Below quantitation limit
NC = Not calculated due one or both values less than five times the reporting limit.

Lab Number: 20509-034
Sample Designation: NBH_PH4SAP_PC13E_04A_D (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/20/10
Date Analyzed: 12/22/10
Matrix: Water

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample	Amount	Matrix Spike			Spike Duplicate					
	Result	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/L)	(ug/L)	(ug/L)	(%)	(%)	(ug/L)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
phenol	U	172	140	83	10-110	140	83	10-110	0	60	
2-chlorophenol	U	165	210	129	20-110	220	131	20-110	1	60	J5J13
bis-(2-choroethyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,3-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,4-diclorobenzene	U	74	70	94	30-150	70	95	30-150	1	30	
1,2-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzyl alcohol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-methylphenol (o-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroisopropyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloroethane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitroso-di-n-propylamine	U	83	88	106	30-150	87	105	30-150	1	30	
4-methylphenol (p-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
nitrobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
isophorone	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dimethylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroethoxy)methane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2,4-trichlorobenzene	U	76	71	94	30-150	71	93	30-150	1	30	
naphthalene	U	90	76	85	30-150	77	86	30-150	2	30	
benzoic acid	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloro-1,3-butadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloro-3-methylphenol	U	188	190	100	30-150	190	102	30-150	2	40	
2-methylnaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorocyclopentadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,6-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,5-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-chloronaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
acenaphthylene	U	93	80	86	30-150	81	87	30-150	1	30	
dimethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dinitrotoluene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrotoluene	U	82	67	81	30-150	73	89	30-150	9	30	
acenaphthene	U	182	160	89	30-150	160	90	30-150	1	30	
3-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
dibenzofuran	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitrophenol	U	233	110	46	20-120	110	48	20-120	3	40	
fluorene	U	93	80	86	30-150	82	88	30-150	2	30	

U = Below quantitation limit

ESI

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Lab Number: 20509-034
Sample Designation: NBH_PH4SAP_PC13E_04A_D (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/20/10
Date Analyzed: 12/22/10
Matrix: Water

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Sample Result (ug/L)	Amount Added (ug/L)	Matrix Spike Result (ug/L)	Matrix Spike Recovery (%)	Matrix Spike Limit (%)	Spike Duplicate Result (ug/L)	Spike Duplicate Recovery (%)	Spike Duplicate Limit (%)	Diff (%)	Limit (%)	Qual
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
diethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4,6-dinitro-2-methylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitrosodiphenylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2-diphenylhydrazine (azobenzene)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-bromophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pentachlorophenol	U	205	190	91	30-150	180	89	30-150	3	40	
phenanthrene	U	NA	79	NA	NA	80	NA	NA	NA	NA	
anthracene	U	NA	81	NA	NA	81	NA	NA	NA	NA	
carbazole	U	NA	U	NA	NA	U	NA	NA	NA	NA	
di-n-butylphthalate	U	93	88	95	30-150	88	94	30-150	1	30	
fluoranthene	U	87	78	90	30-150	81	93	30-150	4	30	
benzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pyrene	U	184	170	92	30-150	170	92	30-150	0	30	
butylbenzylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(a)anthracene	U	NA	78	NA	NA	80	NA	NA	NA	NA	
chrysene	U	93	85	92	30-150	85	91	30-150	1	30	
3,3'-dichlorobenzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-ethylhexyl)phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
di-n-octylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(b)fluoranthene	U	81	81	100	30-150	76	94	30-150	6	30	
benzo(k)fluoranthene	U	87	81	93	30-150	70	81	30-150	14	30	
benzo(a)pyrene	U	84	76	91	30-150	73	87	30-150	4	30	
indeno(1,2,3-cd)pyrene	U	74	69	93	30-150	68	92	30-150	1	30	
dibenz(a,h)anthracene	U	78	72	93	30-150	71	91	30-150	2	30	
benzo(g,h,i)perylene	U	74	70	94	30-150	70	94	30-150	0	30	

SURROGATE STANDARDS	MS Recovery %	MSD Recovery %	Acceptance Limits %
2-fluorophenol	94	89	21-100
phenol-d5	82	80	10-102
2,4,6-tribromophenol	105	107	10-123
nitrobenzene-d5	110	101	35-114
2-fluorobiphenyl	101	107	43-116
terphenyl-d14	90	91	33-141

U = Below quantitation limit
J5 = Estimate. MS %R above limit
J13 = Estimate. MSD % R above limit

ESI

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PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	PB487W
Sample Designation:	Laboratory Blank
Date Sampled:	12/16/10
Date Extracted:	12/16/10
Date Analyzed:	12/17/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/L)	Qualifier
8	2,4'-dichlorobiphenyl	0.002	U
18	2,2',5-trichlorobiphenyl	0.002	U
28	2,4,4'-trichlorobiphenyl	0.002	U
44	2,2',3,5'-tetrachlorobiphenyl	0.002	U
49	2,2',4,5'-tetrachlorobiphenyl	0.002	U
52	2,2',5,5'-tetrachlorobiphenyl	0.002	U
66	2,3',4,4'-tetrachlorobiphenyl	0.002	U
77	3,3',4,4'-tetrachlorobiphenyl	0.002	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.002	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.002	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.002	U
118	2,3',4,4',5-pentachlorobiphenyl	0.002	U
126	3,3',4,4',5-pentachlorobiphenyl	0.002	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.002	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.002	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.002	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.002	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.002	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.002	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.002	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.002	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.002	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.002	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.002	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl		
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl		

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	79	30 - 150

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	LCS487W / LCSD487W
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	12/16/10
Date Extracted:	12/16/10
Date Analyzed:	12/17/10
Matrix:	Water
Sample Amount (g):	1000
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	True Value (ug/L)	LCS Result (ug/L)	Recovery (%)	Recovery Limit (%)	LCSD Result (ug/L)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	0.100	0.099	99	30 - 150	0.095	95	30 - 150	4	30
18	2,2',5-trichlorobiphenyl	0.100	0.094	94	30 - 150	0.091	91	30 - 150	3	30
28	2,4,4'-trichlorobiphenyl	0.100	0.099	99	30 - 150	0.094	94	30 - 150	5	30
44	2,2',3,5'-tetrachlorobiphenyl	0.100	0.104	104	30 - 150	0.100	100	30 - 150	4	30
49	2,2',4,5'-tetrachlorobiphenyl	0.100	0.101	101	30 - 150	0.092	92	30 - 150	9	30
52	2,2',5,5'-tetrachlorobiphenyl	0.100	0.107	107	30 - 150	0.101	101	30 - 150	6	30
66	2,3',4,4'-tetrachlorobiphenyl	0.100	0.113	113	30 - 150	0.102	102	30 - 150	10	30
77	3,3',4,4'-tetrachlorobiphenyl	0.100	0.106	106	30 - 150	0.114	114	30 - 150	7	30
87	2,2',3,4,5'-pentachlorobiphenyl	0.100	0.108	108	30 - 150	0.097	97	30 - 150	11	30
101	2,2',4,5,5'-pentachlorobiphenyl	0.100	0.101	101	30 - 150	0.098	98	30 - 150	4	30
105	2,3,3',4,4'-pentachlorobiphenyl	0.100	0.109	109	30 - 150	0.105	105	30 - 150	4	30
118	2,3',4,4',5-pentachlorobiphenyl	0.100	0.111	111	30 - 150	0.109	109	30 - 150	2	30
126	3,3',4,4',5-pentachlorobiphenyl	0.100	0.101	101	30 - 150	0.104	104	30 - 150	2	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.100	0.104	104	30 - 150	0.100	100	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.100	0.103	103	30 - 150	0.102	102	30 - 150	1	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.100	0.101	101	30 - 150	0.097	97	30 - 150	3	30
156	2,3,3',4,4',5-hexachlorobiphenyl	0.100	0.102	102	30 - 150	0.098	98	30 - 150	4	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.100	0.093	93	30 - 150	0.102	102	30 - 150	9	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.100	0.100	100	30 - 150	0.100	100	30 - 150	1	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.100	0.094	94	30 - 150	0.094	94	30 - 150	0	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.100	0.098	98	30 - 150	0.101	101	30 - 150	3	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.100	0.107	107	30 - 150	0.103	103	30 - 150	4	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.100	0.100	100	30 - 150	0.103	103	30 - 150	3	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.100	0.090	90	30 - 150	0.089	89	30 - 150	2	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.100	0.089	89	30 - 150	0.087	87	30 - 150	2	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.100	0.087	87	30 - 150	0.088	88	30 - 150	1	30

	Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198	2,2',3,3',4,5,5',6-octachlorobiphenyl	103	30 - 150	99	30 - 150

ESI

PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-021D
Sample Designation:	NBH_PH4SAP_PC13E_02C (Laboratory Duplicate)
Date Sampled:	12/17/10
Date Extracted:	12/17/10
Date Analyzed:	01/01/11
Matrix:	01/01/11
Moisture (%):	NA
Sample Amount (L):	1000.00
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Concentration (ug/L)	Duplicate Qualifier	Sample Concentration (ug/L)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	0.001	U	0.001	U	NC	30
18	2,2',5-trichlorobiphenyl	0.001	U	0.001	U	NC	30
28	2,4,4'-trichlorobiphenyl	0.0016		0.0012		NC	30
44	2,2',3,5'-tetrachlorobiphenyl	0.001	U	0.001	U	NC	30
49	2,2',4,5'-tetrachlorobiphenyl	0.001	U	0.001	U	NC	30
52	2,2',5,5'-tetrachlorobiphenyl	0.0019		0.0015		NC	30
66	2,3',4,4'-tetrachlorobiphenyl	0.001	U	0.001	U	NC	30
77	3,3',4,4'-tetrachlorobiphenyl	0.001	U	0.001	U	NC	30
87	2,2',3,4,5'-pentachlorobiphenyl	0.001	U	0.001	U	NC	30
101	2,2',4,5,5'-pentachlorobiphenyl	0.001	U	0.001	U	NC	30
105	2,3,3',4,4'-pentachlorobiphenyl	0.001	U	0.001	U	NC	30
118	2,3',4,4',5-pentachlorobiphenyl	0.001	U	0.001	U	NC	30
126	3,3',4,4',5-pentachlorobiphenyl	0.001	U	0.001	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.001	U	0.001	U	NC	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.001	U	0.001	U	NC	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.001	U	0.001	U	NC	30
156	2,3,3',4,4',5-hexachlorobiphenyl	0.001	U	0.001	U	NC	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.001	U	0.001	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.001	U	0.001	U	NC	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.001	U	0.001	U	NC	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.001	U	0.001	U	NC	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.001	U	0.001	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.001	U	0.001	U	NC	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.001	U	0.001	U	NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.001	U	0.001	U	NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.001	U	0.001	U	NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	47	129	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

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PCB Congeners in Water
SW 846 8082/EPA 680 modified

Lab Number:	20509-026MSD
Sample Designation:	NBH_PH4SAP_PC13E_04A_D (Matrix Spike Duplicate)
Date Sampled:	12/16/10
Date Extracted:	12/17/10
Date Analyzed:	12/20/10
Matrix:	Water
Sample Amount (g):	1000.00
Final Volume (mL)	1.00
Dilution Factor:	1.00

Congener Number	PCB Congener	Sample Result (ug/L)	Amount Added (ug/L)	MS Result (ug/L)	Recovery (%)	Recovery Limit (%)	MST Result (ug/L)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	ND	0.100	0.071	71	30 - 150	0.069	69	30 - 150	3	30
18	2,2',5-trichlorobiphenyl	ND	0.100	0.072	72	30 - 150	0.074	74	30 - 150	3	30
28	2,4,4'-trichlorobiphenyl	0.0014	0.100	0.087	85	30 - 150	0.085	84	30 - 150	1	30
44	2,2',3,5'-tetrachlorobiphenyl	ND	0.100	0.094	94	30 - 150	0.089	89	30 - 150	5	30
49	2,2',4,5'-tetrachlorobiphenyl	0.0014	0.100	0.087	86	30 - 150	0.088	86	30 - 150	1	30
52	2,2',5,5'-tetrachlorobiphenyl	0.0025	0.100	0.088	86	30 - 150	0.086	84	30 - 150	2	30
66	2,3',4,4'-tetrachlorobiphenyl	ND	0.100	0.097	97	30 - 150	0.093	93	30 - 150	5	30
77	3,3',4,4'-tetrachlorobiphenyl	ND	0.100	0.102	102	30 - 150	0.097	97	30 - 150	5	30
87	2,2',3,4,5'-pentachlorobiphenyl	ND	0.100	0.092	92	30 - 150	0.090	90	30 - 150	2	30
101	2,2',4,5,5'-pentachlorobiphenyl	0.001	0.100	0.093	92	30 - 150	0.087	86	30 - 150	6	30
105	2,3,3',4,4'-pentachlorobiphenyl	ND	0.100	0.094	94	30 - 150	0.092	92	30 - 150	2	30
118	2,3',4,4',5-pentachlorobiphenyl	ND	0.100	0.093	92	30 - 150	0.093	93	30 - 150	1	30
126	3,3',4,4',5-pentachlorobiphenyl	ND	0.100	0.098	98	30 - 150	0.092	92	30 - 150	6	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	ND	0.100	0.097	97	30 - 150	0.093	93	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	ND	0.100	0.107	107	30 - 150	0.100	100	30 - 150	7	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	ND	0.100	0.103	103	30 - 150	0.099	99	30 - 150	4	30
156	2,3,3',4,4',5-hexachlorobiphenyl	ND	0.100	0.094	94	30 - 150	0.091	91	30 - 150	3	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	ND	0.100	0.101	101	30 - 150	0.098	98	30 - 150	3	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	ND	0.100	0.091	91	30 - 150	0.092	92	30 - 150	1	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	ND	0.100	0.094	94	30 - 150	0.093	93	30 - 150	0	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	ND	0.100	0.095	95	30 - 150	0.095	95	30 - 150	0	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	0.100	0.096	96	30 - 150	0.096	96	30 - 150	0	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	ND	0.100	0.093	93	30 - 150	0.093	93	30 - 150	0	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	ND	0.100	0.093	93	30 - 150	0.090	90	30 - 150	3	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	ND	0.100	0.089	89	30 - 150	0.092	92	30 - 150	3	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	ND	0.100	0.091	91	30 - 150	0.095	95	30 - 150	4	30

Surrogate Standard	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	104	30 - 150	99	30 - 150

ESI

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	PB489W
Sample Designation:	Laboratory Blank
Date Sampled:	12/17/10
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

	Concentration (ug/L)	Reporting Limit (ug/L)
Diesel Range Organics	U	50
Lube Oil Range Organics	U	50
Total Petroleum Hydrocarbons	U	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	88	30 - 150
2-fluorobiphenyl	78	30 - 150

U = Below quantitation limit

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TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	LCS489W / LCSD489W
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	12/17/10
Date Extracted:	12/17/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

	True Value (ug/mL)	LCS Concentration (ug/mL)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/mL)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	2.50	2.38	95	30-150	2.62	105	30-150	9.6	30

SURROGATE STANDARD	LCS Recovery (%)	LCSD Recovery (%)	Advisory Limits (%)
o-terphenyl	96	107	30 - 150
2-fluorobiphenyl	88	99	30 - 150

U = Below quantitation limit

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20509-038D
Sample Designation:	NBH_PH4SAP_PC13E_03A (Laboratory Duplicate)
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

	Duplicate Concentration (ug/L)	Duplicate Qualifier	Sample Concentration (ug/L)	Sample Qualifier	Relative Difference (%)	Limit (%)
Diesel Range Organics	50	U	50	U	NC	30-150
Lube Oil Range Organics	60	U	60	U	NC	30-150
Total Petroleum Hydrocarbons	60	U	60	U	NC	30-150

SURROGATE STANDARD	Duplicate Recovery (%)	Advisory Limits (%)
o-terphenyl	107	30 - 150
2-fluorobiphenyl	90	30 - 150

U = Below quantitation limit
NC = Not calclulated due to one or more values below quantitation limit.

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20509-042
Sample Designation:	NBH_PH4SAP_PC13E_04A_D
Date Sampled:	12/16/10
Date Extracted:	12/19/10
Date Analyzed:	12/21/10
Matrix:	Water
Sample Amount (mL):	1000
Final Volume (mL)	1
Dilution Factor:	1

	Sample Concentration (ug/mL)	Amount Added (ug/mL)	MS Concentration (%)	Recovery (%)	Recovery Limit (%)	MSD Concentration (ug/mL)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	U	2.50	2.51	100	30-150	2.44	98	30-150	3.0	30

SURROGATE STANDARD	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
o-terphenyl	113	30 - 150	115	30 - 150
2-fluorobiphenyl	103	30 - 150	108	30 - 150

U = Below quantitation limit

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/16/10 1027	Date and TIme Logged into Lab:	12/16/10 1150
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
PC13E_01A	20509-001	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01B	20509-002	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01C	20509-003	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_02A	20509-004	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_02B	20509-005	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01A	20509-006	W	SVOC8270C	1L G	4C	Yes
PC13E_01B	20509-007	W	SVOC8270C	1L G	4C	Yes
PC13E_01C	20509-008	W	SVOC8270C	1L G	4C	Yes
PC13E_02A	20509-009	W	SVOC8270C	1L G	4C	Yes
PC13E_02B	20509-010	W	SVOC8270C	1L G	4C	Yes
PC13E_01A	20509-011	W	TPH8100	1L G	HCl	Yes
PC13E_01B	20509-012	W	TPH8100	1L G	HCl	Yes
PC13E_01C	20509-013	W	TPH8100	1L G	HCl	Yes
PC13E_02A	20509-014	W	TPH8100	1L G	HCl	Yes
PC13E_02B	20509-015	W	TPH8100	1L G	HCl	Yes
PC13E_01A	20509-016	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_01B	20509-017	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_01C	20509-018	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_02A	20509-019	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_02B	20509-020	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List. Hg subsampled into 125mL G and preserved with HCl upon receipt. TPH samples preserved with HCl upon receipt. Total Metals preserved with HNO3 upon receipt. Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_02C	20509-021	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-022	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-023	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-024	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-025	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-026	W	CGR680	3x1L G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-027	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-028	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-029	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-030	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-031	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-032	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-033	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-034	W	SVOC8270C	3x1L G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-035	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-036	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-037	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03A	20509-038	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03B	20509-039	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03C	20509-040	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04A	20509-041	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04A_D	20509-042	W	TPH8100	3x1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04B	20509-043	W	TPH8100	1L G	H2SO4	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_04C	20509-044	W	TPH8100	1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-045	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-046	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-047	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-048	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-049	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-050	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-051	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-052	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-053	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-054	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-055	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-056	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-057	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-058	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-059	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-060	W	Total Metals Hg;	125mL G	H2SO4	Yes
NBH_PH4SAP_PC13E_02D	20509-061	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_02E	20509-062	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_02F	20509-063	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_03D	20509-064	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_03E	20509-065	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_04D	20509-066	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_04E	20509-067	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes
NBH_PH4SAP_PC13E_04F	20509-068	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes
NBH_PH4SAP_PC13E_04G	20509-069	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/20/10 0940	Date and TIme Logged into Lab:	12/20/10 1100
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_01D	20509-070	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01E	20509-071	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01F	20509-072	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01G	20509-073	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01A	20509-074	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01B	20509-075	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01C	20509-076	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-077	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-078	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-079	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_08A	20509-080	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_08B	20509-081	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_14A	20509-082	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_14B	20509-083	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/21/10 1120	Date and TIme Logged into Lab:	12/21/10 1300
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	No	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	10	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_02A	20509-084	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_02A	20509-085	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_04A	20509-086	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_07A	20509-087	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_23A	20509-088	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_32A	20509-089	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_32B	20509-090	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13_32C	20509-091	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13_33A	20509-092	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes

Notes and qualifications:

ESI
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P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 2050

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH - South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: NBH 6690.009	Address: Suite 502	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001..*	PC13E_01A	12/5/10	12:00	JR/MB	G	1L/5	4 G / 1 P	None	W	N	PCB's: 22 NOAA 13 Pollutant Metals by 8270C 6020A/7471
-002..*	PC13E_01B		12:30								
-003..*	PC13E_01C		13:00								TPH 8015
-004..*	PC13E_02A		13:30								SVOC 8270C
-005..*	PC13E_02B		14:00								

Relinquished By: CW Pilaning	Date: 12/16/10	Time: 10:27	Received By: [illegible]	Date: 12-16-10	Time: 10:27
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments: * See sample receipt record

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COC Doc No: 4250

ESI
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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: Apex Companies, LLC	Address: Suite 502	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 6690.009 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-021.*	NBH-PH4SAP-PC13E-02C	12/16/10		JR GD MB	G	250mL 125mL 40mL	P/G	HNO_3 H_2SO_4 HCL	W	N	Metals - 6020A/7471 TPH - 8015 SVOCs - 8270C PCB - 22 NOAA 8270C
-022.*	NBH-PH4SAP-PC13E-03A										
-023.*	NBH-PH4SAP-PC13E-03B										
-024.*	NBH-PH4SAP-PC13E-03C										
-025.*	NBH-PH4SAP-PC13E-04A										
-026.*	NBH-PH4SAP-PC13E-04A-D										
-027.*	NBH-PH4SAP-PC13E-04B										
-028.*	NBH-PH4SAP-PC13E-04C										

Relinquished By: [signature]	Date: 12/17/10 Time: 7:00 AM	Received By: [signature]	Date: 12/17/10 Time: 7:00 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments: * See Sample receipt record

Sample Delivery Group No:	Page of

COC Doc No: 425x

ESI
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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH SOUTH TERR	Page 1 of 1
Report to: CHET MYERS	Address: 184 HIGH STREET	Project Number: 6690.009	
Invoice to: APEX COMPANIES LLC	Address: SUITE 502 BOSTON MA	Project Manager: CHET MYERS	
Voice: 617-728-0070	Fax: 617-7280080	email: CMYERS@APEXCOS.COM	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE X Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: METALS - 6020A/7471 TPH - 8015 SVOC - 8270C PCB - NOAA22 8270C
-061	NBH_PH4 SAP_PCBE_02D	12/16/10		MBJR GD	G	2x8oz	G	4°C	S	N	-RUN-
-062	NBH_PH4 SAP_PCBE_02E										HOLD
-063	NBH_PH4_SAP_PCBE_02F										HOLD
064	NBH_PH4_SAP_PCBE_03D										-RUN-
-065	NBH_PH4_SAP_PCBE_03E										HOLD
-066	NBH_PH4_SAP_PCBE_04D										-RUN-
-067	NBH_PH4_SAP_PCBE_04E										HOLD
-068	NBH_PH4_SAP_PCBE_04F										HOLD
-069	NBH_PH4_SAP_PCBE_04G										HOLD

Relinquished By: [signature]	Date: 12/17/2010 Time: 7:00 AM	Received By: [signature]	Date: 12/17/10 Time: 7:00 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4257

ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: NBH South Tem	Page 1 of 2
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: Apex	Address: Suite 502 Boston MA 02110	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES (USCOE) Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: Metals - 6020 A / 7471 TPH - 8015 SVOC - 8270C PCB - NOAA 8270C
-070	NBH_PHASAP_PC13E-01AD	12/17		MB JR GD	G	16oz	G	N	S	N	Run
-071	NBH-PHASAP-PC13E-01E										Hold
-072	NBH-PHASAP-PC13E-01F										Hold
-073	NBH_PHASAP-PC13E-01G										Hold
-074	NBH-PHASAP-PC13-01A										Run
-075	NBH-PHASAP-PC13-01B										Hold
-076	NBH-PHASAP-PC13-01C										Hold
-077	NBH-PHASAP-PC13-03A										Run
-078	NBH-PHASAP-PC13-03B										Hold
-079	NBH-PHASAP-PC13-03C										Hold
-080	NBH-PHASAP-PC13-08A										Run
-081	NBH-PHASAP-PC13-08B										Hold

Relinquished By: [signature]	Date: 12/20/10	Time: 0940	Received By: [signature]	Date: 12/20/10	Time: 0940
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: [illegible]

ESI
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: NBH South Tem	Page 2 of 2
Report to: Chet Myers	Address: 185 High Street	Project Number: 16690.009	
Invoice to: Apex	Address: Suite 502 Boston 02110	Project Manager: Chet Myers	
Voice: 617 728 0010	Fax: 617 728 0080	email: CMyers@apexcos.com	P.O. No: 16690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-082	NBH-PHMSAP- PCB-14A	12/17/10		MBJR LD	G	1 Pint	G	N	S	N	Run
-083	NBH-PHMSAP-PCB-14B										Hold

Relinquished By: [signature]	Date: 12/20/10	Time: 9:40	Received By: [signature] Date: 12/20/10 Time: 0940
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4255

ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street 502	Project Number: 66099009	
Invoice to: Apex Companies LLC	Address: Boston MA 02110	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES (USCOE) Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: Same as previous —
-084	NBH_PH4SAP_PCB8_02A	12/21		JRMB GD	G	16 oz	G	None	S	N	
-085	NBH_PH4SAP_PCB_02A										
-086	NBH_PH4SAP_PCB_04A										
-087	NBH_PH4SAP_PCB_07A										
-088	NBH_PH4SAP_PCB_23A										
-089	NBH_PH4SAP_PCB_32A										
-090	NBH_PH4SAP_PCB_52B										HOLD
-091	NBH_PH4SAP_PCB_32C										HOLD
-092	NBH_PH4SAP_PCB_33A										

Relinquished By: [signature]	Date: 12/21	Time: 11:20	Received By: [signature]	Date: 12/21/10	Time: 11:20
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 43015

ESI

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One Lafayette Road
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p 603 926 3345 · f 603 926 3521
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Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: 6690.009
Report Number: 20509
Date Received: 12/17-12/21/10
Date Reported: 01/26/11

Project: NBH-South Terminal 6690.009

Attached please find results for analyses performed on sediment samples received on 12/17/10 thru 12/21/10.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results except where noted.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent except where noted with respect to petroleum hydrocarbons and antimony.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Date 1/26/11

Authorized
Signature

Attachment
Report

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_02D
Matrix: Solid
Sampled: 12/16/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-061	1.2	B J5 J8	0.06	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-061	6.1		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-061	0.38		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-061	4.1		0.09	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-061	140		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-061	270		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-061	120		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-061	0.34		0.14	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-061	21		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-061	0.55		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-061	3.3		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-061	0.22		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-061	270		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

J5 = Estimate. MS %R below limit.

J8 = Estimate. Dup %RR above limit.

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_03D
Matrix: Solid
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-064	ND	0.06	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-064	4.8	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-064	0.33	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-064	0.5	0.08	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-064	35	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-064	110	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-064	63	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-064	0.29	0.13	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-064	8.8	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-064	0.39	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-064	0.46	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-064	0.16	0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-064	120	1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_04D
Matrix: Solid
Sampled: 12/16/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-066	ND	0.09	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-066	8.6	0.3	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-066	0.53	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-066	3.6	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-066	190	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-066	360	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-066	150	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-066	0.56	0.21	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-066	26	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-066	0.91	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-066	2.7	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-066	0.32	0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-066	330	1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_01D
Matrix: Solid
Sampled: 12/17/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-070	0.3	B	0.08	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-070	11		0.3	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-070	0.74		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-070	2.6		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-070	170		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-070	380		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-070	220		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-070	0.6		0.27	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-070	25		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-070	1		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-070	3.3		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-070	0.42		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-070	460		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_01A
Matrix: Solid
Sampled: 12/17/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-074	0.24	B	0.06	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-074	8.1		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-074	0.56		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-074	2.3		0.08	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-074	140		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-074	310		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-074	140		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-074	0.45		0.22	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-074	20		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-074	0.8		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-074	2.5		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-074	0.32		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-074	360		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_03A
Matrix: Solid
Sampled: 12/17/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-077	0.23	B	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-077	7.4		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-077	0.47		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-077	2.4		0.07	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-077	110		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-077	280		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-077	160		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-077	0.38		0.17	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-077	19		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-077	0.66		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-077	2		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-077	0.26		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-077	340		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_08A
Matrix: Solid
Sampled: 12/17/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-080	0.26	B	0.06	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-080	9.1		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-080	0.61		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-080	7.8		0.08	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-080	300		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-080	560		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-080	200		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-080	0.6		0.2	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-080	35		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-080	0.9		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-080	3.1		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-080	0.35		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-080	440		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_14A
Matrix: Solid
Sampled: 12/17/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-082	0.14	B	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-082	4.9		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-082	0.33		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-082	1.2		0.06	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-082	66		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-082	170		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-082	74		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-082	0.19		0.13	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-082	13		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-082	0.4		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-082	1		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-082	0.16		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-082	270		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13E_02A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-084	0.28	B	0.07	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-084	9.2		0.3	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-084	0.6		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-084	1.7		0.09	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-084	120		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-084	300		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-084	140		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-084	0.45		0.26	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-084	20		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-084	0.81		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-084	2.1		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-084	0.33		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-084	390		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_02A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-085	0.097	B	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-085	4.1		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-085	0.26		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-085	1.4		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-085	39		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-085	150		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-085	46		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-085	0.22		0.14	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-085	11		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-085	0.25		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-085	0.52		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-085	0.087		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-085	210		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

B (0.31) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_04A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-086	ND	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-086	1.6	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-086	0.076	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-086	0.14	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-086	9.3	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-086	21	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-086	11	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-086	0.04	0.03	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-086	2.6	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-086	ND	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-086	0.11	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-086	0.068	0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-086	30	1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_07A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-087	ND	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-087	1.9	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-087	0.11	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-087	0.35	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-087	22	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-087	56	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-087	20	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-087	0.07	0.04	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-087	3.8	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-087	0.12	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-087	0.27	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-087	0.071	0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-087	67	1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

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Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_23A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-088	ND		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-088	1	B	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-088	0.07		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-088	0.09		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-088	10		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-088	23		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-088	11		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-088	0.02		0.02	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-088	2.3		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-088	ND		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-088	0.13		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-088	ND		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-088	31		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

B (0.23) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_32A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result		Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-089	ND		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-089	0.9	B	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-089	0.09		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-089	ND		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-089	6.2		0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-089	9.2		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-089	15		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-089	ND		0.02	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-089	2.7		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-089	ND		0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-089	0.053		0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-089	ND		0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-089	16		1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

B (0.23) = Analyte found in laboratory blank at value indicated. Sample result may be affected.

Report No: 20509 SDG:
Project: NBH-South Terminal 6690.009

Sample ID: NBH_PH4SAP_PC13_33A
Matrix: Solid
Sampled: 12/21/10

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20509-092	ND	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20509-092	1.6	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20509-092	0.12	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20509-092	0.28	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20509-092	17	0.2	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Copper, total	20509-092	46	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Lead, total	20509-092	23	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20509-092	0.06	0.03	ug/g dry wt	01/07/11 1100	01/07/11 1300	JLH/EPA 245.7
Nickel, total	20509-092	3.5	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20509-092	ND	0.1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Silver, total	20509-092	0.22	0.05	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20509-092	0.065	0.05	ug/g dry wt	01/05/11 1300	01/18/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20509-092	56	1	ug/g dry wt	01/05/11 1300	01/06/11	JLH/SW846 3rd Ed. 6020

Notes:

ND = Not Detected

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Lab Number:	20509-061
Sample Designation:	NBH_PH4SAP_PC13E_02D
Date Sampled:	12/16/10
Date Extracted:	12/31/10
Date Analyzed:	01/07/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.7
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.7
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.7
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	0.3	0.3
naphthalene	U	0.3	fluoranthene	0.7	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	1	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	1.4	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	0.4	0.3
2-methylnaphthalene	U	0.3	chrysene	0.4	0.3
hexachlorocyclopentadiene	U	0.7	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	1	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	0.7	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	0.4	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	0.4	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	0.3	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	0.4	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	75	21-100	nitrobenzene-d5	79	35-114
phenol-d5	71	10-102	2-fluorobiphenyl	75	43-116
2,4,6-tribromophenol	75	10-123	terphenyl-d14	85	33-141

U = Below quantitation limit

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Lab Number:	20509-064
Sample Designation:	NBH_PH4SAP_PC13E_03D
Date Sampled:	12/16/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.6
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.6
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.6
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	1.4	0.3
2,4-dichlorophenol	U	0.3	anthracene	0.4	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	1.5	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	2.5	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	1	0.3
2-methylnaphthalene	U	0.3	chrysene	1.1	0.3
hexachlorocyclopentadiene	U	0.6	3,3'-dichlorobenzidine	0.4	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	U	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	0.7	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	0.5	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	0.5	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	0.8	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	0.6	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	70	21-100	nitrobenzene-d5	77	35-114
phenol-d5	73	10-102	2-fluorobiphenyl	73	43-116
2,4,6-tribromophenol	77	10-123	terphenyl-d14	88	33-141

U = Below quantitation limit

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Lab Number:	20509-066
Sample Designation:	NBH_PH4SAP_PC13E_04D
Date Sampled:	12/16/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.4	2,4-dinitrotoluene	U	0.9
phenol	U	0.4	acenaphthene	U	0.4
2-chlorophenol	U	0.4	3-nitroaniline	U	0.4
bis(2-chloroethyl)ether	U	0.4	2,4-dinitrophenol	U	0.9
1,3-dichlorobenzene	U	0.4	dibenzofuran	U	0.4
1,4-dichlorobenzene	U	0.4	4-nitrophenol	U	0.9
1,2-dichlorobenzene	U	0.4	fluorene	U	0.4
benzyl alcohol	U	0.4	4-chlorophenyl phenyl ether	U	0.4
2-methylphenol (m-cresol)	U	0.4	diethyl phthalate	U	0.4
bis(2-chloroisopropyl)ether	U	0.4	4-nitroaniline	U	0.4
hexachloroethane	U	0.4	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.4	4-bromophenyl-phenylether	U	0.4
3- and 4-methylphenol (p- and o-cresol)	U	0.4	N-nitrosodiphenylamine	U	0.4
nitrobenzene	U	0.4	1,2-diphenylhydrazine (azobenzene)	U	0.4
isophorone	U	0.4	4-bromophenyl phenyl ether	U	0.4
2-nitrophenol	U	0.4	hexachlorobenzene	U	0.4
2,4-dimethylphenol	U	0.4	pentachlorophenol	U	0.4
bis(2-chloroethoxy)methane	U	0.4	phenanthrene	U	0.4
2,4-dichlorophenol	U	0.4	anthracene	U	0.4
2,6-dichlorophenol	U	0.4	carbazole	U	0.4
1,2,4-trichlorobenzene	U	0.4	di-n-butylphthalate	U	0.4
naphthalene	U	0.4	fluoranthene	0.9	0.4
benzoic acid	U	4	benzidine	U	4
4-chloroaniline	U	0.4	pyrene	1.1	0.4
hexachloro-1,3-butadiene	U	0.4	butylbenzylphthalate	U	0.4
4-chloro-3-methylphenol	U	0.4	benzo(a)anthracene	0.5	0.4
2-methylnaphthalene	U	0.4	chrysene	0.5	0.4
hexachlorocyclopentadiene	U	0.9	3,3'-dichlorobenzidine	U	0.4
2,4,6-trichlorophenol	U	0.4	bis(2-ethylhexyl)phthalate	1.3	0.4
2,4,5-trichlorophenol	U	0.4	di-n-octylphthalate	U	0.4
2-chloronaphthalene	U	0.4	benzo(b)fluoranthene	0.6	0.4
2-nitroaniline	U	0.4	benzo(k)fluoranthene	0.5	0.4
acenaphthylene	U	0.4	benzo(a)pyrene	0.5	0.4
dimethylphthalate	U	0.4	indeno(1,2,3-cd)pyrene	U	0.4
2,6-dinitrotoluene	U	0.4	dibenz(a,h)anthracene	U	0.4
			benzo(g,h,i)perylene	U	0.4

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	70	21-100	nitrobenzene-d5	74	35-114
phenol-d5	69	10-102	2-fluorobiphenyl	70	43-116
2,4,6-tribromophenol	73	10-123	terphenyl-d14	80	33-141

U = Below quantitation limit

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Lab Number:	20509-070
Sample Designation:	NBH_PH4SAP_PC13E_01D
Date Sampled:	12/17/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.6	2,4-dinitrotoluene	U	1
phenol	U	0.6	acenaphthene	U	0.6
2-chlorophenol	U	0.6	3-nitroaniline	U	0.6
bis(2-chloroethyl)ether	U	0.6	2,4-dinitrophenol	U	1
1,3-dichlorobenzene	U	0.6	dibenzofuran	U	0.6
1,4-dichlorobenzene	U	0.6	4-nitrophenol	U	1
1,2-dichlorobenzene	U	0.6	fluorene	U	0.6
benzyl alcohol	U	0.6	4-chlorophenyl phenyl ether	U	0.6
2-methylphenol (m-cresol)	U	0.6	diethyl phthalate	U	0.6
bis(2-chloroisopropyl)ether	U	0.6	4-nitroaniline	U	0.6
hexachloroethane	U	0.6	4,6-dinitro-2-methylphenol	U	3
N-nitroso-di-n-propylamine	U	0.6	4-bromophenyl-phenylether	U	0.6
3- and 4-methylphenol (p- and o-cresol)	U	0.6	N-nitrosodiphenylamine	U	0.6
nitrobenzene	U	0.6	1,2-diphenylhydrazine (azobenzene)	U	0.6
isophorone	U	0.6	4-bromophenyl phenyl ether	U	0.6
2-nitrophenol	U	0.6	hexachlorobenzene	U	0.6
2,4-dimethylphenol	U	0.6	pentachlorophenol	U	0.6
bis(2-chloroethoxy)methane	U	0.6	phenanthrene	U	0.6
2,4-dichlorophenol	U	0.6	anthracene	U	0.6
2,6-dichlorophenol	U	0.6	carbazole	U	0.6
1,2,4-trichlorobenzene	U	0.6	di-n-butylphthalate	U	0.6
naphthalene	U	0.6	fluoranthene	1.2	0.6
benzoic acid	U	6	benzidine	U	6
4-chloroaniline	U	0.6	pyrene	1.6	0.6
hexachloro-1,3-butadiene	U	0.6	butylbenzylphthalate	U	0.6
4-chloro-3-methylphenol	U	0.6	benzo(a)anthracene	0.7	0.6
2-methylnaphthalene	U	0.6	chrysene	0.8	0.6
hexachlorocyclopentadiene	U	1	3,3'-dichlorobenzidine	U	0.6
2,4,6-trichlorophenol	U	0.6	bis(2-ethylhexyl)phthalate	1.8	0.6
2,4,5-trichlorophenol	U	0.6	di-n-octylphthalate	U	0.6
2-chloronaphthalene	U	0.6	benzo(b)fluoranthene	0.8	0.6
2-nitroaniline	U	0.6	benzo(k)fluoranthene	0.7	0.6
acenaphthylene	U	0.6	benzo(a)pyrene	0.7	0.6
dimethylphthalate	U	0.6	indeno(1,2,3-cd)pyrene	0.7	0.6
2,6-dinitrotoluene	U	0.6	dibenz(a,h)anthracene	U	0.6
			benzo(g,h,i)perylene	U	0.6

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	65	21-100	nitrobenzene-d5	69	35-114
phenol-d5	63	10-102	2-fluorobiphenyl	68	43-116
2,4,6-tribromophenol	73	10-123	terphenyl-d14	83	33-141

U = Below quantitation limit

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Lab Number:	20509-074
Sample Designation:	NBH_PH4SAP_PC13_01A
Date Sampled:	12/17/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	1
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	1
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	1
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	0.5
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	0.7	0.5
benzoic acid	U	5	benzidine	U	5
4-chloroaniline	U	0.5	pyrene	1.1	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	0.5	0.5
2-methylnaphthalene	U	0.5	chrysene	0.6	0.5
hexachlorocyclopentadiene	U	1	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.2	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	0.6	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	0.5	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	0.5	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	U	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	69	21-100	nitrobenzene-d5	72	35-114
phenol-d5	66	10-102	2-fluorobiphenyl	67	43-116
2,4,6-tribromophenol	68	10-123	terphenyl-d14	76	33-141

U = Below quantitation limit

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Lab Number:	20509-077
Sample Designation:	NBH_PH4SAP_PC13_03A
Date Sampled:	12/17/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.4	2,4-dinitrotoluene	U	0.8
phenol	U	0.4	acenaphthene	U	0.4
2-chlorophenol	U	0.4	3-nitroaniline	U	0.4
bis(2-chloroethyl)ether	U	0.4	2,4-dinitrophenol	U	0.8
1,3-dichlorobenzene	U	0.4	dibenzofuran	U	0.4
1,4-dichlorobenzene	U	0.4	4-nitrophenol	U	0.8
1,2-dichlorobenzene	U	0.4	fluorene	U	0.4
benzyl alcohol	U	0.4	4-chlorophenyl phenyl ether	U	0.4
2-methylphenol (m-cresol)	U	0.4	diethyl phthalate	U	0.4
bis(2-chloroisopropyl)ether	U	0.4	4-nitroaniline	U	0.4
hexachloroethane	U	0.4	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.4	4-bromophenyl-phenylether	U	0.4
3- and 4-methylphenol (p- and o-cresol)	U	0.4	N-nitrosodiphenylamine	U	0.4
nitrobenzene	U	0.4	1,2-diphenylhydrazine (azobenzene)	U	0.4
isophorone	U	0.4	4-bromophenyl phenyl ether	U	0.4
2-nitrophenol	U	0.4	hexachlorobenzene	U	0.4
2,4-dimethylphenol	U	0.4	pentachlorophenol	U	0.4
bis(2-chloroethoxy)methane	U	0.4	phenanthrene	0.5	0.4
2,4-dichlorophenol	U	0.4	anthracene	U	0.4
2,6-dichlorophenol	U	0.4	carbazole	U	0.4
1,2,4-trichlorobenzene	U	0.4	di-n-butylphthalate	U	0.4
naphthalene	U	0.4	fluoranthene	1.3	0.4
benzoic acid	U	4	benzidine	U	4
4-chloroaniline	U	0.4	pyrene	1.8	0.4
hexachloro-1,3-butadiene	U	0.4	butylbenzylphthalate	U	0.4
4-chloro-3-methylphenol	U	0.4	benzo(a)anthracene	0.7	0.4
2-methylnaphthalene	U	0.4	chrysene	0.8	0.4
hexachlorocyclopentadiene	U	0.8	3,3'-dichlorobenzidine	U	0.4
2,4,6-trichlorophenol	U	0.4	bis(2-ethylhexyl)phthalate	1	0.4
2,4,5-trichlorophenol	U	0.4	di-n-octylphthalate	U	0.4
2-chloronaphthalene	U	0.4	benzo(b)fluoranthene	0.8	0.4
2-nitroaniline	U	0.4	benzo(k)fluoranthene	0.7	0.4
acenaphthylene	U	0.4	benzo(a)pyrene	0.7	0.4
dimethylphthalate	U	0.4	indeno(1,2,3-cd)pyrene	0.5	0.4
2,6-dinitrotoluene	U	0.4	dibenz(a,h)anthracene	U	0.4
			benzo(g,h,i)perylene	U	0.4

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	74	21-100	nitrobenzene-d5	78	35-114
phenol-d5	72	10-102	2-fluorobiphenyl	72	43-116
2,4,6-tribromophenol	75	10-123	terphenyl-d14	86	33-141

U = Below quantitation limit

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Lab Number: 20509-080
Sample Designation: NBH_PH4SAP_PC13_08A
Date Sampled: 12/17/10
Date Extracted: 12/31/10
Date Analyzed: 01/08/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	1
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	1
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	1
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	0.5
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	0.5	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	1.2	0.5
benzoic acid	U	5	benzidine	U	5
4-chloroaniline	U	0.5	pyrene	1.4	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	0.7	0.5
2-methylnaphthalene	U	0.5	chrysene	0.8	0.5
hexachlorocyclopentadiene	U	1	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.6	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	0.7	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	0.7	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	0.7	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	0.5	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	78	21-100	nitrobenzene-d5	85	35-114
phenol-d5	76	10-102	2-fluorobiphenyl	77	43-116
2,4,6-tribromophenol	78	10-123	terphenyl-d14	84	33-141

U = Below quantitation limit

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Lab Number:	20509-082
Sample Designation:	NBH_PH4SAP_PC13_14A
Date Sampled:	12/17/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.6
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.6
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.6
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	0.6	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	0.8	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	1.2	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	0.6	0.3
2-methylnaphthalene	U	0.3	chrysene	0.7	0.3
hexachlorocyclopentadiene	U	0.6	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	3.3	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	0.5	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	0.4	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	0.4	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	0.3	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	72	21-100	nitrobenzene-d5	74	35-114
phenol-d5	70	10-102	2-fluorobiphenyl	71	43-116
2,4,6-tribromophenol	75	10-123	terphenyl-d14	83	33-141

U = Below quantitation limit

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Lab Number:	20509-084
Sample Designation:	NBH_PH4SAP_PC13E_02A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.5	2,4-dinitrotoluene	U	1
phenol	U	0.5	acenaphthene	U	0.5
2-chlorophenol	U	0.5	3-nitroaniline	U	0.5
bis(2-chloroethyl)ether	U	0.5	2,4-dinitrophenol	U	1
1,3-dichlorobenzene	U	0.5	dibenzofuran	U	0.5
1,4-dichlorobenzene	U	0.5	4-nitrophenol	U	1
1,2-dichlorobenzene	U	0.5	fluorene	U	0.5
benzyl alcohol	U	0.5	4-chlorophenyl phenyl ether	U	0.5
2-methylphenol (m-cresol)	U	0.5	diethyl phthalate	U	0.5
bis(2-chloroisopropyl)ether	U	0.5	4-nitroaniline	U	0.5
hexachloroethane	U	0.5	4,6-dinitro-2-methylphenol	U	3
N-nitroso-di-n-propylamine	U	0.5	4-bromophenyl-phenylether	U	0.5
3- and 4-methylphenol (p- and o-cresol)	U	0.5	N-nitrosodiphenylamine	U	0.5
nitrobenzene	U	0.5	1,2-diphenylhydrazine (azobenzene)	U	0.5
isophorone	U	0.5	4-bromophenyl phenyl ether	U	0.5
2-nitrophenol	U	0.5	hexachlorobenzene	U	0.5
2,4-dimethylphenol	U	0.5	pentachlorophenol	U	0.5
bis(2-chloroethoxy)methane	U	0.5	phenanthrene	U	0.5
2,4-dichlorophenol	U	0.5	anthracene	U	0.5
2,6-dichlorophenol	U	0.5	carbazole	U	0.5
1,2,4-trichlorobenzene	U	0.5	di-n-butylphthalate	U	0.5
naphthalene	U	0.5	fluoranthene	1.1	0.5
benzoic acid	U	5	benzidine	U	5
4-chloroaniline	U	0.5	pyrene	1.3	0.5
hexachloro-1,3-butadiene	U	0.5	butylbenzylphthalate	U	0.5
4-chloro-3-methylphenol	U	0.5	benzo(a)anthracene	0.6	0.5
2-methylnaphthalene	U	0.5	chrysene	0.7	0.5
hexachlorocyclopentadiene	U	1	3,3'-dichlorobenzidine	U	0.5
2,4,6-trichlorophenol	U	0.5	bis(2-ethylhexyl)phthalate	1.1	0.5
2,4,5-trichlorophenol	U	0.5	di-n-octylphthalate	U	0.5
2-chloronaphthalene	U	0.5	benzo(b)fluoranthene	0.8	0.5
2-nitroaniline	U	0.5	benzo(k)fluoranthene	0.6	0.5
acenaphthylene	U	0.5	benzo(a)pyrene	0.6	0.5
dimethylphthalate	U	0.5	indeno(1,2,3-cd)pyrene	0.6	0.5
2,6-dinitrotoluene	U	0.5	dibenz(a,h)anthracene	U	0.5
			benzo(g,h,i)perylene	U	0.5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	75	21-100	nitrobenzene-d5	78	35-114
phenol-d5	71	10-102	2-fluorobiphenyl	71	43-116
2,4,6-tribromophenol	78	10-123	terphenyl-d14	86	33-141

U = Below quantitation limit

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Lab Number:	20509-085
Sample Designation:	NBH_PH4SAP_PC13_02A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.7
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.7
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.7
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	0.5	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	0.5	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	U	0.3
2-methylnaphthalene	U	0.3	chrysene	0.3	0.3
hexachlorocyclopentadiene	U	0.7	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	0.5	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	U	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	U	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	U	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	U	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	75	21-100	nitrobenzene-d5	79	35-114
phenol-d5	72	10-102	2-fluorobiphenyl	74	43-116
2,4,6-tribromophenol	78	10-123	terphenyl-d14	86	33-141

U = Below quantitation limit

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Lab Number:	20509-086
Sample Designation:	NBH_PH4SAP_PC13_04A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.5
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	U	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	U	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	U	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	U	0.2
2-methylnaphthalene	U	0.2	chrysene	U	0.2
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	U	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	U	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	U	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	U	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	U	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	U	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	78	21-100	nitrobenzene-d5	83	35-114
phenol-d5	79	10-102	2-fluorobiphenyl	80	43-116
2,4,6-tribromophenol	81	10-123	terphenyl-d14	86	33-141

U = Below quantitation limit

ESI

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Lab Number:	20509-087
Sample Designation:	NBH_PH4SAP_PC13_07A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.6
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.6
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.6
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	U	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	U	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	U	0.3
2-methylnaphthalene	U	0.3	chrysene	U	0.3
hexachlorocyclopentadiene	U	0.6	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	U	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	U	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	U	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	U	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	U	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	77	21-100	nitrobenzene-d5	82	35-114
phenol-d5	77	10-102	2-fluorobiphenyl	77	43-116
2,4,6-tribromophenol	74	10-123	terphenyl-d14	88	33-141

U = Below quantitation limit

ESI

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Lab Number:	20509-088
Sample Designation:	NBH_PH4SAP_PC13_23A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.5
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	U	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	U	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	U	0.3
2-methylnaphthalene	U	0.3	chrysene	U	0.3
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	U	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	U	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	U	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	U	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	U	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	76	21-100	nitrobenzene-d5	82	35-114
phenol-d5	76	10-102	2-fluorobiphenyl	77	43-116
2,4,6-tribromophenol	73	10-123	terphenyl-d14	81	33-141

U = Below quantitation limit

ESI

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Lab Number:	20509-089
Sample Designation:	NBH_PH4SAP_PC13_32A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.6
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.6
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.6
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	U	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	U	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	U	0.3
2-methylnaphthalene	U	0.3	chrysene	U	0.3
hexachlorocyclopentadiene	U	0.6	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	U	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	U	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	U	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	U	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	U	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	21-100	nitrobenzene-d5	81	35-114
phenol-d5	77	10-102	2-fluorobiphenyl	74	43-116
2,4,6-tribromophenol	68	10-123	terphenyl-d14	79	33-141

U = Below quantitation limit

ESI

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Lab Number:	20509-092
Sample Designation:	NBH_PH4SAP_PC13_33A
Date Sampled:	12/21/10
Date Extracted:	12/31/10
Date Analyzed:	01/08/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.3	2,4-dinitrotoluene	U	0.5
phenol	U	0.3	acenaphthene	U	0.3
2-chlorophenol	U	0.3	3-nitroaniline	U	0.3
bis(2-chloroethyl)ether	U	0.3	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.3	dibenzofuran	U	0.3
1,4-dichlorobenzene	U	0.3	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.3	fluorene	U	0.3
benzyl alcohol	U	0.3	4-chlorophenyl phenyl ether	U	0.3
2-methylphenol (m-cresol)	U	0.3	diethyl phthalate	U	0.3
bis(2-chloroisopropyl)ether	U	0.3	4-nitroaniline	U	0.3
hexachloroethane	U	0.3	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.3	4-bromophenyl-phenylether	U	0.3
3- and 4-methylphenol (p- and o-cresol)	U	0.3	N-nitrosodiphenylamine	U	0.3
nitrobenzene	U	0.3	1,2-diphenylhydrazine (azobenzene)	U	0.3
isophorone	U	0.3	4-bromophenyl phenyl ether	U	0.3
2-nitrophenol	U	0.3	hexachlorobenzene	U	0.3
2,4-dimethylphenol	U	0.3	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.3	phenanthrene	U	0.3
2,4-dichlorophenol	U	0.3	anthracene	U	0.3
2,6-dichlorophenol	U	0.3	carbazole	U	0.3
1,2,4-trichlorobenzene	U	0.3	di-n-butylphthalate	U	0.3
naphthalene	U	0.3	fluoranthene	0.5	0.3
benzoic acid	U	3	benzidine	U	3
4-chloroaniline	U	0.3	pyrene	0.4	0.3
hexachloro-1,3-butadiene	U	0.3	butylbenzylphthalate	U	0.3
4-chloro-3-methylphenol	U	0.3	benzo(a)anthracene	U	0.3
2-methylnaphthalene	U	0.3	chrysene	U	0.3
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.3	bis(2-ethylhexyl)phthalate	0.3	0.3
2,4,5-trichlorophenol	U	0.3	di-n-octylphthalate	U	0.3
2-chloronaphthalene	U	0.3	benzo(b)fluoranthene	U	0.3
2-nitroaniline	U	0.3	benzo(k)fluoranthene	U	0.3
acenaphthylene	U	0.3	benzo(a)pyrene	U	0.3
dimethylphthalate	U	0.3	indeno(1,2,3-cd)pyrene	U	0.3
2,6-dinitrotoluene	U	0.3	dibenz(a,h)anthracene	U	0.3
			benzo(g,h,i)perylene	U	0.3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	70	21-100	nitrobenzene-d5	81	35-114
phenol-d5	75	10-102	2-fluorobiphenyl	79	43-116
2,4,6-tribromophenol	75	10-123	terphenyl-d14	87	33-141

U = Below quantitation limit

ESI

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-061
Sample Designation:	NBH_PH4SAP_PC13E_02D
Date Sampled:	12/16/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	5

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	92	
18	2,2',5-trichlorobiphenyl	*	110	
28	2,4,4'-trichlorobiphenyl	*	410	
44	2,2',3,5'-tetrachlorobiphenyl	*	110	
49	2,2',4,5'-tetrachlorobiphenyl	*	250	
52	2,2',5,5'-tetrachlorobiphenyl	*	320	
66	2,3',4,4'-tetrachlorobiphenyl	*	390	
77	3,3',4,4'-tetrachlorobiphenyl		37	
87	2,2',3,4,5'-pentachlorobiphenyl		140	
101	2,2',4,5,5'-pentachlorobiphenyl	*	370	
105	2,3,3',4,4'-pentachlorobiphenyl		140	
118	2,3',4,4',5-pentachlorobiphenyl	*	410	
126	3,3',4,4',5-pentachlorobiphenyl		2.1	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	73	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	330	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	220	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	31	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	2.1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	32	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	35	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		14	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	2.1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	27	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.6	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.1	U

Total PCBs by Sum of congeners (*) multiplied by 2 6500

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	84	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-064
Sample Designation:	NBH_PH4SAP_PC13E_03D
Date Sampled:	12/16/10
Date Extracted:	12/22/10
Date Analyzed:	01/24/11
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.8	
18	2,2',5-trichlorobiphenyl	*	10	
28	2,4,4'-trichlorobiphenyl	*	29	
44	2,2',3,5'-tetrachlorobiphenyl	*	10	
49	2,2',4,5'-tetrachlorobiphenyl	*	22	
52	2,2',5,5'-tetrachlorobiphenyl	*	44	
66	2,3',4,4'-tetrachlorobiphenyl	*	21	
77	3,3',4,4'-tetrachlorobiphenyl		0.39	U
87	2,2',3,4,5'-pentachlorobiphenyl		28	
101	2,2',4,5,5'-pentachlorobiphenyl	*	77	
105	2,3,3',4,4'-pentachlorobiphenyl		25	
118	2,3',4,4',5-pentachlorobiphenyl	*	65	
126	3,3',4,4',5-pentachlorobiphenyl		0.39	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	15	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	52	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	46	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4.2	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.39	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	4.7	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	6.8	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.39	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	3.4	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.39	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	
Total PCBs by Sum of congeners (*) multiplied by 2			830	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	60	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-066
Sample Designation:	NBH_PH4SAP_PC13E_04D
Date Sampled:	12/16/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	56
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	5

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	140	
18	2,2',5-trichlorobiphenyl	*	180	
28	2,4,4'-trichlorobiphenyl	*	670	
44	2,2',3,5'-tetrachlorobiphenyl	*	120	
49	2,2',4,5'-tetrachlorobiphenyl	*	360	
52	2,2',5,5'-tetrachlorobiphenyl	*	430	
66	2,3',4,4'-tetrachlorobiphenyl	*	540	
77	3,3',4,4'-tetrachlorobiphenyl		58	
87	2,2',3,4,5'-pentachlorobiphenyl		210	
101	2,2',4,5,5'-pentachlorobiphenyl	*	500	
105	2,3,3',4,4'-pentachlorobiphenyl		170	
118	2,3',4,4',5-pentachlorobiphenyl	*	670	
126	3,3',4,4',5-pentachlorobiphenyl		12	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	110	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	500	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	310	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	39	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	2.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	47	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	57	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		20	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	2.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	41	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	4.7	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.2	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.8	U
Total PCBs by Sum of congeners (*) multiplied by 2			9500	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	102	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-070
Sample Designation:	NBH_PH4SAP_PC13E_01D
Date Sampled:	12/17/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	68
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	65	
18	2,2',5-trichlorobiphenyl	*	81	
28	2,4,4'-trichlorobiphenyl	*	440	
44	2,2',3,5'-tetrachlorobiphenyl	*	77	
49	2,2',4,5'-tetrachlorobiphenyl	*	280	
52	2,2',5,5'-tetrachlorobiphenyl	*	330	
66	2,3',4,4'-tetrachlorobiphenyl	*	240	
77	3,3',4,4'-tetrachlorobiphenyl		32	
87	2,2',3,4,5'-pentachlorobiphenyl		140	
101	2,2',4,5,5'-pentachlorobiphenyl	*	330	
105	2,3,3',4,4'-pentachlorobiphenyl		140	
118	2,3',4,4',5-pentachlorobiphenyl	*	390	
126	3,3',4,4',5-pentachlorobiphenyl		2.4	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	88	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	340	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	270	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	32	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	2.4	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	49	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	44	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		17	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	2.4	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	41	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3	

Total PCBs by Sum of congeners (*) multiplied by 2 6200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	94	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-074
Sample Designation:	NBH_PH4SAP_PC13_01A
Date Sampled:	12/17/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	58
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	69	
18	2,2',5-trichlorobiphenyl	*	85	
28	2,4,4'-trichlorobiphenyl	*	350	
44	2,2',3,5'-tetrachlorobiphenyl	*	81	
49	2,2',4,5'-tetrachlorobiphenyl	*	240	
52	2,2',5,5'-tetrachlorobiphenyl	*	320	
66	2,3',4,4'-tetrachlorobiphenyl	*	310	
77	3,3',4,4'-tetrachlorobiphenyl		39	
87	2,2',3,4,5'-pentachlorobiphenyl		150	
101	2,2',4,5,5'-pentachlorobiphenyl	*	360	
105	2,3,3',4,4'-pentachlorobiphenyl		130	
118	2,3',4,4',5-pentachlorobiphenyl	*	410	
126	3,3',4,4',5-pentachlorobiphenyl		1.8	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	95	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	330	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	260	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	33	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	39	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	42	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		17	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	34	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.8	U

Total PCBs by Sum of congeners (*) multiplied by 2 6100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	93	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-077
Sample Designation:	NBH_PH4SAP_PC13_03A
Date Sampled:	12/17/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	50
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	58	
18	2,2',5-trichlorobiphenyl	*	71	
28	2,4,4'-trichlorobiphenyl	*	290	
44	2,2',3,5'-tetrachlorobiphenyl	*	67	
49	2,2',4,5'-tetrachlorobiphenyl	*	200	
52	2,2',5,5'-tetrachlorobiphenyl	*	270	
66	2,3',4,4'-tetrachlorobiphenyl	*	260	
77	3,3',4,4'-tetrachlorobiphenyl		32	
87	2,2',3,4,5'-pentachlorobiphenyl		120	
101	2,2',4,5,5'-pentachlorobiphenyl	*	300	
105	2,3,3',4,4'-pentachlorobiphenyl		110	
118	2,3',4,4',5-pentachlorobiphenyl	*	350	
126	3,3',4,4',5-pentachlorobiphenyl		1.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	79	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	270	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	220	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	27	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	33	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	35	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		14	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	28	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.5	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.9	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.5	U

Total PCBs by Sum of congeners (*) multiplied by 2 5100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	93	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-080
Sample Designation:	NBH_PH4SAP_PC13_08A
Date Sampled:	12/17/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	58
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	5

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	160	
18	2,2',5-trichlorobiphenyl	*	180	
28	2,4,4'-trichlorobiphenyl	*	770	
44	2,2',3,5'-tetrachlorobiphenyl	*	140	
49	2,2',4,5'-tetrachlorobiphenyl	*	420	
52	2,2',5,5'-tetrachlorobiphenyl	*	480	
66	2,3',4,4'-tetrachlorobiphenyl	*	610	
77	3,3',4,4'-tetrachlorobiphenyl		79	
87	2,2',3,4,5'-pentachlorobiphenyl		270	
101	2,2',4,5,5'-pentachlorobiphenyl	*	680	
105	2,3,3',4,4'-pentachlorobiphenyl		270	
118	2,3',4,4',5-pentachlorobiphenyl	*	790	
126	3,3',4,4',5-pentachlorobiphenyl		3	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	160	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	610	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	420	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	66	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	3	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	66	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	67	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		26	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	53	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	4.4	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3	U

Total PCBs by Sum of congeners (*) multiplied by 2 11000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	154	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-082
Sample Designation:	NBH_PH4SAP_PC13_14A
Date Sampled:	12/17/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	2

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	20	
18	2,2',5-trichlorobiphenyl	*	29	
28	2,4,4'-trichlorobiphenyl	*	150	
44	2,2',3,5'-tetrachlorobiphenyl	*	23	
49	2,2',4,5'-tetrachlorobiphenyl	*	110	
52	2,2',5,5'-tetrachlorobiphenyl	*	120	
66	2,3',4,4'-tetrachlorobiphenyl	*	95	
77	3,3',4,4'-tetrachlorobiphenyl		14	
87	2,2',3,4,5'-pentachlorobiphenyl		46	
101	2,2',4,5,5'-pentachlorobiphenyl	*	130	
105	2,3,3',4,4'-pentachlorobiphenyl		33	
118	2,3',4,4',5-pentachlorobiphenyl	*	160	
126	3,3',4,4',5-pentachlorobiphenyl		2.4	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	27	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	120	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	97	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	12	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.78	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	14	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	16	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.1	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.78	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	13	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.78	U

Total PCBs by Sum of congeners (*) multiplied by 2 2300

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	90	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-084
Sample Designation:	NBH_PH4SAP_PC13E_02A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Moisture (%):	63
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	2

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	45	
18	2,2',5-trichlorobiphenyl	*	48	
28	2,4,4'-trichlorobiphenyl	*	280	
44	2,2',3,5'-tetrachlorobiphenyl	*	39	
49	2,2',4,5'-tetrachlorobiphenyl	*	180	
52	2,2',5,5'-tetrachlorobiphenyl	*	210	
66	2,3',4,4'-tetrachlorobiphenyl	*	130	
77	3,3',4,4'-tetrachlorobiphenyl		19	
87	2,2',3,4,5'-pentachlorobiphenyl		67	
101	2,2',4,5,5'-pentachlorobiphenyl	*	210	
105	2,3,3',4,4'-pentachlorobiphenyl		79	
118	2,3',4,4',5-pentachlorobiphenyl	*	270	
126	3,3',4,4',5-pentachlorobiphenyl		10	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	60	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	240	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	190	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	21	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.3	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	27	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	29	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		11	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	27	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.3	U

Total PCBs by Sum of congeners (*) multiplied by 2 4000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	83	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-085
Sample Designation:	NBH_PH4SAP_PC13_02A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/01/11
Matrix:	Solid
Moisture (%):	42
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	8.7	
18	2,2',5-trichlorobiphenyl	*	12	
28	2,4,4'-trichlorobiphenyl	*	43	
44	2,2',3,5'-tetrachlorobiphenyl	*	9.6	
49	2,2',4,5'-tetrachlorobiphenyl	*	37	
52	2,2',5,5'-tetrachlorobiphenyl	*	54	
66	2,3',4,4'-tetrachlorobiphenyl	*	30	
77	3,3',4,4'-tetrachlorobiphenyl		4.1	
87	2,2',3,4,5'-pentachlorobiphenyl		14	
101	2,2',4,5,5'-pentachlorobiphenyl	*	37	
105	2,3,3',4,4'-pentachlorobiphenyl		11	
118	2,3',4,4',5-pentachlorobiphenyl	*	47	
126	3,3',4,4',5-pentachlorobiphenyl		1.7	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	9.8	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	44	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	31	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.43	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	4.9	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	4.8	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.43	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	4.1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.43	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.43	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.43	U

Total PCBs by Sum of congeners (*) multiplied by 2 760

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	85	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-086
Sample Designation:	NBH_PH4SAP_PC13_04A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/01/11
Matrix:	Solid
Moisture (%):	20
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	1.1	
18	2,2',5-trichlorobiphenyl	*	2.9	
28	2,4,4'-trichlorobiphenyl	*	11	
44	2,2',3,5'-tetrachlorobiphenyl	*	2.2	
49	2,2',4,5'-tetrachlorobiphenyl	*	8	
52	2,2',5,5'-tetrachlorobiphenyl	*	12	
66	2,3',4,4'-tetrachlorobiphenyl	*	7.9	
77	3,3',4,4'-tetrachlorobiphenyl		1.1	
87	2,2',3,4,5'-pentachlorobiphenyl		5.2	
101	2,2',4,5,5'-pentachlorobiphenyl	*	13	
105	2,3,3',4,4'-pentachlorobiphenyl		4.6	
118	2,3',4,4',5-pentachlorobiphenyl	*	15	
126	3,3',4,4',5-pentachlorobiphenyl		0.31	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	3.6	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	14	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	9	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1.3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.31	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.2	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.62	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.31	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1.4	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.31	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.31	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.31	U
Total PCBs by Sum of congeners (*) multiplied by 2			210	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	89	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-087
Sample Designation:	NBH_PH4SAP_PC13_07A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/01/11
Matrix:	Solid
Moisture (%):	30
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	5.9	
18	2,2',5-trichlorobiphenyl	*	7.9	
28	2,4,4'-trichlorobiphenyl	*	32	
44	2,2',3,5'-tetrachlorobiphenyl	*	5.6	
49	2,2',4,5'-tetrachlorobiphenyl	*	19	
52	2,2',5,5'-tetrachlorobiphenyl	*	29	
66	2,3',4,4'-tetrachlorobiphenyl	*	20	
77	3,3',4,4'-tetrachlorobiphenyl		2.4	
87	2,2',3,4,5'-pentachlorobiphenyl		11	
101	2,2',4,5,5'-pentachlorobiphenyl	*	27	
105	2,3,3',4,4'-pentachlorobiphenyl		10	
118	2,3',4,4',5-pentachlorobiphenyl	*	32	
126	3,3',4,4',5-pentachlorobiphenyl		0.36	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	6.7	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	30	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	20	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	2.1	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.36	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	3.1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	3.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.36	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	3.2	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.36	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.36	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.36	U
Total PCBs by Sum of congeners (*) multiplied by 2			500	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	83	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-088
Sample Designation:	NBH_PH4SAP_PC13_23A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/24/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.33	U
18	2,2',5-trichlorobiphenyl	*	1.1	
28	2,4,4'-trichlorobiphenyl	*	6	
44	2,2',3,5'-tetrachlorobiphenyl	*	1.5	
49	2,2',4,5'-tetrachlorobiphenyl	*	5.4	
52	2,2',5,5'-tetrachlorobiphenyl	*	7.2	
66	2,3',4,4'-tetrachlorobiphenyl	*	3.7	
77	3,3',4,4'-tetrachlorobiphenyl		0.33	U
87	2,2',3,4,5'-pentachlorobiphenyl		1.5	
101	2,2',4,5,5'-pentachlorobiphenyl	*	6.9	
105	2,3,3',4,4'-pentachlorobiphenyl		1.8	
118	2,3',4,4',5-pentachlorobiphenyl	*	5.7	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	1.5	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	5.9	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	4.7	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.33	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.46	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.96	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.33	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.65	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.33	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.33	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.33	U
Total PCBs by Sum of congeners (*) multiplied by 2			110	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-089
Sample Designation:	NBH_PH4SAP_PC13_32A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/01/11
Matrix:	Solid
Moisture (%):	34
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.38	U
18	2,2',5-trichlorobiphenyl	*	1.2	
28	2,4,4'-trichlorobiphenyl	*	3.6	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.97	
49	2,2',4,5'-tetrachlorobiphenyl	*	3.8	
52	2,2',5,5'-tetrachlorobiphenyl	*	4.2	
66	2,3',4,4'-tetrachlorobiphenyl	*	3.9	
77	3,3',4,4'-tetrachlorobiphenyl		0.38	U
87	2,2',3,4,5'-pentachlorobiphenyl		2.2	
101	2,2',4,5,5'-pentachlorobiphenyl	*	6.4	
105	2,3,3',4,4'-pentachlorobiphenyl		2.5	
118	2,3',4,4',5-pentachlorobiphenyl	*	9	
126	3,3',4,4',5-pentachlorobiphenyl		0.38	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	2.4	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	8.5	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	5	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.73	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.38	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.4	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.38	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.78	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.38	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.38	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.38	U
Total PCBs by Sum of congeners (*) multiplied by 2			110	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	63	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-092
Sample Designation:	NBH_PH4SAP_PC13_33A
Date Sampled:	12/21/10
Date Extracted:	12/22/10
Date Analyzed:	01/24/11
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.89	
18	2,2',5-trichlorobiphenyl	*	8.6	
28	2,4,4'-trichlorobiphenyl	*	20	
44	2,2',3,5'-tetrachlorobiphenyl	*	5.8	
49	2,2',4,5'-tetrachlorobiphenyl	*	23	
52	2,2',5,5'-tetrachlorobiphenyl	*	32	
66	2,3',4,4'-tetrachlorobiphenyl	*	12	
77	3,3',4,4'-tetrachlorobiphenyl		0.62	
87	2,2',3,4,5'-pentachlorobiphenyl		8.8	
101	2,2',4,5,5'-pentachlorobiphenyl	*	33	
105	2,3,3',4,4'-pentachlorobiphenyl		8.5	
118	2,3',4,4',5-pentachlorobiphenyl	*	27	
126	3,3',4,4',5-pentachlorobiphenyl		0.34	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	5.1	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	23	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	20	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1.6	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.34	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	2.1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	3.4	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.93	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.34	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	2.1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.34	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.34	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.34	U
Total PCBs by Sum of congeners (*) multiplied by 2			440	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	71	30 - 150

U = Not detected at value reported

Note: Total PCB's by sum of congeners includes a value of one half the reporting limit for asterisked congeners not detected at the reporting limit (U).

Lab Number:	20509-061
Sample Designation:	NBH_PH4SAP_PC13E_02D
Date Sampled:	12/16/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	20
Lube Oil Range Organics	1200	Note 2	13
Total Petroleum Hydrocarbons	U	Note 1	20

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	98	30 - 150
2-fluorobiphenyl	101	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-064
Sample Designation:	NBH_PH4SAP_PC13E_03D
Date Sampled:	12/16/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	10
Lube Oil Range Organics	430	Note 2	12
Total Petroleum Hydrocarbons	U	Note 1	12

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	93	30 - 150
2-fluorobiphenyl	98	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-066
Sample Designation:	NBH_PH4SAP_PC13E_04D
Date Sampled:	12/16/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	60
Lube Oil Range Organics	1500	Note 2	17
Total Petroleum Hydrocarbons	U	Note 1	60

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	100	30 - 150
2-fluorobiphenyl	96	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-070
Sample Designation:	NBH_PH4SAP_PC13E_01D
Date Sampled:	12/17/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	50
Lube Oil Range Organics	1700	Note 2	24
Total Petroleum Hydrocarbons	U	Note 1	50

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	98	30 - 150
2-fluorobiphenyl	97	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-074
Sample Designation:	NBH_PH4SAP_PC13_01A
Date Sampled:	12/17/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	40
Lube Oil Range Organics	1400	Note 2	18
Total Petroleum Hydrocarbons	U	Note 1	40

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	101	30 - 150
2-fluorobiphenyl	107	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-077
Sample Designation:	NBH_PH4SAP_PC13_03A
Date Sampled:	12/17/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	25
Lube Oil Range Organics	1000	Note 2	15
Total Petroleum Hydrocarbons	U	Note 1	25

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	104	30 - 150
2-fluorobiphenyl	101	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-080
Sample Designation:	NBH_PH4SAP_PC13_08A
Date Sampled:	12/17/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	90
Lube Oil Range Organics	2500	Note 2	60
Total Petroleum Hydrocarbons	U	Note 1	90

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	109	30 - 150
2-fluorobiphenyl	105	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-082
Sample Designation:	NBH_PH4SAP_PC13_14A
Date Sampled:	12/17/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	40
Lube Oil Range Organics	800	Note 2	12
Total Petroleum Hydrocarbons	U	Note 1	40

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	103	30 - 150
2-fluorobiphenyl	106	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

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Lab Number:	20509-084
Sample Designation:	NBH_PH4SAP_PC13E_02A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	20
Lube Oil Range Organics	100	Note 2	20
Total Petroleum Hydrocarbons	U	Note 1	20

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	100	30 - 150
2-fluorobiphenyl	100	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-085
Sample Designation:	NBH_PH4SAP_PC13_02A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	7
Lube Oil Range Organics	260	Note 2	5
Total Petroleum Hydrocarbons	U	Note 1	7

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	101	30 - 150
2-fluorobiphenyl	98	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-086
Sample Designation:	NBH_PH4SAP_PC13_04A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U		4
Lube Oil Range Organics	72	Note 2	4
Total Petroleum Hydrocarbons	U		4

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	100	30 - 150
2-fluorobiphenyl	93	30 - 150

U = Below quantitation limit

Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-087
Sample Designation:	NBH_PH4SAP_PC13_07A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	20
Lube Oil Range Organics	140	Note 2	4
Total Petroleum Hydrocarbons	U	Note 1	20

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	108	30 - 150
2-fluorobiphenyl	105	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-088
Sample Designation:	NBH_PH4SAP_PC13_23A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	15
Lube Oil Range Organics	44	Note 2	4
Total Petroleum Hydrocarbons	U	Note 1	15

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	113	30 - 150
2-fluorobiphenyl	102	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-089
Sample Designation:	NBH_PH4SAP_PC13_32A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	15
Lube Oil Range Organics	110	Note 2	4
Total Petroleum Hydrocarbons	U	Note 1	15

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	103	30 - 150
2-fluorobiphenyl	93	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20509-092
Sample Designation:	NBH_PH4SAP_PC13_33A
Date Sampled:	12/21/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	20
Lube Oil Range Organics	140	Note 2	4
Total Petroleum Hydrocarbons	U	Note 1	20

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	104	30 - 150
2-fluorobiphenyl	98	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Quality Control Summary

Parameter: Antimony, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.314	B 0.314		High

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	95.3	100	95	97.5	100	98	Pass
SRM1944	40-140	0.93	5.0	19				Low

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	0.581		1.16		67	J8	High

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	35.5	62.9	1.16		55	J5	Low
20509-061SD	70-130	35.3	63.9	1.16		53	J5	Low

NC = Not calculated.
J5 = MS %R below limit.
J8 = Duplicate %RR above limit.
B = Analyte found in laboratory blank at level indicated. Results may be used with due consideration.

ESI

Quality Control Summary

Parameter: Arsenic, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.232	B 0.232		High

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	94.9	100	95	95.9	100	96	Pass
SRM1944	62-100	15.3	18.9	81				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	6.68		6.13		9		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	61.8	62.9	6.13		89		Pass
20509-061SD	70-130	62.2	63.9	6.13		88		Pass

NC = Not calculated.
B = Analyte found in laboratory blank at level indicated. Results may be used with due consideration.

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Quality Control Summary

Parameter: Beryllium, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	4.81	5	96	5.03	5	101	Pass
SRM1944	40-140	0.63	1.6	39				Low

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	0.422		0.381		10		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	3.62	3.14	0.381		103		Pass
20509-061SD	70-130	3.56	3.19	0.381		100		Pass

NC = Not calculated.

ESI

Quality Control Summary

Parameter: Cadmium, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	48.7	50	97	49.3	50	99	Pass
SRM1944	57-142	9.13	8.8	92				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	4.72		4.11		14		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	35.7	31.4	4.11		100		Pass
20509-061SD	70-130	35.4	31.9	4.11		98		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Chromium, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.2	0.312	B 0.312		High

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	20.3	20	101	20.9	20	104	Pass
SRM1944	53-100	182	266	68				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	155		143		8		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130		12.6	143		SNR		Pass
20509-061SD	70-130		12.8	143		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.
B = Analyte found in laboratory blank at level indicated. Results may be used with due consideration.

Quality Control Summary

Parameter: Copper, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	24.1	25	96	24.5	25	98	Pass
SRM1944	58-110	324	380	85				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	286		266		7		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130		15.7	266		SNR		Pass
20509-061SD	70-130		16.0	266		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Lead, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.192	B 0.192		High

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	100	100	100	101	100	101	Pass
SRM1944	70-112	303	330	92				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	136		123		10		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	199	62.9	123		121		Pass
20509-061SD	70-130	184	63.9	123		96		Pass

NC = Not calculated.
B = Analyte found in laboratory blank at level indicated. Results may be used with due consideration.

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Quality Control Summary

Parameter: Mercury, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 796S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB796S	0.02	0.02	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS796S	70-130	0.019	0.02	95	0.0200	0.02	100	Pass
SRM1944	56-144	3.17	3.400	93				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	0.33		0.34		3		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130		0.014	0.34		SNR		Pass
20509-061SD	70-130		0.014	0.34		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

ESI

Quality Control Summary

Parameter: Nickel, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	48.9	50	98	50.0	50	100	Pass
SRM1944	50-100	54.1	76.1	71				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	23.1		20.6		11		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	50.4	31.4	20.6		95		Pass
20509-061SD	70-130	49.9	31.9	20.6		92		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Selenium, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	92.2	100	92	93.5	100	94	Pass
SRM1944	40-140	1.17	1.4	84				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	0.55		0.55		0		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	56.7	62.9	0.55		89		Pass
20509-061SD	70-130	56.3	63.9	0.55		87		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Silver, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	24.7	25	99	25.1	25	100	Pass
SRM1944	40-140	6.18	6.4	97				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	3.70		3.28		NC		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	19.2	15.7	3.28		102		Pass
20509-061SD	70-130	18.5	16.0	3.28		95		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Thallium, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	102	100	102	102	100	102	Pass
SRM1944			<1					

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	0.231		0.215		7		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130	65.5	62.9	0.215		104		Pass
20509-061SD	70-130	63.7	63.9	0.215		99		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Zinc, total
Project: NBH-South Terminal 6690.009
Matrix: Solid
QC Batch No: 198S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20509-061	NBH_PH4SAP_PC13E_02D	20509-086	NBH_PH4SAP_PC13_04A
20509-064	NBH_PH4SAP_PC13E_03D	20509-087	NBH_PH4SAP_PC13_07A
20509-066	NBH_PH4SAP_PC13E_04D	20509-088	NBH_PH4SAP_PC13_23A
20509-070	NBH_PH4SAP_PC13E_01D	20509-089	NBH_PH4SAP_PC13_32A
20509-074	NBH_PH4SAP_PC13_01A	20509-092	NBH_PH4SAP_PC13_33A
20509-077	NBH_PH4SAP_PC13_03A		
20509-080	NBH_PH4SAP_PC13_08A		
20509-082	NBH_PH4SAP_PC13_14A		
20509-084	NBH_PH4SAP_PC13E_02A		
20509-085	NBH_PH4SAP_PC13_02A		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB198S	1	1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS198S	70-130	46.1	50	92	47	50	94	Pass
SRM1944	69-100	546	656	83				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20509-061D	30	291		265		9		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20509-061S	70-130		31.4	265		SNR		Pass
20509-061SD	70-130		31.9	265		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Lab Number:	PB576S
Sample Designation:	Laboratory Blank
Date Sampled:	12/31/10
Date Extracted:	12/31/10
Date Analyzed:	01/06/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270.

	Concentration (mg/Kg dry wt)	Quantitation Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Quantitation Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.4	2,4-dinitrotoluene	U	0.8
phenol	U	0.4	acenaphthene	U	0.4
2-chlorophenol	U	0.4	3-nitroaniline	U	0.4
bis(2-chloroethyl)ether	U	0.4	2,4-dinitrophenol	U	0.8
1,3-dichlorobenzene	U	0.4	dibenzofuran	U	0.4
1,4-dichlorobenzene	U	0.4	4-nitrophenol	U	0.8
1,2-dichlorobenzene	U	0.4	fluorene	U	0.4
benzyl alcohol	U	0.4	4-chlorophenyl phenyl ether	U	0.4
2-methylphenol (m-cresol)	U	0.4	diethyl phthalate	U	0.4
bis(2-chloroisopropyl)ether	U	0.4	4-nitroaniline	U	0.4
hexachloroethane	U	0.4	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.4	4-chlorophenyl phenyl ether	U	0.4
4-methylphenol (p-cresol)	U	0.4	N-nitrosodiphenylamine	U	0.4
nitrobenzene	U	0.4	1,2-diphenylhydrazine (azobenzene)	U	0.4
isophorone	U	0.4	4-bromophenyl phenyl ether	U	0.4
2-nitrophenol	U	0.4	hexachlorobenzene	U	0.4
2,4-dimethylphenol	U	0.4	pentachlorophenol	U	0.4
bis(2-chloroethoxy)methane	U	0.4	phenanthrene	U	0.4
2,4-dichlorophenol	U	0.4	anthracene	U	0.4
2,6-dichlorophenol	U	0.4	carbazole	U	0.4
1,2,4-trichlorobenzene	U	0.4	di-n-butylphthalate	U	0.4
naphthalene	U	0.4	fluoranthene	U	0.4
benzoic acid	U	4	benzidine	U	4
4-chloroaniline	U	0.4	pyrene	U	0.4
hexachloro-1,3-butadiene	U	0.4	butylbenzylphthalate	U	0.4
4-chloro-3-methylphenol	U	0.4	benzo(a)anthracene	U	0.4
2-methylnaphthalene	U	0.4	chrysene	U	0.4
hexachlorocyclopentadiene	U	0.8	3,3'-dichlorobenzidine	U	0.4
2,4,6-trichlorophenol	U	0.4	bis(2-ethylhexyl)phthalate	U	0.4
2,4,5-trichlorophenol	U	0.4	di-n-octylphthalate	U	0.4
2-chloronaphthalene	U	0.4	benzo(b)fluoranthene	U	0.4
2-nitroaniline	U	0.4	benzo(k)fluoranthene	U	0.4
acenaphthylene	U	0.4	benzo(a)pyrene	U	0.4
dimethylphthalate	U	0.4	indeno(1,2,3-cd)pyrene	U	0.4
2,6-dinitrotoluene	U	0.4	dibenz(a,h)anthracene	U	0.4
			benzo(g,h,i)perylene	U	0.4

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	21-100	nitrobenzene-d5	91	35-114
phenol-d5	92	10-102	2-fluorobiphenyl	89	43-116
2,4,6-tribromophenol	121	10-123	terphenyl-d14	94	33-141

U = Below quantitation limit

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Lab Number: LCS576S\LCSD576S
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 12/16/10
Date Extracted: 12/31/10
Date Analyzed: 01/07/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(mg/Kg)	(mg/Kg)	(%)	(%)	(mg/Kg)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	NA	U	NA	30-150	U	NA	30-150	NA	30	
phenol	20	14	71	5-112	15	73	5-112	2	30	
2-chlorophenol	20	14	72	23-134	15	73	23-134	2	30	
bis-(2-choroethyl)ether	NA	U	NA	36-166	U	NA	36-166	NA	30	
1,3-dichlorobenzene	NA	U	NA	1-172	U	NA	1-172	NA	30	
1,4-diclorobenzene	10	5.6	56	20-124	5.9	59	20-124	5	30	
1,2-dichlorobenzene	NA	U	NA	32-129	U	NA	32-129	NA	30	
benzyl alcohol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-methylphenol (o-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
bis(2-chloroisopropyl)ether	NA	U	NA	53-127	U	NA	53-127	NA	30	
hexachloroethane	NA	U	NA	40-113	U	NA	40-113	NA	30	
N-nitroso-di-n-propylamine	10	6.4	64	1-150	6.5	65	1-150	2	30	
4-methylphenol (p-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
nitrobenzene	NA	U	NA	35-180	U	NA	35-180	NA	30	
isophorone	NA	U	NA	21-196	U	NA	21-196	NA	30	
2-nitrophenol	NA	U	NA	29-182	U	NA	29-182	NA	30	
2,4-dimethylphenol	NA	U	NA	32-119	U	NA	32-119	NA	30	
bis(2-chloroethoxy)methane	NA	U	NA	33-184	U	NA	33-184	NA	30	
2,4-dichlorophenol	NA	U	NA	39-135	U	NA	39-135	NA	30	
2,6-dichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
1,2,4-trichlorobenzene	10	5.8	58	44-142	6	60	44-142	3	30	
naphthalene	10	6	60	21-133	5.9	59	21-133	2	30	
benzoic acid	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-chloroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachloro-1,3-butadiene	NA	U	NA	24-116	U	NA	24-116	NA	30	
4-chloro-3-methylphenol	20	15	77	22-147	15	77	22-147	1	30	
2-methylnaphthalene	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachlorocyclopentadiene	NA	U	NA	30-150	U	NA	30-150	NA	30	
2,4,6-trichlorophenol	NA	U	NA	37-144	U	NA	37-144	NA	30	
2,4,5-trichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-chloronaphthalene	NA	U	NA	60-118	U	NA	60-118	NA	30	
2-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
acenaphthylene	10	6.1	61	33-145	6.2	62	33-145	1	30	
dimethyl phthalate	NA	U	NA	1-112	U	NA	1-112	NA	30	
2,6-dinitrotoluene	NA	U	NA	50-158	U	NA	50-158	NA	30	
2,4-dinitrotoluene	10	U	NA	30-150	6	60	39-139	2	60	
acenaphthene	20	14	71	5-112	14	73	47-145	4	30	
3-nitroaniline	NA	14	72	23-134	U	73	30-150	NA	30	

U = Below quantitation limit

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Lab Number: LCS576S\LCSD576S
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 12/16/10
Date Extracted: 12/31/10
Date Analyzed: 01/07/11
Matrix: Solid

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(mg/Kg)	(mg/Kg)	(%)	(%)	(mg/Kg)	(%)	(%)	(%)	(%)	
2,4-dinitrophenol	NA	U	NA	1-191	U	NA	1-191	NA	30	
dibenzofuran	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-nitrophenol	20	13	66	1-132	14	70	1-132	5	40	
fluorene	10	6.1	61	59-121	6.3	63	59-121	3	30	
4-chlorophenyl phenyl ether	NA	U	NA	25-158	U	NA	25-158	NA	30	
diethyl phthalate	NA	U	NA	1-114	U	NA	1-114	NA	30	
4-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
4,6-dinitro-2-methylphenol	NA	U	NA	1-181	U	NA	1-181	NA	30	
4-chlorophenyl phenyl ethe	NA	U	NA	25-158	U	NA	25-158	NA	30	
N-nitrosodiphenylamine	NA	U	NA	30-150	NA	NA	30-150	NA	30	
4-bromophenyl phenylether	NA	U	NA	25-158	NA	NA	25-158	NA	30	
hexachlorobenzene	NA	U	NA	30-150	NA	NA	30-150	NA	30	
pentachlorophenol	20	9.8	49	14-176	9.7	49	14-176	1	30	
phenanthrene	10	6.1	61	54-120	6.2	62	54-120	1	30	
anthracene	10	6.3	63	27-133	6.4	64	27-133	1	30	
carbazole	NA	U	NA	30-150	U	NA	30-150	NA	30	
di-n-butyl phthalate	10	6.8	68	1-118	7	70	1-118	3	30	
fluoranthene	10	6.2	62	26-137	6.3	63	26-137	2	30	
benzidine	NA	U	NA	30-150	U	NA	30-150	NA	30	
pyrene	20	14	70	52-115	14	72	52-115	3	30	
butyl benzyl phthalate	NA	U	NA	1-152	U	NA	1-152	NA	30	
benzo(a)anthracene	10	6.5	65	33-143	6.6	66	33-143	0	30	
chrysene	10	6.3	63	17-168	6.8	68	17-168	8	30	
3,3'-dichlorobenzidine	NA	U	NA	1-262	U	NA	1-262	NA	30	
bis-2-ethylhexyl phthalate	NA	U	NA	1-158	U	NA	1-158	NA	30	
di-n-octyl phthalate	NA	U	NA	1-146	U	NA	1-146	NA	30	
benzo(b)fluoranthene	10	7	70	24-159	7.4	74	24-159	6	30	
benzo(k)fluoranthene	10	6.9	69	11-162	6.7	67	11-162	4	30	
benzo(a)pyrene	10	5.7	57	17-163	5.7	57	17-163	0	30	
indeno(1,2,3-cd)pyrene	10	5.6	56	1-171	5.7	57	1-171	1	30	
dibenz(a,h)anthracene	10	5.6	56	1-227	5.7	57	1-227	1	30	
benzo(g,h,i)perylene	10	5.6	56	1-219	5.7	57	1-219	1	30	

SURROGATE STANDARDS	Laboratory Control Sample		Laboratory Control Sample Duplicate	
	Recovery	Limits	Recovery	Limits
	(%)	(%)	(%)	(%)
2-fluorophenol	74	21-100	60	21-100
phenol-d5	76	10-102	63	10-102
2,4,6-tribromophenol	74	10-123	60	10-123
nitrobenzene-d5	80	35-114	68	35-114
2-fluorobiphenyl	80	43-116	65	43-116
terphenyl-d14	85	33-141	68	33-141

U = Below quantitation limit

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Lab Number: 20509-061
Sample Designation: NBH_PH4SAP_PC13E_02D (Laboratory Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/31/10
Date Analyzed: 01/07/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample (mg/Kg dry wt)	RL (mg/Kg dry wt)	Duplicate (mg/Kg dry wt)	RL (mg/Kg dry wt)	DIFF (%)	Limit (%)		Sample (mg/Kg dry wt)	RL (mg/Kg dry wt)	Duplicate (mg/Kg dry wt)	RL (mg/Kg dry wt)	DIFF (%)
N-nitrosodimethylamine	U	0.3	U	0.3	NC	30	2,4-dinitrotoluene	U	0.7	U	0.7	NC
phenol	U	0.3	U	0.3	NC	30	acenaphthene	U	0.3	U	0.3	NC
2-chlorophenol	U	0.3	U	0.3	NC	30	3-nitroaniline	U	0.3	U	0.3	NC
bis-(2-choroethyl)ether	U	0.3	U	0.3	NC	30	2,4-dinitrophenol	U	0.7	U	0.7	NC
1,3-dichlorobenzene	U	0.3	U	0.3	NC	30	dibenzofuran	U	0.3	U	0.3	NC
1,4-diclorobenzene	U	0.3	U	0.3	NC	30	4-nitrophenol	U	0.7	U	0.7	NC
1,2-dichlorobenzene	U	0.3	U	0.3	NC	30	fluorene	U	0.3	U	0.3	NC
benzyl alcohol	U	0.3	U	0.3	NC	30	4-chlorophenyl phenyl ether	U	0.3	U	0.3	NC
2-methylphenol (o-cresol)	U	0.3	U	0.3	NC	30	diethyl phthalate	U	0.3	U	0.3	NC
bis(2-chloroisopropyl)ether	U	0.3	U	0.3	NC	30	4-nitroaniline	U	0.3	U	0.3	NC
hexachloroethane	U	0.3	U	0.3	NC	30	4,6-dinitro-2-methylphenol	U	2	U	2	NC
N-nitroso-di-n-propylamine	U	0.3	U	0.3	NC	30	4-chlorophenyl phenyl ether	U	0.3	U	0.3	NC
4-methylphenol (p-cresol)	U	0.3	U	0.3	NC	30	N-nitrosodiphenylamine	U	0.3	U	0.3	NC
nitrobenzene	U	0.3	U	0.3	NC	30	1,2-diphenylhydrazine	U	0.3	U	0.3	NC
isophorone	U	0.3	U	0.3	NC	30	4-bromophenyl phenyl ether	U	0.3	U	0.3	NC
2-nitrophenol	U	0.3	U	0.3	NC	30	hexachlorobenzene	U	0.3	U	0.3	NC
2,4-dimethylphenol	U	0.3	U	0.3	NC	30	pentachlorophenol	U	0.3	U	0.3	NC
bis(2-chloroethoxy)methane	U	0.3	U	0.3	NC	30	phenanthrene	U	0.3	U	0.3	NC
2,4-dichlorophenol	U	0.3	U	0.3	NC	30	anthracene	U	0.3	U	0.3	NC
2,6-dichlorophenol	U	0.3	U	0.3	NC	30	carbazole	U	0.3	U	0.3	NC
1,2,4-trichlorobenzene	U	0.3	U	0.3	NC	30	di-n-butylphthalate	0.3	0.3	U	0.3	NC
naphthalene	U	0.3	U	0.3	NC	30	fluoranthene	0.7	0.3	0.79	0.3	NC
benzoic acid	U	3	U	3	NC	30	benzidine	U	3	U	3	NC
4-chloroaniline	U	0.3	U	0.3	NC	30	pyrene	1	0.3	1	0.3	NC
hexachloro-1,3-butadiene	U	0.3	U	0.3	NC	30	butylbenzylphthalate	1.4	0.3	U	0.3	NC
4-chloro-3-methylphenol	U	0.3	U	0.3	NC	30	benzo(a)anthracene	0.4	0.3	0.42	0.3	NC
2-methylnaphthalene	U	0.3	U	0.3	NC	30	chrysene	0.4	0.3	0.47	0.3	NC
hexachlorocyclopentadiene	U	0.7	U	0.7	NC	30	3,3'-dichlorobenzidine	U	0.3	U	0.3	NC
2,4,6-trichlorophenol	U	0.3	U	0.3	NC	30	bis(2-ethylhexyl)phthalate	1	0.3	1.3	0.3	NC
2,4,5-trichlorophenol	U	0.3	U	0.3	NC	30	di-n-octylphthalate	U	0.3	U	0.3	NC
2-chloronaphthalene	U	0.3	U	0.3	NC	30	benzo(b)fluoranthene	0.7	0.3	0.55	0.3	NC
2-nitroaniline	U	0.3	U	0.3	NC	30	benzo(k)fluoranthene	0.4	0.3	0.45	0.3	NC
acenaphthylene	U	0.3	U	0.3	NC	30	benzo(a)pyrene	0.3	0.3	0.37	0.3	NC
dimethyl phthalate	U	0.3	U	0.3	NC	30	indeno(1,2,3-cd)pyrene	U	0.3	0.35	0.3	NC
2,6-dinitrotoluene	U	0.3	U	0.3	NC	30	dibenz(a,h)anthracene	U	0.3	U	0.3	NC
							benzo(g,h,i)perylene	0.4	0.3	0.35	0.3	NC

SURROGATE STANDARDS

	Recovery (%)	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Recovery (%)	Acceptai (%)
2-fluorophenol	75	78	21-100	nitrobenzene-d5	79	77	35-114
phenol-d5	71	72	10-102	2-fluorobiphenyl	75	76	43-116
2,4,6-tribromophenol	151	156	10-123	terphenyl-d14	85	89	33-141

U = Below quantitation limit
NC = Not calculated due one or both values less than five times the reporting limit.

Lab Number: 20509-061
Sample Designation: NBH_PH4SAP_PC13E_02D (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/31/10
Date Analyzed: 01/07/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample	Amount	Matrix Spike			Spike Duplicate					
	Result	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(mg/Kg dry wt)	(mg/Kg dry wt)	(mg/Kg dry wt)	(%)	(%)	(mg/Kg dry wt)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
phenol	U	33	23	70	10-110	23	71	10-110	1	60	
2-chlorophenol	U	33	22	68	20-110	23	70	20-110	3	60	
bis-(2-choroethyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,3-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,4-diclorobenzene	U	17	8.9	54	30-150	9.1	54	30-150	1	30	
1,2-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzyl alcohol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-methylphenol (o-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroisopropyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloroethane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitroso-di-n-propylamine	U	17	10	62	30-150	11	64	30-150	4	30	
4-methylphenol (p-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
nitrobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
isophorone	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dimethylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroethoxy)methane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2,4-trichlorobenzene	U	17	9.6	58	30-150	9.6	58	30-150	1	30	
naphthalene	U	17	9.8	59	30-150	9.8	59	30-150	0	30	
benzoic acid	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloro-1,3-butadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloro-3-methylphenol	U	33	26	79	30-150	26	80	30-150	2	40	
2-methylnaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorocyclopentadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,6-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,5-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-chloronaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
acenaphthylene	U	17	10	61	30-150	10	61	30-150	1	30	
dimethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dinitrotoluene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrotoluene	U	17	11	64	30-150	10	63	30-150	2	30	
acenaphthene	U	33	22	65	30-150	21	65	30-150	1	30	
3-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
dibenzofuran	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitrophenol	U	33	28	85	20-120	28	83	20-120	3	40	
fluorene	U	17	10	63	30-150	10	62	30-150	2	30	

U = Below quantitation limit

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number: 20509-061
Sample Designation: NBH_PH4SAP_PC13E_02D (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 12/16/10
Date Extracted: 12/31/10
Date Analyzed: 01/07/11
Matrix: Solid

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Sample Result (mg/Kg dry wt)	Amount Added (mg/Kg dry wt)	Matrix Spike Result (mg/Kg dry wt)	Matrix Spike Recovery (%)	Matrix Spike Limit (%)	Spike Duplicate Result (mg/Kg dry wt)	Spike Duplicate Recovery (%)	Spike Duplicate Limit (%)	Diff (%)	Limit (%)	Qual
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
diethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4,6-dinitro-2-methylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitrosodiphenylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2-diphenylhydrazine (azobenzene)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-bromophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pentachlorophenol	U	33	26	77	30-150	26	79	30-150	2	40	
phenanthrene	U	17	31	182	30-150	11	62	30-150	99	30	J6J7
anthracene	U	17	30	179	30-150	11	64	30-150	95	30	J6J7
carbazole	U	NA	U	NA	NA	U	NA	NA	NA	NA	
di-n-butylphthalate	U	17	29	173	30-150	12	68	30-150	88	30	J6J7
fluoranthene	U	17	32	190	30-150	12	67	30-150	97	30	J6J7
benzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pyrene	U	33	43	127	30-150	23	67	30-150	64	30	J7
butylbenzylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(a)anthracene	U	17	34	203	30-150	11	65	30-150	104	30	J6J7
chrysene	U	17	32	188	30-150	11	65	30-150	98	30	J6J7
3,3'-dichlorobenzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-ethylhexyl)phthalate	U	NA	1.4	NA	NA	2.1	NA	NA	NA	NA	
di-n-octylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(b)fluoranthene	U	17	43	255	30-150	15	84	30-150	102	30	J6J7
benzo(k)fluoranthene	U	17	39	230	30-150	10	60	30-150	118	30	J6J7
benzo(a)pyrene	U	17	37	218	30-150	9.8	57	30-150	118	30	J6J7
indeno(1,2,3-cd)pyrene	U	17	37	221	30-150	10	59	30-150	116	30	J6J7
dibenz(a,h)anthracene	U	17	36	215	30-150	9.9	60	30-150	113	30	J6J7
benzo(g,h,i)perylene	U	17	36	217	30-150	10	58	30-150	116	30	J6J7

SURROGATE STANDARDS	MS Recovery	MSD Recovery %	Acceptance Limits %
2-fluorophenol	77	80	21-100
phenol-d5	76	77	10-102
2,4,6-tribromophenol	166	161	10-123
nitrobenzene-d5	80	157	35-114
2-fluorobiphenyl	78	161	43-116
terphenyl-d14	85	163	33-141

U = Below quantitation limit
J7 = Estimate. MSD %RR above limit
J6 = Estimate. MS%R or MSD%R below limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB574S
Sample Designation:	Laboratory Blank PB574S
Date Sampled:	12/22/10
Date Extracted:	12/22/10
Date Analyzed:	12/30/10
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.25	U
18	2,2',5-trichlorobiphenyl	0.25	U
28	2,4,4'-trichlorobiphenyl	0.25	U
44	2,2',3,5'-tetrachlorobiphenyl	0.25	U
49	2,2',4,5'-tetrachlorobiphenyl	0.25	U
52	2,2',5,5'-tetrachlorobiphenyl	0.25	U
66	2,3',4,4'-tetrachlorobiphenyl	0.25	U
77	3,3',4,4'-tetrachlorobiphenyl	0.25	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.25	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.25	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.25	U
118	2,3',4,4',5-pentachlorobiphenyl	0.25	U
126	3,3',4,4',5-pentachlorobiphenyl	0.25	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.25	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.25	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.25	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.25	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.25	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.25	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.25	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.25	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.25	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.25	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.25	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.25	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.25	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	73	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS574S / LCSD574S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	12/22/10
Date Extracted:	12/22/10
Date Analyzed:	12/30/10
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentratio (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	3.26	65	30 - 150	3.7	74	30 - 150	12	30
18	2,2',5-trichlorobiphenyl	3.41	68	30 - 150	3.7	73	30 - 150	7	30
28	2,4,4'-trichlorobiphenyl	3.8	76	30 - 150	3.9	78	30 - 150	3	30
44	2,2',3,5'-tetrachlorobiphenyl	3.57	71	30 - 150	4	80	30 - 150	11	30
49	2,2',4,5'-tetrachlorobiphenyl	3.97	79	30 - 150	4.1	81	30 - 150	2	30
52	2,2',5,5'-tetrachlorobiphenyl	3.29	66	30 - 150	3.5	69	30 - 150	5	30
66	2,3',4,4'-tetrachlorobiphenyl	3.95	79	30 - 150	4.1	82	30 - 150	4	30
77	3,3',4,4'-tetrachlorobiphenyl	4.12	82	30 - 150	4.1	82	30 - 150	1	30
87	2,2',3,4,5'-pentachlorobiphenyl	3.92	78	30 - 150	4.7	93	30 - 150	17	30
101	2,2',4,5,5'-pentachlorobiphenyl	3.86	77	30 - 150	4	81	30 - 150	4	30
105	2,3,3',4,4'-pentachlorobiphenyl	4.08	82	30 - 150	3.9	78	30 - 150	5	30
118	2,3',4,4',5-pentachlorobiphenyl	3.81	76	30 - 150	4.2	83	30 - 150	9	30
126	3,3',4,4',5-pentachlorobiphenyl	3.57	71	30 - 150	3.3	65	30 - 150	9	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	4.03	81	30 - 150	3.9	78	30 - 150	3	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.14	83	30 - 150	4.3	86	30 - 150	4	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	4.17	83	30 - 150	4.2	85	30 - 150	1	30
156	2,3,3',4,4',5-hexachlorobiphenyl	4.13	83	30 - 150	3.9	77	30 - 150	7	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	4.4	88	30 - 150	3.5	71	30 - 150	22	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	3.91	78	30 - 150	3.4	67	30 - 150	15	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.9	78	30 - 150	3.8	75	30 - 150	3	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.1	82	30 - 150	4.1	83	30 - 150	1	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	4.15	83	30 - 150	4	80	30 - 150	4	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	3.81	76	30 - 150	3.6	72	30 - 150	6	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	3.64	73	30 - 150	3.7	74	30 - 150	1	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	3.69	74	30 - 150	3.1	62	30 - 150	17	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	3.5	70	30 - 150	3.4	68	30 - 150	3	30

	Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198	2,2',3,3',4,5,5',6-octachlorobiphenyl	74	30 - 150	78	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-061D
Sample Designation:	NBH_PH4SAP_PC13E_02D (Laboratory Duplicate)
Date Sampled:	12/22/10
Date Extracted:	12/22/10
Date Analyzed:	o4666
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	5

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	73		92		23	30
18	2,2',5-trichlorobiphenyl	110		110		6	30
28	2,4,4'-trichlorobiphenyl	390		410		5	30
44	2,2',3,5'-tetrachlorobiphenyl	94		110		15	30
49	2,2',4,5'-tetrachlorobiphenyl	230		250		8	30
52	2,2',5,5'-tetrachlorobiphenyl	290		320		10	30
66	2,3',4,4'-tetrachlorobiphenyl	370		390		5	30
77	3,3',4,4'-tetrachlorobiphenyl	36		37		4	30
87	2,2',3,4,5'-pentachlorobiphenyl	140		140		0	30
101	2,2',4,5,5'-pentachlorobiphenyl	320		370		15	30
105	2,3,3',4,4'-pentachlorobiphenyl	120		140		19	30
118	2,3',4,4',5-pentachlorobiphenyl	380		410		7	30
126	3,3',4,4',5-pentachlorobiphenyl	1.3	U	2.1	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	69		73		5	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	300		330		9	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	190		220		14	30
156	2,3,3',4,4',5-hexachlorobiphenyl	31		31		2	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	1.3	U	2.1	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	32		32		1	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	37		35		4	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	12		14		11	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.3	U	2.1	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	25		27		6	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.3	U	3.6		NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	2.1		3		NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	1.3	U	2.1	U	NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	95	84	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20509-061MSD
Sample Designation:	NBH_PH4SAP_PC13E_02D (Matrix Spike Duplicate)
Date Sampled:	12/22/10
Date Extracted:	12/22/10
Date Analyzed:	12/31/10
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	5.00

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	92	8.303	42.1	SNR	30 - 150	6.3	SNR	30 - 150	148	30
18	2,2',5-trichlorobiphenyl	110	8.303	54.0	SNR	30 - 150	9.0	SNR	30 - 150	143	30
28	2,4,4'-trichlorobiphenyl	410	8.303	212.0	SNR	30 - 150	41.0	SNR	30 - 150	135	30
44	2,2',3,5'-tetrachlorobiphenyl	110	8.303	45.2	SNR	30 - 150	7.4	SNR	30 - 150	144	30
49	2,2',4,5'-tetrachlorobiphenyl	250	8.303	117.0	SNR	30 - 150	21.0	SNR	30 - 150	140	30
52	2,2',5,5'-tetrachlorobiphenyl	320	8.303	152.0	SNR	30 - 150	25.0	SNR	30 - 150	143	30
66	2,3',4,4'-tetrachlorobiphenyl	390	8.303	165.0	SNR	30 - 150	25.0	SNR	30 - 150	147	30
77	3,3',4,4'-tetrachlorobiphenyl	37	8.303	24.5	DIL	30 - 150	3.2	DIL	30 - 150	153	30
87	2,2',3,4,5'-pentachlorobiphenyl	140	8.303	69.2	SNR	30 - 150	10.0	SNR	30 - 150	149	30
101	2,2',4,5,5'-pentachlorobiphenyl	370	8.303	160.0	SNR	30 - 150	29.0	SNR	30 - 150	139	30
105	2,3,3',4,4'-pentachlorobiphenyl	140	8.303	61.8	SNR	30 - 150	7.8	SNR	30 - 150	155	30
118	2,3',4,4',5-pentachlorobiphenyl	410.0	8.303	199.0	SNR	30 - 150	30.0	SNR	30 - 150	147	30
126	3,3',4,4',5-pentachlorobiphenyl	ND	8.303	4.4	DIL	30 - 150	0.9	DIL	30 - 150	134	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	73	8.303	33.2	SNR	30 - 150	6.3	SNR	30 - 150	136	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	330	8.303	139.0	SNR	30 - 150	25.0	SNR	30 - 150	139	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	220	8.303	94.1	SNR	30 - 150	16.0	SNR	30 - 150	141	30
156	2,3,3',4,4',5-hexachlorobiphenyl	31	8.303	15.1	DIL	30 - 150	2.1	DIL	30 - 150	151	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	ND	8.303	3.6	DIL	30 - 150	0.7	DIL	30 - 150	132	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	32	8.303	18.0	DIL	30 - 150	3.2	DIL	30 - 150	140	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	35	8.303	19.5	DIL	30 - 150	3.4	DIL	30 - 150	141	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	14	8.303	8.2	DIL	30 - 150	1.4	DIL	30 - 150	141	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	8.303	3.3	DIL	30 - 150	0.6	DIL	30 - 150	137	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	27	8.303	13.5	DIL	30 - 150	2.2	DIL	30 - 150	144	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	3.6	8.303	4.7	DIL	30 - 150	0.9	DIL	30 - 150	137	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	3	8.303	4.9	DIL	30 - 150	0.9	DIL	30 - 150	138	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	ND	8.303	4.1	DIL	30 - 150	1.1	DIL	30 - 150	117	30

Surrogate Standard	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	DIL	30 - 150	DIL	30 - 150

ND = Not detected

DIL = Not calculated due to sample dilution.
SNR = Not calculated due to sample concentration.

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TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	PB475W
Sample Designation:	Laboratory Blank
Date Sampled:	12/28/10
Date Extracted:	12/28/10
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Concentration (ug/g dry wt)	Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	3
Lube Oil Range Organics	U	3
Total Petroleum Hydrocarbons	U	3

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	108	30 - 150
2-fluorobiphenyl	104	30 - 150

U = Below quantitation limit

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TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	LCS489W / LCSD489W
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	12/28/10
Date Extracted:	12/28/10
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	True Value (ug/g dry wt)	LCS Concentration (ug/g dry wt)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/g dry wt)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	125	126	101	30-150	117	93	30-150	7.4	30

SURROGATE STANDARD	LCS Recovery (%)	LCSD Recovery (%)	Advisory Limits (%)
o-terphenyl	105	109	30 - 150
2-fluorobiphenyl	105	108	30 - 150

U = Below quantitation limit

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20509-061
Sample Designation:	NBH_PH4SAP_PC13E_02D (Laboratory Duplicate)
Date Sampled:	12/16/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Duplicate Concentration (ug/g dry wt)	Duplicate Qualifier	Sample Concentration (ug/g dry wt)	Sample Qualifier	Relative Difference (%)	Limit (%)
Diesel Range Organics	20	U	20	U	NC	30-150
Lube Oil Range Organics	1100		1200		9.5	30-150
Total Petroleum Hydrocarbons	20	U	20	U	NC	30-150

SURROGATE STANDARD	Duplicate Recovery (%)	Advisory Limits (%)
o-terphenyl	98	30 - 150
2-fluorobiphenyl	103	30 - 150

U = Below quantitation limit
NC = Not calclulated due to one or more values below quantitation limit.

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20509-061
Sample Designation:	NBH_PH4SAP_PC13E_02D (Matrix Spike Duplicate)
Date Sampled:	12/16/10
Date Extracted:	12/28/11
Date Analyzed:	01/08/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Sample Concentration (ug/g dry wt)	Amount Added (ug/g dry wt)	MS Concentration (%)	Recovery (%)	Recovery Limit (%)	MSD Concentration (ug/mL)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	U	208	189	91	30-150	207	100	30-150	9.2	30

SURROGATE STANDARD	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
o-terphenyl	101	30 - 150	99	30 - 150
2-fluorobiphenyl	104	30 - 150	105	30 - 150

U = Below quantitation limit

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/16/10 1027	Date and TIme Logged into Lab:	12/16/10 1150
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
PC13E_01A	20509-001	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01B	20509-002	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01C	20509-003	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_02A	20509-004	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_02B	20509-005	W	CGR680, Total Metals Hg;	2x1L G	4C	Yes
PC13E_01A	20509-006	W	SVOC8270C	1L G	4C	Yes
PC13E_01B	20509-007	W	SVOC8270C	1L G	4C	Yes
PC13E_01C	20509-008	W	SVOC8270C	1L G	4C	Yes
PC13E_02A	20509-009	W	SVOC8270C	1L G	4C	Yes
PC13E_02B	20509-010	W	SVOC8270C	1L G	4C	Yes
PC13E_01A	20509-011	W	TPH8100	1L G	HCl	Yes
PC13E_01B	20509-012	W	TPH8100	1L G	HCl	Yes
PC13E_01C	20509-013	W	TPH8100	1L G	HCl	Yes
PC13E_02A	20509-014	W	TPH8100	1L G	HCl	Yes
PC13E_02B	20509-015	W	TPH8100	1L G	HCl	Yes
PC13E_01A	20509-016	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_01B	20509-017	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_01C	20509-018	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_02A	20509-019	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes
PC13E_02B	20509-020	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	HNO3	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List. Hg subsampled into 125mL G and preserved with HCl upon receipt. TPH samples preserved with HCl upon receipt. Total Metals preserved with HNO3 upon receipt. Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_02C	20509-021	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-022	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-023	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-024	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-025	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-026	W	CGR680	3x1L G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-027	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-028	W	CGR680	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-029	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-030	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-031	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-032	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-033	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-034	W	SVOC8270C	3x1L G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-035	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-036	W	SVOC8270C	2x1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-037	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03A	20509-038	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03B	20509-039	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_03C	20509-040	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04A	20509-041	W	TPH8100	1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04A_D	20509-042	W	TPH8100	3x1L G	H2SO4	Yes
NBH_PH4SAP_PC13E_04B	20509-043	W	TPH8100	1L G	H2SO4	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_04C	20509-044	W	TPH8100	1L G	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-045	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-046	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-047	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-048	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-049	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-050	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-051	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-052	W	Total Metals Sb,As,Be,Cd,Cr,Cu,Pb,Ni,Se,Ag,Tl,Zn;	250mL P	4C	Yes
NBH_PH4SAP_PC13E_02C	20509-053	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-054	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-055	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-056	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04A	20509-057	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04A_D	20509-058	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04B	20509-059	W	Total Metals Hg;	125mL G	4C	Yes
NBH_PH4SAP_PC13E_04C	20509-060	W	Total Metals Hg;	125mL G	H2SO4	Yes
NBH_PH4SAP_PC13E_02D	20509-061	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_02E	20509-062	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_02F	20509-063	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_03D	20509-064	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_03E	20509-065	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	H2SO4	Yes
NBH_PH4SAP_PC13E_04D	20509-066	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	2x8oz	H2SO4	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/17/10 0700	Date and TIme Logged into Lab:	12/17/10 1200
Recieved By:	DW	Logged into Lab by:	LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	See Notes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_04E	20509-067	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes
NBH_PH4SAP_PC13E_04F	20509-068	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes
NBH_PH4SAP_PC13E_04G	20509-069	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	2x8oz	4C	Yes

Notes and qualifications:

CGR680 = NOAA 22 Congener List.
Sample jars were each given unique ESI lab ID numbers so as to separate them by the Field ID and the analysis requested on each, and because they were preserved by different means or sampled into different bottle types.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/20/10 0940	Date and TIme Logged into Lab:	12/20/10 1100
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_01D	20509-070	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01E	20509-071	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01F	20509-072	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01G	20509-073	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01A	20509-074	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01B	20509-075	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_01C	20509-076	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03A	20509-077	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03B	20509-078	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_03C	20509-079	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_08A	20509-080	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_08B	20509-081	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13E_14A	20509-082	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13E_14B	20509-083	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20509		
SDG No:	6690.009		
Project:	NBH-South Terminal 6690.009		
Delivered via:	ESI		
Date and Time Received:	12/21/10 1120	Date and TIme Logged into Lab:	12/21/10 1300
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	No	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	10	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC13E_02A	20509-084	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_02A	20509-085	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_04A	20509-086	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_07A	20509-087	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_23A	20509-088	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_32A	20509-089	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes
NBH_PH4SAP_PC13_32B	20509-090	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13_32C	20509-091	S	HOLD for CGR680, SVOC8270C, TPH8100, Total Metals	16oz G	4C	Yes
NBH_PH4SAP_PC13_33A	20509-092	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	16oz G	4C	Yes

Notes and qualifications:

ESI
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Hampton, N.H. 03843

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FAX: 603-926-3521

ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH - South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: NBH 6690.009	Address: Suite 502	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001..*	PC13E_01A	12/15/10	12:00	JK/MB	G	1L/5	4 G / 1 P	None	W	N	PCB's: 22 NOAA 13 Pollutant Metals:
-002..*	PC13E_01B		12:30								by 8270C 6020A/7471
-003..*	PC13E_01C		13:00								TPH 8015
-004..*	PC13E_02A		13:30								SVOC 8270C
-005..*	PC13E_02B		14:00								

Relinquished By: CW Pilkering	Date: 12/16/10	Time: 10:27	Received By: [illegible]	Date: 12-16-10	Time: 10:27
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments: * See sample receipt record

Sample Delivery Group No:	Page of

COC Doc No: 4250

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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: Apex Companies, LLC	Address: Suite 502	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 6690.009 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-021..*	NBH-PH4SAP-PC13E-02C	12/16/10		JR GD MB	G	250mL 125mL 40mL	P/G	HNO3 H2SO4 HCL	W	N	Metals - 6020A/7471 TPH - 8015 SVOCs - 8270C PCB - 22 NOAA 8270C
-022..*	NBH-PH4SAP-PC13E-03A										
-023..*	NBH-PH4SAP-PC13E-03B										
-024..*	NBH-PH4SAP-PC13E-03C										
-025..*	NBH-PH4SAP-PC13E-04A										
-026..*	NBH-PH4SAP-PC13E-04A-D										
-027..*	NBH-PH4SAP-PC13E-04B										
-028..*	NBH-PH4SAP-PC13E-04C										

Relinquished By: [signature]	Date: 12/17/10 Time: 7:00 AM	Received By: [signature]	Date: 12/17/10 Time: 7:00 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments: * See sample receipt record

Sample Delivery Group No:	Page of

COC Doc No: 4258

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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH SOUTH TERR	Page 1 of 1
Report to: CHET MYERS	Address: 184 HIGH STREET	Project Number: 6690.009	
Invoice to: APEX COMPANIES LLC	Address: SUITE 502 BOSTON MA	Project Manager: CHET MYERS	
Voice: 617-728-0070	Fax: 617-7280080	email: CMYERS@APEXCOS.COM	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE X Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: METALS - 6020A/7471 TPH - 8015 SVOC - 8270C PCB - NOAA22 8270C
-061	NBH_PH4SAP_PCBE_02D	12/16/10		MBJR GD	G	2x8oz	G	4°C	S	N	-RUN-
-062	NBH_PH4SAP_PCBE_02E										HOLD
-063	NBH_PH4_SAP_PCBE_02F										HOLD
-064	NBH_PH4_SAP_PCBE_03D										-RUN-
-065	NBH_PH4_SAP_PCBE_03E										HOLD
-066	NBH_PH4_SAP_PCBE_04D										-RUN-
-067	NBH_PH4_SAP_PCBE_04E										HOLD
-068	NBH_PH4_SAP_PCBE_04F										HOLD
-069	NBH_PH4_SAP_PCBE_04G										HOLD

Relinquished By: [signature]	Date: 12/17/2010 Time: 7:00 AM	Received By: [signature]	Date: 12/17/10 Time: 7:00 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4257

ESI
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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: NBH South Tem	Page 1 of 2
Report to: Chet Myers	Address: 184 High Street	Project Number: 6690.009	
Invoice to: Apex	Address: Suite 502 Boston MA 02110	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: Metals - 6020 A / 7471 TPH - 8015 SVOC - 8270C PCB - NOAA 8270C
-070	NBH-PH4SAP-PC13E-01D	12/17		MB JR GD	G	16oz	G	N	S	N	Run
-071	NBH-PH4SAP-PC13E-01E										Hold
-072	NBH-PH4SAP-PC13E-01F										Hold
-073	NBH-PH4SAP-PC13E-01G										Hold
-074	NBH-PH4SAP-PC13-01A										Run
-075	NBH-PH4SAP-PC13-01B										Hold
-076	NBH-PH4SAP-PC13-01C										Hold
-077	NBH-PH4SAP-PC13-03A										Run
-078	NBH-PH4SAP-PC13-03B										Hold
-079	NBH-PH4SAP-PC13-03C										Hold
-080	NBH-PH4SAP-PC13-08A										Run
-081	NBH-PH4SAP-PC13-08B										Hold

Relinquished By:	Date: 12/20/10 Time: 0940	Received By:	Date: 12/20/10 Time: 0940
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4256

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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: NBH South Term	Page 2 of 2
Report to: Chet Myers	Address: 185 High Street	Project Number: 16690.009	
Invoice to: Apex	Address: Suite 502 Boston 02110	Project Manager: Chet Myers	
Voice: 617 728 0070	Fax: 617 728 0080	email: CMyers@apexcos.com	P.O. No: 16690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-082	NBH-PHMSAP PCB-14A	12/17/10		MBJR LD	G	16oz	G	N	S	N	Run
-083	NBH-PHMSAP-PCB-14B	1		1	1	1	1	1	1	1	Hold

Relinquished By: [signature] Date: 12/20/10 Time: 940 Received By: [signature] Date: 12/20/10 Time: 0940

Relinquished By: Date: Time: Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4255

ESI
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ESI Job No: 20509

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: NBH	Page 1 of 1
Report to: Chet Myers	Address: 184 High Street 502	Project Number: 61099009	
Invoice to: Apex Companies LLC	Address: Boston MA 02110	Project Manager: Chet Myers	
Voice: 617.728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: 66690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: Same as previous —
-084	NBH_PH4SAP_PCBE_02A	12/21		JRMB GD	G	1602	G	None	S	N	
-085	NBH_PH4SAP_PCB_02A										
-086	NBH_PH4SAP_PC13_04A										
-087	NBH_PH4SAP_PC13_07A										
-088	NBH_PH4SAP_PC13_23A										
-089	NBH_PH4SAP_PC13_32A										
-090	NBH_PH4SAP_PC13_32B										HOLD
-091	NBH_PH4SAP_PC13_32C										HOLD
-092	NBH_PH4SAP_PC13_33A										

Relinquished By: [signature]	Date: 12/21	Time: 11:20	Received By: [signature] Date: 12/21/10 Time: 11:20
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4305

ESI

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p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 20612
Date Received: 01/28/11
Date Reported: 02/09/11

Project: NBH-South Terminal 6690

Attached please find results for analyses performed on samples received on 01/28/11 at 1110.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Authorized Signature

Date 2/9/11

Attachment
Report

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-001
Sample Designation:	NBH_PH4SAP_PC38 0-1
Date Sampled:	01/18/11 1227
Date Extracted:	01/31/11
Date Analyzed:	02/04/11
Matrix:	Solid
Moisture (%):	45
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	11	
18	2,2',5-trichlorobiphenyl	*	21	
28	2,4,4'-trichlorobiphenyl	*	72	
44	2,2',3,5'-tetrachlorobiphenyl	*	47	
49	2,2',4,5'-tetrachlorobiphenyl	*	56	
52	2,2',5,5'-tetrachlorobiphenyl	*	130	
66	2,3',4,4'-tetrachlorobiphenyl	*	39	
77	3,3',4,4'-tetrachlorobiphenyl		4.4	
87	2,2',3,4,5'-pentachlorobiphenyl		58	
101	2,2',4,5,5'-pentachlorobiphenyl	*	130	
105	2,3,3',4,4'-pentachlorobiphenyl		44	
118	2,3',4,4',5-pentachlorobiphenyl	*	130	
126	3,3',4,4',5-pentachlorobiphenyl		0.45	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	36	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	150	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	64	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	11	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.45	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	13	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	12	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		3.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.45	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	7.9	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.94	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	

Total PCBs by Sum of congeners (*) multiplied by 2 1900

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	76	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-002
Sample Designation:	NBH_PH4SAP_PC34 0-1
Date Sampled:	01/18/11 1300
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	44
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	9.3	
18	2,2',5-trichlorobiphenyl	*	25	
28	2,4,4'-trichlorobiphenyl	*	51	
44	2,2',3,5'-tetrachlorobiphenyl	*	60	
49	2,2',4,5'-tetrachlorobiphenyl	*	68	
52	2,2',5,5'-tetrachlorobiphenyl	*	160	
66	2,3',4,4'-tetrachlorobiphenyl	*	49	
77	3,3',4,4'-tetrachlorobiphenyl		1.3	
87	2,2',3,4,5'-pentachlorobiphenyl		98	
101	2,2',4,5,5'-pentachlorobiphenyl	*	200	
105	2,3,3',4,4'-pentachlorobiphenyl		68	
118	2,3',4,4',5-pentachlorobiphenyl	*	200	
126	3,3',4,4',5-pentachlorobiphenyl		0.45	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	42	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	170	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	110	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	15	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.45	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	15	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	16	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.45	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	8.6	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.45	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.72	
Total PCBs by Sum of congeners (*) multiplied by 2			2400	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	73	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-007
Sample Designation:	NBH_PH4SAP_PC39 0-1
Date Sampled:	01/18/11 1351
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	54
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	130	
18	2,2',5-trichlorobiphenyl	*	140	
28	2,4,4'-trichlorobiphenyl	*	480	
44	2,2',3,5'-tetrachlorobiphenyl	*	180	
49	2,2',4,5'-tetrachlorobiphenyl	*	270	
52	2,2',5,5'-tetrachlorobiphenyl	*	330	
66	2,3',4,4'-tetrachlorobiphenyl	*	400	
77	3,3',4,4'-tetrachlorobiphenyl		0.54	U
87	2,2',3,4,5'-pentachlorobiphenyl		170	
101	2,2',4,5,5'-pentachlorobiphenyl	*	420	
105	2,3,3',4,4'-pentachlorobiphenyl		170	
118	2,3',4,4',5-pentachlorobiphenyl	*	520	
126	3,3',4,4',5-pentachlorobiphenyl		0.54	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	67	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	300	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	240	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	24	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.54	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	31	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		12	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.54	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	24	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.3	

Total PCBs by Sum of congeners (*) multiplied by 2 7200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	54	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-012
Sample Designation:	NBH_PH4SAP_PC40 0-1
Date Sampled:	01/18/11 1421
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	58
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	200	
18	2,2',5-trichlorobiphenyl	*	170	
28	2,4,4'-trichlorobiphenyl	*	820	
44	2,2',3,5'-tetrachlorobiphenyl	*	230	
49	2,2',4,5'-tetrachlorobiphenyl	*	400	
52	2,2',5,5'-tetrachlorobiphenyl	*	540	
66	2,3',4,4'-tetrachlorobiphenyl	*	550	
77	3,3',4,4'-tetrachlorobiphenyl		76	
87	2,2',3,4,5'-pentachlorobiphenyl		260	
101	2,2',4,5,5'-pentachlorobiphenyl	*	660	
105	2,3,3',4,4'-pentachlorobiphenyl		330	
118	2,3',4,4',5-pentachlorobiphenyl	*	920	
126	3,3',4,4',5-pentachlorobiphenyl		1.8	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	150	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	570	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	440	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	53	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	56	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	64	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		20	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	47	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	5.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.8	U

Total PCBs by Sum of congeners (*) multiplied by 2 12000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	104	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-014
Sample Designation:	NBH_PH4SAP_PC35 0-6"
Date Sampled:	01/19/11 0927
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	41
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	68	
18	2,2',5-trichlorobiphenyl	*	72	
28	2,4,4'-trichlorobiphenyl	*	270	
44	2,2',3,5'-tetrachlorobiphenyl	*	90	
49	2,2',4,5'-tetrachlorobiphenyl	*	170	
52	2,2',5,5'-tetrachlorobiphenyl	*	230	
66	2,3',4,4'-tetrachlorobiphenyl	*	190	
77	3,3',4,4'-tetrachlorobiphenyl		25	
87	2,2',3,4,5'-pentachlorobiphenyl		95	
101	2,2',4,5,5'-pentachlorobiphenyl	*	270	
105	2,3,3',4,4'-pentachlorobiphenyl		110	
118	2,3',4,4',5-pentachlorobiphenyl	*	300	
126	3,3',4,4',5-pentachlorobiphenyl		0.42	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	63	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	230	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	170	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	21	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.42	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	26	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	26	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		8.4	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.42	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	18	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.5	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.2	

Total PCBs by Sum of congeners (*) multiplied by 2 4400

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	108	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-015
Sample Designation:	NBH_PH4SAP_PC41 0-1
Date Sampled:	01/19/11 1048
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	30	
18	2,2',5-trichlorobiphenyl	*	33	
28	2,4,4'-trichlorobiphenyl	*	100	
44	2,2',3,5'-tetrachlorobiphenyl	*	33	
49	2,2',4,5'-tetrachlorobiphenyl	*	61	
52	2,2',5,5'-tetrachlorobiphenyl	*	94	
66	2,3',4,4'-tetrachlorobiphenyl	*	48	
77	3,3',4,4'-tetrachlorobiphenyl		3.8	
87	2,2',3,4,5'-pentachlorobiphenyl		26	
101	2,2',4,5,5'-pentachlorobiphenyl	*	85	
105	2,3,3',4,4'-pentachlorobiphenyl		26	
118	2,3',4,4',5-pentachlorobiphenyl	*	90	
126	3,3',4,4',5-pentachlorobiphenyl		0.37	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	14	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	63	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	47	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	5.4	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.37	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	6.2	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	6.8	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		2.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.37	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.37	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.79	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.37	U
Total PCBs by Sum of congeners (*) multiplied by 2			1400	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	75	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-020
Sample Designation:	NBH_PH4SAP_PC37 0-0.5"
Date Sampled:	01/19/11 1116
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	29
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	22	
18	2,2',5-trichlorobiphenyl	*	25	
28	2,4,4'-trichlorobiphenyl	*	59	
44	2,2',3,5'-tetrachlorobiphenyl	*	25	
49	2,2',4,5'-tetrachlorobiphenyl	*	48	
52	2,2',5,5'-tetrachlorobiphenyl	*	76	
66	2,3',4,4'-tetrachlorobiphenyl	*	38	
77	3,3',4,4'-tetrachlorobiphenyl		3.6	
87	2,2',3,4,5'-pentachlorobiphenyl		24	
101	2,2',4,5,5'-pentachlorobiphenyl	*	67	
105	2,3,3',4,4'-pentachlorobiphenyl		21	
118	2,3',4,4',5-pentachlorobiphenyl	*	66	
126	3,3',4,4',5-pentachlorobiphenyl		0.35	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	13	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	47	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	38	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	3.8	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.35	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	5.7	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		2.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.35	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	4.1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.86	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.52	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.77	
Total PCBs by Sum of congeners (*) multiplied by 2			1100	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-021
Sample Designation:	NBH_PH4SAP_PC13_11 0-0.5"
Date Sampled:	01/19/11 1131
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	24
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	14	
18	2,2',5-trichlorobiphenyl	*	19	
28	2,4,4'-trichlorobiphenyl	*	51	
44	2,2',3,5'-tetrachlorobiphenyl	*	25	
49	2,2',4,5'-tetrachlorobiphenyl	*	44	
52	2,2',5,5'-tetrachlorobiphenyl	*	79	
66	2,3',4,4'-tetrachlorobiphenyl	*	28	
77	3,3',4,4'-tetrachlorobiphenyl		3.7	
87	2,2',3,4,5'-pentachlorobiphenyl		26	
101	2,2',4,5,5'-pentachlorobiphenyl	*	67	
105	2,3,3',4,4'-pentachlorobiphenyl		18	
118	2,3',4,4',5-pentachlorobiphenyl	*	68	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	12	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	48	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	37	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4.2	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	5.3	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	5.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		2.4	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	3.8	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.33	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.46	
Total PCBs by Sum of congeners (*) multiplied by 2			1000	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	88	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-022
Sample Designation:	NBH_PH4SAP_PC30 0-1
Date Sampled:	01/19/11 1144
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	49
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	58	
18	2,2',5-trichlorobiphenyl	*	83	
28	2,4,4'-trichlorobiphenyl	*	270	
44	2,2',3,5'-tetrachlorobiphenyl	*	120	
49	2,2',4,5'-tetrachlorobiphenyl	*	200	
52	2,2',5,5'-tetrachlorobiphenyl	*	330	
66	2,3',4,4'-tetrachlorobiphenyl	*	180	
77	3,3',4,4'-tetrachlorobiphenyl		5.4	
87	2,2',3,4,5'-pentachlorobiphenyl		170	
101	2,2',4,5,5'-pentachlorobiphenyl	*	360	
105	2,3,3',4,4'-pentachlorobiphenyl		120	
118	2,3',4,4',5-pentachlorobiphenyl	*	380	
126	3,3',4,4',5-pentachlorobiphenyl		0.49	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	66	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	300	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	200	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	26	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.49	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	31	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	28	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		10	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.49	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	21	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.3	
Total PCBs by Sum of congeners (*) multiplied by 2			5300	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-029
Sample Designation:	NBH_PH4SAP_PC31 0-1
Date Sampled:	01/19/11 1236
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	57
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	150	
18	2,2',5-trichlorobiphenyl	*	140	
28	2,4,4'-trichlorobiphenyl	*	510	
44	2,2',3,5'-tetrachlorobiphenyl	*	170	
49	2,2',4,5'-tetrachlorobiphenyl	*	300	
52	2,2',5,5'-tetrachlorobiphenyl	*	400	
66	2,3',4,4'-tetrachlorobiphenyl	*	360	
77	3,3',4,4'-tetrachlorobiphenyl		41	
87	2,2',3,4,5'-pentachlorobiphenyl		190	
101	2,2',4,5,5'-pentachlorobiphenyl	*	460	
105	2,3,3',4,4'-pentachlorobiphenyl		160	
118	2,3',4,4',5-pentachlorobiphenyl	*	580	
126	3,3',4,4',5-pentachlorobiphenyl		0.58	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	100	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	370	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	300	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	33	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.58	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	42	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	44	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		13	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.58	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	29	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.6	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2	

Total PCBs by Sum of congeners (*) multiplied by 2 8000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	95	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-032
Sample Designation:	DUP 1
Date Sampled:	01/19/11
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	58
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	150	
18	2,2',5-trichlorobiphenyl	*	170	
28	2,4,4'-trichlorobiphenyl	*	530	
44	2,2',3,5'-tetrachlorobiphenyl	*	180	
49	2,2',4,5'-tetrachlorobiphenyl	*	310	
52	2,2',5,5'-tetrachlorobiphenyl	*	420	
66	2,3',4,4'-tetrachlorobiphenyl	*	380	
77	3,3',4,4'-tetrachlorobiphenyl		39	
87	2,2',3,4,5'-pentachlorobiphenyl		190	
101	2,2',4,5,5'-pentachlorobiphenyl	*	480	
105	2,3,3',4,4'-pentachlorobiphenyl		170	
118	2,3',4,4',5-pentachlorobiphenyl	*	600	
126	3,3',4,4',5-pentachlorobiphenyl		0.6	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	100	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	380	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	310	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	35	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.6	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	42	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	44	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		14	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.6	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	29	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	5.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.2	
Total PCBs by Sum of congeners (*) multiplied by 2			8300	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	88	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-033
Sample Designation:	NBH_PH4SAP_PC29 0-1
Date Sampled:	01/19/11 1259
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	57
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	210	
18	2,2',5-trichlorobiphenyl	*	200	
28	2,4,4'-trichlorobiphenyl	*	810	
44	2,2',3,5'-tetrachlorobiphenyl	*	250	
49	2,2',4,5'-tetrachlorobiphenyl	*	430	
52	2,2',5,5'-tetrachlorobiphenyl	*	550	
66	2,3',4,4'-tetrachlorobiphenyl	*	590	
77	3,3',4,4'-tetrachlorobiphenyl		96	
87	2,2',3,4,5'-pentachlorobiphenyl		280	
101	2,2',4,5,5'-pentachlorobiphenyl	*	710	
105	2,3,3',4,4'-pentachlorobiphenyl		260	
118	2,3',4,4',5-pentachlorobiphenyl	*	840	
126	3,3',4,4',5-pentachlorobiphenyl		0.58	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	170	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	650	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	440	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	71	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.58	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	71	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	70	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		25	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.58	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	51	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	5.9	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	6.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2	

Total PCBs by Sum of congeners (*) multiplied by 2 12000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	114	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-038
Sample Designation:	NBH_PH4SAP_PC26 0-1
Date Sampled:	01/19/11 1335
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	59
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	200	
18	2,2',5-trichlorobiphenyl	*	250	
28	2,4,4'-trichlorobiphenyl	*	960	
44	2,2',3,5'-tetrachlorobiphenyl	*	350	
49	2,2',4,5'-tetrachlorobiphenyl	*	500	
52	2,2',5,5'-tetrachlorobiphenyl	*	670	
66	2,3',4,4'-tetrachlorobiphenyl	*	760	
77	3,3',4,4'-tetrachlorobiphenyl		140	
87	2,2',3,4,5'-pentachlorobiphenyl		370	
101	2,2',4,5,5'-pentachlorobiphenyl	*	850	
105	2,3,3',4,4'-pentachlorobiphenyl		340	
118	2,3',4,4',5-pentachlorobiphenyl	*	1100	
126	3,3',4,4',5-pentachlorobiphenyl		0.61	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	190	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	770	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	490	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	68	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.61	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	79	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	85	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		27	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.61	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	57	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	5.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.9	

Total PCBs by Sum of congeners (*) multiplied by 2 15000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-042
Sample Designation:	NBH_PH4SAP_PC25 0-1
Date Sampled:	01/19/11 1400
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	49
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	75	
18	2,2',5-trichlorobiphenyl	*	100	
28	2,4,4'-trichlorobiphenyl	*	340	
44	2,2',3,5'-tetrachlorobiphenyl	*	140	
49	2,2',4,5'-tetrachlorobiphenyl	*	210	
52	2,2',5,5'-tetrachlorobiphenyl	*	320	
66	2,3',4,4'-tetrachlorobiphenyl	*	230	
77	3,3',4,4'-tetrachlorobiphenyl		12	
87	2,2',3,4,5'-pentachlorobiphenyl		150	
101	2,2',4,5,5'-pentachlorobiphenyl	*	350	
105	2,3,3',4,4'-pentachlorobiphenyl		150	
118	2,3',4,4',5-pentachlorobiphenyl	*	370	
126	3,3',4,4',5-pentachlorobiphenyl		0.49	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	49	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	280	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	200	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	18	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.49	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	33	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	31	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		9.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.49	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	20	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.3	

Total PCBs by Sum of congeners (*) multiplied by 2 5600

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	96	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-044
Sample Designation:	NBH_PH4SAP_PC24 0-0.5"
Date Sampled:	01/19/11 1427
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	23
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.1	
18	2,2',5-trichlorobiphenyl	*	2.8	
28	2,4,4'-trichlorobiphenyl	*	14	
44	2,2',3,5'-tetrachlorobiphenyl	*	3.9	
49	2,2',4,5'-tetrachlorobiphenyl	*	8.5	
52	2,2',5,5'-tetrachlorobiphenyl	*	11	
66	2,3',4,4'-tetrachlorobiphenyl	*	6.1	
77	3,3',4,4'-tetrachlorobiphenyl		0.33	U
87	2,2',3,4,5'-pentachlorobiphenyl		3.3	
101	2,2',4,5,5'-pentachlorobiphenyl	*	10	
105	2,3,3',4,4'-pentachlorobiphenyl		2.6	
118	2,3',4,4',5-pentachlorobiphenyl	*	12	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	2.4	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	9.2	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	7.6	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.84	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.85	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.88	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.36	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.83	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.33	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.33	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.33	U
Total PCBs by Sum of congeners (*) multiplied by 2			190	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	78	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-045
Sample Designation:	DUP 2
Date Sampled:	01/19/11
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.1	
18	2,2',5-trichlorobiphenyl	*	2.8	
28	2,4,4'-trichlorobiphenyl	*	15	
44	2,2',3,5'-tetrachlorobiphenyl	*	4.4	
49	2,2',4,5'-tetrachlorobiphenyl	*	9.2	
52	2,2',5,5'-tetrachlorobiphenyl	*	13	
66	2,3',4,4'-tetrachlorobiphenyl	*	6.3	
77	3,3',4,4'-tetrachlorobiphenyl		0.33	U
87	2,2',3,4,5'-pentachlorobiphenyl		3.3	
101	2,2',4,5,5'-pentachlorobiphenyl	*	11	
105	2,3,3',4,4'-pentachlorobiphenyl		3.1	
118	2,3',4,4',5-pentachlorobiphenyl	*	14	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	2.3	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	9.7	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	8.6	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.73	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.1	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.48	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.97	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.33	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.33	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.33	U

Total PCBs by Sum of congeners (*) multiplied by 2 210

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	80	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-046
Sample Designation:	NBH_PH4SAP_PC22 0-1
Date Sampled:	01/19/11 1504
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	34
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	98	
18	2,2',5-trichlorobiphenyl	*	160	
28	2,4,4'-trichlorobiphenyl	*	520	
44	2,2',3,5'-tetrachlorobiphenyl	*	240	
49	2,2',4,5'-tetrachlorobiphenyl	*	300	
52	2,2',5,5'-tetrachlorobiphenyl	*	500	
66	2,3',4,4'-tetrachlorobiphenyl	*	340	
77	3,3',4,4'-tetrachlorobiphenyl		30	
87	2,2',3,4,5'-pentachlorobiphenyl		220	
101	2,2',4,5,5'-pentachlorobiphenyl	*	510	
105	2,3,3',4,4'-pentachlorobiphenyl		190	
118	2,3',4,4',5-pentachlorobiphenyl	*	570	
126	3,3',4,4',5-pentachlorobiphenyl		1.1	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	110	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	450	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	280	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	33	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	44	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	43	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		16	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	28	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	U

Total PCBs by Sum of congeners (*) multiplied by 2 8500

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	99	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-048
Sample Designation:	NBH_PH4SAP_PC21 0-.5'
Date Sampled:	01/20/11 1000
Date Extracted:	01/31/11
Date Analyzed:	02/07/11
Matrix:	Solid
Moisture (%):	24
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.4	
18	2,2',5-trichlorobiphenyl	*	3.1	
28	2,4,4'-trichlorobiphenyl	*	14	
44	2,2',3,5'-tetrachlorobiphenyl	*	4.2	
49	2,2',4,5'-tetrachlorobiphenyl	*	9.4	
52	2,2',5,5'-tetrachlorobiphenyl	*	13	
66	2,3',4,4'-tetrachlorobiphenyl	*	6.5	
77	3,3',4,4'-tetrachlorobiphenyl		0.33	U
87	2,2',3,4,5'-pentachlorobiphenyl		3.8	
101	2,2',4,5,5'-pentachlorobiphenyl	*	13	
105	2,3,3',4,4'-pentachlorobiphenyl		3.4	
118	2,3',4,4',5-pentachlorobiphenyl	*	15	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	2.7	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	11	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	9.1	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.74	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.2	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.51	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.35	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.39	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.47	
Total PCBs by Sum of congeners (*) multiplied by 2			220	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	79	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-049
Sample Designation:	DUP 1-20
Date Sampled:	01/20/11
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	23
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.5	
18	2,2',5-trichlorobiphenyl	*	4.1	
28	2,4,4'-trichlorobiphenyl	*	16	
44	2,2',3,5'-tetrachlorobiphenyl	*	5.3	
49	2,2',4,5'-tetrachlorobiphenyl	*	12	
52	2,2',5,5'-tetrachlorobiphenyl	*	17	
66	2,3',4,4'-tetrachlorobiphenyl	*	9.3	
77	3,3',4,4'-tetrachlorobiphenyl		0.91	
87	2,2',3,4,5'-pentachlorobiphenyl		4.9	
101	2,2',4,5,5'-pentachlorobiphenyl	*	16	
105	2,3,3',4,4'-pentachlorobiphenyl		3.8	
118	2,3',4,4',5-pentachlorobiphenyl	*	18	
126	3,3',4,4',5-pentachlorobiphenyl		0.32	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	3	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	13	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	11	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.95	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.32	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.5	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.4	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.54	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.32	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1.1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.32	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.32	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.32	U
Total PCBs by Sum of congeners (*) multiplied by 2			270	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	83	30 - 150

U = Not detected at value reported

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-050
Sample Designation:	NBH_PH4SAP_PC18 0-.5'
Date Sampled:	01/20/11 1045
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	28
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	14	
18	2,2',5-trichlorobiphenyl	*	22	
28	2,4,4'-trichlorobiphenyl	*	64	
44	2,2',3,5'-tetrachlorobiphenyl	*	30	
49	2,2',4,5'-tetrachlorobiphenyl	*	45	
52	2,2',5,5'-tetrachlorobiphenyl	*	74	
66	2,3',4,4'-tetrachlorobiphenyl	*	47	
77	3,3',4,4'-tetrachlorobiphenyl		5.3	
87	2,2',3,4,5'-pentachlorobiphenyl		32	
101	2,2',4,5,5'-pentachlorobiphenyl	*	83	
105	2,3,3',4,4'-pentachlorobiphenyl		35	
118	2,3',4,4',5-pentachlorobiphenyl	*	84	
126	3,3',4,4',5-pentachlorobiphenyl		0.34	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	19	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	67	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	47	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	5.7	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.34	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	8.3	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	7.1	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		2.3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.34	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.1	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.93	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.68	
Total PCBs by Sum of congeners (*) multiplied by 2			1300	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	83	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-051
Sample Designation:	NBH_PH4SAP_PC17 0-.5'
Date Sampled:	01/20/11 1109
Date Extracted:	01/31/11
Date Analyzed:	02/04/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	4.7	
18	2,2',5-trichlorobiphenyl	*	9.6	
28	2,4,4'-trichlorobiphenyl	*	33	
44	2,2',3,5'-tetrachlorobiphenyl	*	12	
49	2,2',4,5'-tetrachlorobiphenyl	*	27	
52	2,2',5,5'-tetrachlorobiphenyl	*	38	
66	2,3',4,4'-tetrachlorobiphenyl	*	21	
77	3,3',4,4'-tetrachlorobiphenyl		2.9	
87	2,2',3,4,5'-pentachlorobiphenyl		12	
101	2,2',4,5,5'-pentachlorobiphenyl	*	38	
105	2,3,3',4,4'-pentachlorobiphenyl		11	
118	2,3',4,4',5-pentachlorobiphenyl	*	45	
126	3,3',4,4',5-pentachlorobiphenyl		0.33	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	8.6	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	39	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	25	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	2.5	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.33	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	3.9	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	4.6	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.5	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.33	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	3.4	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.33	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.33	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.48	
Total PCBs by Sum of congeners (*) multiplied by 2			630	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	120	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-052
Sample Designation:	NBH_PH4SAP_PC16 0-1'
Date Sampled:	01/20/11 1125
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	43
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	3

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	46	
18	2,2',5-trichlorobiphenyl	*	120	
28	2,4,4'-trichlorobiphenyl	*	240	
44	2,2',3,5'-tetrachlorobiphenyl	*	190	
49	2,2',4,5'-tetrachlorobiphenyl	*	180	
52	2,2',5,5'-tetrachlorobiphenyl	*	390	
66	2,3',4,4'-tetrachlorobiphenyl	*	180	
77	3,3',4,4'-tetrachlorobiphenyl		22	
87	2,2',3,4,5'-pentachlorobiphenyl		260	
101	2,2',4,5,5'-pentachlorobiphenyl	*	580	
105	2,3,3',4,4'-pentachlorobiphenyl		210	
118	2,3',4,4',5-pentachlorobiphenyl	*	530	
126	3,3',4,4',5-pentachlorobiphenyl		1.3	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	110	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	460	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	270	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	39	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.3	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	47	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	43	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		15	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	25	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	4.4	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	6.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3.3	

Total PCBs by Sum of congeners (*) multiplied by 2 6900

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	88	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-053
Sample Designation:	NBH_PH4SAP_PC15 0-1
Date Sampled:	01/20/11 1148
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	46
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	39	
18	2,2',5-trichlorobiphenyl	*	61	
28	2,4,4'-trichlorobiphenyl	*	260	
44	2,2',3,5'-tetrachlorobiphenyl	*	92	
49	2,2',4,5'-tetrachlorobiphenyl	*	200	
52	2,2',5,5'-tetrachlorobiphenyl	*	270	
66	2,3',4,4'-tetrachlorobiphenyl	*	160	
77	3,3',4,4'-tetrachlorobiphenyl		0.47	U
87	2,2',3,4,5'-pentachlorobiphenyl		74	
101	2,2',4,5,5'-pentachlorobiphenyl	*	250	
105	2,3,3',4,4'-pentachlorobiphenyl		130	
118	2,3',4,4',5-pentachlorobiphenyl	*	340	
126	3,3',4,4',5-pentachlorobiphenyl		0.47	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	50	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	200	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	190	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	18	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.47	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	23	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	26	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		8.1	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.47	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	20	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.7	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 4400

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	124	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-054
Sample Designation:	NBH_PH4SAP_PC13 0-1
Date Sampled:	01/20/11 1215
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	50
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	25	
18	2,2',5-trichlorobiphenyl	*	45	
28	2,4,4'-trichlorobiphenyl	*	200	
44	2,2',3,5'-tetrachlorobiphenyl	*	61	
49	2,2',4,5'-tetrachlorobiphenyl	*	140	
52	2,2',5,5'-tetrachlorobiphenyl	*	200	
66	2,3',4,4'-tetrachlorobiphenyl	*	91	
77	3,3',4,4'-tetrachlorobiphenyl		6.7	
87	2,2',3,4,5'-pentachlorobiphenyl		47	
101	2,2',4,5,5'-pentachlorobiphenyl	*	180	
105	2,3,3',4,4'-pentachlorobiphenyl		51	
118	2,3',4,4',5-pentachlorobiphenyl	*	190	
126	3,3',4,4',5-pentachlorobiphenyl		0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	41	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	140	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	120	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	7.3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	18	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	18	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		5.5	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	14	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	

Total PCBs by Sum of congeners (*) multiplied by 2 3000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	100	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-058
Sample Designation:	NBH_PH4SAP_PC12 0-1
Date Sampled:	01/20/11 1328
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	59
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	48	
18	2,2',5-trichlorobiphenyl	*	68	
28	2,4,4'-trichlorobiphenyl	*	290	
44	2,2',3,5'-tetrachlorobiphenyl	*	97	
49	2,2',4,5'-tetrachlorobiphenyl	*	210	
52	2,2',5,5'-tetrachlorobiphenyl	*	280	
66	2,3',4,4'-tetrachlorobiphenyl	*	170	
77	3,3',4,4'-tetrachlorobiphenyl		11	
87	2,2',3,4,5'-pentachlorobiphenyl		96	
101	2,2',4,5,5'-pentachlorobiphenyl	*	280	
105	2,3,3',4,4'-pentachlorobiphenyl		110	
118	2,3',4,4',5-pentachlorobiphenyl	*	360	
126	3,3',4,4',5-pentachlorobiphenyl		0.6	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	63	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	230	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	210	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	27	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.6	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	28	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	29	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.6	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	26	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 4800

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	105	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-059
Sample Designation:	NBH_PH4SAP_PC11 0-1
Date Sampled:	01/20/11 1400
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	56
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	44	
18	2,2',5-trichlorobiphenyl	*	74	
28	2,4,4'-trichlorobiphenyl	*	270	
44	2,2',3,5'-tetrachlorobiphenyl	*	82	
49	2,2',4,5'-tetrachlorobiphenyl	*	200	
52	2,2',5,5'-tetrachlorobiphenyl	*	230	
66	2,3',4,4'-tetrachlorobiphenyl	*	150	
77	3,3',4,4'-tetrachlorobiphenyl		10	
87	2,2',3,4,5'-pentachlorobiphenyl		69	
101	2,2',4,5,5'-pentachlorobiphenyl	*	230	
105	2,3,3',4,4'-pentachlorobiphenyl		190	
118	2,3',4,4',5-pentachlorobiphenyl	*	270	
126	3,3',4,4',5-pentachlorobiphenyl		0.57	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	51	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	190	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	170	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	21	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.57	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	23	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	21	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		9.3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.57	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	19	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.6	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.3	

Total PCBs by Sum of congeners (*) multiplied by 2 4100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	105	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-060
Sample Designation:	NBH_PH4SAP_PC10 0-1
Date Sampled:	01/20/11 1440
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	58
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	47	
18	2,2',5-trichlorobiphenyl	*	77	
28	2,4,4'-trichlorobiphenyl	*	330	
44	2,2',3,5'-tetrachlorobiphenyl	*	110	
49	2,2',4,5'-tetrachlorobiphenyl	*	220	
52	2,2',5,5'-tetrachlorobiphenyl	*	290	
66	2,3',4,4'-tetrachlorobiphenyl	*	190	
77	3,3',4,4'-tetrachlorobiphenyl		11	
87	2,2',3,4,5'-pentachlorobiphenyl		110	
101	2,2',4,5,5'-pentachlorobiphenyl	*	280	
105	2,3,3',4,4'-pentachlorobiphenyl		110	
118	2,3',4,4',5-pentachlorobiphenyl	*	400	
126	3,3',4,4',5-pentachlorobiphenyl		0.59	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	73	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	240	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	200	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	26	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.59	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	29	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		8.9	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.59	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	24	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.5	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 5100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	91	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-063
Sample Designation:	NBH_PH4SAP_PC09 0-1
Date Sampled:	01/20/11 1500
Date Extracted:	01/31/11
Date Analyzed:	02/08/11
Matrix:	Solid
Moisture (%):	65
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	69	
18	2,2',5-trichlorobiphenyl	*	94	
28	2,4,4'-trichlorobiphenyl	*	390	
44	2,2',3,5'-tetrachlorobiphenyl	*	130	
49	2,2',4,5'-tetrachlorobiphenyl	*	290	
52	2,2',5,5'-tetrachlorobiphenyl	*	430	
66	2,3',4,4'-tetrachlorobiphenyl	*	240	
77	3,3',4,4'-tetrachlorobiphenyl		0.71	U
87	2,2',3,4,5'-pentachlorobiphenyl		110	
101	2,2',4,5,5'-pentachlorobiphenyl	*	360	
105	2,3,3',4,4'-pentachlorobiphenyl		260	
118	2,3',4,4',5-pentachlorobiphenyl	*	530	
126	3,3',4,4',5-pentachlorobiphenyl		0.71	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	85	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	300	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	310	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	22	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.71	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	38	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	40	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		13	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.71	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	34	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.8	

Total PCBs by Sum of congeners (*) multiplied by 2 6800

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	119	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB578S
Sample Designation:	Laboratory Blank PB578S
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/03/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.5	U
18	2,2',5-trichlorobiphenyl	0.5	U
28	2,4,4'-trichlorobiphenyl	0.5	U
44	2,2',3,5'-tetrachlorobiphenyl	0.5	U
49	2,2',4,5'-tetrachlorobiphenyl	0.5	U
52	2,2',5,5'-tetrachlorobiphenyl	0.5	U
66	2,3',4,4'-tetrachlorobiphenyl	0.5	U
77	3,3',4,4'-tetrachlorobiphenyl	0.5	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.5	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.5	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.5	U
118	2,3',4,4',5-pentachlorobiphenyl	0.5	U
126	3,3',4,4',5-pentachlorobiphenyl	0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.5	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.5	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.5	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.5	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.5	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.5	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.5	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.5	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.5	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.5	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.5	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS578S / LCSD578S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/03/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentratio (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	4.9	97	30 - 150	4.1	83	30 - 150	16	30
18	2,2',5-trichlorobiphenyl	4.3	86	30 - 150	4.1	82	30 - 150	4	30
28	2,4,4'-trichlorobiphenyl	4.7	93	30 - 150	4.5	90	30 - 150	4	30
44	2,2',3,5'-tetrachlorobiphenyl	4.7	93	30 - 150	4.3	86	30 - 150	8	30
49	2,2',4,5'-tetrachlorobiphenyl	4.3	86	30 - 150	4.3	86	30 - 150	0	30
52	2,2',5,5'-tetrachlorobiphenyl	4.9	98	30 - 150	4.1	82	30 - 150	17	30
66	2,3',4,4'-tetrachlorobiphenyl	5.0	101	30 - 150	4.4	88	30 - 150	14	30
77	3,3',4,4'-tetrachlorobiphenyl	5.2	104	30 - 150	4.4	87	30 - 150	17	30
87	2,2',3,4,5'-pentachlorobiphenyl	5.2	104	30 - 150	4.3	85	30 - 150	20	30
101	2,2',4,5,5'-pentachlorobiphenyl	4.9	99	30 - 150	4.4	88	30 - 150	11	30
105	2,3,3',4,4'-pentachlorobiphenyl	4.8	95	30 - 150	4.2	84	30 - 150	12	30
118	2,3',4,4',5-pentachlorobiphenyl	4.9	97	30 - 150	4.6	92	30 - 150	6	30
126	3,3',4,4',5-pentachlorobiphenyl	4.6	93	30 - 150	4.2	83	30 - 150	11	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	4.5	89	30 - 150	4.3	86	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.9	98	30 - 150	4.5	90	30 - 150	8	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	4.5	89	30 - 150	4.1	83	30 - 150	7	30
156	2,3,3',4,4',5-hexachlorobiphenyl	4.6	92	30 - 150	4.1	82	30 - 150	11	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	5.4	108	30 - 150	5	100	30 - 150	8	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	4.4	87	30 - 150	4.1	82	30 - 150	7	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	4.3	86	30 - 150	4.1	82	30 - 150	5	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.3	85	30 - 150	4.1	82	30 - 150	4	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	4.7	94	30 - 150	4.1	82	30 - 150	14	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	4.2	84	30 - 150	4.1	83	30 - 150	2	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	5.4	107	30 - 150	5.1	101	30 - 150	6	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	5.4	108	30 - 150	5.2	104	30 - 150	4	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	5.5	110	30 - 150	5	101	30 - 150	9	30

Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198 2,2',3,3',4,5,5',6-octachlorobiphenyl	86	30 - 150	87	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-001D
Sample Designation:	NBH_PH4SAP_PC09 0-1 (Laboratory Duplicate)
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/04/11
Matrix:	Solid
Moisture (%):	65
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	12		11		13	30
18	2,2',5-trichlorobiphenyl	22		21		5	30
28	2,4,4'-trichlorobiphenyl	71		72		0	30
44	2,2',3,5'-tetrachlorobiphenyl	50		47		5	30
49	2,2',4,5'-tetrachlorobiphenyl	62		56		11	30
52	2,2',5,5'-tetrachlorobiphenyl	130		130		1	30
66	2,3',4,4'-tetrachlorobiphenyl	37		39		5	30
77	3,3',4,4'-tetrachlorobiphenyl	4.1		4.4	U	NC	30
87	2,2',3,4,5'-pentachlorobiphenyl	59		58		1	30
101	2,2',4,5,5'-pentachlorobiphenyl	130		130		2	30
105	2,3,3',4,4'-pentachlorobiphenyl	48		44		9	30
118	2,3',4,4',5-pentachlorobiphenyl	130		130		3	30
126	3,3',4,4',5-pentachlorobiphenyl	0.91	U	0.91	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	37		36		1	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	150		150		0	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	63		64		1	30
156	2,3,3',4,4',5-hexachlorobiphenyl	11		11		1	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.91	U	0.91	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	12		13		5	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	13		12		12	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.3		3.9		NC	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.91	U	0.91	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	7.8		7.9		2	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1		0.94		NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	2		1.8		NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	1		1.1		NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	80	76	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

PCB Congeners in Tissue
SW 846 8082/EPA 680 modified

Lab Number:	20612-001
Sample Designation:	Matrix Spike Duplicate
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/04/11
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5
Dilution Factor:	1

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	11	45	39	61	30 - 150	37	57	30 - 150	5	30
18	2,2',5-trichlorobiphenyl	21	45	46	55	30 - 150	52	68	30 - 150	13	30
28	2,4,4'-trichlorobiphenyl	72	45	101	65	30 - 150	100	63	30 - 150	1	30
44	2,2',3,5'-tetrachlorobiphenyl	47	45	91	95	30 - 150	99	114	30 - 150	9	30
49	2,2',4,5'-tetrachlorobiphenyl	56	45	97	90	30 - 150	97	91	30 - 150	0	30
52	2,2',5,5'-tetrachlorobiphenyl	130	45	173	97	30 - 150	166	82	30 - 150	4	30
66	2,3',4,4'-tetrachlorobiphenyl	39	45	77	84	30 - 150	82	96	30 - 150	7	30
77	3,3',4,4'-tetrachlorobiphenyl	4.4	45	43	85	30 - 150	45	88	30 - 150	3	30
87	2,2',3,4,5'-pentachlorobiphenyl	58	45	95	80	30 - 150	108	109	30 - 150	13	30
101	2,2',4,5,5'-pentachlorobiphenyl	130	45	174	86	30 - 150	164	65	30 - 150	6	30
105	2,3,3',4,4'-pentachlorobiphenyl	44	45	88	96	30 - 150	74	66	30 - 150	17	30
118	2,3',4,4',5-pentachlorobiphenyl	130	45	185	123	30 - 150	186	125	30 - 150	1	30
126	3,3',4,4',5-pentachlorobiphenyl	U	45	32	71	30 - 150	38	83	30 - 150	16	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	36	45	80	96	30 - 150	77	89	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	150	45	191	98	30 - 150	201	120	30 - 150	5	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	64	45	104	88	30 - 150	100	78	30 - 150	4	30
156	2,3,3',4,4',5-hexachlorobiphenyl	11	45	50	85	30 - 150	47	78	30 - 150	7	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	U	45	31	69	30 - 150	35	78	30 - 150	12	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	13	45	45	69	30 - 150	51	84	30 - 150	14	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	12	45	44	70	30 - 150	52	88	30 - 150	17	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	3.9	45	32	62	30 - 150	37	73	30 - 150	14	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	U	45	26	57	30 - 150	24	52	30 - 150	10	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	7.9	45	36	62	30 - 150	42	75	30 - 150	15	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.94	45	32	67	30 - 150	36	78	30 - 150	14	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.8	45	35	72	30 - 150	39	83	30 - 150	13	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.1	45	33	70	30 - 150	39	84	30 - 150	18	30

Surrogate Standard	MS Recovery (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	84	93	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB579S
Sample Designation:	Laboratory Blank PB579S
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/03/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.5	U
18	2,2',5-trichlorobiphenyl	0.5	U
28	2,4,4'-trichlorobiphenyl	0.5	U
44	2,2',3,5'-tetrachlorobiphenyl	0.5	U
49	2,2',4,5'-tetrachlorobiphenyl	0.5	U
52	2,2',5,5'-tetrachlorobiphenyl	0.5	U
66	2,3',4,4'-tetrachlorobiphenyl	0.5	U
77	3,3',4,4'-tetrachlorobiphenyl	0.5	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.5	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.5	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.5	U
118	2,3',4,4',5-pentachlorobiphenyl	0.5	U
126	3,3',4,4',5-pentachlorobiphenyl	0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.5	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.5	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.5	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.5	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.5	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.5	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.5	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.5	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.5	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.5	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.5	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	74	30 - 150

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS579S / LCSD579S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/03/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentratio (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	4.32	86	30 - 150	3.8	76	30 - 150	13	30
18	2,2',5-trichlorobiphenyl	3.86	77	30 - 150	3.6	73	30 - 150	6	30
28	2,4,4'-trichlorobiphenyl	3.96	79	30 - 150	4.1	82	30 - 150	4	30
44	2,2',3,5'-tetrachlorobiphenyl	4.11	82	30 - 150	3.9	77	30 - 150	6	30
49	2,2',4,5'-tetrachlorobiphenyl	3.79	76	30 - 150	3.6	73	30 - 150	4	30
52	2,2',5,5'-tetrachlorobiphenyl	4.07	81	30 - 150	3.6	72	30 - 150	12	30
66	2,3',4,4'-tetrachlorobiphenyl	4.22	84	30 - 150	4.3	87	30 - 150	2	30
77	3,3',4,4'-tetrachlorobiphenyl	4.75	95	30 - 150	4.6	93	30 - 150	2	30
87	2,2',3,4,5'-pentachlorobiphenyl	4.9	98	30 - 150	4.1	83	30 - 150	17	30
101	2,2',4,5,5'-pentachlorobiphenyl	4.38	88	30 - 150	3.9	77	30 - 150	12	30
105	2,3,3',4,4'-pentachlorobiphenyl	4.14	83	30 - 150	4.4	88	30 - 150	6	30
118	2,3',4,4',5-pentachlorobiphenyl	4.64	93	30 - 150	4.5	89	30 - 150	4	30
126	3,3',4,4',5-pentachlorobiphenyl	4.36	87	30 - 150	4	79	30 - 150	9	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	4.43	89	30 - 150	4.6	92	30 - 150	3	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.69	94	30 - 150	4.7	93	30 - 150	0	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	4.08	82	30 - 150	4	81	30 - 150	1	30
156	2,3,3',4,4',5-hexachlorobiphenyl	4.47	89	30 - 150	4.3	85	30 - 150	5	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	5.48	110	30 - 150	4.9	97	30 - 150	12	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	4.64	93	30 - 150	4.4	88	30 - 150	6	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	4.14	83	30 - 150	4.4	87	30 - 150	5	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.12	82	30 - 150	4	81	30 - 150	2	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	4.15	83	30 - 150	4.1	81	30 - 150	2	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	3.94	79	30 - 150	4	80	30 - 150	2	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	4.96	99	30 - 150	5.2	104	30 - 150	5	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	5.44	109	30 - 150	5.1	102	30 - 150	6	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	5.79	116	30 - 150	5.5	110	30 - 150	5	30

	Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198	2,2',3,3',4,5,5',6-octachlorobiphenyl	98	30 - 150	87	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-051D
Sample Designation:	NBH_PH4SAP_PC17 0-.5' (Laboratory Duplicate)
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	o4828
Matrix:	Solid
Moisture (%):	0
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	3.9		4.7		20	30
18	2,2',5-trichlorobiphenyl	7.5		9.6		24	30
28	2,4,4'-trichlorobiphenyl	35		33		7	30
44	2,2',3,5'-tetrachlorobiphenyl	10		12		14	30
49	2,2',4,5'-tetrachlorobiphenyl	21		27		23	30
52	2,2',5,5'-tetrachlorobiphenyl	31		38		21	30
66	2,3',4,4'-tetrachlorobiphenyl	20		21		3	30
77	3,3',4,4'-tetrachlorobiphenyl	2.3		2.9		NC	30
87	2,2',3,4,5'-pentachlorobiphenyl	10		12		16	30
101	2,2',4,5,5'-pentachlorobiphenyl	32		38		19	30
105	2,3,3',4,4'-pentachlorobiphenyl	9.7		11		9	30
118	2,3',4,4',5-pentachlorobiphenyl	39		45		14	30
126	3,3',4,4',5-pentachlorobiphenyl	0.66	U	0.66	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	9.3		8.6		8	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	33		39		15	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	21.00		25		17	30
156	2,3,3',4,4',5-hexachlorobiphenyl	2.4		2.5		NC	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.66	U	0.66	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	3.8		3.9		2	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	4.7		4.6		2	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.5		1.5		NC	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.66	U	0.66	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	3.5		3.4		4	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.66	U	0.66	U	NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.66	U	0.66	U	NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	0.66	U	0.66		NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	109	120	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20612-051MSD
Sample Designation:	NBH_PH4SAP_PC17 0-.5' (Matrix Spike Duplicate)
Date Sampled:	01/31/11
Date Extracted:	01/31/11
Date Analyzed:	02/03/11
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1.00

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	3.6	33.2	29.6	75	30 - 150	24.0	59	30 - 150	20	30
18	2,2',5-trichlorobiphenyl	7.3	33.2	29.1	59	30 - 150	27.0	54	30 - 150	6	30
28	2,4,4'-trichlorobiphenyl	25	33.2	57.7	76	30 - 150	50.0	52	30 - 150	15	30
44	2,2',3,5'-tetrachlorobiphenyl	8.7	33.2	46.6	106	30 - 150	49.0	112	30 - 150	4	30
49	2,2',4,5'-tetrachlorobiphenyl	20	33.2	47.7	63	30 - 150	46.0	57	30 - 150	5	30
52	2,2',5,5'-tetrachlorobiphenyl	29	33.2	54.8	51	30 - 150	55.0	50	30 - 150	0	30
66	2,3',4,4'-tetrachlorobiphenyl	16	33.2	42.9	66	30 - 150	44.0	70	30 - 150	3	30
77	3,3',4,4'-tetrachlorobiphenyl	2.2	33.2	33.2	91	30 - 150	33.0	90	30 - 150	1	30
87	2,2',3,4,5'-pentachlorobiphenyl	9.1	33.2	35.3	70	30 - 150	37.0	75	30 - 150	5	30
101	2,2',4,5,5'-pentachlorobiphenyl	29	33.2	51.3	40	30 - 150	51.0	38	30 - 150	1	30
105	2,3,3',4,4'-pentachlorobiphenyl	8.1	33.2	38.1	83	30 - 150	36.0	76	30 - 150	6	30
118	2,3',4,4',5-pentachlorobiphenyl	34.0	33.2	62.6	54	30 - 150	60.0	47	30 - 150	4	30
126	3,3',4,4',5-pentachlorobiphenyl	ND	33.2	35.5	107	30 - 150	33.0	98	30 - 150	9	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	6.5	33.2	40.6	97	30 - 150	37.0	86	30 - 150	9	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	29	33.2	64.1	76	30 - 150	64.0	77	30 - 150	1	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	19	33.2	48.2	69	30 - 150	46.0	62	30 - 150	5	30
156	2,3,3',4,4',5-hexachlorobiphenyl	1.9	33.2	31.1	86	30 - 150	31.0	85	30 - 150	1	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	ND	33.2	35.1	106	30 - 150	35.0	104	30 - 150	1	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	2.9	33.2	33.9	91	30 - 150	31.0	80	30 - 150	10	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.5	33.2	33.8	88	30 - 150	34.0	88	30 - 150	1	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.1	33.2	29.8	85	30 - 150	29.0	82	30 - 150	4	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	33.2	24.9	75	30 - 150	24.0	73	30 - 150	3	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	2.6	33.2	31.0	83	30 - 150	30.0	79	30 - 150	4	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	ND	33.2	37.5	113	30 - 150	35.0	105	30 - 150	8	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	ND	33.2	40.1	121	30 - 150	37.0	113	30 - 150	7	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.37	33.2	39.6	118	30 - 150	39.0	118	30 - 150	0	30

Surrogate Standard	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	104	30 - 150	101	30 - 150

ND = Not detected

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20612		
SDG No:	6690		
Project:	NBH-South Terminal 6690		
Delivered via:	ESI		
Date and Time Received:	01/28/11 1110	Date and TIme Logged into Lab:	01/28/11 1330
Recieved By:	DW	Logged into Lab by:	LCB LCR
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	3	Custody Seals intact?	NA
Number of COC Pages:	6		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC38 0-1	20612-001	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC34 0-1	20612-002	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC34 1-2	20612-003	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC34 2-3	20612-004	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC34 3-4	20612-005	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC34 4.4.8	20612-006	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC39 0-1	20612-007	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC39 1-2	20612-008	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC39 2-3	20612-009	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC39 3-4	20612-010	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC39 4-5	20612-011	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC40 0-1	20612-012	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC40 1-2	20612-013	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC35 0-6"	20612-014	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC41 0-1	20612-015	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC41 1-2	20612-016	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC41 2-3	20612-017	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC41 3-4	20612-018	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC41 4-4.5	20612-019	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC37 0-0.5"	20612-020	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13_11 0-0.5"	20612-021	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 0-1	20612-022	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 1-2	20612-023	S	HOLD for CGR680	9oz G	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20612		
SDG No:	6690		
Project:	NBH-South Terminal 6690		
Delivered via:	ESI		
Date and Time Received:	01/28/11 1110	Date and TIme Logged into Lab:	01/28/11 1330
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	3	Custody Seals intact?	NA
Number of COC Pages:	6		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC30 2-3	20612-024	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 3-4	20612-025	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 4-5	20612-026	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 5-6	20612-027	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC30 6-6.5	20612-028	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC31 0-1	20612-029	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC31 1-2	20612-030	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC31 2-3	20612-031	S	HOLD for CGR680	9oz G	4C	Yes
DUP 1	20612-032	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC29 0-1	20612-033	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC29 1-2	20612-034	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC29 2-3	20612-035	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC29 3-4	20612-036	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC29 4-4.5	20612-037	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC26 0-1	20612-038	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC26 1-2	20612-039	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC26 2-3	20612-040	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC26 3-4	20612-041	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC25 0-1	20612-042	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC25 1-1.5	20612-043	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC24 0-0.5"	20612-044	S	CGR680	9oz G	4C	Yes
DUP 2	20612-045	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC22 0-1	20612-046	S	CGR680	9oz G	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20612		
SDG No:	6690		
Project:	NBH-South Terminal 6690		
Delivered via:	ESI		
Date and Time Received:	01/28/11 1110	Date and TIme Logged into Lab:	01/28/11 1330
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	3	Custody Seals intact?	NA
Number of COC Pages:	6		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC22 1-2	20612-047	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC21 0-.5'	20612-048	S	CGR680	9oz G	4C	Yes
DUP 1-20	20612-049	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC18 0-.5'	20612-050	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC17 0-.5'	20612-051	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC16 0-1'	20612-052	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC15 0-1	20612-053	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13 0-1	20612-054	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13 1-2	20612-055	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13 2-3	20612-056	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13 3-3.5	20612-057	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC12 0-1	20612-058	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC11 0-1	20612-059	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC10 0-1	20612-060	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC10 1-2	20612-061	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC10 2-3	20612-062	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC09 0-1	20612-063	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC09 1-2	20612-064	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC09 2-2.8	20612-065	S	HOLD for CGR680	9oz G	4C	Yes

Notes and qualifications:

ESI
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P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20612

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES, LLC	Contact: CHET MYERS	Project Name: NBH_ SOUTH TERM	Page 1 of 6
Report to: CHET MYERS	Address: 184 HIGH ST. SUITE 502	Project Number: 6690.	
Invoice to:	Address: BOSTON, MA 02110	Project Manager: CHET MYERS	
Voice: (617) 728-0070	Fax: (617) 728-0080	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	NBH_PH4SAP_PC38 0-1	1/18/11	12:27	CWM	G		G	N/A	S		RUN / PCB BY NOAA CONGENERS
-002	NBH_PH4SAP_PC34 0-1		13:00								RUN / PCB BY NOAA CONGENERS
-003	NBH_PH4SAP_PC34 1-2		13:03								HOLD
-004	NBH_PH4SAP_PC34 2-3		13:06								HOLD
-005	NBH_PH4SAP_PC34 3-4		13:24								HOLD
-006	NBH_PH4SAP_PC34 4.4.8		13:27								HOLD
-007	NBH_PH4SAP_PC39 0-1		13:51								RUN / PCB BY NOAA CONGENERS
-008	NBH_PH4SAP_PC39 1-2		13:55								HOLD
-009	NBH_PH4SAP_PC39 2-3		13:58								HOLD
-010	NBH_PH4SAP_PC39 3-4		14:04								HOLD
-011	NBH_PH4SAP_PC39 4-5		14:07								HOLD
-012	NBH_PH4SAP_PC40 0-1		14:21								RUN / PCB BY NOAA CONGENERS

Relinquished By: [signature]	Date: 1/28/11	Time: 11:10	Received By: [signature]	Date: 1/28/11	Time: 11:10
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4304

ESI
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1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20612

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX	Contact:	Project Name:	Page 2 of 6
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-013	NBH_PH4SAP_PC40 1-2	1/18/11	14:25	CWM	G		G	N/A	S		HOLD
-014	NBH_PH4SAP_PC35 0-6"	1/19/11	09:27	CWM							RUN / PCB BY NOAA CONGENERS
-015	NBH_PH4SAP_PC41 0-1		10:48								RUN / PCB BY NOAA CONGENERS
-016	NBH_PH4SAP_PC41 1-2		10:51								HOLD
-017	NBH_PH4SAP_PC41 2-3		10:53								HOLD
-018	NBH_PH4SAP_PC41 3-4		10:59								HOLD
-019	NBH_PH4SAP_PC41 4-4.5		11:01								HOLD
-020	NBH_PH4SAP_PC37 0-0.5"		11:16								RUN / PCB BY NOAA CONGENERS
-021	NBH_PH4SAP_PC13_11 0-0.5"		11:31								RUN / PCB BY NOAA CONGENERS
-022	NBH_PH4SAP_PC30 0-1		11:44								RUN / PCB BY NOAA CONGENERS
-023	NBH_PH4SAP_PC30 1-2		11:47								HOLD
-024	NBH_PH4SAP_PC30 2-3		11:50								HOLD

Relinquished By: [signature]	Date: 1/28/11 Time: 11:10	Received By: [signature]	Date: 1/28/11 Time: 11:10
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4302

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20612

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX	Contact:	Project Name:	Page 3 of 6
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)		Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-025	NBH_PH4SAP_PC30	3-4	1/19/11	12:01	CWM	G		G	N/A	S		HOLD
-026	NBH_PH4SAP_PC30	4-5		12:05								HOLD
-027	NBH_PH4SAP_PC30	5-6		12:07								HOLD
-028	NBH_PH4SAP_PC30	6-6.5		12:14								HOLD
-029	NBH_PH4SAP_PC31	0-1		12:36								RUN / PCB BY NOAA CONGENERS
-030	NBH_PH4SAP_PC31	1-2		12:40								HOLD
-031	NBH_PH4SAP_PC31	2-3		12:47								HOLD
-032	DUP1				CWM							RUN / PCB BY NOAA CONGENERS
-033	NBH_PH4SAP_PC29	0-1		12:59								RUN / PCB BY NOAA CONGENERS
-034	NBH_PH4SAP_PC29	1-2		13:04								HOLD
-035	NBH_PH4SAP_PC29	2-3		13:08								HOLD
-036	NBH_PH4SAP_PC29	3-4		13:15								HOLD

Relinquished By: [signature]	Date: 1/28/11	Time: 11:10	Received By: [signature]	Date: 1/28/11	Time: 11:10
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4303

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time ___ Standard Other ___
If faster than 5 days, prior approval by laboratory is required # ___

State where samples were collected from:
MA RI CT NH NJ NY ME Other ___

Is this project for any of the following:
MA-MCP* Navy USACE Other ___

Reporting Limits

ESS LAB PROJECT ID: 20612

Electronic Deliverable
___ Yes ___ No Format ___

Co. Name: APEX COMPANIES, LLC
Project #: 6690
Project Name (20 Char. or less):
Contact Person: CHET MYERS
Address: 184 HIGH ST SUITE 502
City: BOSTON State: MA Zip: 02127 PO#:
Telephone #: (617) 728-0070 Fax #: (617) 728-0080 Email Address: cmyers@apexcos.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 524.2	624 VPH	8021 MTBE/BTEX 8015 GRO	8100 TPH 8015 DRO EPH No Targets	8081 Pesticides 8082 PCB 608 Pesticides 608 PCB	8270 625 PAH only	RCRA5 RCRA8 PP13 TAL23	TCLP8 MCP MCPw/Hg NBC7	PCB BY NOAA (CONTAINERS)	HOLD					
-037	1/19/11	13:18		X	S	NBH_PH4SAP_PC29 4-4.5	1	G										X					
-038		13:35		X		NBH_PH4SAP_PC26 0-1											X						
-039		13:39		X		NBH_PH4SAP_PC26 1-2												X					
-040		13:41		X		NBH_PH4SAP_PC26 2-3												X					
-041		13:53		X		NBH_PH4SAP_PC26 3-4												X					
-042		14:00		X		NBH_PH4SAP_PC25 0-1											X						
-043		14:08		X		NBH_PH4SAP_PC25 1-1.5												X					
-044		14:27		X		NBH_PH4SAP_PC24 0.05'											X						
-045				X		DUP 2											X						
-046		15:04		X		NBH_PH4SAP_PC22 0-1											X						

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: ___
Cooler Temp: ___

Internal Use Only
[ ] Pickup
[ ] Technicians ___

Comments:

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	1/28/11 11:10	[signature]	1/28/11 11:10				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
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CHAIN OF CUSTODY

Turn Time ___ Standard Other ___
If faster than 5 days, prior approval by laboratory is required # ___

State where samples were collected from:
MA RI CT NH NJ NY ME Other ___

Is this project for any of the following:
MA-MCP* Navy USACE Other ___

Reporting Limits

ESS LAB PROJECT ID: 20612

Electronic Deliverable
___ Yes ___ No Format ___

Co. Name: APEX
Project #
Project Name (20 Char. or less)
Contact Person
Address
City State Zip
PO#
Telephone #
Fax #
Email Address

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 624 524.2	8021 MTBE/BTEX 8015 GRO VPH	8100 TPH 8015 DRO EPH No Targets	8081 Pesticides 8082 PCB 608 Pesticides 608 PCB	8270 625 PAH only	RCRA5 RCRA8 PP13 TAL23	TCLP8 MCP MCPw/Hg NBC7	PCB BY NOAA (DNG-PAHs)	HOLD				
-047	1/19/11	15:09		X	S	NBH_PH4SAP_PC22 1-2	1	G									X				
-048	1/20/11	10:00				NBH_PH4SAP_PC21 0-.5'										X					
-049						DUP 1-20										X					
-050		10:45				NBH_PH4SAP_PC18 0-.5'										X					
-051		11:09				NBH_PH4SAP_PC17 0-.5'										X					
-052		11:25				NBH_PH4SAP_PC16 0-1'										X					
-053		11:48				NBH_PH4SAP_PC15 0-1										X					
-054		12:15				NBH_PH4SAP_PC13 0-1										X					
-055		12:18				NBH_PH4SAP_PC13 1-2											X				
-056		12:21				NBH_PH4SAP_PC13 2-3											X				

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: ___
Cooler Temp: ___

Internal Use Only
[ ] Pickup
[ ] Technicians ___

Comments:

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	1/28/11 11:10	[signature]	1/28/11 11:10				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time ___ Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
MA RI CT NH NJ NY ME Other _____

Is this project for any of the following:
MA-MCP* Navy USACE Other _____

Reporting Limits

ESS LAB PROJECT ID: 20612

Electronic Deliverable
___ Yes ___ No Format _____

Co. Name: APEX
Project #
Project Name (20 Char. or less)
Contact Person
Address
City State Zip
PO#
Telephone #
Fax #
Email Address

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 624 524.2	8021 MTBE/BTEX 8015 GRO VPH	8100 TPH 8015 DRO EPH No Targets	8081 Pesticides 8082 PCB 608 Pesticides 608 PCB	8270 625 PAH only	RCRA5 RCRA8 PP13 TAL23	TCLP8 MCP MCPw/Hg NBC7	PCB BY NOAA (only 5 samples)	HOLD					
-057	1/20/11	12:35		X	S	NBH_PH4SAP_PC13 3-3.5	1	G									X					
-058		13:28				NBH_PH4SAP_PC12 0-1										X						
-059		14:00				NBH_PH4SAP_PC11 0-1										X						
-060		14:40				NBH_PH4SAP_PC10 0-1										X						
-061		14:43				NBH_PH4SAP_PC10 1-2											X					
-062		14:46				NBH_PH4SAP_PC10 2-3											X					
-063		15:00				NBH_PH4SAP_PC09 0-1										X						
-064		15:03				NBH_PH4SAP_PC09 1-2											X					
-065		15:06				NBH_PH4SAP_PC09 2-2.8											X					

Container Type: P-Poly G-Glass S-Sterile V-VOA | Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: _____
Cooler Temp: _____

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments:

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	1/21/11 11:10	[signature]	1/21/11 11:10				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

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1 (White) Lab Copy 2 (Yellow) Client Receipt

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: 6690
Report Number: 20685
Date Received: 02/17/11
Date Reported: 03/03/11

Project: NBH_S.TERM 6690

Attached please find results for analyses performed on samples received on 02/17/11 at 1110.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent except where noted with respect to petroleum hydrocarbons.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Date 3/3/11

Authorized
Signature

Attachment
Report

Report No: 20685 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_PC_09D 0-1
Matrix: Solid
Sampled: 02/16/11 1610

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20685-001	0.32	0.06	ug/g dry wt	02/23/11 1200	02/28/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20685-001	5.7	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20685-001	0.3	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20685-001	1.1	0.09	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20685-001	64	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20685-001	140	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Lead, total	20685-001	62	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20685-001	0.4	0.13	ug/g dry wt	02/24/11 0930	02/24/11 1415	JLH/EPA 245.7
Nickel, total	20685-001	10	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20685-001	0.47	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Silver, total	20685-001	0.78	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20685-001	0.16	0.05	ug/g dry wt	02/23/11 1200	02/28/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20685-001	190	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 20685 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP14
Matrix: Solid
Sampled: 02/16/11

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Antimony, total	20685-018	0.22	0.06	ug/g dry wt	02/23/11 1200	02/28/11	JLH/SW846 3rd Ed. 6020
Arsenic, total	20685-018	4	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Beryllium, total	20685-018	0.24	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Cadmium, total	20685-018	0.73	0.09	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Chromium, total	20685-018	42	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20685-018	99	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Lead, total	20685-018	47	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Mercury, total	20685-018	0.23	0.11	ug/g dry wt	02/24/11 0930	02/24/11 1415	JLH/EPA 245.7
Nickel, total	20685-018	7.8	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Selenium, total	20685-018	0.28	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Silver, total	20685-018	0.43	0.05	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Thallium, total	20685-018	0.11	0.05	ug/g dry wt	02/23/11 1200	02/28/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20685-018	120	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	20685-001
Sample Designation:	NBH_PH4SAP_PC_09D 0-1
Date Sampled:	02/16/11
Date Extracted:	02/24/11
Date Analyzed:	03/01/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.2
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.4
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.4
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	0.9
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.4
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	0.2	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	0.3	0.2
naphthalene	U	0.2	fluoranthene	0.7	0.2
benzoic acid	U	2	benzidine	U	0.7
4-chloroaniline	U	0.2	pyrene	0.7	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	0.4	0.2
2-methylnaphthalene	U	0.2	chrysene	0.5	0.2
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.4
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	2.6	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	0.5	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	0.3	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	0.3	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	0.4	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	0.4	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	21-100	nitrobenzene-d5	91	35-114
phenol-d5	89	10-102	2-fluorobiphenyl	85	43-116
2,4,6-tribromophenol	86	10-123	terphenyl-d14	101	33-141

U = Below quantitation limit

Detection limit elevated by high moisture content and organics content.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	20685-018
Sample Designation:	NBH_PH4SAP_DUP14
Date Sampled:	02/16/11
Date Extracted:	02/24/11
Date Analyzed:	03/01/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)		Concentration (mg/Kg dry wt)	Reporting Limit (mg/Kg dry wt)
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.2
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.3
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.3
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	0.8
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.3
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	0.2	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	0	0	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	0.6	0.2
benzoic acid	U	2	benzidine	U	0.6
4-chloroaniline	U	0.2	pyrene	0.6	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	0.3	0.2
2-methylnaphthalene	U	0.2	chrysene	0.3	0.2
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.3
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	0.4	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	0.3	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	0.2	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	0.2	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	0.3	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	0.2	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	73	21-100	nitrobenzene-d5	86	35-114
phenol-d5	85	10-102	2-fluorobiphenyl	81	43-116
2,4,6-tribromophenol	83	10-123	terphenyl-d14	102	33-141

U = Below quantitation limit
B = Analyte found in laboratory method blank at the value in parentheses.
Detection limit elevated by high moisture content and organics content.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-001
Sample Designation:	NBH_PH4SAP_PC_09D 0-1
Date Sampled:	02/16/11 1610
Date Extracted:	02/22/11
Date Analyzed:	02/25/11
Matrix:	Solid
Moisture (%):	46
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	25	
18	2,2',5-trichlorobiphenyl	*	43	
28	2,4,4'-trichlorobiphenyl	*	160	
44	2,2',3,5'-tetrachlorobiphenyl	*	68	
49	2,2',4,5'-tetrachlorobiphenyl	*	110	
52	2,2',5,5'-tetrachlorobiphenyl	*	150	
66	2,3',4,4'-tetrachlorobiphenyl	*	97	
77	3,3',4,4'-tetrachlorobiphenyl		12	
87	2,2',3,4,5'-pentachlorobiphenyl		52	
101	2,2',4,5,5'-pentachlorobiphenyl	*	140	
105	2,3,3',4,4'-pentachlorobiphenyl		61	
118	2,3',4,4',5-pentachlorobiphenyl	*	160	
126	3,3',4,4',5-pentachlorobiphenyl		7.7	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	37	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	130	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	110	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	13	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.93	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	17	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	18	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.5	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.93	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	15	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.9	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.93	U

Total PCBs by Sum of congeners (*) multiplied by 2 2600

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	78	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-002
Sample Designation:	NBH_PH4SAP_PC_03 0-1
Date Sampled:	02/15/11 1022
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	56
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	51	
18	2,2',5-trichlorobiphenyl	*	75	
28	2,4,4'-trichlorobiphenyl	*	280	
44	2,2',3,5'-tetrachlorobiphenyl	*	98	
49	2,2',4,5'-tetrachlorobiphenyl	*	230	
52	2,2',5,5'-tetrachlorobiphenyl	*	280	
66	2,3',4,4'-tetrachlorobiphenyl	*	170	
77	3,3',4,4'-tetrachlorobiphenyl		33	
87	2,2',3,4,5'-pentachlorobiphenyl		120	
101	2,2',4,5,5'-pentachlorobiphenyl	*	310	
105	2,3,3',4,4'-pentachlorobiphenyl		170	
118	2,3',4,4',5-pentachlorobiphenyl	*	380	
126	3,3',4,4',5-pentachlorobiphenyl		1.1	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	86	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	290	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	250	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	31	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	41	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	41	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		14	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	38	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 5300

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-004
Sample Designation:	NBH_PH4SAP_PC_04 0-0.8
Date Sampled:	02/16/11 0931
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	19	
18	2,2',5-trichlorobiphenyl	*	42	
28	2,4,4'-trichlorobiphenyl	*	79	
44	2,2',3,5'-tetrachlorobiphenyl	*	51	
49	2,2',4,5'-tetrachlorobiphenyl	*	59	
52	2,2',5,5'-tetrachlorobiphenyl	*	120	
66	2,3',4,4'-tetrachlorobiphenyl	*	50	
77	3,3',4,4'-tetrachlorobiphenyl		1.7	
87	2,2',3,4,5'-pentachlorobiphenyl		55	
101	2,2',4,5,5'-pentachlorobiphenyl	*	110	
105	2,3,3',4,4'-pentachlorobiphenyl		41	
118	2,3',4,4',5-pentachlorobiphenyl	*	100	
126	3,3',4,4',5-pentachlorobiphenyl		0.67	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	30	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	100	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	68	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	8.9	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.67	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	12	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	13	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		4.8	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.67	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	8.5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.93	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.9	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.67	U
Total PCBs by Sum of congeners (*) multiplied by 2			1800	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	96	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-005
Sample Designation:	NBH_PH4SAP_PC_05 0-1
Date Sampled:	02/16/11 0958
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	14	
18	2,2',5-trichlorobiphenyl	*	29	
28	2,4,4'-trichlorobiphenyl	*	78	
44	2,2',3,5'-tetrachlorobiphenyl	*	34	
49	2,2',4,5'-tetrachlorobiphenyl	*	49	
52	2,2',5,5'-tetrachlorobiphenyl	*	69	
66	2,3',4,4'-tetrachlorobiphenyl	*	49	
77	3,3',4,4'-tetrachlorobiphenyl		4.2	
87	2,2',3,4,5'-pentachlorobiphenyl		22	
101	2,2',4,5,5'-pentachlorobiphenyl	*	63	
105	2,3,3',4,4'-pentachlorobiphenyl		20	
118	2,3',4,4',5-pentachlorobiphenyl	*	67	
126	3,3',4,4',5-pentachlorobiphenyl		0.67	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	13	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	53	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	49	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4.3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.67	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	10	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	12	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		3.6	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.67	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	9.8	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.96	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.67	U

Total PCBs by Sum of congeners (*) multiplied by 2 1200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	68	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-006
Sample Designation:	NBH_PH4SAP_PC_06 0-1
Date Sampled:	02/16/11 1139
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	35
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	8.3	
18	2,2',5-trichlorobiphenyl	*	17	
28	2,4,4'-trichlorobiphenyl	*	52	
44	2,2',3,5'-tetrachlorobiphenyl	*	27	
49	2,2',4,5'-tetrachlorobiphenyl	*	49	
52	2,2',5,5'-tetrachlorobiphenyl	*	81	
66	2,3',4,4'-tetrachlorobiphenyl	*	34	
77	3,3',4,4'-tetrachlorobiphenyl		2.9	
87	2,2',3,4,5'-pentachlorobiphenyl		30	
101	2,2',4,5,5'-pentachlorobiphenyl	*	74	
105	2,3,3',4,4'-pentachlorobiphenyl		25	
118	2,3',4,4',5-pentachlorobiphenyl	*	72	
126	3,3',4,4',5-pentachlorobiphenyl		0.77	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	19	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	65	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	46	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	5.6	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.77	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	8.2	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	7.7	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		3.3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.77	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	5.5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.77	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.79	

Total PCBs by Sum of congeners (*) multiplied by 2 1100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	77	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-007
Sample Designation:	NBH_PH4SAP_PC_07 0-1
Date Sampled:	02/16/11 1108
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	36
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	29	
18	2,2',5-trichlorobiphenyl	*	48	
28	2,4,4'-trichlorobiphenyl	*	120	
44	2,2',3,5'-tetrachlorobiphenyl	*	54	
49	2,2',4,5'-tetrachlorobiphenyl	*	84	
52	2,2',5,5'-tetrachlorobiphenyl	*	130	
66	2,3',4,4'-tetrachlorobiphenyl	*	67	
77	3,3',4,4'-tetrachlorobiphenyl		6.4	
87	2,2',3,4,5'-pentachlorobiphenyl		34	
101	2,2',4,5,5'-pentachlorobiphenyl	*	100	
105	2,3,3',4,4'-pentachlorobiphenyl		34	
118	2,3',4,4',5-pentachlorobiphenyl	*	120	
126	3,3',4,4',5-pentachlorobiphenyl		0.79	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	29	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	92	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	71	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	8.3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.79	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	10	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	12	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		3.7	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.79	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	9.6	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.92	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.6	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.79	U
Total PCBs by Sum of congeners (*) multiplied by 2			2000	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	84	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-008
Sample Designation:	NBH_PH4SAP_PC_08 0-1
Date Sampled:	02/16/11 1216
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	35
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	11	
18	2,2',5-trichlorobiphenyl	*	21	
28	2,4,4'-trichlorobiphenyl	*	76	
44	2,2',3,5'-tetrachlorobiphenyl	*	25	
49	2,2',4,5'-tetrachlorobiphenyl	*	50	
52	2,2',5,5'-tetrachlorobiphenyl	*	68	
66	2,3',4,4'-tetrachlorobiphenyl	*	44	
77	3,3',4,4'-tetrachlorobiphenyl		3.8	
87	2,2',3,4,5'-pentachlorobiphenyl		25	
101	2,2',4,5,5'-pentachlorobiphenyl	*	59	
105	2,3,3',4,4'-pentachlorobiphenyl		17	
118	2,3',4,4',5-pentachlorobiphenyl	*	61	
126	3,3',4,4',5-pentachlorobiphenyl		0.77	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	17	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	52	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	39	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.77	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	5.6	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	6.9	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		2.3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.77	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	6.3	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.77	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.77	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.77	U

Total PCBs by Sum of congeners (*) multiplied by 2 1100

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	70	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-009
Sample Designation:	NBH_PH4SAP_PC13_10 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	22
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.64	U
18	2,2',5-trichlorobiphenyl	*	0.89	
28	2,4,4'-trichlorobiphenyl	*	2.1	
44	2,2',3,5'-tetrachlorobiphenyl	*	3.1	
49	2,2',4,5'-tetrachlorobiphenyl	*	3.4	
52	2,2',5,5'-tetrachlorobiphenyl	*	4.3	
66	2,3',4,4'-tetrachlorobiphenyl	*	2.4	
77	3,3',4,4'-tetrachlorobiphenyl		0.64	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.66	
101	2,2',4,5,5'-pentachlorobiphenyl	*	4.2	
105	2,3,3',4,4'-pentachlorobiphenyl		0.97	
118	2,3',4,4',5-pentachlorobiphenyl	*	3.7	
126	3,3',4,4',5-pentachlorobiphenyl		0.64	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.78	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	3.4	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	3.5	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.64	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.64	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.64	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.64	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.64	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.64	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.64	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.64	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.64	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.64	U

Total PCBs by Sum of congeners (*) multiplied by 2 70

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	69	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-010
Sample Designation:	NBH_PH4SAP_PC_42 0-0.2
Date Sampled:	02/16/11 1030
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	33
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	15	
18	2,2',5-trichlorobiphenyl	*	23	
28	2,4,4'-trichlorobiphenyl	*	84	
44	2,2',3,5'-tetrachlorobiphenyl	*	25	
49	2,2',4,5'-tetrachlorobiphenyl	*	43	
52	2,2',5,5'-tetrachlorobiphenyl	*	62	
66	2,3',4,4'-tetrachlorobiphenyl	*	30	
77	3,3',4,4'-tetrachlorobiphenyl		2.8	
87	2,2',3,4,5'-pentachlorobiphenyl		14	
101	2,2',4,5,5'-pentachlorobiphenyl	*	44	
105	2,3,3',4,4'-pentachlorobiphenyl		16	
118	2,3',4,4',5-pentachlorobiphenyl	*	52	
126	3,3',4,4',5-pentachlorobiphenyl		0.75	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	11	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	38	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	31	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	3.6	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.75	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	4.6	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	5.1	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.8	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.75	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	4.1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.75	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.75	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.75	U

Total PCBs by Sum of congeners (*) multiplied by 2 950

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	76	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-011
Sample Designation:	NBH_PH4SAP_PC13_05 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	15
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.59	U
18	2,2',5-trichlorobiphenyl	*	1.4	
28	2,4,4'-trichlorobiphenyl	*	4.3	
44	2,2',3,5'-tetrachlorobiphenyl	*	2.2	
49	2,2',4,5'-tetrachlorobiphenyl	*	5.3	
52	2,2',5,5'-tetrachlorobiphenyl	*	6.6	
66	2,3',4,4'-tetrachlorobiphenyl	*	3.5	
77	3,3',4,4'-tetrachlorobiphenyl		0.59	U
87	2,2',3,4,5'-pentachlorobiphenyl		1.5	
101	2,2',4,5,5'-pentachlorobiphenyl	*	6.6	
105	2,3,3',4,4'-pentachlorobiphenyl		1.8	
118	2,3',4,4',5-pentachlorobiphenyl	*	7.4	
126	3,3',4,4',5-pentachlorobiphenyl		0.59	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	1.9	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	5.8	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	5.8	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.66	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.59	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.64	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.81	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.59	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.59	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.66	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.59	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.59	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.59	U

Total PCBs by Sum of congeners (*) multiplied by 2 110

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	70	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-012
Sample Designation:	NBH_PH4SAP_PC13_06 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	22
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.64	U
18	2,2',5-trichlorobiphenyl	*	2.8	
28	2,4,4'-trichlorobiphenyl	*	14	
44	2,2',3,5'-tetrachlorobiphenyl	*	4.1	
49	2,2',4,5'-tetrachlorobiphenyl	*	8.8	
52	2,2',5,5'-tetrachlorobiphenyl	*	11	
66	2,3',4,4'-tetrachlorobiphenyl	*	6.5	
77	3,3',4,4'-tetrachlorobiphenyl		0.64	U
87	2,2',3,4,5'-pentachlorobiphenyl		3.5	
101	2,2',4,5,5'-pentachlorobiphenyl	*	9.7	
105	2,3,3',4,4'-pentachlorobiphenyl		3.2	
118	2,3',4,4',5-pentachlorobiphenyl	*	12	
126	3,3',4,4',5-pentachlorobiphenyl		0.64	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	2.7	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	9	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	7.5	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.64	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.64	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.88	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.64	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.64	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.95	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.64	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.64	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.64	U

Total PCBs by Sum of congeners (*) multiplied by 2 190

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	63	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-018
Sample Designation:	NBH_PH4SAP_DUP14
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	34
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	14	
18	2,2',5-trichlorobiphenyl	*	28	
28	2,4,4'-trichlorobiphenyl	*	100	
44	2,2',3,5'-tetrachlorobiphenyl	*	40	
49	2,2',4,5'-tetrachlorobiphenyl	*	59	
52	2,2',5,5'-tetrachlorobiphenyl	*	80	
66	2,3',4,4'-tetrachlorobiphenyl	*	60	
77	3,3',4,4'-tetrachlorobiphenyl		5.2	
87	2,2',3,4,5'-pentachlorobiphenyl		27	
101	2,2',4,5,5'-pentachlorobiphenyl	*	72	
105	2,3,3',4,4'-pentachlorobiphenyl		24	
118	2,3',4,4',5-pentachlorobiphenyl	*	80	
126	3,3',4,4',5-pentachlorobiphenyl		0.76	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	17	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	69	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	58	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	5.9	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.76	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	12	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	14	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		4.6	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.76	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	11	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.76	U
Total PCBs by Sum of congeners (*) multiplied by 2			1500	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	67	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-019
Sample Designation:	NBH_PH4SAP_PC13_36 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	14
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.58	U
18	2,2',5-trichlorobiphenyl	*	0.58	U
28	2,4,4'-trichlorobiphenyl	*	0.61	
44	2,2',3,5'-tetrachlorobiphenyl	*	0.58	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.6	
52	2,2',5,5'-tetrachlorobiphenyl	*	1.1	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.58	U
77	3,3',4,4'-tetrachlorobiphenyl		0.58	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.7	
101	2,2',4,5,5'-pentachlorobiphenyl	*	4	
105	2,3,3',4,4'-pentachlorobiphenyl		0.58	U
118	2,3',4,4',5-pentachlorobiphenyl	*	3.2	
126	3,3',4,4',5-pentachlorobiphenyl		0.58	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	1.2	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	3.9	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	4.1	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.58	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.58	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.58	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.58	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.58	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.58	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.58	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.58	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.58	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.58	U

Total PCBs by Sum of congeners (*) multiplied by 2 46

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	84	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-020
Sample Designation:	NBH_PH4SAP_PC_27 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	20
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.63	U
18	2,2',5-trichlorobiphenyl	*	3.1	
28	2,4,4'-trichlorobiphenyl	*	9.7	
44	2,2',3,5'-tetrachlorobiphenyl	*	3.1	
49	2,2',4,5'-tetrachlorobiphenyl	*	6.6	
52	2,2',5,5'-tetrachlorobiphenyl	*	9.5	
66	2,3',4,4'-tetrachlorobiphenyl	*	5.4	
77	3,3',4,4'-tetrachlorobiphenyl		0.63	U
87	2,2',3,4,5'-pentachlorobiphenyl		2.2	
101	2,2',4,5,5'-pentachlorobiphenyl	*	8.2	
105	2,3,3',4,4'-pentachlorobiphenyl		2.1	
118	2,3',4,4',5-pentachlorobiphenyl	*	8	
126	3,3',4,4',5-pentachlorobiphenyl		0.63	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	1.8	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	6	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	6.2	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.63	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.63	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.63	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.72	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.63	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.63	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.68	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.63	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.63	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.63	U

Total PCBs by Sum of congeners (*) multiplied by 2 140

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	60	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-021
Sample Designation:	NBH_PH4SAP_PC_19 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	16
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.6	U
18	2,2',5-trichlorobiphenyl	*	0.6	U
28	2,4,4'-trichlorobiphenyl	*	0.6	U
44	2,2',3,5'-tetrachlorobiphenyl	*	0.6	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.6	U
52	2,2',5,5'-tetrachlorobiphenyl	*	0.6	U
66	2,3',4,4'-tetrachlorobiphenyl	*	0.6	U
77	3,3',4,4'-tetrachlorobiphenyl		0.6	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.6	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.6	U
105	2,3,3',4,4'-pentachlorobiphenyl		0.6	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.6	U
126	3,3',4,4',5-pentachlorobiphenyl		0.6	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.6	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.6	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.6	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.6	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.6	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.6	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.6	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.6	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.6	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.6	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.6	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.6	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.6	U

Total PCBs by Sum of congeners (*) multiplied by 2 13

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	60	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-022
Sample Designation:	NBH_PH4SAP_PC_28 0-1
Date Sampled:	02/16/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	1.9	
18	2,2',5-trichlorobiphenyl	*	3.9	
28	2,4,4'-trichlorobiphenyl	*	15	
44	2,2',3,5'-tetrachlorobiphenyl	*	4.8	
49	2,2',4,5'-tetrachlorobiphenyl	*	8.8	
52	2,2',5,5'-tetrachlorobiphenyl	*	14	
66	2,3',4,4'-tetrachlorobiphenyl	*	8.5	
77	3,3',4,4'-tetrachlorobiphenyl		0.68	U
87	2,2',3,4,5'-pentachlorobiphenyl		3.7	
101	2,2',4,5,5'-pentachlorobiphenyl	*	13	
105	2,3,3',4,4'-pentachlorobiphenyl		3.6	
118	2,3',4,4',5-pentachlorobiphenyl	*	14	
126	3,3',4,4',5-pentachlorobiphenyl		0.68	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	3.8	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	13	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	10	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.68	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.5	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.68	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.68	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1.2	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.68	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.68	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.68	U
Total PCBs by Sum of congeners (*) multiplied by 2			240	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	60	30 - 150

U = Not detected at value reported

Lab Number:	20685-001
Sample Designation:	NBH_PH4SAP_PC_09D 0-1
Date Sampled:	02/16/11 1610
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	14
Lube Oil Range Organics	160	Note 2	5
Total Petroleum Hydrocarbons	U	Note 1	14

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	104	30 - 150
2-fluorobiphenyl	98	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Lab Number:	20685-018
Sample Designation:	NBH_PH4SAP_DUP14
Date Sampled:	02/16/11
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

	Concentration (ug/g dry wt)		Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	Note 1	7
Lube Oil Range Organics	90	Note 2	4
Total Petroleum Hydrocarbons	U	Note 1	7

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	112	30 - 150
2-fluorobiphenyl	93	30 - 150

U = Below quantitation limit
Note 1 = Detection limit elevated due to matrix effects. Residue observed was not characteristic of any commercial petroleum product.
Note 2 = Reported concentration may be elevated due to the presence of co-extracted non-petroleum residue in the sample. Value reported may be considered a maximum.

Quality Control Summary

Parameter: Arsenic, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05			Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	49.9	50	100	52.1	50	104	Pass
SRM1944	62-100	15.2	18.9	80				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	5.28		5.70		8		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	64.3	62.2	5.70		94		Pass
20685-001SD	70-130	62.7	61.8	5.70		92		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Antimony, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	44.6	50	89	44.5	50	89	Pass
SRM1944	40-140	4.52	5.0	90				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.36		0.32		12		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	60.2	62.3	0.32		96		Pass
20685-001SD	70-130	59.8	61.8	0.32		96		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Beryllium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	2.55	2.5	102	2.58	2.5	103	Pass
SRM1944	40-140	0.65	1.6	41				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.33		0.30		9		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	3.59	3.11	0.30		106		Pass
20685-001SD	70-130	3.50	3.09	0.30		104		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Cadmium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	25.6	25	102	25.5	25	102	Pass
SRM1944	57-142	8.87	8.8	101				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	1.10		1.08		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	33.0	31.1	1.08		103		Pass
20685-001SD	70-130	32.7	30.9	1.08		102		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Chromium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.2	0.2	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	10.1	10	101	10.1	10	101	Pass
SRM1944	53-100	183	266	69				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	62.9		63.8		1		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		12.4	63.8		SNR		Pass
20685-001SD	70-130		12.4	63.8		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Copper, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	12.2	12.5	98	12.1	12.5	97	Pass
SRM1944	58-110	307	380	81				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	171		144		17		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		15.6	144		SNR		Pass
20685-001SD	70-130		15.5	144		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Lead, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	48.7	50	97	49.7	50	99	Pass
SRM1944	70-112	311	330	94				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	62.8		61.7		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	125	62.3	61.7		102		Pass
20685-001SD	70-130	123	61.8	61.7		99		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Mercury, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1		
20685-018	NBH_PH4SAP_DUP14		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB796S	0.02	0.02	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS796S	70-130	0.017	0.02	85	0.017	0.02	85	Pass
SRM1944	56-144	3.55	3.400	104				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.34		0.40		16		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		0.013	0.40		SNR		Pass
20685-001SD	70-130		0.013	0.40		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Nickel, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	24.6	25	98	24.3	25	97	Pass
SRM1944	50-100	57.1	76.1	75				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	9.9		10.3		4		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	40.1	31.1	10.3		96		Pass
20685-001SD	70-130	40.4	30.9	10.3		97		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Selenium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	50.7	50	101	51.0	50	102	Pass
SRM1944	40-140	1.09	1.4	78				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.41		0.47		14		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	59.1	62.3	0.47		94		Pass
20685-001SD	70-130	59.1	61.8	0.47		95		Pass

NC = Not calculated.

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Quality Control Summary

Parameter: Silver, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	12.7	13	102	12.7	13	102	Pass
SRM1944	40-140	6.75	6.4	105				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.72		0.78		8		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	16.1	15.6	0.78		98		Pass
20685-001SD	70-130	15.9	15.5	0.78		98		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Thallium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S SRM1944	70-130	50	50 <1	101	52	50	103	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	0.15		0.16		NC		

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130	62.9	62.3	0.16		101		Pass
20685-001SD	70-130	63.1	62.9	0.16		100		Pass

NC = Not calculated.

Quality Control Summary

Parameter: Zinc, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	1	1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	25.1	25	100	24.5	25	98	Pass
SRM1944	69-100	574	656	88				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	193		189		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		31.1	189		SNR		Pass
20685-001SD	70-130		30.9	189		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Lab Number:	PB586S
Sample Designation:	Laboratory Blank
Date Sampled:	02/24/11
Date Extracted:	02/24/11
Date Analyzed:	03/01/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270.

	Concentration (ug/g dry wt)	Quantitation Limit (ug/g dry wt)		Concentration (ug/g dry wt)	Quantitation Limit (ug/g dry wt)
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.2
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.4
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.4
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.4
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.2	4-chlorophenyl phenyl ether	U	0.2
4-methylphenol (p-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	U	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	U	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	U	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	U	0.2
2-methylnaphthalene	U	0.2	chrysene	U	0.2
hexachlorocyclopentadiene	U	0.2	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	0.7	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	U	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	U	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	U	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	U	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	U	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	89	21-100	nitrobenzene-d5	101	35-114
phenol-d5	99	10-102	2-fluorobiphenyl	92	43-116
2,4,6-tribromophenol	91	10-123	terphenyl-d14	110	33-141

U = Below quantitation limit

ESI

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Lab Number: LCS586S\LCSD586S
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 02/24/11
Date Extracted: 02/24/11
Date Analyzed: 03/01/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/g)	(ug/g)	(%)	(%)	(ug/g)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	NA	U	NA	30-150	U	NA	30-150	NA	30	
phenol	19.3	16	82	5-112	17	87	5-112	6	30	
2-chlorophenol	17.9	14	78	23-134	15	82	23-134	5	30	
bis-(2-choroethyl)ether	NA	U	NA	36-166	U	NA	36-166	NA	30	
1,3-dichlorobenzene	NA	U	NA	1-172	U	NA	1-172	NA	30	
1,4-diclorobenzene	7.2	5.7	79	20-124	6	83	20-124	6	30	
1,2-dichlorobenzene	NA	U	NA	32-129	U	NA	32-129	NA	30	
benzyl alcohol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-methylphenol (o-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
bis(2-chloroisopropyl)ether	NA	U	NA	53-127	U	NA	53-127	NA	30	
hexachloroethane	NA	U	NA	40-113	U	NA	40-113	NA	30	
N-nitroso-di-n-propylamine	9.6	7.6	79	1-150	7.9	83	1-150	5	30	
4-methylphenol (p-cresol)	NA	U	NA	30-150	U	NA	30-150	NA	30	
nitrobenzene	NA	U	NA	35-180	U	NA	35-180	NA	30	
isophorone	NA	U	NA	21-196	U	NA	21-196	NA	30	
2-nitrophenol	NA	U	NA	29-182	U	NA	29-182	NA	30	
2,4-dimethylphenol	NA	U	NA	32-119	U	NA	32-119	NA	30	
bis(2-chloroethoxy)methane	NA	U	NA	33-184	U	NA	33-184	NA	30	
2,4-dichlorophenol	NA	U	NA	39-135	U	NA	39-135	NA	30	
2,6-dichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
1,2,4-trichlorobenzene	6.5	5.2	81	44-142	5.6	86	44-142	7	30	
naphthalene	6.3	4.5	71	21-133	U	75	21-133	6	30	
benzoic acid	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-chloroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachloro-1,3-butadiene	NA	U	NA	24-116	U	NA	24-116	NA	30	
4-chloro-3-methylphenol	19.1	15	79	22-147	16	82	22-147	3	30	
2-methylnaphthalene	NA	U	NA	30-150	U	NA	30-150	NA	30	
hexachlorocyclopentadiene	NA	U	NA	30-150	U	NA	30-150	NA	30	
2,4,6-trichlorophenol	NA	U	NA	37-144	U	NA	37-144	NA	30	
2,4,5-trichlorophenol	NA	U	NA	30-150	U	NA	30-150	NA	30	
2-chloronaphthalene	NA	U	NA	60-118	U	NA	60-118	NA	30	
2-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
acenaphthylene	8.5	6.4	75	33-145	6.5	77	33-145	3	30	
dimethyl phthalate	NA	U	NA	1-112	U	NA	1-112	NA	30	
2,6-dinitrotoluene	NA	U	NA	50-158	U	NA	50-158	NA	30	
2,4-dinitrotoluene	6.9	U	NA	30-150	6	87	39-139	5	60	
acenaphthene	16.1	16	82	5-112	12	87	47-145	1	30	
3-nitroaniline	NA	14	78	23-134	U	82	30-150	NA	30	

U = Below quantitation limit

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number: 20685
Sample Designation: Laboratory Control Sample Duplicate
Date Sampled: 02/24/11
Date Extracted: 02/24/11
Date Analyzed: 03/01/11
Matrix: Solid

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Amount	Laboratory Control Sample			Laboratory Control Sample Duplicate					
	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/g)	(ug/g)	(%)	(%)	(ug/g)	(%)	(%)	(%)	(%)	
2,4-dinitrophenol	NA	U	NA	1-191	U	NA	1-191	NA	30	
dibenzofuran	NA	U	NA	30-150	U	NA	30-150	NA	30	
4-nitrophenol	17	14	81	1-132	14	81	1-132	0	40	
fluorene	8.5	6.6	77	59-121	6.6	78	59-121	0	30	
4-chlorophenyl phenyl ether	NA	U	NA	25-158	U	NA	25-158	NA	30	
diethyl phthalate	NA	U	NA	1-114	U	NA	1-114	NA	30	
4-nitroaniline	NA	U	NA	30-150	U	NA	30-150	NA	30	
4,6-dinitro-2-methylphenol	NA	U	NA	1-181	U	NA	1-181	NA	30	
4-chlorophenyl phenyl ethe	NA	U	NA	25-158	U	NA	25-158	NA	30	
N-nitrosodiphenylamine	NA	U	NA	30-150	NA	NA	30-150	NA	30	
4-bromophenyl phenylether	NA	U	NA	25-158	NA	NA	25-158	NA	30	
hexachlorobenzene	NA	U	NA	30-150	NA	NA	30-150	NA	30	
pentachlorophenol	23.9	18	75	14-176	18	75	14-176	0	30	
phenanthrene	8.5	6.5	77	54-120	6.7	78	54-120	2	30	
anthracene	9.3	7.2	78	27-133	7.3	79	27-133	1	30	
carbazole	NA	U	NA	30-150	U	NA	30-150	NA	30	
di-n-butyl phthalate	9.6	7.5	78	1-118	7.7	80	1-118	2	30	
fluoranthene	9	7.1	79	26-137	7.2	80	26-137	2	30	
benzidine	NA	U	NA	30-150	U	NA	30-150	NA	30	
pyrene	17.7	13	72	52-115	13	76	52-115	4	30	
butyl benzyl phthalate	NA	U	NA	1-152	U	NA	1-152	NA	30	
benzo(a)anthracene	9	7.4	82	33-143	7.5	83	33-143	1	30	
chrysene	8.7	6.4	73	17-168	6.7	77	17-168	4	30	
3,3'-dichlorobenzidine	NA	U	NA	1-262	U	NA	1-262	NA	30	
bis-2-ethylhexyl phthalate	NA	U	NA	1-158	U	NA	1-158	NA	30	
di-n-octyl phthalate	NA	U	NA	1-146	U	NA	1-146	NA	30	
benzo(b)fluoranthene	8.3	9.5	115	24-159	9.6	116	24-159	1	30	
benzo(k)fluoranthene	7.5	8.7	116	11-162	8	107	11-162	8	30	
benzo(a)pyrene	7.5	7.1	95	17-163	7	93	17-163	2	30	
indeno(1,2,3-cd)pyrene	10	4.1	41	1-171	4.3	43	1-171	4	30	
dibenz(a,h)anthracene	6	4.6	76	1-227	4.5	76	1-227	1	30	
benzo(g,h,i)perylene	5.5	4.2	76	1-219	4.3	79	1-219	5	30	

SURROGATE STANDARDS	Laboratory Control Sample		Laboratory Control Sample Duplicate	
	Recovery	Limits	Recovery	Limits
	(%)	(%)	(%)	(%)
2-fluorophenol	99	21-100	104	21-100
phenol-d5	106	10-102	110	10-102
2,4,6-tribromophenol	105	10-123	103	10-123
nitrobenzene-d5	102	35-114	110	35-114
2-fluorobiphenyl	94	43-116	96	43-116
terphenyl-d14	103	33-141	108	33-141

U = Below quantitation limit

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number: 20685-001
Sample Designation: NBH_PH4SAP_PC_09D 0-1 (Laboratory Duplicate)
Date Sampled: 02/16/11
Date Extracted: 02/24/11
Date Analyzed: 03/01/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample (ug/g)	RL (ug/g)	Duplicate (ug/g)	RL (ug/g)	DIFF (%)	Limit (%)		Sample (ug/g)	RL (ug/g)	Duplicate (ug/g)	RL (ug/g)	DIFF (%)	Limit (%)
N-nitrosodimethylamine	U	0.2	U	0.2	NC	30	2,4-dinitrotoluene	U	0.2	U	0.2	NC	30
phenol	U	0.2	U	0.2	NC	30	acenaphthene	U	0.2	U	0.2	NC	30
2-chlorophenol	U	0.2	U	0.2	NC	30	3-nitroaniline	U	0.2	U	0.2	NC	30
bis-(2-choroethyl)ether	U	0.2	U	0.2	NC	30	2,4-dinitrophenol	U	0.4	U	0.4	NC	30
1,3-dichlorobenzene	U	0.2	U	0.2	NC	30	dibenzofuran	U	0.2	U	0.2	NC	30
1,4-diclorobenzene	U	0.2	U	0.2	NC	30	4-nitrophenol	U	0.4	U	0.4	NC	30
1,2-dichlorobenzene	U	0.2	U	0.2	NC	30	fluorene	U	0.2	U	0.2	NC	30
benzyl alcohol	U	0.2	U	0.2	NC	30	4-chlorophenyl phenyl ether	U	0.2	U	0.2	NC	30
2-methylphenol (o-cresol)	U	0.2	U	0.2	NC	30	diethyl phthalate	U	0.2	U	0.2	NC	30
bis(2-chloroisopropyl)ether	U	0.2	U	0.2	NC	30	4-nitroaniline	U	0.2	U	0.2	NC	30
hexachloroethane	U	0.2	U	0.2	NC	30	4,6-dinitro-2-methylphenol	U	0.9	U	0.9	NC	30
N-nitroso-di-n-propylamine	U	0.2	U	0.2	NC	30	4-chlorophenyl phenyl ether	U	0.2	U	0.2	NC	30
4-methylphenol (p-cresol)	U	0.2	U	0.2	NC	30	N-nitrosodiphenylamine	U	0.2	U	0.2	NC	30
nitrobenzene	U	0.2	U	0.2	NC	30	1,2-diphenylhydrazine	U	0.2	U	0.2	NC	30
isophorone	U	0.2	U	0.2	NC	30	4-bromophenyl phenyl ether	U	0.2	U	0.2	NC	30
2-nitrophenol	U	0.2	U	0.2	NC	30	hexachlorobenzene	U	0.2	U	0.2	NC	30
2,4-dimethylphenol	U	0.2	U	0.2	NC	30	pentachlorophenol	U	0.4	U	0.4	NC	30
bis(2-chloroethoxy)methane	U	0.2	U	0.2	NC	30	phenanthrene	0.2	0.2	1.2	0.2	NC	30
2,4-dichlorophenol	U	0.2	U	0.2	NC	30	anthracene	U	0.2	U	0.2	NC	30
2,6-dichlorophenol	U	0.2	U	0.2	NC	30	carbazole	U	0.2	U	0.2	NC	30
1,2,4-trichlorobenzene	U	0.2	U	0.2	NC	30	di-n-butylphthalate	0.3	0.2	U	0.2	NC	30
naphthalene	U	0.2	U	0.2	NC	30	fluoranthene	0.7	0.2	2.7	0.2	NC	30
benzoic acid	U	2	U	2	NC	30	benzidine	U	0.7	U	0.7	NC	30
4-chloroaniline	U	0.2	U	0.2	NC	30	pyrene	0.7	0.2	2.2	0.2	NC	30
hexachloro-1,3-butadiene	U	0.2	U	0.2	NC	30	butylbenzylphthalate	U	0.2	U	0.2	NC	30
4-chloro-3-methylphenol	U	0.2	U	0.2	NC	30	benzo(a)anthracene	0.4	0.2	1	0.2	NC	30
2-methylnaphthalene	U	0.2	U	0.2	NC	30	chrysene	0.5	0.2	1.2	0.2	NC	30
hexachlorocyclopentadiene	U	2	U	2	NC	30	3,3'-dichlorobenzidine	U	0.4	U	0.4	NC	30
2,4,6-trichlorophenol	U	0.2	U	0.2	NC	30	bis(2-ethylhexyl)phthalate	2.6	0.2	2.2	0.2	17	30
2,4,5-trichlorophenol	U	0.2	U	0.2	NC	30	di-n-octylphthalate	U	0.2	U	0.2	NC	30
2-chloronaphthalene	U	0.2	U	0.2	NC	30	benzo(b)fluoranthene	0.5	0.2	1.4	0.2	NC	30
2-nitroaniline	U	0.2	U	0.2	NC	30	benzo(k)fluoranthene	0.3	0.2	0.9	0.2	NC	30
acenaphthylene	U	0.2	U	0.2	NC	30	benzo(a)pyrene	0.3	0.2	0.8	0.2	NC	30
dimethyl phthalate	U	0.2	U	0.2	NC	30	indeno(1,2,3-cd)pyrene	0.4	0.2	0.8	0.2	NC	30
2,6-dinitrotoluene	U	0.2	U	0.2	NC	30	dibenz(a,h)anthracene	U	0.2	U	0.2	NC	30
							benzo(g,h,i)perylene	0.4	0.2	0.8	0.2	NC	30

SURROGATE STANDARDS

	Recovery (%)	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	84	21-100	nitrobenzene-d5	91	93	35-114
phenol-d5	89	91	10-102	2-fluorobiphenyl	85	88	43-116
2,4,6-tribromophenol	86	84	10-123	terphenyl-d14	101	99	33-141

U = Below quantitation limit
NC = Not calculated due one or both values less than five times the reporting limit.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number: 20685-001
Sample Designation: NBH_PH4SAP_PC_09D 0-1 (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 02/16/11
Date Extracted: 02/24/11
Date Analyzed: 03/01/11
Matrix: Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Sample	Amount	Matrix Spike			Spike Duplicate					
	Result	Added	Result	Recovery	Limit	Result	Recovery	Limit	Diff	Limit	Qual
	(ug/g)	(ug/g)	(ug/g)	(%)	(%)	(ug/g)	(%)	(%)	(%)	(%)	
N-nitrosodimethylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
phenol	U	36	30	82	10-110	29	79	10-110	4	60	
2-chlorophenol	U	33	25	75	20-110	25	74	20-110	1	60	
bis-(2-choroethyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,3-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,4-diclorobenzene	U	13	9.5	71	30-150	9.2	69	30-150	3	30	
1,2-dichlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzyl alcohol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-methylphenol (o-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroisopropyl)ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloroethane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitroso-di-n-propylamine	U	18	13	72	30-150	13	73	30-150	1	30	
4-methylphenol (p-cresol)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
nitrobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
isophorone	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dimethylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-chloroethoxy)methane	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2,4-trichlorobenzene	U	12	8.8	72	30-150	8.6	71	30-150	2	30	
naphthalene	U	12	8.1	68	30-150	7.8	66	30-150	5	30	
benzoic acid	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachloro-1,3-butadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chloro-3-methylphenol	U	36	26	72	30-150	26	72	30-150	0	40	
2-methylnaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorocyclopentadiene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,6-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4,5-trichlorophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-chloronaphthalene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
acenaphthylene	U	16	11	71	30-150	11	69	30-150	3	30	
dimethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,6-dinitrotoluene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrotoluene	U	13	11	89	30-150	10	78	30-150	13	30	
acenaphthene	U	30	21	70	30-150	21	69	30-150	2	30	
3-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
2,4-dinitrophenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
dibenzofuran	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitrophenol	U	32	26	82	20-120	24	77	20-120	7	40	
fluorene	U	16	11	71	30-150	11	69	30-150	3	30	

U = Below quantitation limit

ESI

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Lab Number: 20685-001
Sample Designation: NBH_PH4SAP_PC_09D 0-1 (Matrix Spike / Matrix Spike Duplicate)
Date Sampled: 02/16/11
Date Extracted: 02/24/11
Date Analyzed: 03/01/11
Matrix: Solid

SEMIVOLATILE ORGANICS (Continued)
Method Reference: SW846 8270

	Sample Result (ug/g)	Amount Added (ug/g)	Matrix Spike Result (ug/g)	Matrix Spike Recovery (%)	Matrix Spike Limit (%)	Spike Duplicate Result (ug/g)	Spike Duplicate Recovery (%)	Spike Duplicate Limit (%)	Diff (%)	Limit (%)	Qual
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
diethyl phthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-nitroaniline	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4,6-dinitro-2-methylphenol	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-chlorophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
N-nitrosodiphenylamine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
1,2-diphenylhydrazine (azobenzene)	U	NA	U	NA	NA	U	NA	NA	NA	NA	
4-bromophenyl phenyl ether	U	NA	U	NA	NA	U	NA	NA	NA	NA	
hexachlorobenzene	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pentachlorophenol	U	45	27	61	30-150	27	61	30-150	0	40	
phenanthrene	U	16	12	72	30-150	12	72	30-150	2	30	
anthracene	U	17	12	71	30-150	12	70	30-150	2	30	
carbazole	U	NA	U	NA	NA	U	NA	NA	NA	NA	
di-n-butylphthalate	U	18	13	74	30-150	13	72	30-150	4	30	
fluoranthene	U	17	13	74	30-150	13	72	30-150	8	30	
benzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
pyrene	U	33	26	76	30-150	26	76	30-150	3	30	
butylbenzylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(a)anthracene	U	17	12	71	30-150	12	71	30-150	3	30	
chrysene	U	16	11	67	30-150	11	66	30-150	5	30	
3,3'-dichlorobenzidine	U	NA	U	NA	NA	U	NA	NA	NA	NA	
bis(2-ethylhexyl)phthalate	3	NA	7	NA	NA	2.1	NA	NA	NA	NA	
di-n-octylphthalate	U	NA	U	NA	NA	U	NA	NA	NA	NA	
benzo(b)fluoranthene	U	16	13	84	30-150	14	85	30-150	2	30	
benzo(k)fluoranthene	U	14	13	89	30-150	11	77	30-150	17	30	
benzo(a)pyrene	U	14	11	78	30-150	11	75	30-150	7	30	
indeno(1,2,3-cd)pyrene	U	19	13	68	30-150	12	64	30-150	8	30	
dibenz(a,h)anthracene	U	11	12	105	30-150	12	104	30-150	1	30	
benzo(g,h,i)perylene	U	10	13	122	30-150	12	117	30-150	7	30	

SURROGATE STANDARDS	MS Recovery %	MSD Recovery %	Acceptance Limits %
2-fluorophenol	85	85	21-100
phenol-d5	97	97	10-102
2,4,6-tribromophenol	86	88	10-123
nitrobenzene-d5	93	84	35-114
2-fluorobiphenyl	89	88	43-116
terphenyl-d14	104	103	33-141

U = Below quantitation limit

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB584S
Sample Designation:	Laboratory Blank PB584S
Date Sampled:	02/22/11
Date Extracted:	02/22/11
Date Analyzed:	02/25/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.5	U
18	2,2',5-trichlorobiphenyl	0.5	U
28	2,4,4'-trichlorobiphenyl	0.5	U
44	2,2',3,5'-tetrachlorobiphenyl	0.5	U
49	2,2',4,5'-tetrachlorobiphenyl	0.5	U
52	2,2',5,5'-tetrachlorobiphenyl	0.5	U
66	2,3',4,4'-tetrachlorobiphenyl	0.5	U
77	3,3',4,4'-tetrachlorobiphenyl	0.5	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.5	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.5	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.5	U
118	2,3',4,4',5-pentachlorobiphenyl	0.5	U
126	3,3',4,4',5-pentachlorobiphenyl	0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.5	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.5	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.5	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.5	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.5	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.5	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.5	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.5	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.5	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.5	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.5	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	70	30 - 150

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS584S / LCSD584S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	02/22/11
Date Extracted:	02/22/11
Date Analyzed:	02/25/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentratio (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	4.2	83	30 - 150	4.3	85	30 - 150	2	30
18	2,2',5-trichlorobiphenyl	4.4	87	30 - 150	4	80	30 - 150	9	30
28	2,4,4'-trichlorobiphenyl	4.4	88	30 - 150	3.8	76	30 - 150	15	30
44	2,2',3,5'-tetrachlorobiphenyl	7.2	85	30 - 150	7	82	30 - 150	3	30
49	2,2',4,5'-tetrachlorobiphenyl	3.9	78	30 - 150	3.8	76	30 - 150	2	30
52	2,2',5,5'-tetrachlorobiphenyl	4.0	79	30 - 150	3.8	76	30 - 150	4	30
66	2,3',4,4'-tetrachlorobiphenyl	3.6	72	30 - 150	3.9	78	30 - 150	8	30
77	3,3',4,4'-tetrachlorobiphenyl	3.8	76	30 - 150	3.9	78	30 - 150	2	30
87	2,2',3,4,5'-pentachlorobiphenyl	3.9	78	30 - 150	4	80	30 - 150	2	30
101	2,2',4,5,5'-pentachlorobiphenyl	4.1	81	30 - 150	4.1	82	30 - 150	1	30
105	2,3,3',4,4'-pentachlorobiphenyl	4.1	82	30 - 150	4.1	82	30 - 150	0	30
118	2,3',4,4',5-pentachlorobiphenyl	3.8	76	30 - 150	4.1	82	30 - 150	8	30
126	3,3',4,4',5-pentachlorobiphenyl	4.0	81	30 - 150	5.2	103	30 - 150	24	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	4.2	83	30 - 150	4.6	92	30 - 150	10	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.2	83	30 - 150	4.5	90	30 - 150	8	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	3.8	77	30 - 150	4	81	30 - 150	5	30
156	2,3,3',4,4',5-hexachlorobiphenyl	4.1	82	30 - 150	4.4	87	30 - 150	7	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	4.1	81	30 - 150	4.1	82	30 - 150	0	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	4.0	81	30 - 150	4	80	30 - 150	1	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.8	75	30 - 150	4.1	83	30 - 150	9	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	3.9	77	30 - 150	4.3	87	30 - 150	11	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	3.6	73	30 - 150	3.8	75	30 - 150	3	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	4.0	80	30 - 150	4.4	88	30 - 150	10	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	4.1	81	30 - 150	4.1	82	30 - 150	2	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	4.1	81	30 - 150	4.3	87	30 - 150	7	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	3.9	79	30 - 150	4.4	89	30 - 150	12	30

Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198 2,2',3,3',4,5,5',6-octachlorobiphenyl	72	30 - 150	81	30 - 150

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-001D
Sample Designation:	NBH_PH4SAP_PC_09D 0-1 (Laboratory Duplicate)
Date Sampled:	02/22/11
Date Extracted:	02/22/11
Date Analyzed:	02/25/11
Matrix:	Solid
Moisture (%):	46
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	26		25		3	30
18	2,2',5-trichlorobiphenyl	48		43		9	30
28	2,4,4'-trichlorobiphenyl	150		160		6	30
44	2,2',3,5'-tetrachlorobiphenyl	67		68		1	30
49	2,2',4,5'-tetrachlorobiphenyl	100		110		5	30
52	2,2',5,5'-tetrachlorobiphenyl	150		150		1	30
66	2,3',4,4'-tetrachlorobiphenyl	92		97		5	30
77	3,3',4,4'-tetrachlorobiphenyl	9.8		12		17	30
87	2,2',3,4,5'-pentachlorobiphenyl	51		52		1	30
101	2,2',4,5,5'-pentachlorobiphenyl	140		140		1	30
105	2,3,3',4,4'-pentachlorobiphenyl	52		61		15	30
118	2,3',4,4',5-pentachlorobiphenyl	160		160		2	30
126	3,3',4,4',5-pentachlorobiphenyl	0.93	U	7.7		NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	36		37		4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	130		130		6	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	100		110		4	30
156	2,3,3',4,4',5-hexachlorobiphenyl	13		13		0	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.93	U	0.93	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	15		17		11	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	17		18		8	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	6.2		6.5		4	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.93	U	0.93	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	14		15		6	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.3		1.2		NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.5		1.9		NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	0.93	U	0.93	U	NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	67	78	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20685-001MSD
Sample Designation:	NBH_PH4SAP_PC_09D 0-1 (Matrix Spike Duplicate)
Date Sampled:	02/22/11
Date Extracted:	02/22/11
Date Analyzed:	02/28/11
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1.00

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	25	46.7	62	79	30 - 150	60	76	30 - 150	3	30
18	2,2',5-trichlorobiphenyl	43	46.7	79	75	30 - 150	91	102	30 - 150	14	30
28	2,4,4'-trichlorobiphenyl	160	46.7	193	67	30 - 150	200	84	30 - 150	4	30
44	2,2',3,5'-tetrachlorobiphenyl	68	79.4	118	63	30 - 150	110	58	30 - 150	4	30
49	2,2',4,5'-tetrachlorobiphenyl	110	46.7	134	54	30 - 150	150	92	30 - 150	12	30
52	2,2',5,5'-tetrachlorobiphenyl	150	46.7	181	60	30 - 150	200	91	30 - 150	8	30
66	2,3',4,4'-tetrachlorobiphenyl	97	46.7	137	86	30 - 150	150	110	30 - 150	8	30
77	3,3',4,4'-tetrachlorobiphenyl	12	46.7	48	77	30 - 150	59	102	30 - 150	22	30
87	2,2',3,4,5'-pentachlorobiphenyl	52	46.7	89	80	30 - 150	91	85	30 - 150	3	30
101	2,2',4,5,5'-pentachlorobiphenyl	140	46.7	172	60	30 - 150	200	121	30 - 150	15	30
105	2,3,3',4,4'-pentachlorobiphenyl	61	46.7	96	76	30 - 150	130	148	30 - 150	30	30
118	2,3',4,4',5-pentachlorobiphenyl	160	46.7	194	77	30 - 150	210	113	30 - 150	8	30
126	3,3',4,4',5-pentachlorobiphenyl	7.7	46.7	51	93	30 - 150	40	69	30 - 150	24	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	37	46.7	74	80	30 - 150	77	87	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	130	46.7	161	57	30 - 150	180	102	30 - 150	12	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	110	46.7	134	60	30 - 150	140	80	30 - 150	7	30
156	2,3,3',4,4',5-hexachlorobiphenyl	13	46.7	43	64	30 - 150	51	83	30 - 150	19	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	ND	46.7	34	74	30 - 150	39	83	30 - 150	12	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	17	46.7	48	67	30 - 150	55	82	30 - 150	13	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	18	46.7	50	67	30 - 150	54	77	30 - 150	9	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	6.5	46.7	40	71	30 - 150	43	79	30 - 150	9	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	46.7	34	72	30 - 150	37	79	30 - 150	9	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	15	46.7	47	69	30 - 150	54	84	30 - 150	14	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.2	46.7	37	77	30 - 150	41	86	30 - 150	11	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.9	46.7	38	78	30 - 150	44	89	30 - 150	13	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	ND	46.7	36	77	30 - 150	39	84	30 - 150	9	30

Surrogate Standard	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150	83	30 - 150

ND = Not detected

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	PB485S
Sample Designation:	Laboratory Blank
Date Sampled:	02/24/11
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Concentration (ug/g dry wt)	Reporting Limit (ug/g dry wt)
Diesel Range Organics	U	3
Lube Oil Range Organics	U	3
Total Petroleum Hydrocarbons	U	3

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
o-terphenyl	103	30 - 150
2-fluorobiphenyl	84	30 - 150

U = Below quantitation limit

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	LCS585S / LCSD585S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	02/24/11
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	True Value (ug/g dry wt)	LCS Concentration (ug/g dry wt)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/g dry wt)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	125	124	100	30-150	124	100	30-150	0.0	30

SURROGATE STANDARD	LCS Recovery (%)	LCSD Recovery (%)	Advisory Limits (%)
o-terphenyl	111	114	30 - 150
2-fluorobiphenyl	94	102	30 - 150

U = Below quantitation limit

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20685-001
Sample Designation:	NBH_PH4SAP_PC_09D 0-1 (Laboratory Duplicate)
Date Sampled:	02/24/11
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Duplicate Concentration (ug/g dry wt)	Duplicate Qualifier	Sample Concentration (ug/g dry wt)	Sample Qualifier	Relative Difference (%)	Limit (%)
Diesel Range Organics	16	U	14	U	NC	30-150
Lube Oil Range Organics	180		160		14	30-150
Total Petroleum Hydrocarbons	16	U	14	U	NC	30-150

SURROGATE STANDARD	Duplicate Recovery (%)	Advisory Limits (%)
o-terphenyl	124	30 - 150
2-fluorobiphenyl	108	30 - 150

U = Below quantitation limit
NC = Not calclulated due to one or more values below quantitation limit.

TOTAL PETROLEUM HYDROCARBONS (Diesel Range Organics)
Method Reference: SW846 8100, modified

Lab Number:	20685-001
Sample Designation:	NBH_PH4SAP_PC_09D 0-1 (Matrix Spike Duplicate)
Date Sampled:	02/24/11
Date Extracted:	02/24/11
Date Analyzed:	03/02/11
Matrix:	Solid
Sample Amount (g):	10
Final Volume (mL)	0.5
Dilution Factor:	1

	Sample Concentration (ug/g dry wt)	Amount Added (ug/g dry wt)	MS Concentration (%)	Recovery (%)	Recovery Limit (%)	MSD Concentration (ug/mL)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
Diesel Range Organics	U	233	212	91	30-150	219	94	30-150	2.9	30

SURROGATE STANDARD	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
o-terphenyl	120	30 - 150	129	30 - 150
2-fluorobiphenyl	106	30 - 150	124	30 - 150

U = Below quantitation limit

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SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20685		
SDG No:			
Project:	NBH_S.TERM 6690		
Delivered via:	ESI		
Date and Time Received:	02/17/11 1110	Date and TIme Logged into Lab:	02/17/11 1300
Recieved By:	DW	Logged into Lab by:	LCB LCR
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC_09D 0-1	20685-001	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	6x9oz G	4C	Yes
NBH_PH4SAP_PC_03 0-1	20685-002	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_03 1-2	20685-003	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_04 0-0.8	20685-004	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_05 0-1	20685-005	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_06 0-1	20685-006	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_07 0-1	20685-007	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_08 0-1	20685-008	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13_10 0-1	20685-009	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_42 0-0.2	20685-010	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13_05 0-1	20685-011	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC13_06 0-1	20685-012	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP9	20685-013	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP10	20685-014	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP11	20685-015	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP12	20685-016	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP13	20685-017	S	HOLD for CGR680	9oz G	4C	Yes
NBH_PH4SAP_DUP14	20685-018	S	CGR680, SVOC8270C, TPH8100, Total Metals Sb,As,Be,	6x9oz G	4C	Yes
NBH_PH4SAP_PC13_36 0-1	20685-019	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_27 0-1	20685-020	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_19 0-1	20685-021	S	CGR680	9oz G	4C	Yes
NBH_PH4SAP_PC_28 0-1	20685-022	S	CGR680	2x9oz G	4C	Yes
NBH_PH4SAP_PC_05 1-1.5	20685-023	S	HOLD for CGR680	9oz G	4C	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20685

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH-S.TERM	Page 1 of 2
Report to: CHET MYERS	Address: 184 HIGH ST. SUITE 502	Project Number: 6690	
Invoice to: APEX COMPANIES	Address: BOSTON MA 02110	Project Manager: C. MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: CMYERS@APEXCOS.COM	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	NBH-PH4SAP-PC09D 0-1	2/16/11	16:10	GCD	G	6x 9oz	G	4°C	S		NOAA 22-8270C, TPH-8015, SVOC 8270 13PP METALS-6020A/7471 RUN
-002	NBH-PH4SAP-PC-03 0-1	2/15/11	10:22			9oz					NOAA 22-8270C RUN
-003	NBH-PH4SAP-PC-03 1-2	2/15/11	10:22								HOLD
-004	NBH-PH4SAP-PC-04 0-0.8	2/16/11	9:31								RUN
-005	NBH-PH4SAP-PC-05 0-1		9:58								
-006	NBH-PH4SAP-PC-06 0-1		11:39								
-007	NBH-PH4SAP-PC-07 0-1		11:08								
-008	NBH-PH4SAP-PC-08 0-1		12:16								
-009	NBH-PH4SAP-PC13-10 0-1										
-010	NBH-PH4SAP-PC42 ~~0-1~~ 0-0.2 ES LCB		10:30								
-011	NBH-PH4SAP-PC13-05 0-1										
-012	NBH-PH4SAP-PC13-06 0-1										

Relinquished By: [signature]	Date: 2/17/11	Time: 11:10	Received By: [signature] Date: 2/17/11 Time: 11:10
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

COC Doc No: 4320

Sample Delivery Group No: Page of

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20685

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES, LLC	Contact: CHET MYERS	Project Name: NBH_S.TERM	Page 2 of 2
Report to: CHET MYERS	Address: 182 HIGH ST. STE 502	Project Number: 6690	
Invoice to: APEX CO.	Address: BOSTON, MA 02110	Project Manager: CHET MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: cmyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-013	NBH_PH4SAP_DUP 9	2/15/11		GCD	G	9 oz	G	4°C	S		PCB - NOAA 22 - 8270C HOLD
-014	NBH_PH4SAP_DUP 10	2/16/11		GCD	G	9oz	G	4°C	S		
-015	NBH_PH4SAP_DUP 11	2/16/11		GCD	G	9oz	G	4°C	S		
-016	NBH_PH4SAP_DUP12	2/16/11		GCD	G	9oz	G	4°C	S		
-017	NBH_PH4SAP_DUP13	2/16/11		GCD	G	9oz	G	4°C	S		
-018	NBH_PH4SAP_DUP14	2/16/11		GCD	G	6x 9oz	G	4°C	S		NOAA22-8270C, TPH 8015, SVOC 8270 13 PP METALS-6020A/7471 RUN
-019	NBH_PH4SAP_PC13_36 0-1	2/16/11		GCD	G	9oz	G	4°C	S		PCB - NOAA 22 - 8270C
-020	NBH_PH4SAP_PC_27 0-1	2/16/11		GCD	G	9oz	G	4°C	S		
-021	NBH_PH4SAP_PC_19 0-1	2/16/11		GCD	G	9oz	G	4°C	S		
-022	NBH_PH4SAP_PC_28 0-1	2/16/11		GCD	G	2x 9oz	G	4°C	S		
-023	NBH_PH4SAP_PC_05 1-1.5	2/16/11		GCD	G	9oz	G	4°C	S		HOLD

Relinquished By: [signature]	Date: 2/17/11	Time: 11:10	Received By: [signature] Date: 2/17/11 Time: 11:10
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4318

ESI

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Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number:	None
Report Number:	20670
Date Received:	02/15/11
Date Reported:	02/28/11

Project: NBH_S.TERM 6690

Attached please find results for analyses performed on samples received on 02/15/11 at 1030.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Authorized Signature

Date 2/28/11

Attachment
Report

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_0-1
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-001	140	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-001	310	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-001	430	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_1-2
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-002	260	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-002	440	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-002	410	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_2-3
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-003	410	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-003	610	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-003	340	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_3-4
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-004	23	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-004	36	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-004	36	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_4-5
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-005	21	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-005	33	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-005	39	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_01_5-6
Matrix: Solid
Sampled: 02/11/11 1525

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-006	26	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-006	14	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-006	20	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_02_0-1
Matrix: Solid
Sampled: 02/11/11 1445

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-007	93	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-007	200	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-007	330	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_02_1-2
Matrix: Solid
Sampled: 02/11/11 1445

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-008	270	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-008	430	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-008	270	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_02_2-3
Matrix: Solid
Sampled: 02/11/11 1445

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-009	90	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-009	190	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-009	170	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_02_3-4
Matrix: Solid
Sampled: 02/11/11 1445

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-010	11	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-010	17	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-010	22	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_03_0-1
Matrix: Solid
Sampled: 02/11/11 1130

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-011	68	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-011	180	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-011	250	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_03_1-2
Matrix: Solid
Sampled: 02/11/11 1130

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-012	290	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-012	450	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-012	300	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_03_2-3
Matrix: Solid
Sampled: 02/11/11 1130

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-013	79	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-013	140	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-013	120	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_03_3-4
Matrix: Solid
Sampled: 02/11/11 1130

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-014	39	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-014	69	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-014	58	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_04_0-1
Matrix: Solid
Sampled: 02/10/11 1450

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-015	57	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-015	130	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-015	170	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_04_1-2
Matrix: Solid
Sampled: 02/10/11 1450

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-016	55	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-016	240	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-016	240	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_04_2-3
Matrix: Solid
Sampled: 02/10/11 1450

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-017	60	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-017	230	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-017	240	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_04_3-4
Matrix: Solid
Sampled: 02/10/11 1450

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-018	4.6	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-018	11	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-018	17	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_04_4-4.9
Matrix: Solid
Sampled: 02/10/11 1450

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-019	4	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-019	1.9	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-019	8.6	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_05_0-1
Matrix: Solid
Sampled: 02/10/11 1315

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-020	130	0.2	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-020	250	0.1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-020	230	1	ug/g dry wt	02/23/11 0900	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_05_1-2
Matrix: Solid
Sampled: 02/10/11 1315

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-021	6.2	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-021	6.8	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-021	13	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_VC_05_2-2.3
Matrix: Solid
Sampled: 02/10/11 1315

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-022	11	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-022	14	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-022	18	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_PC_01_0-1
Matrix: Solid
Sampled: 02/14/11 1330

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-023	140	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-023	440	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-023	620	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_PC_02_0-1
Matrix: Solid
Sampled: 02/14/11 1425

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-028	160	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-028	330	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-028	410	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP4
Matrix: Solid
Sampled:

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-031	94	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-031	150	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-031	170	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP5
Matrix: Solid
Sampled:

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-032	130	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-032	360	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-032	540	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP6
Matrix: Solid
Sampled:

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-033	130	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-033	300	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-033	450	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP7
Matrix: Solid
Sampled:

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-034	81	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-034	200	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-034	300	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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Report No: 20670 SDG:
Project: NBH_S.TERM 6690

Sample ID: NBH_PH4SAP_DUP8
Matrix: Solid
Sampled:

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Chromium, total	20670-035	64	0.2	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Copper, total	20670-035	160	0.1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020
Zinc, total	20670-035	230	1	ug/g dry wt	02/23/11 1200	02/23/11	JLH/SW846 3rd Ed. 6020

Notes:

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-001
Sample Designation:	NBH_PH4SAP_VC_01_0-1
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Moisture (%):	61
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	49	
18	2,2',5-trichlorobiphenyl	*	80	
28	2,4,4'-trichlorobiphenyl	*	280	
44	2,2',3,5'-tetrachlorobiphenyl	*	110	
49	2,2',4,5'-tetrachlorobiphenyl	*	240	
52	2,2',5,5'-tetrachlorobiphenyl	*	300	
66	2,3',4,4'-tetrachlorobiphenyl	*	200	
77	3,3',4,4'-tetrachlorobiphenyl		19	
87	2,2',3,4,5'-pentachlorobiphenyl		100	
101	2,2',4,5,5'-pentachlorobiphenyl	*	290	
105	2,3,3',4,4'-pentachlorobiphenyl		110	
118	2,3',4,4',5-pentachlorobiphenyl	*	360	
126	3,3',4,4',5-pentachlorobiphenyl		12	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	73	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	270	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	210	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	19	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.3	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	37	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	37	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		15	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	33	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	4.4	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 5200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	81	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-002
Sample Designation:	NBH_PH4SAP_VC_01_1-2
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	59
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	120	
18	2,2',5-trichlorobiphenyl	*	140	
28	2,4,4'-trichlorobiphenyl	*	660	
44	2,2',3,5'-tetrachlorobiphenyl	*	250	
49	2,2',4,5'-tetrachlorobiphenyl	*	330	
52	2,2',5,5'-tetrachlorobiphenyl	*	500	
66	2,3',4,4'-tetrachlorobiphenyl	*	480	
77	3,3',4,4'-tetrachlorobiphenyl		62	
87	2,2',3,4,5'-pentachlorobiphenyl		240	
101	2,2',4,5,5'-pentachlorobiphenyl	*	600	
105	2,3,3',4,4'-pentachlorobiphenyl		240	
118	2,3',4,4',5-pentachlorobiphenyl	*	670	
126	3,3',4,4',5-pentachlorobiphenyl		1.2	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	130	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	530	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	360	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	25	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.2	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	62	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	56	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		19	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.2	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	36	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	8	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.7	
Total PCBs by Sum of congeners (*) multiplied by 2			9900	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	85	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-003
Sample Designation:	NBH_PH4SAP_VC_01_2-3
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	56
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	2

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	280	
18	2,2',5-trichlorobiphenyl	*	390	
28	2,4,4'-trichlorobiphenyl	*	1400	
44	2,2',3,5'-tetrachlorobiphenyl	*	600	
49	2,2',4,5'-tetrachlorobiphenyl	*	650	
52	2,2',5,5'-tetrachlorobiphenyl	*	1000	
66	2,3',4,4'-tetrachlorobiphenyl	*	720	
77	3,3',4,4'-tetrachlorobiphenyl		46	
87	2,2',3,4,5'-pentachlorobiphenyl		420	
101	2,2',4,5,5'-pentachlorobiphenyl	*	750	
105	2,3,3',4,4'-pentachlorobiphenyl		330	
118	2,3',4,4',5-pentachlorobiphenyl	*	800	
126	3,3',4,4',5-pentachlorobiphenyl		2.3	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	160	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	770	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	430	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	51	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	2.3	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	74	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	77	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		25	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	2.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	52	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	8.1	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	9	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	2.3	U

Total PCBs by Sum of congeners (*) multiplied by 2 16000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	89	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-004
Sample Designation:	NBH_PH4SAP_VC_01_3-4
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	25
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	50	
18	2,2',5-trichlorobiphenyl	*	76	
28	2,4,4'-trichlorobiphenyl	*	120	
44	2,2',3,5'-tetrachlorobiphenyl	*	29	
49	2,2',4,5'-tetrachlorobiphenyl	*	53	
52	2,2',5,5'-tetrachlorobiphenyl	*	79	
66	2,3',4,4'-tetrachlorobiphenyl	*	56	
77	3,3',4,4'-tetrachlorobiphenyl		1.9	
87	2,2',3,4,5'-pentachlorobiphenyl		16	
101	2,2',4,5,5'-pentachlorobiphenyl	*	42	
105	2,3,3',4,4'-pentachlorobiphenyl		15	
118	2,3',4,4',5-pentachlorobiphenyl	*	43	
126	3,3',4,4',5-pentachlorobiphenyl		0.92	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	8.9	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	26	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	20	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	2.2	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.66	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	3.9	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	3.5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.66	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	2.2	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.79	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.66	U

Total PCBs by Sum of congeners (*) multiplied by 2 1200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	93	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-005
Sample Designation:	NBH_PH4SAP_VC_01_4-5
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	27
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	21	
18	2,2',5-trichlorobiphenyl	*	44	
28	2,4,4'-trichlorobiphenyl	*	84	
44	2,2',3,5'-tetrachlorobiphenyl	*	26	
49	2,2',4,5'-tetrachlorobiphenyl	*	34	
52	2,2',5,5'-tetrachlorobiphenyl	*	58	
66	2,3',4,4'-tetrachlorobiphenyl	*	34	
77	3,3',4,4'-tetrachlorobiphenyl		0.68	U
87	2,2',3,4,5'-pentachlorobiphenyl		15	
101	2,2',4,5,5'-pentachlorobiphenyl	*	33	
105	2,3,3',4,4'-pentachlorobiphenyl		11	
118	2,3',4,4',5-pentachlorobiphenyl	*	36	
126	3,3',4,4',5-pentachlorobiphenyl		0.84	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	7.3	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	24	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	16	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1.6	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.68	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	3	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	3.1	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.68	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	2.3	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.68	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.68	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.68	U
Total PCBs by Sum of congeners (*) multiplied by 2			860	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	82	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-006
Sample Designation:	NBH_PH4SAP_VC_01_5-6
Date Sampled:	02/11/11 1525
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	12
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	3.1	
18	2,2',5-trichlorobiphenyl	*	5.9	
28	2,4,4'-trichlorobiphenyl	*	13	
44	2,2',3,5'-tetrachlorobiphenyl	*	2.8	
49	2,2',4,5'-tetrachlorobiphenyl	*	5.2	
52	2,2',5,5'-tetrachlorobiphenyl	*	8.8	
66	2,3',4,4'-tetrachlorobiphenyl	*	5.6	
77	3,3',4,4'-tetrachlorobiphenyl		0.57	U
87	2,2',3,4,5'-pentachlorobiphenyl		1.6	
101	2,2',4,5,5'-pentachlorobiphenyl	*	4.2	
105	2,3,3',4,4'-pentachlorobiphenyl		1.1	
118	2,3',4,4',5-pentachlorobiphenyl	*	3.4	
126	3,3',4,4',5-pentachlorobiphenyl		0.57	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	1	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	3.5	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	2.1	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.57	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.57	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.57	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.57	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.57	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.57	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.57	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.57	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.57	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.57	U
Total PCBs by Sum of congeners (*) multiplied by 2			120	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	84	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-007
Sample Designation:	NBH_PH4SAP_VC_02_0-1
Date Sampled:	02/11/11 1445
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	53
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	56	
18	2,2',5-trichlorobiphenyl	*	95	
28	2,4,4'-trichlorobiphenyl	*	250	
44	2,2',3,5'-tetrachlorobiphenyl	*	100	
49	2,2',4,5'-tetrachlorobiphenyl	*	160	
52	2,2',5,5'-tetrachlorobiphenyl	*	240	
66	2,3',4,4'-tetrachlorobiphenyl	*	170	
77	3,3',4,4'-tetrachlorobiphenyl		8.8	
87	2,2',3,4,5'-pentachlorobiphenyl		75	
101	2,2',4,5,5'-pentachlorobiphenyl	*	210	
105	2,3,3',4,4'-pentachlorobiphenyl		78	
118	2,3',4,4',5-pentachlorobiphenyl	*	230	
126	3,3',4,4',5-pentachlorobiphenyl		1.1	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	51	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	180	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	140	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	20	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	21	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	24	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.8	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	18	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.1	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	U

Total PCBs by Sum of congeners (*) multiplied by 2 4000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	90	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-008
Sample Designation:	NBH_PH4SAP_VC_02_1-2
Date Sampled:	02/11/11 1445
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	47
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	4

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	320	
18	2,2',5-trichlorobiphenyl	*	530	
28	2,4,4'-trichlorobiphenyl	*	1800	
44	2,2',3,5'-tetrachlorobiphenyl	*	570	
49	2,2',4,5'-tetrachlorobiphenyl	*	740	
52	2,2',5,5'-tetrachlorobiphenyl	*	1000	
66	2,3',4,4'-tetrachlorobiphenyl	*	810	
77	3,3',4,4'-tetrachlorobiphenyl		47	
87	2,2',3,4,5'-pentachlorobiphenyl		360	
101	2,2',4,5,5'-pentachlorobiphenyl	*	700	
105	2,3,3',4,4'-pentachlorobiphenyl		250	
118	2,3',4,4',5-pentachlorobiphenyl	*	680	
126	3,3',4,4',5-pentachlorobiphenyl		3.8	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	120	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	440	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	310	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	32	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	3.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	53	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	54	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		21	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	3.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	35	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	4.1	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3.8	U
Total PCBs by Sum of congeners (*) multiplied by 2			16000	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	101	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-009
Sample Designation:	NBH_PH4SAP_VC_02_2-3
Date Sampled:	02/11/11 1445
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	39
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	2

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	110	
18	2,2',5-trichlorobiphenyl	*	200	
28	2,4,4'-trichlorobiphenyl	*	320	
44	2,2',3,5'-tetrachlorobiphenyl	*	210	
49	2,2',4,5'-tetrachlorobiphenyl	*	310	
52	2,2',5,5'-tetrachlorobiphenyl	*	670	
66	2,3',4,4'-tetrachlorobiphenyl	*	91	
77	3,3',4,4'-tetrachlorobiphenyl		1.6	U
87	2,2',3,4,5'-pentachlorobiphenyl		170	
101	2,2',4,5,5'-pentachlorobiphenyl	*	260	
105	2,3,3',4,4'-pentachlorobiphenyl		85	
118	2,3',4,4',5-pentachlorobiphenyl	*	230	
126	3,3',4,4',5-pentachlorobiphenyl		6.1	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	71	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	270	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	140	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	19	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.6	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	28	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	28	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		12	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.6	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	17	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.9	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.2	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	4.1	

Total PCBs by Sum of congeners (*) multiplied by 2 6000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	93	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-010
Sample Designation:	NBH_PH4SAP_VC_02_3-4
Date Sampled:	02/11/11 1445
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	14
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	8.6	
18	2,2',5-trichlorobiphenyl	*	12	
28	2,4,4'-trichlorobiphenyl	*	26	
44	2,2',3,5'-tetrachlorobiphenyl	*	16	
49	2,2',4,5'-tetrachlorobiphenyl	*	18	
52	2,2',5,5'-tetrachlorobiphenyl	*	37	
66	2,3',4,4'-tetrachlorobiphenyl	*	12	
77	3,3',4,4'-tetrachlorobiphenyl		1.8	
87	2,2',3,4,5'-pentachlorobiphenyl		17	
101	2,2',4,5,5'-pentachlorobiphenyl	*	26	
105	2,3,3',4,4'-pentachlorobiphenyl		9	
118	2,3',4,4',5-pentachlorobiphenyl	*	25	
126	3,3',4,4',5-pentachlorobiphenyl		0.75	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	6.2	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	23	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	14	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	2.1	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.58	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.7	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	2.2	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.85	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.58	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1.5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.73	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.58	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.58	U
Total PCBs by Sum of congeners (*) multiplied by 2			460	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	92	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-011
Sample Designation:	NBH_PH4SAP_VC_03_0-1
Date Sampled:	02/11/11 1130
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	50
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	38	
18	2,2',5-trichlorobiphenyl	*	50	
28	2,4,4'-trichlorobiphenyl	*	190	
44	2,2',3,5'-tetrachlorobiphenyl	*	72	
49	2,2',4,5'-tetrachlorobiphenyl	*	120	
52	2,2',5,5'-tetrachlorobiphenyl	*	190	
66	2,3',4,4'-tetrachlorobiphenyl	*	120	
77	3,3',4,4'-tetrachlorobiphenyl		6.2	
87	2,2',3,4,5'-pentachlorobiphenyl		79	
101	2,2',4,5,5'-pentachlorobiphenyl	*	210	
105	2,3,3',4,4'-pentachlorobiphenyl		68	
118	2,3',4,4',5-pentachlorobiphenyl	*	230	
126	3,3',4,4',5-pentachlorobiphenyl		6.6	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	43	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	170	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	130	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	12	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.99	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	18	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	18	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.5	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.99	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	15	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.5	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.1	

Total PCBs by Sum of congeners (*) multiplied by 2 3200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	97	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-012
Sample Designation:	NBH_PH4SAP_VC_03_1-2
Date Sampled:	02/11/11 1130
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	50
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	220	
18	2,2',5-trichlorobiphenyl	*	340	
28	2,4,4'-trichlorobiphenyl	*	1000	
44	2,2',3,5'-tetrachlorobiphenyl	*	430	
49	2,2',4,5'-tetrachlorobiphenyl	*	520	
52	2,2',5,5'-tetrachlorobiphenyl	*	760	
66	2,3',4,4'-tetrachlorobiphenyl	*	880	
77	3,3',4,4'-tetrachlorobiphenyl		72	
87	2,2',3,4,5'-pentachlorobiphenyl		310	
101	2,2',4,5,5'-pentachlorobiphenyl	*	670	
105	2,3,3',4,4'-pentachlorobiphenyl		300	
118	2,3',4,4',5-pentachlorobiphenyl	*	740	
126	3,3',4,4',5-pentachlorobiphenyl		1	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	150	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	550	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	340	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	51	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	70	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	65	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		17	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	33	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.3	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 14000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	89	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-013
Sample Designation:	NBH_PH4SAP_VC_03_2-3
Date Sampled:	02/11/11 1130
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	38
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	260	
18	2,2',5-trichlorobiphenyl	*	380	
28	2,4,4'-trichlorobiphenyl	*	450	
44	2,2',3,5'-tetrachlorobiphenyl	*	170	
49	2,2',4,5'-tetrachlorobiphenyl	*	230	
52	2,2',5,5'-tetrachlorobiphenyl	*	430	
66	2,3',4,4'-tetrachlorobiphenyl	*	180	
77	3,3',4,4'-tetrachlorobiphenyl		0.8	U
87	2,2',3,4,5'-pentachlorobiphenyl		99	
101	2,2',4,5,5'-pentachlorobiphenyl	*	170	
105	2,3,3',4,4'-pentachlorobiphenyl		66	
118	2,3',4,4',5-pentachlorobiphenyl	*	150	
126	3,3',4,4',5-pentachlorobiphenyl		5.7	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	38	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	140	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	80	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	11	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	17	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	17	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		5.4	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	10	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.95	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.8	U
Total PCBs by Sum of congeners (*) multiplied by 2			5500	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-014
Sample Designation:	NBH_PH4SAP_VC_03_3-4
Date Sampled:	02/11/11 1130
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	18
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	36	
18	2,2',5-trichlorobiphenyl	*	68	
28	2,4,4'-trichlorobiphenyl	*	110	
44	2,2',3,5'-tetrachlorobiphenyl	*	63	
49	2,2',4,5'-tetrachlorobiphenyl	*	77	
52	2,2',5,5'-tetrachlorobiphenyl	*	150	
66	2,3',4,4'-tetrachlorobiphenyl	*	67	
77	3,3',4,4'-tetrachlorobiphenyl		1.3	
87	2,2',3,4,5'-pentachlorobiphenyl		51	
101	2,2',4,5,5'-pentachlorobiphenyl	*	74	
105	2,3,3',4,4'-pentachlorobiphenyl		33	
118	2,3',4,4',5-pentachlorobiphenyl	*	80	
126	3,3',4,4',5-pentachlorobiphenyl		3.1	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	19	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	73	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	45	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	5.3	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.61	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	8	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	8.2	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.61	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	5.8	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.8	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.76	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.61	U

Total PCBs by Sum of congeners (*) multiplied by 2 1800

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	84	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-015
Sample Designation:	NBH_PH4SAP_VC_04_0-1
Date Sampled:	02/10/11 1450
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	40
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	32	
18	2,2',5-trichlorobiphenyl	*	43	
28	2,4,4'-trichlorobiphenyl	*	160	
44	2,2',3,5'-tetrachlorobiphenyl	*	63	
49	2,2',4,5'-tetrachlorobiphenyl	*	100	
52	2,2',5,5'-tetrachlorobiphenyl	*	140	
66	2,3',4,4'-tetrachlorobiphenyl	*	110	
77	3,3',4,4'-tetrachlorobiphenyl		12	
87	2,2',3,4,5'-pentachlorobiphenyl		61	
101	2,2',4,5,5'-pentachlorobiphenyl	*	150	
105	2,3,3',4,4'-pentachlorobiphenyl		57	
118	2,3',4,4',5-pentachlorobiphenyl	*	190	
126	3,3',4,4',5-pentachlorobiphenyl		4.9	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	31	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	130	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	97	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	8.5	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.83	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	11	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	13	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		4.1	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.83	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	10	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.83	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.2	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.83	U

Total PCBs by Sum of congeners (*) multiplied by 2 2600

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	77	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-016
Sample Designation:	NBH_PH4SAP_VC_04_1-2
Date Sampled:	02/10/11 1450
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	49
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.97	U
18	2,2',5-trichlorobiphenyl	*	0.97	U
28	2,4,4'-trichlorobiphenyl	*	2.9	
44	2,2',3,5'-tetrachlorobiphenyl	*	16	
49	2,2',4,5'-tetrachlorobiphenyl	*	9.9	
52	2,2',5,5'-tetrachlorobiphenyl	*	46	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.97	U
77	3,3',4,4'-tetrachlorobiphenyl		0.97	U
87	2,2',3,4,5'-pentachlorobiphenyl		35	
101	2,2',4,5,5'-pentachlorobiphenyl	*	64	
105	2,3,3',4,4'-pentachlorobiphenyl		30	
118	2,3',4,4',5-pentachlorobiphenyl	*	58	
126	3,3',4,4',5-pentachlorobiphenyl		0.97	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	16	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	54	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	31	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4.2	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.97	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	5.7	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	4.5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.4	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.97	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	2	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.97	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	4.4	

Total PCBs by Sum of congeners (*) multiplied by 2 650

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-017
Sample Designation:	NBH_PH4SAP_VC_04_2-3
Date Sampled:	02/10/11 1450
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	49
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.99	
18	2,2',5-trichlorobiphenyl	*	2.4	
28	2,4,4'-trichlorobiphenyl	*	11	
44	2,2',3,5'-tetrachlorobiphenyl	*	14	
49	2,2',4,5'-tetrachlorobiphenyl	*	13	
52	2,2',5,5'-tetrachlorobiphenyl	*	51	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.97	U
77	3,3',4,4'-tetrachlorobiphenyl		0.97	U
87	2,2',3,4,5'-pentachlorobiphenyl		34	
101	2,2',4,5,5'-pentachlorobiphenyl	*	63	
105	2,3,3',4,4'-pentachlorobiphenyl		27	
118	2,3',4,4',5-pentachlorobiphenyl	*	58	
126	3,3',4,4',5-pentachlorobiphenyl		0.97	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	16	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	62	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	33	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	4	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.97	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	4.6	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	5.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		1.5	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.97	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	2.5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.97	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	4.3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3	
Total PCBs by Sum of congeners (*) multiplied by 2			700	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	74	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-018
Sample Designation:	NBH_PH4SAP_VC_04_3-4
Date Sampled:	02/10/11 1450
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	14
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.58	U
18	2,2',5-trichlorobiphenyl	*	0.58	U
28	2,4,4'-trichlorobiphenyl	*	2.3	
44	2,2',3,5'-tetrachlorobiphenyl	*	8.9	
49	2,2',4,5'-tetrachlorobiphenyl	*	10	
52	2,2',5,5'-tetrachlorobiphenyl	*	29	
66	2,3',4,4'-tetrachlorobiphenyl	*	0.58	U
77	3,3',4,4'-tetrachlorobiphenyl		0.58	U
87	2,2',3,4,5'-pentachlorobiphenyl		13	
101	2,2',4,5,5'-pentachlorobiphenyl	*	31	
105	2,3,3',4,4'-pentachlorobiphenyl		8.2	
118	2,3',4,4',5-pentachlorobiphenyl	*	25	
126	3,3',4,4',5-pentachlorobiphenyl		0.58	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	4.8	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	23	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	13	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1.8	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.58	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.8	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.5	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.6	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.58	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	1	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.58	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.58	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.58	U

Total PCBs by Sum of congeners (*) multiplied by 2 310

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	83	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-019
Sample Designation:	NBH_PH4SAP_VC_04_4-4.9
Date Sampled:	02/10/11 1450
Date Extracted:	02/16/11
Date Analyzed:	02/23/11
Matrix:	Solid
Moisture (%):	12
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.57	U
18	2,2',5-trichlorobiphenyl	*	0.57	U
28	2,4,4'-trichlorobiphenyl	*	0.57	U
44	2,2',3,5'-tetrachlorobiphenyl	*	0.57	U
49	2,2',4,5'-tetrachlorobiphenyl	*	0.57	U
52	2,2',5,5'-tetrachlorobiphenyl	*	0.57	U
66	2,3',4,4'-tetrachlorobiphenyl	*	0.57	U
77	3,3',4,4'-tetrachlorobiphenyl		0.57	U
87	2,2',3,4,5'-pentachlorobiphenyl		0.57	U
101	2,2',4,5,5'-pentachlorobiphenyl	*	0.57	U
105	2,3,3',4,4'-pentachlorobiphenyl		0.57	U
118	2,3',4,4',5-pentachlorobiphenyl	*	0.57	U
126	3,3',4,4',5-pentachlorobiphenyl		0.57	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.57	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	0.57	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	0.57	U
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.57	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.57	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.57	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.57	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.57	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.57	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.57	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.57	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.57	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.57	U

Total PCBs by Sum of congeners (*) multiplied by 2 13

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	77	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-020
Sample Designation:	NBH_PH4SAP_VC_05_0-1
Date Sampled:	02/10/11 1315
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	44
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	92	
18	2,2',5-trichlorobiphenyl	*	110	
28	2,4,4'-trichlorobiphenyl	*	420	
44	2,2',3,5'-tetrachlorobiphenyl	*	170	
49	2,2',4,5'-tetrachlorobiphenyl	*	210	
52	2,2',5,5'-tetrachlorobiphenyl	*	370	
66	2,3',4,4'-tetrachlorobiphenyl	*	320	
77	3,3',4,4'-tetrachlorobiphenyl		0.89	U
87	2,2',3,4,5'-pentachlorobiphenyl		190	
101	2,2',4,5,5'-pentachlorobiphenyl	*	400	
105	2,3,3',4,4'-pentachlorobiphenyl		150	
118	2,3',4,4',5-pentachlorobiphenyl	*	420	
126	3,3',4,4',5-pentachlorobiphenyl		4.1	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	77	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	330	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	200	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	28	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.89	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	33	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		11	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.89	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	21	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.1	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.91	

Total PCBs by Sum of congeners (*) multiplied by 2 6500

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	91	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-021
Sample Designation:	NBH_PH4SAP_VC_05_1-2
Date Sampled:	02/10/11 1315
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	7
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	0.59	
18	2,2',5-trichlorobiphenyl	*	1.1	
28	2,4,4'-trichlorobiphenyl	*	2.1	
44	2,2',3,5'-tetrachlorobiphenyl	*	1.9	
49	2,2',4,5'-tetrachlorobiphenyl	*	2.3	
52	2,2',5,5'-tetrachlorobiphenyl	*	4.1	
66	2,3',4,4'-tetrachlorobiphenyl	*	4	
77	3,3',4,4'-tetrachlorobiphenyl		0.54	U
87	2,2',3,4,5'-pentachlorobiphenyl		1.8	
101	2,2',4,5,5'-pentachlorobiphenyl	*	4.3	
105	2,3,3',4,4'-pentachlorobiphenyl		1.3	
118	2,3',4,4',5-pentachlorobiphenyl	*	4.5	
126	3,3',4,4',5-pentachlorobiphenyl		0.54	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	0.89	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	4.2	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	2.1	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	0.54	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.54	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	0.54	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	0.54	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.54	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.54	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.54	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.54	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.54	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.54	U
Total PCBs by Sum of congeners (*) multiplied by 2			70	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	90	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-022
Sample Designation:	NBH_PH4SAP_VC_05_2-2.3
Date Sampled:	02/10/11 1315
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	13
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	2.7	
18	2,2',5-trichlorobiphenyl	*	4.7	
28	2,4,4'-trichlorobiphenyl	*	13	
44	2,2',3,5'-tetrachlorobiphenyl	*	6.8	
49	2,2',4,5'-tetrachlorobiphenyl	*	8.9	
52	2,2',5,5'-tetrachlorobiphenyl	*	14	
66	2,3',4,4'-tetrachlorobiphenyl	*	12	
77	3,3',4,4'-tetrachlorobiphenyl		0.57	U
87	2,2',3,4,5'-pentachlorobiphenyl		6.4	
101	2,2',4,5,5'-pentachlorobiphenyl	*	15	
105	2,3,3',4,4'-pentachlorobiphenyl		6.8	
118	2,3',4,4',5-pentachlorobiphenyl	*	15	
126	3,3',4,4',5-pentachlorobiphenyl		0.57	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	3.5	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	14	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	8.6	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	1.1	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.57	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	1.2	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	1.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		0.57	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.57	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	0.84	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.57	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	0.57	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.57	U
Total PCBs by Sum of congeners (*) multiplied by 2			250	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	91	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-023
Sample Designation:	NBH_PH4SAP_PC_01_0-1
Date Sampled:	02/14/11 1330
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	66
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	57	
18	2,2',5-trichlorobiphenyl	*	87	
28	2,4,4'-trichlorobiphenyl	*	270	
44	2,2',3,5'-tetrachlorobiphenyl	*	120	
49	2,2',4,5'-tetrachlorobiphenyl	*	220	
52	2,2',5,5'-tetrachlorobiphenyl	*	310	
66	2,3',4,4'-tetrachlorobiphenyl	*	140	
77	3,3',4,4'-tetrachlorobiphenyl		16	
87	2,2',3,4,5'-pentachlorobiphenyl		120	
101	2,2',4,5,5'-pentachlorobiphenyl	*	280	
105	2,3,3',4,4'-pentachlorobiphenyl		99	
118	2,3',4,4',5-pentachlorobiphenyl	*	310	
126	3,3',4,4',5-pentachlorobiphenyl		11	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	63	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	240	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	220	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	19	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	25	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	30	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		11	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	29	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.8	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.5	U

Total PCBs by Sum of congeners (*) multiplied by 2 4900

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	110	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-028
Sample Designation:	NBH_PH4SAP_PC_02_0-1
Date Sampled:	02/14/11 1425
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Moisture (%):	64
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	61	
18	2,2',5-trichlorobiphenyl	*	100	
28	2,4,4'-trichlorobiphenyl	*	410	
44	2,2',3,5'-tetrachlorobiphenyl	*	140	
49	2,2',4,5'-tetrachlorobiphenyl	*	270	
52	2,2',5,5'-tetrachlorobiphenyl	*	360	
66	2,3',4,4'-tetrachlorobiphenyl	*	240	
77	3,3',4,4'-tetrachlorobiphenyl		31	
87	2,2',3,4,5'-pentachlorobiphenyl		130	
101	2,2',4,5,5'-pentachlorobiphenyl	*	360	
105	2,3,3',4,4'-pentachlorobiphenyl		120	
118	2,3',4,4',5-pentachlorobiphenyl	*	410	
126	3,3',4,4',5-pentachlorobiphenyl		1.4	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	72	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	310	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	260	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	24	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.4	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	38	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	39	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		14	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.4	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	32	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.6	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.4	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.7	

Total PCBs by Sum of congeners (*) multiplied by 2 6300

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	85	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-031
Sample Designation:	NBH_PH4SAP_DUP4
Date Sampled:	NA
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	38
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	53	
18	2,2',5-trichlorobiphenyl	*	81	
28	2,4,4'-trichlorobiphenyl	*	160	
44	2,2',3,5'-tetrachlorobiphenyl	*	100	
49	2,2',4,5'-tetrachlorobiphenyl	*	190	
52	2,2',5,5'-tetrachlorobiphenyl	*	250	
66	2,3',4,4'-tetrachlorobiphenyl	*	180	
77	3,3',4,4'-tetrachlorobiphenyl		0.8	U
87	2,2',3,4,5'-pentachlorobiphenyl		120	
101	2,2',4,5,5'-pentachlorobiphenyl	*	300	
105	2,3,3',4,4'-pentachlorobiphenyl		170	
118	2,3',4,4',5-pentachlorobiphenyl	*	350	
126	3,3',4,4',5-pentachlorobiphenyl		0.8	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	54	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	260	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	190	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	19	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.8	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	27	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	25	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		8.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.8	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	18	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	0.94	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	2.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.2	
Total PCBs by Sum of congeners (*) multiplied by 2			4500	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	128	30 - 150

U = Not detected at value reported

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-032
Sample Designation:	NBH_PH4SAP_DUP5
Date Sampled:	NA
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	67
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	40	
18	2,2',5-trichlorobiphenyl	*	80	
28	2,4,4'-trichlorobiphenyl	*	280	
44	2,2',3,5'-tetrachlorobiphenyl	*	110	
49	2,2',4,5'-tetrachlorobiphenyl	*	200	
52	2,2',5,5'-tetrachlorobiphenyl	*	310	
66	2,3',4,4'-tetrachlorobiphenyl	*	160	
77	3,3',4,4'-tetrachlorobiphenyl		13	
87	2,2',3,4,5'-pentachlorobiphenyl		110	
101	2,2',4,5,5'-pentachlorobiphenyl	*	290	
105	2,3,3',4,4'-pentachlorobiphenyl		120	
118	2,3',4,4',5-pentachlorobiphenyl	*	310	
126	3,3',4,4',5-pentachlorobiphenyl		15	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	65	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	260	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	240	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	18	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	33	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	41	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		11	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	38	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	3.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	5.5	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 5000

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	77	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-033
Sample Designation:	NBH_PH4SAP_DUP6
Date Sampled:	NA
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	64
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	46	
18	2,2',5-trichlorobiphenyl	*	78	
28	2,4,4'-trichlorobiphenyl	*	300	
44	2,2',3,5'-tetrachlorobiphenyl	*	120	
49	2,2',4,5'-tetrachlorobiphenyl	*	260	
52	2,2',5,5'-tetrachlorobiphenyl	*	290	
66	2,3',4,4'-tetrachlorobiphenyl	*	190	
77	3,3',4,4'-tetrachlorobiphenyl		1.4	U
87	2,2',3,4,5'-pentachlorobiphenyl		100	
101	2,2',4,5,5'-pentachlorobiphenyl	*	260	
105	2,3,3',4,4'-pentachlorobiphenyl		100	
118	2,3',4,4',5-pentachlorobiphenyl	*	390	
126	3,3',4,4',5-pentachlorobiphenyl		9.1	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	61	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	260	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	240	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	19	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1.4	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	33	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		11	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1.4	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	27	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.2	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	1.6	

Total PCBs by Sum of congeners (*) multiplied by 2 5200

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	94	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-034
Sample Designation:	NBH_PH4SAP_DUP7
Date Sampled:	NA
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	51
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	54	
18	2,2',5-trichlorobiphenyl	*	82	
28	2,4,4'-trichlorobiphenyl	*	250	
44	2,2',3,5'-tetrachlorobiphenyl	*	110	
49	2,2',4,5'-tetrachlorobiphenyl	*	170	
52	2,2',5,5'-tetrachlorobiphenyl	*	250	
66	2,3',4,4'-tetrachlorobiphenyl	*	160	
77	3,3',4,4'-tetrachlorobiphenyl		10	
87	2,2',3,4,5'-pentachlorobiphenyl		72	
101	2,2',4,5,5'-pentachlorobiphenyl	*	210	
105	2,3,3',4,4'-pentachlorobiphenyl		64	
118	2,3',4,4',5-pentachlorobiphenyl	*	240	
126	3,3',4,4',5-pentachlorobiphenyl		4.7	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	43	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	160	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	150	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	15	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	1	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	22	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	24	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.7	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	1	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	19	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	2.1	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	3	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	3.4	

Total PCBs by Sum of congeners (*) multiplied by 2 3900

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	87	30 - 150

U = Not detected at value reported

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-035
Sample Designation:	NBH_PH4SAP_DUP8
Date Sampled:	NA
Date Extracted:	02/16/11
Date Analyzed:	02/24/11
Matrix:	Solid
Moisture (%):	47
Sample Amount (g):	20
Final Volume (mL)	5.0
Dilution Factor:	1

Congener Number	PCB Congener		Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	*	34	
18	2,2',5-trichlorobiphenyl	*	45	
28	2,4,4'-trichlorobiphenyl	*	180	
44	2,2',3,5'-tetrachlorobiphenyl	*	65	
49	2,2',4,5'-tetrachlorobiphenyl	*	110	
52	2,2',5,5'-tetrachlorobiphenyl	*	170	
66	2,3',4,4'-tetrachlorobiphenyl	*	110	
77	3,3',4,4'-tetrachlorobiphenyl		6.1	
87	2,2',3,4,5'-pentachlorobiphenyl		76	
101	2,2',4,5,5'-pentachlorobiphenyl	*	190	
105	2,3,3',4,4'-pentachlorobiphenyl		65	
118	2,3',4,4',5-pentachlorobiphenyl	*	210	
126	3,3',4,4',5-pentachlorobiphenyl		7	
128	2,2',3,3',4,4'-hexachlorobiphenyl	*	41	
138	2,2',3,4,4',5'-hexachlorobiphenyl	*	170	
153	2,2',4,4',5,5'-hexachlorobiphenyl	*	120	
156	2,3,3',4,4',5-hexachlorobiphenyl	*	12	
169	3,3',4,4',5,5'-hexachlorobiphenyl	*	0.94	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	*	16	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	*	17	
183	2,2',3,4,4',5',6-heptachlorobiphenyl		6.2	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	*	0.94	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	*	14	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	*	1.9	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	*	1.7	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	*	0.94	U
Total PCBs by Sum of congeners (*) multiplied by 2			3000	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	105	30 - 150

U = Not detected at value reported

ESI

Quality Control Summary

Parameter: Chromium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 202S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20670-001	NBH_PH4SAP_VC_01_0-1	20670-011	NBH_PH4SAP_VC_02_3-4
20670-002	NBH_PH4SAP_VC_01_1-2	20670-012	NBH_PH4SAP_VC_03_0-1
20670-003	NBH_PH4SAP_VC_01_2-3	20670-013	NBH_PH4SAP_VC_03_1-2
20670-004	NBH_PH4SAP_VC_01_3-4	20670-014	NBH_PH4SAP_VC_03_2-3
20670-005	NBH_PH4SAP_VC_01_4-5	20670-015	NBH_PH4SAP_VC_03_3-4
20670-006	NBH_PH4SAP_VC_01_5-6	20670-016	NBH_PH4SAP_VC_04_0-1
20670-007	NBH_PH4SAP_VC_02_0-1	20670-017	NBH_PH4SAP_VC_04_1-2
20670-008	NBH_PH4SAP_VC_02_1-2	20670-018	NBH_PH4SAP_VC_04_2-3
20670-009	NBH_PH4SAP_VC_02_2-3	20670-019	NBH_PH4SAP_VC_04_3-4
20670-010	NBH_PH4SAP_VC_02_3-4	20670-020	NBH_PH4SAP_VC_04_4-4.9

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB202S	0.2	0.2	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS202S	70-130	10.4	10	104	10.5	10	105	Pass
SRM1944	53-100	180	266	68				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20670-001D	30	152		137		10		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20670-001S	70-130		17.8	137		SNR		Pass
20670-001SD	70-130		17.1	137		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Copper, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 202S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20670-001	NBH_PH4SAP_VC_01_0-1	20670-011	NBH_PH4SAP_VC_02_3-4
20670-002	NBH_PH4SAP_VC_01_1-2	20670-012	NBH_PH4SAP_VC_03_0-1
20670-003	NBH_PH4SAP_VC_01_2-3	20670-013	NBH_PH4SAP_VC_03_1-2
20670-004	NBH_PH4SAP_VC_01_3-4	20670-014	NBH_PH4SAP_VC_03_2-3
20670-005	NBH_PH4SAP_VC_01_4-5	20670-015	NBH_PH4SAP_VC_03_3-4
20670-006	NBH_PH4SAP_VC_01_5-6	20670-016	NBH_PH4SAP_VC_04_0-1
20670-007	NBH_PH4SAP_VC_02_0-1	20670-017	NBH_PH4SAP_VC_04_1-2
20670-008	NBH_PH4SAP_VC_02_1-2	20670-018	NBH_PH4SAP_VC_04_2-3
20670-009	NBH_PH4SAP_VC_02_2-3	20670-019	NBH_PH4SAP_VC_04_3-4
20670-010	NBH_PH4SAP_VC_02_3-4	20670-020	NBH_PH4SAP_VC_04_4-4.9

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB202S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS202S	70-130	12.5	13	100	12.6	13	101	Pass
SRM1944	58-110	302	380	79				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20670-001D	30	342		308		10		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20670-001S	70-130		22.3	308		SNR		Pass
20670-001SD	70-130		21.4	308		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Zinc, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 202S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20670-001	NBH_PH4SAP_VC_01_0-1	20670-011	NBH_PH4SAP_VC_02_3-4
20670-002	NBH_PH4SAP_VC_01_1-2	20670-012	NBH_PH4SAP_VC_03_0-1
20670-003	NBH_PH4SAP_VC_01_2-3	20670-013	NBH_PH4SAP_VC_03_1-2
20670-004	NBH_PH4SAP_VC_01_3-4	20670-014	NBH_PH4SAP_VC_03_2-3
20670-005	NBH_PH4SAP_VC_01_4-5	20670-015	NBH_PH4SAP_VC_03_3-4
20670-006	NBH_PH4SAP_VC_01_5-6	20670-016	NBH_PH4SAP_VC_04_0-1
20670-007	NBH_PH4SAP_VC_02_0-1	20670-017	NBH_PH4SAP_VC_04_1-2
20670-008	NBH_PH4SAP_VC_02_1-2	20670-018	NBH_PH4SAP_VC_04_2-3
20670-009	NBH_PH4SAP_VC_02_2-3	20670-019	NBH_PH4SAP_VC_04_3-4
20670-010	NBH_PH4SAP_VC_02_3-4	20670-020	NBH_PH4SAP_VC_04_4-4.9

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB202S	1	1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS202S	70-130	25.6	25	102	26	25	104	Pass
SRM1944	69-100	564	656	86				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20670-001D	30	476		429		10		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20670-001S	70-130		44.6	429		SNR		Pass
20670-001SD	70-130		42.8	429		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Chromium, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.2	0.2	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	10.1	10	101	10.1	10	101	Pass
SRM1944	53-100	183	266	69				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	62.9		63.8		1		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		12.4	63.8		SNR		Pass
20685-001SD	70-130		12.4	63.8		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Copper, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	12.2	12.5	98	12.1	12.5	97	Pass
SRM1944	58-110	307	380	81				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	171		144		17		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		15.6	144		SNR		Pass
20685-001SD	70-130		15.5	144		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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Quality Control Summary

Parameter: Zinc, total
Project: NBH_S.TERM 6690
Matrix: Solid
QC Batch No: 203S

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
20685-001	NBH_PH4SAP_PC_09D 0-1	20670-035	NBH_PH4SAP_DUP8
20685-018	NBH_PH4SAP_DUP14		
20670-021	NBH_PH4SAP_VC_05_1-2		
20670-022	NBH_PH4SAP_VC_05_2-2.3		
20670-023	NBH_PH4SAP_PC_01_0-1		
20670-028	NBH_PH4SAP_PC_02_0-1		
20670-031	NBH_PH4SAP_DUP4		
20670-032	NBH_PH4SAP_DUP5		
20670-033	NBH_PH4SAP_DUP6		
20670-034	NBH_PH4SAP_DUP7		

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB203S	1	1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS203S	70-130	25.1	25	100	24.5	25	98	Pass
SRM1944	69-100	574	656	88				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g dry wt	Q	Sample Result ug/g dry wt	Q	RPD	Q	
20685-001D	30	193		189		2		Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g dry wt	Spike Added ug/g dry wt	Sample Result ug/g dry wt	Q	%R	Q	
20685-001S	70-130		31.1	189		SNR		Pass
20685-001SD	70-130		30.9	189		SNR		Pass

NC = Not calculated.
SNR = Not calculated due to high sample result.

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB582S
Sample Designation:	Laboratory Blank PB582S
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.5	U
18	2,2',5-trichlorobiphenyl	0.5	U
28	2,4,4'-trichlorobiphenyl	0.5	U
44	2,2',3,5'-tetrachlorobiphenyl	0.5	U
49	2,2',4,5'-tetrachlorobiphenyl	0.5	U
52	2,2',5,5'-tetrachlorobiphenyl	0.5	U
66	2,3',4,4'-tetrachlorobiphenyl	0.5	U
77	3,3',4,4'-tetrachlorobiphenyl	0.5	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.5	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.5	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.5	U
118	2,3',4,4',5-pentachlorobiphenyl	0.5	U
126	3,3',4,4',5-pentachlorobiphenyl	0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.5	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.5	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.5	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.5	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.5	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.5	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.5	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.5	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.5	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.5	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.5	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	112	30 - 150

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS582S / LCSD582S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/18/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	4.3	85	30 - 150	3.7	75	30 - 150	13	30
18	2,2',5-trichlorobiphenyl	3.7	74	30 - 150	3.7	75	30 - 150	1	30
28	2,4,4'-trichlorobiphenyl	3.8	76	30 - 150	4	80	30 - 150	5	30
44	2,2',3,5'-tetrachlorobiphenyl	5.7	114	30 - 150	5.7	113	30 - 150	0	30
49	2,2',4,5'-tetrachlorobiphenyl	3.8	77	30 - 150	3.7	74	30 - 150	4	30
52	2,2',5,5'-tetrachlorobiphenyl	3.8	75	30 - 150	3.5	70	30 - 150	8	30
66	2,3',4,4'-tetrachlorobiphenyl	5.0	100	30 - 150	4	81	30 - 150	21	30
87	2,2',3,4,5'-pentachlorobiphenyl	4.6	91	30 - 150	4	80	30 - 150	13	30
101	2,2',4,5,5'-pentachlorobiphenyl	4.0	81	30 - 150	3.8	75	30 - 150	7	30
105	2,3,3',4,4'-pentachlorobiphenyl	3.8	76	30 - 150	4	79	30 - 150	4	30
118	2,3',4,4',5-pentachlorobiphenyl	4.0	80	30 - 150	3.8	76	30 - 150	5	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	3.7	73	30 - 150	3.5	70	30 - 150	4	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.1	81	30 - 150	4	80	30 - 150	2	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	3.3	67	30 - 150	3.6	73	30 - 150	9	30
156	2,3,3',4,4',5-hexachlorobiphenyl	3.8	76	30 - 150	3.5	71	30 - 150	7	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	3.9	77	30 - 150	3.8	75	30 - 150	2	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	5.1	101	30 - 150	3.8	76	30 - 150	28	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.5	70	30 - 150	3.6	71	30 - 150	1	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	3.5	71	30 - 150	3.3	67	30 - 150	6	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	3.4	67	30 - 150	3.4	68	30 - 150	1	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	3.6	72	30 - 150	3.3	66	30 - 150	9	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	3.8	77	30 - 150	3.9	77	30 - 150	1	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	3.9	78	30 - 150	3.7	74	30 - 150	5	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	3.6	71	30 - 150	3.6	71	30 - 150	0	30

Surrogate Standard		Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198	2,2',3,3',4,5,5',6-octachlorobiphenyl	82	30 - 150	78	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-001D
Sample Designation:	NBH_PH4SAP_VC_01_0-1 (Laboratory Duplicate)
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Moisture (%):	61
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)	
8	2,4'-dichlorobiphenyl	46		49		7	30	
18	2,2',5-trichlorobiphenyl	90		80		12	30	
28	2,4,4'-trichlorobiphenyl	300		280		7	30	
44	2,2',3,5'-tetrachlorobiphenyl	110		110		1	30	
49	2,2',4,5'-tetrachlorobiphenyl	240		240		0	30	
52	2,2',5,5'-tetrachlorobiphenyl	320		300		5	30	
66	2,3',4,4'-tetrachlorobiphenyl	200		200		2	30	
77	3,3',4,4'-tetrachlorobiphenyl	20		19		2	30	
87	2,2',3,4,5'-pentachlorobiphenyl	100		100		0	30	
101	2,2',4,5,5'-pentachlorobiphenyl	300		290		4	30	
105	2,3,3',4,4'-pentachlorobiphenyl	110		110		4	30	
118	2,3',4,4',5-pentachlorobiphenyl	360		360		2	30	
126	3,3',4,4',5-pentachlorobiphenyl	21		17		21	30	
128	2,2',3,3',4,4'-hexachlorobiphenyl	76		73		4	30	
138	2,2',3,4,4',5'-hexachlorobiphenyl	270		270		1	30	
153	2,2',4,4',5,5'-hexachlorobiphenyl	250		210		17	30	
156	2,3,3',4,4',5-hexachlorobiphenyl	21		19		7	30	
169	3,3',4,4',5,5'-hexachlorobiphenyl	1.3	U	1.3	U	NC	30	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	47		37		26	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	61		41		39	30	J8
183	2,2',3,4,4',5',6-heptachlorobiphenyl	20		15		29	30	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.3	U	1.3	U	NC	30	
187	2,2',3,4',5,5',6-heptachlorobiphenyl	55		33		50	30	J8
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	5.7		4.4		NC	30	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	6.1		5.7		NC	30	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	1.3		1.6		NC	30	

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	82	81	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.
J8 = Relative range above limit.

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PCB Congeners in Tissue
SW 846 8082/EPA 680 modified

Lab Number:	20670-001
Sample Designation:	Matrix Spike Duplicate
Date Sampled:	02/11/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5
Dilution Factor:	1

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	49	65	83	52	30 - 150	82	50	30 - 150	1	30
18	2,2',5-trichlorobiphenyl	80	65	117	57	30 - 150	116	56	30 - 150	0	30
28	2,4,4'-trichlorobiphenyl	280	65	330	71	30 - 150	321	57	30 - 150	3	30
44	2,2',3,5'-tetrachlorobiphenyl	110	65	172	102	30 - 150	172	104	30 - 150	0	30
49	2,2',4,5'-tetrachlorobiphenyl	240	65	268	48	30 - 150	290	83	30 - 150	8	30
52	2,2',5,5'-tetrachlorobiphenyl	300	65	336	51	30 - 150	336	51	30 - 150	0	30
66	2,3',4,4'-tetrachlorobiphenyl	200	65	240	60	30 - 150	255	82	30 - 150	6	30
87	2,2',3,4,5'-pentachlorobiphenyl	100	65	161	90	30 - 150	156	82	30 - 150	3	30
101	2,2',4,5,5'-pentachlorobiphenyl	290	65	330	63	30 - 150	339	78	30 - 150	3	30
105	2,3,3',4,4'-pentachlorobiphenyl	110	65	161	86	30 - 150	150	70	30 - 150	7	30
118	2,3',4,4',5-pentachlorobiphenyl	360	65	390	53	30 - 150	376	32	30 - 150	3	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	73	65	125	81	30 - 150	125	80	30 - 150	0	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	270	65	321	72	30 - 150	318	68	30 - 150	1	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	210	65	248	55	30 - 150	254	64	30 - 150	2	30
156	2,3,3',4,4',5-hexachlorobiphenyl	19	65	59	61	30 - 150	57	58	30 - 150	4	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	U	65	41	64	30 - 150	46	72	30 - 150	11	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	37	65	74	58	30 - 150	76	62	30 - 150	3	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	37	65	73	55	30 - 150	79	64	30 - 150	8	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	15	65	51	56	30 - 150	56	63	30 - 150	8	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	U	65	41	63	30 - 150	41	64	30 - 150	2	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	33	65	66	51	30 - 150	70	58	30 - 150	6	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	4.4	65	44	62	30 - 150	52	74	30 - 150	16	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	5.7	65	49	68	30 - 150	53	73	30 - 150	7	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	1.6	65	43	64	30 - 150	49	73	30 - 150	12	30

Surrogate Standard	MS Recovery (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	67	84	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	PB583S
Sample Designation:	Laboratory Blank PB583S
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.5	U
18	2,2',5-trichlorobiphenyl	0.5	U
28	2,4,4'-trichlorobiphenyl	0.5	U
44	2,2',3,5'-tetrachlorobiphenyl	0.5	U
49	2,2',4,5'-tetrachlorobiphenyl	0.5	U
52	2,2',5,5'-tetrachlorobiphenyl	0.5	U
66	2,3',4,4'-tetrachlorobiphenyl	0.5	U
77	3,3',4,4'-tetrachlorobiphenyl	0.5	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.5	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.5	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.5	U
118	2,3',4,4',5-pentachlorobiphenyl	0.5	U
126	3,3',4,4',5-pentachlorobiphenyl	0.5	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.5	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.5	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.5	U
156	2,3,3',4,4',5-hexachlorobiphenyl	0.5	U
169	3,3',4,4',5,5'-hexachlorobiphenyl	0.5	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.5	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.5	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.5	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.5	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.5	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.5	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.5	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.5	U

Surrogate Standards	Recovery (%)	Advisory Limits (%)
PCB 198	98	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	LCS583S / LCSD583S
Sample Designation:	Laboratory Control Sample Duplicate
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/22/11
Matrix:	Solid
Sample Amount (g):	20
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	LCS Concentratio (ug/Kg)	Recovery (%)	Recovery Limit (%)	LCSD Concentration (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)
8	2,4'-dichlorobiphenyl	4.0	81	30 - 150	4.4	88	30 - 150	9	30
18	2,2',5-trichlorobiphenyl	3.9	78	30 - 150	4.3	86	30 - 150	11	30
28	2,4,4'-trichlorobiphenyl	4.3	86	30 - 150	4.4	88	30 - 150	1	30
44	2,2',3,5'-tetrachlorobiphenyl	7.3	145	30 - 150	5.5	110	30 - 150	28	30
49	2,2',4,5'-tetrachlorobiphenyl	4.1	82	30 - 150	3.8	77	30 - 150	6	30
52	2,2',5,5'-tetrachlorobiphenyl	4.3	86	30 - 150	4.4	87	30 - 150	2	30
66	2,3',4,4'-tetrachlorobiphenyl	4.4	87	30 - 150	4.5	90	30 - 150	4	30
87	2,2',3,4,5'-pentachlorobiphenyl	4.5	90	30 - 150	3.7	74	30 - 150	20	30
101	2,2',4,5,5'-pentachlorobiphenyl	4.4	88	30 - 150	4.7	94	30 - 150	7	30
105	2,3,3',4,4'-pentachlorobiphenyl	4.4	88	30 - 150	4.3	86	30 - 150	3	30
118	2,3',4,4',5-pentachlorobiphenyl	4.5	90	30 - 150	4.4	87	30 - 150	3	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	4.2	84	30 - 150	4	80	30 - 150	5	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	4.1	82	30 - 150	3.5	70	30 - 150	16	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	4.3	87	30 - 150	4.3	86	30 - 150	1	30
156	2,3,3',4,4',5-hexachlorobiphenyl	4.1	83	30 - 150	3.5	70	30 - 150	16	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	3.9	77	30 - 150	4	79	30 - 150	3	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	4.4	88	30 - 150	3.9	78	30 - 150	13	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	4.2	85	30 - 150	4	80	30 - 150	5	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.3	85	30 - 150	3.7	73	30 - 150	15	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	4.1	81	30 - 150	4.1	82	30 - 150	1	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	4.0	79	30 - 150	3.8	77	30 - 150	3	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	4.4	88	30 - 150	4.7	93	30 - 150	6	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	4.8	95	30 - 150	4.5	89	30 - 150	7	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphen	4.5	91	30 - 150	3.7	74	30 - 150	20	30

Surrogate Standard	Recovery (%)	Advisory Limits (%)	Recovery (%)	Advisory Limits (%)
198 2,2',3,3',4,5,5',6-octachlorobiphenyl	97	30 - 150	84	30 - 150

ESI

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-028D
Sample Designation:	NBH_PH4SAP_PC_02_0-1 (Laboratory Duplicate)
Date Sampled:	02/16/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Moisture (%):	64
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	56		61		9	30
18	2,2',5-trichlorobiphenyl	110		100		5	30
28	2,4,4'-trichlorobiphenyl	380		410		6	30
44	2,2',3,5'-tetrachlorobiphenyl	140		140		1	30
49	2,2',4,5'-tetrachlorobiphenyl	270		270		1	30
52	2,2',5,5'-tetrachlorobiphenyl	370		360		2	30
66	2,3',4,4'-tetrachlorobiphenyl	240		240		1	30
77	3,3',4,4'-tetrachlorobiphenyl	29		31		8	30
87	2,2',3,4,5'-pentachlorobiphenyl	120		130		7	30
101	2,2',4,5,5'-pentachlorobiphenyl	350		360		2	30
105	2,3,3',4,4'-pentachlorobiphenyl	120		120		0	30
118	2,3',4,4',5-pentachlorobiphenyl	410		410		1	30
126	3,3',4,4',5-pentachlorobiphenyl	1.4	U	1.4	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	71		72		2	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	310		310		1	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	250		260		1	30
156	2,3,3',4,4',5-hexachlorobiphenyl	21		24		14	30
169	3,3',4,4',5,5'-hexachlorobiphenyl	1.4	U	1.4	U	NC	30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	36		38		5	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	38		39		4	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	14		14		6	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	1.4	U	1.4	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	31		32		5	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	3.2		3.6		NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	5.2		5.4		NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	1.4		1.7		NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	77	85	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	20670-028MSD
Sample Designation:	NBH_PH4SAP_PC_02_0-1 (Matrix Spike Duplicate)
Date Sampled:	02/14/11
Date Extracted:	02/16/11
Date Analyzed:	02/21/11
Matrix:	Solid
Sample Amount (g):	20.00
Final Volume (mL)	5.00
Dilution Factor:	1.00

Congener Number	PCB Congener	Sample Result (ug/Kg)	Amount Added (ug/Kg)	MS Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	MSD Result (ug/Kg)	Recovery (%)	Recovery Limit (%)	Relative Difference (%)	RPD Limit (%)	
8	2,4'-dichlorobiphenyl	61	69.6	106	65	30 - 150	99	54	30 - 150	7	30	
18	2,2',5-trichlorobiphenyl	100	69.6	148	62	30 - 150	170	87	30 - 150	11	30	
28	2,4,4'-trichlorobiphenyl	410	69.6	489	114	30 - 150	470	80	30 - 150	5	30	SNR
44	2,2',3,5'-tetrachlorobiphenyl	140	69.6	211	100	30 - 150	230	122	30 - 150	7	30	
49	2,2',4,5'-tetrachlorobiphenyl	270	69.6	341	102	30 - 150	320	69	30 - 150	7	30	SNR
52	2,2',5,5'-tetrachlorobiphenyl	360	69.6	424	90	30 - 150	430	101	30 - 150	2	30	SNR
66	2,3',4,4'-tetrachlorobiphenyl	240	69.6	305	100	30 - 150	310	110	30 - 150	2	30	SNR
87	2,2',3,4,5'-pentachlorobiphenyl	130	69.6	180	77	30 - 150	170	66	30 - 150	4	30	
101	2,2',4,5,5'-pentachlorobiphenyl	360	69.6	407	67	30 - 150	440	112	30 - 150	7	30	SNR
105	2,3,3',4,4'-pentachlorobiphenyl	120	69.6	180	80	30 - 150	190	96	30 - 150	6	30	
118	2,3',4,4',5-pentachlorobiphenyl	410	69.6	480	95	30 - 150	490	114	30 - 150	3	30	SNR
128	2,2',3,3',4,4'-hexachlorobiphenyl	72	69.6	138	95	30 - 150	130	84	30 - 150	6	30	
138	2,2',3,4,4',5'-hexachlorobiphenyl	310	69.6	374	95	30 - 150	380	98	30 - 150	1	30	SNR
153	2,2',4,4',5,5'-hexachlorobiphenyl	260	69.6	291	51	30 - 150	310	85	30 - 150	8	30	SNR
156	2,3,3',4,4',5-hexachlorobiphenyl	24	69.6	73.4	71	30 - 150	75.0	72	30 - 150	2	30	
169	3,3',4,4',5,5'-hexachlorobiphenyl	ND	69.6	45.7	66	30 - 150	46.0	66	30 - 150	0	30	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	38	69.6	88.3	73	30 - 150	87.0	71	30 - 150	2	30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	39	69.6	84.3	65	30 - 150	88.0	70	30 - 150	4	30	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	14	69.6	61.4	67	30 - 150	64.0	71	30 - 150	4	30	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	ND	69.6	44.6	64	30 - 150	49.0	70	30 - 150	9	30	
187	2,2',3,4',5,5',6-heptachlorobiphenyl	32	69.6	79.1	67	30 - 150	83.0	73	30 - 150	5	30	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	3.6	69.6	58.2	78	30 - 150	58.0	78	30 - 150	1	30	
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	5.4	69.6	60.0	78	30 - 150	67.0	88	30 - 150	10	30	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	1.7	69.6	55.3	77	30 - 150	57.0	80	30 - 150	4	30	

Surrogate Standard	MS Recovery (%)	Advisory Limits (%)	MSD Recovery (%)	Advisory Limits (%)
PCB 198	85	30 - 150	88	30 - 150

ND = Not detected
SNR = Spike recovery not evaluated due sample value greater than five times the sike amount.

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20670		
SDG No:	6690		
Project:	NBH_S.TERM 6690		
Delivered via:	ESI		
Date and Time Received:	02/15/11 1030	Date and TIme Logged into Lab:	02/15/11 1200
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	3		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_VC_01_0-1	20670-001	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_01_1-2	20670-002	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_01_2-3	20670-003	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_01_3-4	20670-004	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_01_4-5	20670-005	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_01_5-6	20670-006	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_02_0-1	20670-007	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_02_1-2	20670-008	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_02_2-3	20670-009	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_02_3-4	20670-010	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_03_0-1	20670-011	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_03_1-2	20670-012	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_03_2-3	20670-013	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_03_3-4	20670-014	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_04_0-1	20670-015	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_04_1-2	20670-016	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_04_2-3	20670-017	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_04_3-4	20670-018	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_04_4-4.9	20670-019	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_05_0-1	20670-020	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_05_1-2	20670-021	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_VC_05_2-2.3	20670-022	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	Yes
NBH_PH4SAP_PC_01_0-1	20670-023	S	CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20670		
SDG No:	6690		
Project:	NBH_S.TERM 6690		
Delivered via:	ESI		
Date and Time Received:	02/15/11 1030	Date and TIme Logged into Lab:	02/15/11 1200
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	3		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
NBH_PH4SAP_PC_01_1-2	20670-024	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_01_2-3	20670-025	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_01_3-4	20670-026	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_01_4-5	20670-027	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_02_0-1	20670-028	S	CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_02_1-2	20670-029	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_PC_02_2-2.8	20670-030	S	HOLD for CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_DUP4	20670-031	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	
NBH_PH4SAP_DUP5	20670-032	S	CGR680, Total Metals Cr,Cu,Zn;	9oz G	4C	
NBH_PH4SAP_DUP6	20670-033	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	
NBH_PH4SAP_DUP7	20670-034	S	CGR680, Total Metals Cr,Cu,Zn;	2x9oz G	4C	
NBH_PH4SAP_DUP8	20670-035	S	CGR680, Total Metals Cr,Cu,Zn;	1x9oz G, 2x4	4C	

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20670

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH_S_TERM	Page 1 of 3
Report to: CHET MYERS	Address: 184 HIGH ST SUITE 502	Project Number: 6690	
Invoice to: APEX	Address: BOSTON MA 02110	Project Manager: C MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: CMYERS@APEXCOS.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: METALS - CU, CR, ZN 6020A PCB - NOAA 22 CONGENERS - 8270/
-001	NBH_PH4SAP_VC01_0-1	2/14/11	15:25	GCD	G	4oz x2	G	4°C	S	N	~~HOLD~~ - Run
-002	NBH_PH4SAP_VC01_1-2	2/14/11									
-003	NBH_PH4SAP_VC01_2-3										
-004	NBH_PH4SAP_VC01_3-4										
-005	NBH_PH4SAP_VC01_4-5										
-006	NBH_PH4SAP_VC01_5-6										
-007	NBH_PH4SAP_VC02_0-1		14:45								
-008	NBH_PH4SAP_VC02_1-2										
-009	NBH_PH4SAP_VC02_2-3										
-010	NBH_PH4SAP_VC02_3-4										
-011	NBH_PH4_SAP_VC_03_0-1		11:30								
-012	NBH_PH4SAP_VC_03_1-2										

Relinquished By: [signature]	Date: 2/15/11 Time: 10:30	Received By: [signature]	Date: 2/15/11 Time: 10:30
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 6289

ESI
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1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20670

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH. S. TERM	Page 2 of 3
Report to: CHET MYERS	Address: 184 HIGH ST Suite 502	Project Number: 6690	
Invoice to: APEX COMPANIES LLC	Address: BOSTON MA 02110	Project Manager: C. MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: CMYERS@APEXCOS.COM	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: METALS - CU, CR, ZN 6020A PCB - NOAA 22 CONGENERS - 8270
-013	NBH PH4SAP_VC_03_2-3	2/11/11	11:30	GCD	G	9oz x2	G	4°C	S	N	~~HOLD~~ RUN
-014	NBH_PH4SAP_VC03_3-4	2/11/11	11:30	GCD	G						
-015	NBH_PH4SAP_VC_04_0-1	2/10/11	14:50								
-016	NBH_PH4SAP_VC_04_1-2										
-017	NBH_PH4SAP_VC_04_2-3										
-018	NBH_PH4SAP_VC_04_3-4										
-019	NBH_PH4SAP_VC_04_4-4.9										
-020	NBH_PH4SAP_VC_05_0-1		13:15								
-021	NBH_PH4SAP_VC_05_1-2										
-022	NBH_PH4SAP_VC_05_2-2.3										
-023	NBH_PH4SAP_PC_01_0-1	2/14/11	13:30			9oz					RUN
-024	NBH_PH4SAP_PC_01_1-2										HOLD

Relinquished By: [signature]	Date: 2/15/11	Time: 1030	Received By: [signature]	Date: 2-15-11	Time: 10:30
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4290

ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20670

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX COMPANIES LLC	Contact: CHET MYERS	Project Name: NBH_S.TERM.	Page 3 of 3
Report to: CHET MYERS	Address: 184 HIGH ST 502	Project Number: 6690	
Invoice to: APEX COMPANIES	Address: BOSTON MA ~~02119~~ 02110	Project Manager: CHET MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: CMYERS@APEXCOS.C	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions: METALS - CU-CR-ZN 6020A RCB-NOAA 22-8270
-025	NBH_PH4SAP_PC_01_2-3	2/14/11	13:30	GCD	G	9oz	G	4°C	S	N	HOLD
-026	NBH_PH4SAP_PC_01_3-4										
-027	NBH_PH4SAP_PC_01_4-5										
-028	NBH_PH4SAP_PC_02_0-1		14:25								RUN
-029	NBH_PH4SAP_PC_02_1-2										HOLD
-030	NBH_PH4SAP_PC_02_2-2.8										
-031	NBH_PH4SAP_DUP4					9oz x2					RUN
-032	NBH_PH4SAP_DUP5					9 oz					
-033	NBH_PH4SAP_DUP6					9oz x2					
-034	NBH_PH4SAP_DUP7										
-035	NBH_PH4SAP_DUP8					1x 9oz 2x 4oz					
	~~NBH_PH4SAP~~										

Relinquished By: [signature]	Date: 2/15/11	Time: 1030	Received By: [signature] Date: 2-15-11 Time: 10:38
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 4001

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 • f 603 926 3621
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 21550
Date Received: 10/19/11
Date Reported: 11/28/11

Project: South Terminal

Attached please find results for analyses performed on samples received on 10/19/11 at 1050. Six samples were analyzed at the clients request, the remainder of the samples received on 10/19/11 remain frozen under the original hold request.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Authorized Signature

Date 11/28/11

Attachment
Report

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-003
Sample Designation:	(NBH.PHYSAP)PC_16/2-3
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	16
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.3	U
18	2,2',5-trichlorobiphenyl	0.35	
28	2,4,4'-trichlorobiphenyl	0.67	
44	2,2',3,5'-tetrachlorobiphenyl	0.86	
49	2,2',4,5'-tetrachlorobiphenyl	0.71	
52	2,2',5,5'-tetrachlorobiphenyl	1.4	
66	2,3',4,4'-tetrachlorobiphenyl	0.73	
77	3,3',4,4'-tetrachlorobiphenyl	0.3	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.97	
101	2,2',4,5,5'-pentachlorobiphenyl	1.9	
105	2,3,3',4,4'-pentachlorobiphenyl	0.76	
118	2,3',4,4',5-pentachlorobiphenyl	2.1	
126	3,3',4,4',5-pentachlorobiphenyl	0.3	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.49	
138	2,2',3,4,4',5'-hexachlorobiphenyl	2.1	
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.9	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.3	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.3	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.3	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.3	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.3	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.3	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.3	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	49	30 - 150

U = Not detected at value reported

ESI
EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0776 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-007
Sample Designation:	(NBH.PHYSAP) _PC13_08/2-3
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	43
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	6.2	
18	2,2',5-trichlorobiphenyl	8.5	
28	2,4,4'-trichlorobiphenyl	3.9	
44	2,2',3,5'-tetrachlorobiphenyl	38	
49	2,2',4,5'-tetrachlorobiphenyl	34	
52	2,2',5,5'-tetrachlorobiphenyl	84	
66	2,3',4,4'-tetrachlorobiphenyl	33	
77	3,3',4,4'-tetrachlorobiphenyl	0.44	U
87	2,2',3,4,5'-pentachlorobiphenyl	52	
101	2,2',4,5,5'-pentachlorobiphenyl	82	
105	2,3,3',4,4'-pentachlorobiphenyl	37	
118	2,3',4,4',5-pentachlorobiphenyl	95	
126	3,3',4,4',5-pentachlorobiphenyl	0.44	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	38	
138	2,2',3,4,4',5'-hexachlorobiphenyl	130	
153	2,2',4,4',5,5'-hexachlorobiphenyl	49	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	13	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	12	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	5.3	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.44	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	6.7	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.44	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	4.8	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	3.7	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	124	30 - 150

U = Not detected at value reported

ESI
EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-011
Sample Designation:	(NBH.PHYSAP)PC_22/2-2.6
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	12
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.28	U
18	2,2',5-trichlorobiphenyl	0.28	U
28	2,4,4'-trichlorobiphenyl	0.28	U
44	2,2',3,5'-tetrachlorobiphenyl	0.28	U
49	2,2',4,5'-tetrachlorobiphenyl	0.28	U
52	2,2',5,5'-tetrachlorobiphenyl	0.28	U
66	2,3',4,4'-tetrachlorobiphenyl	0.28	U
77	3,3',4,4'-tetrachlorobiphenyl	0.28	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.28	U
101	2,2',4,5,5'-pentachlorobiphenyl	0.28	U
105	2,3,3',4,4'-pentachlorobiphenyl	0.28	U
118	2,3',4,4',5-pentachlorobiphenyl	0.28	U
126	3,3',4,4',5-pentachlorobiphenyl	0.28	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.28	U
138	2,2',3,4,4',5'-hexachlorobiphenyl	0.28	U
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.28	U
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.28	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.28	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.28	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.28	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.28	U
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.28	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.28	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.28	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	45	30 - 150

U = Not detected at value reported

ESI
EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0776 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-014
Sample Designation:	(NBH.PHYSAP)_PC_26/2-3
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	17
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.3	U
18	2,2',5-trichlorobiphenyl	0.44	
28	2,4,4'-trichlorobiphenyl	1	
44	2,2',3,5'-tetrachlorobiphenyl	0.78	
49	2,2',4,5'-tetrachlorobiphenyl	0.74	
52	2,2',5,5'-tetrachlorobiphenyl	1.3	
66	2,3',4,4'-tetrachlorobiphenyl	0.97	
77	3,3',4,4'-tetrachlorobiphenyl	0.3	U
87	2,2',3,4,5'-pentachlorobiphenyl	0.76	
101	2,2',4,5,5'-pentachlorobiphenyl	1.7	
105	2,3,3',4,4'-pentachlorobiphenyl	0.63	
118	2,3',4,4',5-pentachlorobiphenyl	1.7	
126	3,3',4,4',5-pentachlorobiphenyl	0.3	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	0.53	
138	2,2',3,4,4',5'-hexachlorobiphenyl	1.7	
153	2,2',4,4',5,5'-hexachlorobiphenyl	0.77	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.3	U
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.3	U
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.3	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.39	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.3	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.3	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.3	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	90	30 - 150

U = Not detected at value reported

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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-018
Sample Designation:	(NBH.PHYSAP)PC_29/2-3
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	46
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.69	
18	2,2',5-trichlorobiphenyl	1.8	
28	2,4,4'-trichlorobiphenyl	1.7	
44	2,2',3,5'-tetrachlorobiphenyl	24	
49	2,2',4,5'-tetrachlorobiphenyl	20	
52	2,2',5,5'-tetrachlorobiphenyl	63	
66	2,3',4,4'-tetrachlorobiphenyl	18	
77	3,3',4,4'-tetrachlorobiphenyl	0.46	U
87	2,2',3,4,5'-pentachlorobiphenyl	41	
101	2,2',4,5,5'-pentachlorobiphenyl	72	
105	2,3,3',4,4'-pentachlorobiphenyl	30	
118	2,3',4,4',5-pentachlorobiphenyl	81	
126	3,3',4,4',5-pentachlorobiphenyl	0.46	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	50	
138	2,2',3,4,4',5'-hexachlorobiphenyl	170	
153	2,2',4,4',5,5'-hexachlorobiphenyl	37	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	11	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	14	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	4.7	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.46	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	9.5	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.46	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	12	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	8.3	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	110	30 - 150

U = Not detected at value reported

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-07.. 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-022
Sample Designation:	(NBH.PHYSAP)PC_40/1-2.1
Date Sampled:	10/18/11
Date Extracted:	11/17/11
Date Analyzed:	11/23/11
Matrix:	Solid
Moisture (%):	17
Sample Amount (g):	4
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	3.6	
18	2,2',5-trichlorobiphenyl	5.8	
28	2,4,4'-trichlorobiphenyl	10	
44	2,2',3,5'-tetrachlorobiphenyl	9.3	
49	2,2',4,5'-tetrachlorobiphenyl	9.7	
52	2,2',5,5'-tetrachlorobiphenyl	17	
66	2,3',4,4'-tetrachlorobiphenyl	12	
77	3,3',4,4'-tetrachlorobiphenyl	0.3	U
87	2,2',3,4,5'-pentachlorobiphenyl	12	
101	2,2',4,5,5'-pentachlorobiphenyl	24	
105	2,3,3',4,4'-pentachlorobiphenyl	9	
118	2,3',4,4',5-pentachlorobiphenyl	24	
126	3,3',4,4',5-pentachlorobiphenyl	0.46	
128	2,2',3,3',4,4'-hexachlorobiphenyl	6.6	
138	2,2',3,4,4',5'-hexachlorobiphenyl	26	
153	2,2',4,4',5,5'-hexachlorobiphenyl	11	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	2.3	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	2.3	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	1.1	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.3	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	1.9	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.3	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.3	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.3	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	103	30 - 150

U = Not detected at value reported

EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-07.. 603-926-3345 fax 603-926-3521 www.envirosystems.com

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21550		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	10/19/11 1050	Date and TIme Logged into Lab:	10/19/11 1700
Recieved By:	DW	Logged into Lab by:	JLH
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
(NBH.PHYSAP)PC_16/0-1	21550-001	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_16/1-2	21550-002	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_16/2-3	21550-003	S	CGR680	8oz G	0C	Yes
(NBH.PHYSAP)_PC_16/3-4.1	21550-004	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/0-1	21550-005	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/1-2	21550-006	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/2-3	21550-007	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC13_08/3-3.3	21550-008	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_22/0-1	21550-009	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_22/1-2	21550-010	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_22/2-2.6	21550-011	S	CGR680	8oz G	0C	Yes
(NBH.PHYSAP)_PC_26/0-1	21550-012	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)_PC_26/1-2	21550-013	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)_PC_26/2-3	21550-014	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_26/3-3.5	21550-015	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/0-1	21550-016	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/1-2	21550-017	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/2-3	21550-018	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/3-4	21550-019	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/4-5	21550-020	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_40/0-1	21550-021	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_40/1-2.1	21550-022	S	CGR680	2 x 4oz G	0C	Yes

Notes and qualifications:

Samples 21550-002,-007,-011,-014,-018,and -022 taken out of HOLD on 11/17/11 per clients request. mes

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

Hold + Freeze

ESI Job No: 21550

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: South Terminal	Page 1 of 2
Report to: Chet Myers	Address: 184 High St Suite 502	Project Number: 6690	
Invoice to: Apex	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: 617-728.0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	(NBN_PHYSAP)PC_16 / 0-1	10/18	0900	GD/CS	G			N	S	N	PCB - NOAA Congeners
002	" / 1-2										
003	" / 2-3										
004	(NBH_PHYSAP)_PC_16 / 3-4.1										
005	(NBH_PHYSAP)_PC13_08 / 0-1										
006	" / 1-2										
007	" / 2-3										
008	(NBH_PHYSAP)PC13_08 / 3-3.3										
009	(NBH_PHYSAP)PC_22 / 0-1										
010	" / 1-2										
011	" / 2-2.6										

9/10

Relinquished By: [signature]	Date: 10/19	Time: 10:50	Received By: [signature]	Date: 10/19/11	Time: 1050
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4269

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Hold + Freeze

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21550

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: South Terminal	Page 2 of 2
Report to: Chet Myers	Address: 184 High st Suite 502	Project Number: 6690	
Invoice to: Apex	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: 617-728-0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
012	(NBH_PHYSAP)PC_26/0-1	10/18		GD/CS	G			N	S	N	PCB - NOAA Congeners
013	/1-2										
014	/2-3										
015	(NBH_PHYSAP)PC_26/3-3.5										
016	(NBH_PHYSAP)PC_29/0-1										
017	/1-2										
018	/2-3										
019	/3-4										
020	(NBH_PHYSAP)PC_29/4-5										
021	(NBH_PHYSAP)PC_40/0-1										
022	" /1-2.1										

10/10

Relinquished By: [signature]	Date: 10/18	Time: 10:50	Received By: [signature] Date: 10/19/11 Time: 1050
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4341

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number:	None
Report Number:	21550
Date Received:	10/19/11
Date Reported:	12/23/11

Project: South Terminal

Attached please find results for analyses performed on two samples received on 10/19/11 at 1050.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent, except where noted.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Authorized Signature

Date 12/23/11

Attachment
Report

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-008
Sample Designation:	(NBH.PHYSAP)PC13_08/3-3.3
Date Sampled:	10/18/11
Date Extracted:	12/16/11
Date Analyzed:	12/21/11
Matrix:	Solid
Moisture (%):	14
Sample Amount (g):	10
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.12	U
18	2,2',5-trichlorobiphenyl	0.12	U
28	2,4,4'-trichlorobiphenyl	0.44	
44	2,2',3,5'-tetrachlorobiphenyl	1.20	
49	2,2',4,5'-tetrachlorobiphenyl	0.79	
52	2,2',5,5'-tetrachlorobiphenyl	3.10	
66	2,3',4,4'-tetrachlorobiphenyl	1.00	
77	3,3',4,4'-tetrachlorobiphenyl	0.12	U
87	2,2',3,4,5'-pentachlorobiphenyl	3.00	
101	2,2',4,5,5'-pentachlorobiphenyl	5.00	
105	2,3,3',4,4'-pentachlorobiphenyl	2.80	
118	2,3',4,4',5-pentachlorobiphenyl	6.10	
126	3,3',4,4',5-pentachlorobiphenyl	0.12	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.80	
138	2,2',3,4,4',5'-hexachlorobiphenyl	6.60	
153	2,2',4,4',5,5'-hexachlorobiphenyl	2.50	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.64	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.51	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.12	U
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.12	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.42	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.12	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.12	U
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.12	U

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	111	30 - 150

U = Not detected at value reported

ESI
EnviroSystems, Inc. One Lafayette Road Hampton, NH 03843-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-008D
Sample Designation:	(NBH.PHYSAP)PC13_08/3-3.3 (Laboratory Duplicate)
Date Sampled:	12/16/11
Date Extracted:	12/16/11
Date Analyzed:	12/21/11
Matrix:	Solid
Moisture (%):	14
Sample Amount (g):	10.00
Final Volume (mL)	1.00
Dilution Factor:	1

Congener Number	PCB Congener	Duplicate Result (ug/Kg)	Duplicate Qualifier	Sample Result (ug/Kg)	Sample Qualifier	Relative Difference (%)	Limit (%)
8	2,4'-dichlorobiphenyl	0.12	U	0.12	U	NC	30
18	2,2',5-trichlorobiphenyl	0.12	U	0.12	U	NC	30
28	2,4,4'-trichlorobiphenyl	0.44		0.12	U	NC	30
44	2,2',3,5'-tetrachlorobiphenyl	1.2		0.83		39	30
49	2,2',4,5'-tetrachlorobiphenyl	0.79		0.57		NC	30
52	2,2',5,5'-tetrachlorobiphenyl	3.1		2		45	30
66	2,3',4,4'-tetrachlorobiphenyl	1		0.43		NC	30
77	3,3',4,4'-tetrachlorobiphenyl	0.12	U	0.12	U	NC	30
87	2,2',3,4,5'-pentachlorobiphenyl	3		1.3		78	30
101	2,2',4,5,5'-pentachlorobiphenyl	5		2		84	30
105	2,3,3',4,4'-pentachlorobiphenyl	2.8		0.93		100	30
118	2,3',4,4',5-pentachlorobiphenyl	6.1		2.1		99	30
126	3,3',4,4',5-pentachlorobiphenyl	0.12	U	0.12	U	NC	30
128	2,2',3,3',4,4'-hexachlorobiphenyl	1.8		0.53		NC	30
138	2,2',3,4,4',5'-hexachlorobiphenyl	6.6		2.3		97	30
153	2,2',4,4',5,5'-hexachlorobiphenyl	2.5		0.84		98	30
156	2,3,3',4,4',5-hexachlorobiphenyl						30
169	3,3',4,4',5,5'-hexachlorobiphenyl						30
170	2,2',3,3',4,4',5-heptachlorobiphenyl	0.64		0.19		NC	30
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.51		0.18		NC	30
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.12	U	0.12	U	NC	30
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.12	U	0.12	U	NC	30
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.42		0.16		NC	30
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.12	U	0.12	U	NC	30
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.12	U	0.12	U	NC	30
209	2,2',3,3',4,4',5,5',6,6'-decachlorobipheny	0.12	U	0.12	U	NC	30

Surrogate Standard	Recovery (%)	Recovery (%)	Advisory Limits (%)
PCB 198	111	118	30 - 150

U = Not detected at reporting limit.
NC = Not calculated due to one or more values less than five times the reporting limit.

ESI
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PCB Congeners in Sediment
SW 846 8082/EPA 680 modified

Lab Number:	21550-019
Sample Designation:	(NBH.PHYSAP)PC_29/3-4
Date Sampled:	10/18/11
Date Extracted:	12/16/11
Date Analyzed:	12/21/11
Matrix:	Solid
Moisture (%):	34
Sample Amount (g):	10
Final Volume (mL)	1.0
Dilution Factor:	1

Congener Number	PCB Congener	Concentration (ug/Kg)	Qualifier
8	2,4'-dichlorobiphenyl	0.15	U
18	2,2',5-trichlorobiphenyl	0.15	U
28	2,4,4'-trichlorobiphenyl	0.15	U
44	2,2',3,5'-tetrachlorobiphenyl	2.40	
49	2,2',4,5'-tetrachlorobiphenyl	1.70	
52	2,2',5,5'-tetrachlorobiphenyl	7.30	
66	2,3',4,4'-tetrachlorobiphenyl	1.80	
77	3,3',4,4'-tetrachlorobiphenyl	0.15	U
87	2,2',3,4,5'-pentachlorobiphenyl	6.90	
101	2,2',4,5,5'-pentachlorobiphenyl	12.00	
105	2,3,3',4,4'-pentachlorobiphenyl	5.30	
118	2,3',4,4',5-pentachlorobiphenyl	15.00	
126	3,3',4,4',5-pentachlorobiphenyl	0.15	U
128	2,2',3,3',4,4'-hexachlorobiphenyl	3.40	
138	2,2',3,4,4',5'-hexachlorobiphenyl	13.00	
153	2,2',4,4',5,5'-hexachlorobiphenyl	5.70	
170	2,2',3,3',4,4',5-heptachlorobiphenyl	1.30	
180	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.79	
183	2,2',3,4,4',5',6-heptachlorobiphenyl	0.44	
184	2,2',3,4,4',6,6'-heptachlorobiphenyl	0.15	U
187	2,2',3,4',5,5',6-heptachlorobiphenyl	0.31	
195	2,2',3,3',4,4',5,6-octachlorobiphenyl	0.15	U
206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	0.32	
209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	0.28	

Surrogate Standard	Recovery (%)	Advisory Limits (%)
PCB 198	119	30 - 150

U = Not detected at value reported

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ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21550		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	10/19/11 1050	Date and TIme Logged into Lab:	10/19/11 1700
Recieved By:	DW	Logged into Lab by:	JLH mes
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	1	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
(NBH.PHYSAP)PC_16/0-1	21550-001	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_16/1-2	21550-002	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_16/2-3	21550-003	S	CGR680	8oz G	0C	Yes
(NBH.PHYSAP)_PC_16/3-4.1	21550-004	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/0-1	21550-005	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/1-2	21550-006	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP) _PC13_08/2-3	21550-007	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC13_08/3-3.3	21550-008	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_22/0-1	21550-009	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_22/1-2	21550-010	S	HOLD for CGR680	8oz G	0C	Yes
(NBH.PHYSAP)PC_22/2-2.6	21550-011	S	CGR680	8oz G	0C	Yes
(NBH.PHYSAP)_PC_26/0-1	21550-012	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)_PC_26/1-2	21550-013	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)_PC_26/2-3	21550-014	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_26/3-3.5	21550-015	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/0-1	21550-016	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/1-2	21550-017	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/2-3	21550-018	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/3-4	21550-019	S	CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_29/4-5	21550-020	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_40/0-1	21550-021	S	HOLD for CGR680	2 x 4oz G	0C	Yes
(NBH.PHYSAP)PC_40/1-2.1	21550-022	S	CGR680	2 x 4oz G	0C	Yes

Notes and qualifications:

Samples 21550-002,-007,-011,-014,-018,and -022 taken out of HOLD on 11/17/11 per clients request. mes

Samples 21550-008 and -019 taken out of HOLD on 12/12/11 per clients request. mes

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ESI

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Hold + Freeze

ESI Job No: 21550

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies, LLC	Contact: Chet Myers	Project Name: South Terminal	Page 1 of 2
Report to: Chet Myers	Address: 184 High St Suite 502	Project Number: 6690	
Invoice to: Apex	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: 617-728.0070	Fax: 617.728.0080	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	(NBH_PHYSAP)PC_16 / 0-1	10/19	0900	GD/CS	G			N	S	N	PCB - NOAA Congeners
002	/ 1-2										
003	/ 2-3										
004	(NBH_PHYSAP)_PC_16 / 3-4.1										
005	(NBH_PHYSAP)_PC13.08 / 0-1										
006	/ 1-2										
007	/ 2-3										
008	(NBH_PHYSAP)PC13.08 / 3-3.3										
009	(NBH_PHYSAP)PC_22 / 0-1										
010	/ 1-2										
011	/ 2-2.6										

Relinquished By: [signature]	Date: 10/19 Time: 10:50	Received By: [signature]	Date: 10/19/11 Time: 1050
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

COC Doc No: 4269

Sample Delivery Group No: Page of

ESI

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Hold + Freeze

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21550

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Companies LLC	Contact: Chet Myers	Project Name: South Terminal	Page 2 of 2
Report to: Chet Myers	Address: 184 High St Suite 502	Project Number: 6690	
Invoice to: Apex	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: 617-728-0070	Fax: 617.728.0080	email: CMyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
012	(NBH_PH4SAP)PC_28/0-1	10/18		GD/CS	G			N	S	N	PCB - NOAA Congeners
013	/1-2										
014	/2-3										
015	(NBH_PH4SAP)PC_26/3-3.5										
016	(NBH_PH4SAP)PC_29/0-1										
017	/1-2										
018	/2-3										
019	/3-4										
020	(NBH_PH4SAP)PC_29/4-5										
021	(NBH_PH4SAP)PC_40/0-1										
022	" /1-2.1										

Relinquished By: [signature]	Date: 10/18	Time: 10:50	Received By: [signature] Date: 10/19/11 Time: 1050
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

COC Doc No: 4341

Sample Delivery Group No: Page of

APPENDIX 37

Battelle
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US ARMY CORPS
OF ENGINEERS
New England District

Contract No. DACW33-03-D-0004
Delivery Order No. 16

January 2007

Final Data Report

LABORATORY TESTING IN SUPPORT OF ENVIRONMENTAL ASSESSMENT FOR NEW BEDFORD HARBOR, MA

FINAL DATA REPORT

Laboratory Testing In Support of Environmental Assessment for New Bedford Harbor, MA

Submitted to

Department of the Army
U.S. Army Corps of Engineers
North Atlantic Division
New England District

Contract No. DACW33-03-D-0004
Delivery Order No. 16

January 2007

Prepared by

Battelle
397 Washington Street
Duxbury, MA 02332
(781) 934-0571

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1.0 INTRODUCTION

1.1 Project Description

The Corps of Engineers, North Atlantic Division New England District (NAE) is evaluating sediments for proposed dredging and disposal under the New Bedford Harbor federal project in Massachusetts. This work was performed to assist NAE in gathering physical, chemical, and biological data for analyzing the environmental impacts associated with proposed maintenance dredging of sediments in New Bedford Harbor. These data will be used to support the NAE determination for acceptability of the dredged material for ocean disposal under Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA). All methods employed were consistent with the National Guidance provided in *"Evaluation of Dredged Material Proposed for Ocean Disposal"* (U.S. EPA/USACE 1991), also known as the "Green Book", *"Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual"* (EPA/USACE 1998), known as the "Inland Testing Manual", and the Regional Testing Manual "*Final Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters"* (EPA/USACE 2004).

1.2 Scope of Work

The project scope of work consisted of collecting sediment core and water column samples from 40 locations in New Bedford Harbor and sediment grab and water samples from two reference locations at the Buzzards Bay Disposal Site (BBDS) and Rhode Island Sound Disposal Site (RISDS). The samples were transported to Battelle, Duxbury and the sediment cores were combined into designated composite samples. A series of subsamples taken from each of the composites, as well as the sediment grab, site water, and rinsate blank samples were delivered to the appropriate laboratories for analyses of physical parameters of sediments (grain size and total organic carbon [TOC]), organic and inorganic chemistry parameters (polycyclic aromatic hydrocarbons [PAHs], polychlorinated bipheynyl [PCB] congeners/pesticides, pentachlorophenol, metals), toxicity, and bioaccumulation. The New Bedford Harbor Sampling and Analysis Plan (SAP) (Battelle, 2005a) details the methods employed for field activities and laboratory analyses. Results of field sampling activities are documented in the New Bedford Harbor Field Survey Report (Battelle, 2005b). This document reports analytical results for sediment, water, elutriate and tissue samples, rinsate blanks, and toxicological analyses.

Field Collections— TG&B Marine Services (TG&B) performed all sediment and water collections under the supervision of a Battelle Chief Scientist/Sedimentologist.

Physical and Chemical Analyses—Grain size (GS) and TOC analyses of sediment cores, composites, and grabs were performed by Applied Marine Sciences (AMS) of League City, TX. Elutriates and toxicity studies were performed by EnviroSystems Inc (ESI) of Hampton, NH. Chemical analyses including PAH, PCB congeners/pesticides, and metals for sediment, rinsate blank, and elutriate samples were performed by Battelle. Chemical analysis for pentachlorophenol in rinsate blanks, site waters, and elutriates was conducted by Katahdin Analytical Services of Westbrook, ME.

1.3 Organization of this Report

This report presents results from sediment, water, elutriate, and toxicity testing. Following this introduction, the materials and methods used in support of this study are presented in Section 2. Results of physical and chemical analyses for the sediment, water, elutriate, and toxicity samples are discussed in Section 3. Section 4 lists the literature cited in this report. Appendix A contains the results of grain size and TOC for sediment samples; Appendix B contains sample and QC results from sediment chemistry tests; Appendices C through F contain sample and QC results from chemistry tests for rinsate blanks, reference site waters, and elutriate samples as well as QA narratives and chain of custody records;

Appendices G through K contain results from the toxicity testing; Appendix L contains Battelle's chain of custody records.

2.0 MATERIALS AND METHODS

2.1 Sample Collection/Processing

On July 25-30, 2005, one or multiple sediment cores and water column samples were collected at each of the 37 locations within the 30-foot federal navigation channel, anchorage, and maneuvering areas. Sediment cores and waters were also collected from three additional locations in the 15 and 10-foot deep channels, which run on the East (Fairhaven) side of the Lower Harbor. The sediment cores were taken to project depth plus a two foot allowable overdepth. The number of cores at each location was based on a minimum sediment volume of 24 gallons per composite and was dependent on the number of stations per composite as well as the project depth and water depth at each location. Each station in a composite contributed approximately equal volumes of sediment. In addition, sediment grab and site water samples were collected at the BBDS and RISDS reference locations. The samples were transported to Battelle, Duxbury where the sediment core samples were combined into designated composite samples. A series of subsamples were taken from each of the sediment composites for physical and chemical analyses. The subsamples from composites, together with reference site sediment grab, site waters and rinsate blank samples were delivered to the appropriate laboratories for elutriate preparation, and physical, chemical, and biological analyses.

Chains-of-custody (COCs) for the collected sediment core and grab samples as well as site water samples were originally generated in the field. After the samples were delivered to Battelle, the field staff performed sediment compositing and prepared COCs for the sediment composites to be delivered to appropriate laboratories for elutriate preparation and various analyses. COCs of elutriate samples were generated by ESI where the elutriate preparation was performed.

The complete details of the survey operations are provided in the New Bedford Harbor Survey Report (Battelle 2005b). Sampling locations are shown in Figures 2-1 and 2-2. Details on the core and sediment processing methods and elutriate preparation procedures can be found in the New Bedford Harbor SAP (Battelle 2005a).

2.1.1 Sediment Core Collections

Sediment core samples were collected in accordance with the New Bedford Harbor SAP (Battelle 2005a).

One or multiple sediment cores were collected at each of the 40 stations (Figures 2-1 and 2-2) in New Bedford Harbor using an aluminum core barrel and a TG&B custom vibracoring device or a push corer, depending on sediment type. The cores were captured in pre-rinsed polycarbonate (Lexan™) liners that were inserted in the aluminum core tube. During the field effort, cores from each location were removed from the liners in the field and placed in labeled (station, core depth, sample ID, and date), pre-cleaned high-density polyethylene pails prior to transportation to Battelle Duxbury for compositing/aliquotting. All sediments were kept chilled on ice while aboard the vessel. Upon arrival at Battelle, samples were placed in a secure, continuously monitored cold room which was maintained at $4^{o}C \pm 2^{o}C$. Three of the stations (Stations 1, 2, and 3) had not been previously sampled. Therefore, in addition to the sediment cores for compositing and subsampling, an intact core was retained for each of the three stations for visual geologic characterization and individual physical testing. Additional details concerning compositing/aliquotting are provided in Section 2.1.5.

2.1.2 Reference Sediment Grab Collections

Grab samples were collected at the BBDS and RISDS reference locations using a Kynar coated 0.1-m^2 Van Veen grab sampler. Sufficient material was collected for grain size, TOC, sediment chemistry, and biological testing. Each grab was inspected for acceptability. Once the grab was deemed acceptable, the

sediment was transferred to labeled (station, core depth, sample ID, and date), pre-cleaned high-density polyethylene 3.5-gallon buckets for storage and transportation. A total of 24 gallons of sediment was collected at each of the two sites.

2.1.3 Water Sampling

Site water was collected for preparation of elutriates for chemical analyses and suspended particulate phase (SPP) for the 96-hour SPP toxicity testing. In addition, water was collected at the two reference locations for use as a control and dilution water in the 96-hour SPP toxicity tests and for chemical analyses.

Fifteen gallons of water (3, 5-gallon cubitainers), a sufficient volume to complete all chemical and biological testing, was collected from pre-designated locations representing a composite of several sediment stations (i.e. a central point between all stations in the composite, see Note in Table 2-1). Water was pumped using a submersible pump with Teflon seals and Tygon tubing directly into 5-gallon cubitainers. Prior to collection, the cubitainers were rinsed thoroughly with site water. At each location, an equal volume of water was collected from three depths: top, middle, and 3-feet from bottom of the water column. If water depths were less than 15 feet at the time of sampling, water was collected at mid-depth. Water from the BBDS and RISDS reference locations was collected from the mid-depth or the maximum depth allowed by the pump length. Site water was not analyzed directly, rather it was used to prepare elutriates which were then chemically analyzed in triplicate for PCB/pesticides, pentachlorophenol, and metals. Water collected from the two reference locations was analyzed directly for PCB/pesticides, pentachlorophenol, and metals.

2.1.4 Rinsate Blank Sampling

Individual rinsate blanks were collected in the field from the sediment grab, vibracorer, and water pump. The three rinsate blank samples were stored at 4°C ±2°C. Rinsate blanks were analyzed for both organic compounds (PAHs, PCB/pesticides, pentachlorophenol) and metals. Additional details regarding collection of rinsate blanks are provided in the New Bedford Harbor SAP (Battelle 2005a).

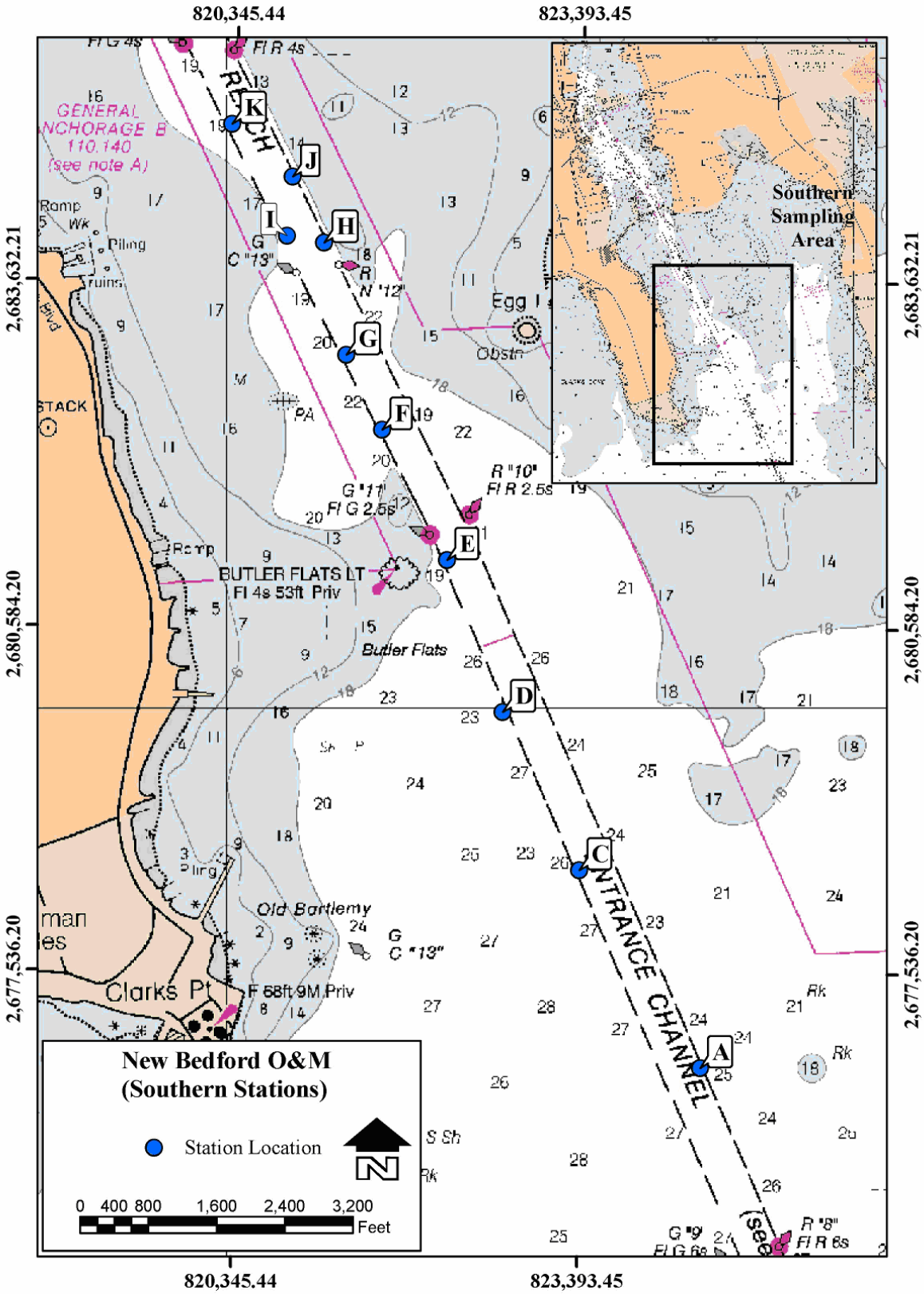

Figure 2-1. New Bedford Harbor Southern Sampling Locations.

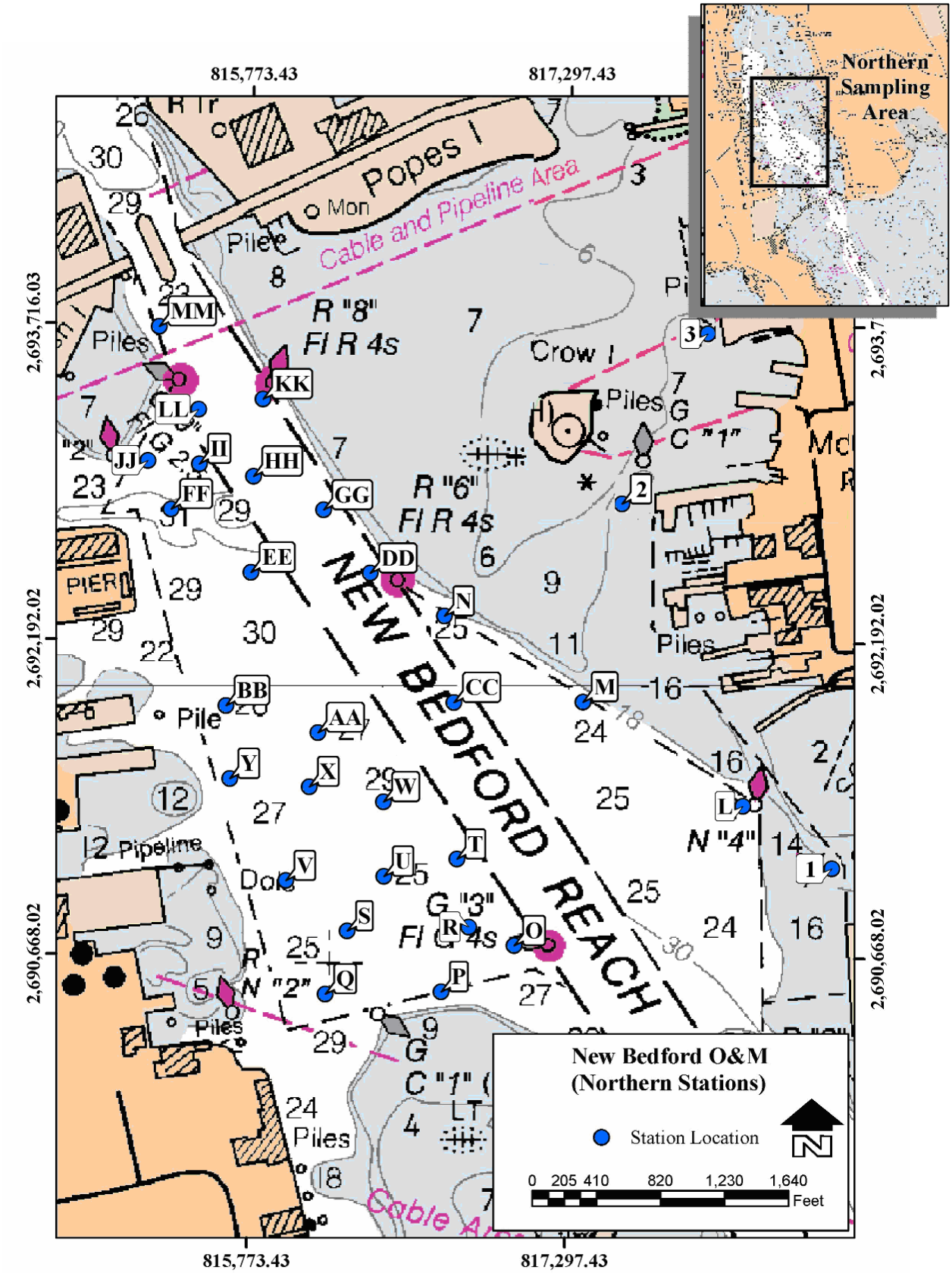

Figure 2-2. New Bedford Harbor Northern Sampling Locations.

2.1.5 Core Processing and Subsampling

Details on the core and sediment processing methods can be found in the SAP (Battelle 2005a).

Sediments for chemical analyses, elutriate/SPP preparation, and solid phase toxicity testing were composited and homogenized at Battelle according to the compositing scheme presented in Table 2-1. Sediments were composited in 30-gallon polyethylene drum liners and homogenized using a coated electric mixer.

Composited sediments and site water were shipped to ESI by vehicle by Battelle personnel for elutriate/SPP preparation. All of the 3.5-gallon buckets were filled around three-quarters full, leaving some room for expansion. Lids were sealed completely to avoid leakage. All buckets (for sediments) and cubitainers (for water) were shipped in coolers with ice.

Aliquot splitting of sediment composites for physical and chemical analyses were conducted at Battelle, Duxbury. Pre-cleaned sample containers were provided for sub-sampling of sediment composites for grain size, TOC, PAH, PCB/pesticide, and metal analyses.

In addition to sediment compositing and subsampling for biological, physical, and chemical analyses, individual cores were collected and kept intact at Stations 1, 2, and 3 (from the 10 and 15-foot channels). These cores were returned to Battelle for visual characterization. At Battelle, the cores were cut longitudinally using electric tin snips. They were generally characterized from top to bottom in terms of sediment type (silt, sand, and clay), color, odor, and horizons. A subsample of the target material was taken from each individual core representing each station for laboratory grain size analysis at AMS.

2.1.6 Elutriate Preparation

An elutriate phase of these sediment composites was prepared at ESI no later than 14 days after the field sediment/water collection for chemical analyses of PCBs/pesticides and metals. The elutriate samples were prepared by placing one volume of test sediment and four volumes of site water from the appropriate site in an 8-gallon glass container and mixing vigorously with a magnetic stir bar. Additionally, the sediment/water mixture was hand stirred at approximately 10-minute intervals during the mixing period. At the end of the 30-minute period, the sediment/water mixture was allowed to settle for 1 hour and the elutriate was siphoned off for testing. Elutriate samples were centrifuged, prepared in triplicate for each chemical analysis (PCB/pesticides, pentachlorophenol, and metals), and then shipped directly to the appropriate laboratories. In addition, elutriate blanks were prepared using only site water following the procedures described above. Elutriate blanks were also prepared in triplicate and shipped directly to the appropriate laboratories.

Table 2-1. Cross-reference for Station ID, Individual Sample ID, and Composite ID.

Individual Sample ID	Station ID	Composite ID
EAG-035	A	EAG-1001
EAG-036	C[1]	
EAG-037	D	
EAG-038	E	
EAG-039	F	EAG-1002
EAG-040	G[1]	
EAG-024	K	
EAG-023	I	
EAG-021	H[1]	EAG-1003
EAG-022	J	
EAG-028	L	EAG-1004
EAG-029	M[1]	
EAG-030	N	
EAG-008	BB	EAG1005
EAG-009	AA	
EAG-010	Y	
EAG-011	X	
EAG-012	U[1]	
EAG-013	W	
EAG-014	T	
EAG-015	P	
EAG-016	Q	
EAG-017	S	
EAG-018	O	
EAG-019	R	
EAG-020	V	
EAG-001	CC	EAG-1006
EAG-002	DD	
EAG-003	GG	
EAG-004	HH[1]	
EAG-005	LL	
EAG-006	MM	
EAG-007	KK	
EAG-031	EE	EAG-1007
EAG-032	II	
EAG-033	JJ	
EAG-034	FF[1]	
EAG-025	3	EAG-1010
EAG-026	2[1]	
EAG-027	1	
EAG-050 EAG-051(water)	RISDS	EAG-1009
EAG-055 EAG-056 (water)	BBDS	EAG-1008
EAG-052	Grab Rinsate	NA
EAG-053	Core Rinsate	NA
EAG-054	Pump Rinsate	NA

[1] Stations where site water samples were collected to correspond to sediment composite.
NA – not applicable

2.2 Physical and Chemical Testing

This section summarizes the methods used for the physical and chemical testing of sediments, rinsate blanks, site water, and elutriate samples. Physical testing of sediment samples included grain size and percent moisture measurements; chemical testing of sediment samples included TOC, PCB/chlorinated pesticide, PAHs, and metals analyses; rinsate blank samples were tested for PCB/pesticides, PAHs, pentachlorophenol, and metals; and site water and elutriate samples were analyzed for PCB/pesticides, pentachlorophenol, and metals.

Laboratory quality assurance plans that detailed the specifics of the analytical requirements were developed for each laboratory. The complete list of target analytes and detection limits for the sediment and water/elutriate samples is provided in Table 2-2. A routine set of quality control (QC) samples was prepared with each set of samples, by parameter and media, to monitor data quality in terms of accuracy and precision. The frequency and type of QC samples, and QC acceptance criteria, are discussed in Section 2.4.

2.2.1 Grain Size and TOC

The eight sediment composite samples (EAG-1001 through EAG-1007, and EAG-1010) from New Bedford Harbor, the two sediment grab samples from reference locations (EAG-1008 and EAG-1009), as well as the three individual samples from Stations 1, 2, and 3 were analyzed for the full grain size distribution and TOC. Grain size was measured according to ASTM D422 for gravel, sand, silt and clay, using sieve and hydrometer. Visual classification (ASTM D2487) and water content were also performed and results were reported on a dry-weight basis. TOC was measured according to U.S. EPA Method 9060. Results for TOC were also reported on a dry-weight basis.

2.2.2 Organic Contaminants

2.2.2.1 Organic Contaminants in Sediments

The eight sediment composite samples from New Bedford Harbor and two sediment grab samples from BBDS and RISDS reference locations were extracted for PAHs, PCB congeners, and chlorinated pesticides following Battelle SOP 5-192. Briefly, approximately 30 grams of wet sediment were fortified with a set of surrogate internal standards (SIS) and extracted three times with methylene chloride using shaker techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated to approximately 1 mL, and cleaned using alumina column, activated copper, and HPLC. The post-HPLC extract was concentrated to approximately 1 mL and fortified with a set of recovery internal standards (RIS). Extracts were then qualitatively split 50:50, and one-half was exchanged into hexane for PCB and chlorinated pesticide analysis by gas chromatography/electron capture detection (GC/ECD) (Battelle SOP 5-128). Extracts for PAH analyses were analyzed directly using gas chromatography/mass spectrometry (GC/MS) in the selected ion mode (Battelle SOP 5-157). All target compounds were quantified by the method of internal standards using RIS and results were reported in µg/kg dry weight. The list of target analytes and target detection limits is presented in Table 2-2.

Table 2-2. Parameters and Target Detection Limits.

Parameter	Sediment	Water	Tissue	Parameter	Sediment	Water	Tissue
Polycyclic Aromatic Hydrocarbons	**µg/kg DW (ppb)**	**µg/L**	**µg/kg WW (ppb)**	***Chlorinated Pesticides***	**µg/kg DW (ppb)**	**µg/L**	**µg/kg WW (ppb)**
Naphthalene	10	NA	20	4,4'-DDD	1	NA	1
Acenaphthylene	10	NA	20	4,4'-DDE	1	NA	1
Acenaphthene	10	NA	20	4,4'-DDT	1	0.03	1
Fluorene	10	NA	20	aldrin	1	0.26	1
Anthracene	10	NA	20	a-chlordane (cis-chlordane)	1	0.02	1
Phenanthrene	10	NA	20	g-chlordane (trans-chlordane)	1	0.02	1
Fluoranthene	10	NA	20	lindane	1	0.26	1
Pyrene	10	NA	20	cis-nonachlor	1	NA	1
Benzo(a)anthracene	10	NA	20	trans-nonachlor	1	NA	1
Chrysene	10	NA	20	oxychlordane	1	NA	1
Benzo(b)fluoranthene	10	NA	20	dieldrin	1	0.14	1
Benzo(k)fluoranthene	10	NA	20	endosulfan I (alpha-endosulfan)	1	0.007	1
Benzo(a)pyrene	10	NA	20	endosulfan II (beta-endosulfan)	1	0.007	1
Indeno(1,2,3-cd)pyrene	10	NA	20	endrin	1	0.007	1
Dibenz(a,h)anthracene	10	NA	20	heptachlor	1	0.01	1
Benzo(g,h,i)perylene	10	NA	20	heptachlor epoxide	1	0.01	1
				hexachlorobenzene	1	NA	1
				methoxychlor	1	NA	1
Pentachlorophenol	NA	2.6	NA	Toxaphene	25	0.04	50
				chloropyrifos	NA	0.002	NA
Polychlorinated Biphenyls	**µg/kg DW (ppb)**	**µg/L**	**µg/kg WW (ppb)**	***Metals***	**mg/kg DW (ppm)**	**µg/L**	**mg/kg WW (ppm)**
Cl2(8)	1	0.006	0.5	Arsenic	0.4	1	0.5
Cl3(18)	1	0.006	0.5	Cadmium	0.07	1	0.1
Cl3(28)	1	0.006	0.5	Chromium	0.5	1	1.0
Cl4(44)	1	0.006	0.5	Copper	0.5	0.6	1.0
Cl4(49)	1	0.006	NA	Lead	0.5	1	1.0
Cl4(52)	1	0.006	0.5	Mercury	0.02	0.4	0.02
Cl4(66)	1	0.006	0.5	Nickel	0.5	1	1.0
Cl5(87)	1	0.006	NA	Selenium	NA	1	NA
Cl5(101)	1	0.006	0.5	Silver	NA	0.5	NA
Cl5(105)	1	0.006	0.5	Zinc	1.0	1	1.0
Cl5(118)	1	0.006	0.5				
Cl6(128)	1	0.006	0.5				
Cl6(138)	1	0.006	0.5	***Ancillary Parameters***	**%**		**%**
Cl6(153)	1	0.006	0.5	TOC	0.1	NA	NA
Cl7(170)	1	0.006	0.5	Grain Size		NA	NA
Cl7(180)	1	0.006	0.5	Percent Moisture	1.0	NA	NA
Cl7(183)	1	0.006	NA	Total Water Content	NA	NA	0.1%
Cl7(184)	1	0.006	NA	Total Lipids	NA	NA	0.1%
Cl7(187)	1	0.006	0.5				
Cl8(195)	1	0.006	0.5				
Cl9(206)	1	0.006	0.5				
Cl10(209)	1	0.006	0.5				

NA = Not applicable
DW = Dry Weight, WW = Wet Weight

2.2.2.2 Organic Contaminants in Elutriate and Rinsate Blank Samples

Elutriate, elutriate blank, and site water samples were extracted for PCB congeners and chlorinated pesticides following Battelle SOP 5-200. The three rinsate blank samples were extracted for PCB congeners, chlorinated pesticides and PAHs, also following Battelle SOP 5-200. Briefly, approximately 1-L of each water sample was fortified with a set of SIS, and extracted three times with methylene chloride using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated to approximately 1-mL, and cleaned[1] using alumina column chromatography, activated copper, and HPLC. The post-HPLC extract was concentrated to approximately 1-mL, fortified with a set of RIS, solvent exchanged into hexane, and analyzed directly by GC/ECD for PCB and chlorinated pesticides (Battelle SOP 5-128). Rinsate blank extracts were also analyzed for PAHs using GC/MS in the selected ion mode (Battelle SOP 5-157)[1]. All target compounds were quantified by the method of internal standards using RIS and results were reported in ng/L. The list of target analytes and detection limits is presented in Table 2-2. Note that the units used to present the target detection limits for PAHs, PCBs, and pesticides in Table 2-2 are µg/L, however, results for these analyses in Appendices D and E are reported in ng/L.

Elutriate, elutriate blank, and site water samples were also extracted for pentachlorophenol following Katahdin Analytical SOP CA-502. Approximately 1-L of each water sample was acidified to a pH of < 2, fortified with surrogate, and extracted with approximately 300 mL of methylene chloride using continuous liquid-liquid techniques. The resulting extract was dried over anhydrous sodium sulfate and concentrated to 1-mL. The extracts were then analyzed by GC/MS SIM following Katahdin Analytical SOP CA-213. All target compounds were quantified by SW846 8270 method of internal standards and results were reported in µg/L. The detection limit of pentachlorophenol is provided in Table 2-2.

2.2.3 Metals

2.2.3.1 Metals in Sediments

The ten sediment composite samples were analyzed for eight metals: arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), and zinc (Zn). Samples were freeze-dried and homogenized using a ball-mill prior to digestion according to Battelle SOP MSL-C-003, *Percent Dry Weight and Homogenizing Dry Sediment, Soil and Tissue*. Sediment samples were digested in accordance with Battelle SOP MSL-I-006, *Mixed Acid Sediment Digestion*. An approximately 200-mg (dry weight) aliquot of each sample was combined with nitric and hydrochloric acids (aqua regia) in a Teflon bomb and heated in an oven at 130±10ºC for a minimum of eight hours. After heating and cooling, deionized water was added to the sediment digestate to achieve analysis volume. Digestates were submitted for analysis by three methods:

1) Digested samples were analyzed for Hg using cold-vapor atomic absorption spectroscopy (CVAA) according to Battelle SOP MSL-I-016, *Total Mercury in Tissues and Sediments by Cold Vapor Atomic Absorption*. This procedure is based on modification of U.S. EPA Method 245.5

2) Digested samples were analyzed for As and Cd using inductively coupled plasma-mass spectrometry (ICP-MS) according to Battelle SOP MSL-I-022, *Determination of Elements in Aqueous and Digestate Samples by ICP/MS*. The base methods for this procedure are U.S. EPA Method 1638 and U.S. EPA Method 6020 with adaptations for the analysis of trace level metals in digested sediment and tissue samples.

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[1] Rinsate blanks do not receive cleanup (alumina, activated copper, or HPLC). After fortification with RIS, rinsate blank extracts are qualitatively split 50:50. One-half is solvent exchanged into hexane and analyzed for PCB and chlorinated pesticides using GC/ECD. The other half is analyzed directly for PAHs using GC/MS.

3) Digested samples were analyzed for all other metals using inductively coupled plasma optical emissions spectroscopy (ICP-OES) according to Battelle SOP MSL-I-033, *Determination of Elements in Aqueous and Digestate Samples by ICP-OES*. This procedure is based on two methods modified and adapted for analysis of low level samples: U.S. EPA Method 6010B and 200.7.

The sediment sample results for metals were reported in µg/g. The list of target analytes and detection limits is presented in Table 2-2.

2.2.3.2 Metals in Rinsate Blank Samples

The three equipment rinsate blanks were analyzed for ten metals: silver (Ag), arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), selenium (Se), and zinc (Zn). The samples were submitted for the analyses by two methods:

1) Samples were analyzed for Total Hg by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP MSL-I-013, *Total Mercury in Aqueous Samples by CVAF*, which is based on U.S. EPA Method 1631 Revision E.

2) Samples were analyzed for all other metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP MSL-I-022*, Determination of Elements in Aqueous and Digestate Samples by ICP/MS.* Samples were acid-solubilized prior to analysis by ICP-MS in accordance with the total recoverable metals (TRM) method in Battelle SOP MSL-I-022. The analysis guidelines for this procedure are adapted from U.S. EPA Method 1638 - *Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry*. The TRM methodology is adapted from U.S. EPA Method 1640 - *Determination of Trace Elements in Ambient Waters by On-Line Chelation Preconcentration and Inductively Coupled Plasma-Mass Spectrometry*.

All results for the samples were reported in µg/L. The list of target analytes and detection limits is presented in Table 2-2.

2.2.3.3 Metals in Elutriate and Site Water Samples

Seawater samples including elutriates and site waters were analyzed for ten metals: Arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn), silver (Ag), selenium (Se), and mercury (Hg). Samples were submitted for analyses by five methods:

1) All samples were analyzed for Hg by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP MSL-I-013, *Total Mercury in Aqueous Samples by CVAF*, following U.S. EPA Method 1631 revision E.

2) Samples were analyzed for As and Se using hydride generation flow injection atomic absorption spectroscopy (FIAS) according to Battelle SOP MSL-I-030 *Determination of Metals in Aqueous and Digestate Samples by HGAA-FIAS.* This method was adopted from U.S. EPA Method 206.3 for As and 270.3 for Se. A matrix interference for Se in the elutriate samples resulted in low matrix spike recoveries using the standard preparation method. Therefore, the preparation method was altered to convert all species of selenium to Se^{+4}. Changes to the method included the addition of potassium persulfate and then heating for 30 minutes at 90°C prior to refluxing with HCl.

3) All samples were preconcentrated for Cd, Cr, Cu, Ni, Pb, Zn, and Ag prior to analysis in accordance with Battelle SOP MSL-I-025*, Methods of Sample Preconcentration: Iron (Fe) and Palladium (Pd)/APDC Coprecipitation and Borohydride Reductive Precipitation for Trace Metals Analysis in Water.*

4) Preconcentrated seawater samples were analyzed for Cd, Cr, Cu, Ni, Pb, and Zn by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP MSL-I-022, *Determination of Elements in Aqueous and Digestate Samples by ICP/MS.* The base methods for this procedure are U.S. EPA Method 1638 and U.S. EPA Method 1640.

5) Preconcentrated seawater samples were analyzed for Ag by graphite furnace atomic absorption (GFAA) following Battelle SOP MSL-I-029, *Determination of Metals in Aqueous and Digestate Samples by GFAA*, based on U.S. EPA Method 200.9.

Results are reported in units of µg/L for each sample. The list of target analytes and detection limits is presented in Table 2-2.

2.3 Bioassay Testing

As part of a comprehensive plan to reduce adverse environmental impacts of ocean dumping, Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 specifies that all sediments to be discharged into ocean waters must be evaluated to define their potential impact on existing benthic communities. U.S. EPA has determined that the most effective means to make such an assessment is through the use of bioassay tests which provide a relatively direct estimate of potential impact.

Laboratory testing for New Bedford Harbor involved acute suspended particulate phase (SPP) tests using the mysid shrimp (*Americamysis bahia*) inland silverside (*Menidia beryllina*) and larvae of the sea urchin (*Arbacia punctulata)*. Additionally, acute 10-day benthic bioassay tests were conducted using mysid shrimp (*Americamysis bahia)* and the amphipod *Ampelisca abdita*. Finally, 28-day bioaccumulation studies investigated impacts of the solid phase of the proposed dredge material on the polychaete worm (*Nereis virens*) and the bivalve clam (*Macoma nasuta).*

All testing followed procedures established by the U.S. EPA and USACE for testing of dredged material. Procedures are presented in *Guidance for Performing Tests on Dredged Material to be Disposed of in Open Waters* (U.S. EPA/USACE 2004), *Evaluation of Dredged Material Proposed for Ocean Disposal* (U.S. EPA/USACE 1991) and *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual* (U.S. EPA/USACE 1998). Toxicity testing and supporting analytical chemistry were conducted at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

2.3.1 Suspended Particulate Phase (SPP) Acute Toxicity Tests

Water column effects of open-water dredged material disposal were evaluated by exposing three species of water column organisms to the SPP of selected sediment composites. The test organisms included a vertebrate (*M. beryllina*), a crustacean (*A. bahia*), and zooplankton (*A. punctulata*), as required by the *Green Book* and the *Regional Guidance Manual*. Reference water was collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) reference sites. Table 2-3 lists all test conditions.

Table 2-3. Suspended Particulate Phase Acute Test Conditions.

Parameter	*Mysid (M. bahia)*	*Menidia menidia*	*A. punctulata*
Treatments (SPP prepared from sediment composites)	7 New Bedford Harbor Composites BBDS & RISDS Reference Sites	7 New Bedford Harbor Composites BBDS & RISDS Reference Sites	7 New Bedford Harbor Composites BBDS & RISDS Reference Sites
Replicates	5	5	5
Test population	1-5 days old	7-10 day with 24 hours variation	2 hours after fertilization
Temperature	Mean of 20 ± 1°C Maximum Deviation of 3°C	Mean of 20 ± 1°C Maximum Deviation of 3°C	Mean of 20 ± 1°C Maximum Deviation of 3°C
Dissolved Oxygen	40% Saturation	40% Saturation	NA
pH	NA	NA	NA
Salinity	25 – 30 ‰ ±10%	25 – 30 ‰ ±10%	30-32‰
Ammonia	NA	NA	NA
Feeding	Daily, <24 hour old *Artemia nauplii*	Daily, <24 hour old *Artemia nauplii*	None
Reference Toxicant	Copper / Sodium Dodecyl Sulfate	Copper / Sodium Dodecyl Sulfate	Copper

2.3.1.1 Suspended Particulate Phase Sample Preparation

Sediment samples were collected between July 28 and 30, 2005. Prior to receipt at ESI, the samples were composited at Battelle based on the compositing scheme provided by USACE. The samples were received at ESI on August 1, 2005 in 2.5 gallon polyethylene buckets. Upon arrival at the laboratory, all samples received an internal sample control number, were logged into the project sample control system, and stored in a secure refrigerator at a temperature of 2-4°C until test initiation.

Water for the internal laboratory control was obtained from the Hampton Estuary, Hampton, New Hampshire. Water from this source has been used for culture and maintenance of test organisms at ESI since 1978. Seawater is obtained through a filter system located on the bottom of the estuary at a point approximately 1 mile from the open ocean. The estuary receives no direct industrial discharges and the water is classified as SA-1.

The SPP sample was prepared by placing one volume of test sediment and four volumes of overlying site water into a 30 liter glass container and mixing with a mechanical stir bar for 30 minutes. The sediment/water mixture was allowed to settle for one hour and the elutriate was siphoned off for biological and/or chemical evaluation. If a sample was sufficiently turbid to prevent clear observations of the test organisms, the sample was centrifuged at 3000 rpm for 15 minutes to remove excess suspended sediment levels.

Test concentrations were mixed by diluting the SPP sample with the diluent water collected from the RISDS and BBDS disposal sites. Test concentrations for all assays were 100% undiluted, 50%, 10% and 1% SPP. Diluent controls were included to verify the relative toxicity of the reference sites and a Hampton Estuary control was included to verify the relative health of the test organisms.

Due to the number of samples being evaluated, SPP assays were conducted in two series of assays. The first series of assays was started on August 3, 2005. The second series was started on August 4, 2005.

2.3.1.2 Test Organism Collection

A. bahia (3 to 5 days old) were obtained from cultures maintained by ESI. Prior to use, test organisms

were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. Organisms were transferred to test vessels using a large bore pipet to minimize the amount of water added to test solutions.

M. beryllina (10 days old) were obtained from Aquatic Research Organisms (ARO) in Hampton, New Hampshire. Prior to use, test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. Fish were transferred to the test beakers using a large bore pipet to minimize the amount of culture water added to the test solution. Twenty representative fish, measured at the start of the assay, were used to determine loading rates. The loading rate was determined to be <0.40 g/L, as suggested for acute assays (U.S. EPA 2002).

Adult *A. punctulata* were obtained from cultures maintained by ESI. Original stock was obtained from a commercial supply. Adult sea urchins are maintained in the laboratory for up to six months prior to use. Urchins may be spawned several times during this period. Male and female urchins were maintained in separate chambers at a temperature of approximately 20±3°C during culture.

2.3.1.3 Acute Toxicity Test: A. bahia and M. beryllina

The 96-hour static acute toxicity tests with *A. bahia* and *M. beryllina* were conducted at 20±2°C with a photoperiod of 16:8 hours light:dark. Test chambers were 250 mL glass beakers each containing 200 mL of test solution in each of 5 replicates with 10 organisms/replicate. Survival in all test replicates was recorded after 4, 8, 24, 48, 72, and 96 hours of exposure. Dissolved oxygen, pH, temperature, and salinity were measured daily in one replicate of each treatment. Both *A. bahia* and *M. beryllina* were fed daily throughout testing.

2.3.1.4 Embryo Development Test: A. punctulata

The *A. punctulata* embryo survival and development tests were conducted at 20±2°C with a photoperiod of 16:8 hours light:dark. Test chambers for the acute assay were 250 mL glass beakers containing 200 mL test solution in each of 5 replicates. Dissolved oxygen, pH, temperature, and salinity were measured in all replicates at the start and end of the test. Gametes were obtained by potassium chloride injection to induce spawning. They were collected dry and diluted with filtered laboratory seawater to yield a desired concentration of approximately 5×10^7 sperm/mL and 8,500 eggs/mL. Fertilization success was monitored 15 minutes later, and the density of embryos calculated. Based on embryo density counts, aliquots of the stock solution were added to each test vessel to achieve a final concentration of approximately 30 embryos/mL of SPP solution. Prior to transferring embryos from the holding vessel to the individual test vessels, the embryo stock solution was thoroughly homogenized to ensure even distribution. Embryo counts in three surrogate vessels were conducted just after the addition of the embryos to determine the actual embryo concentration in the final SPP solutions.

Observations in surrogate vessels were also used to determine the endpoint of the test. The test was terminated when 70% of the fertilized embryos in the control vessels had reached the pluteus larval stage (between 48 and 96 hours). The tests were terminated after approximately 72 hours. At the end of the assay, the test solution was gently homogenized to insure even distribution of the embryos and a 5 mL aliquot of each test replicate was removed and placed in a vial. The solution was preserved with 5µl of 10% buffered formalin solution and counted to determine survival and normal development. Survival percentages were calculated as surviving larvae in the 5 mL aliquot at 72 hours divided by the mean number of embryos counted in the laboratory control at the end of the assay.

2.3.1.5 Data Analysis

Statistical analysis of acute and chronic exposure data was completed using Comprehensive Environmental Toxicity Testing System (CETIS) software. This program computes acute exposure endpoints (LC and EC-50 values) plus Inhibition and No Effect Concentrations (NOEC) based on U.S. EPA decision tree guidelines specified in individual test methods. For NOEC endpoints, statistical significance was accepted at $\alpha < 0.05$.

2.3.1.6 Quality Control

As part of the laboratory quality control program, standard reference toxicant assays are conducted on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. Acute 96-hour copper reference toxicant tests were performed on August 4, 2005. Results were within two standard deviations of the historic mean of each species.

2.3.1.7 Protocol Deviations

Review of the data and procedures associated with these tests documented no deviations from established protocols.

2.3.2 Solid Phase Toxicity Tests

Two species of test organisms were used to evaluate the solid phase toxicity of New Bedford Harbor samples:

- *Americamysis bahia*, an epibenthic crustacean
- *Ampelisca abdita*, a tube-building amphipod

The acute exposure toxicity tests were conducted using 4-day old *A. bahia* obtained from ESI. *A.abdita* were provided by ARO of Hampton, New Hampshire. *A. abdita* received from ARO on August 20, 2005 were non-reproductive adults, between 0.71 and 1.18 mm in length. Prior to use, all test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assays. Table 2-4 lists all test conditions.

Table 2-4. 10-Day Solid Phase Bioassay Test Conditions.

Parameter	*A. abdita*	*A. bahia*
Treatments	7 New Bedford Harbor composites BBDS and RISDS Reference Site Control	7 New Bedford Harbor composites BBDS and RISDS Reference Site Control
Replicates	5	5
Test population	Juvenile -non reproductive adult	1-5 days old
Temperature	Mean of 20 ± 1°C Maximum Deviation of 3°C	Mean of 20 ± 1°C Maximum Deviation of 3°C
Dissolved Oxygen	40% Saturation	40% Saturation
pH	NA	NA
Salinity	25 – 30‰ ±10%	25 – 30‰ ±10%
Ammonia	Pore water unionized ammonia <0.4 mg/L	Overlying water unionized ammonia <0.6 mg/L
Feeding	None	Daily, <24 hour old *Artemia nauplii*
Reference Toxicant	Cadmium	Copper / Sodium Dodecyl Sulfate

2.3.2.1 Sediment Sample Preparation

Sediment samples for toxicological analysis were collected between July 28 and 30, 2005. The samples were received at ESI on August 1, 2005 in 2.5 gallon polyethylene buckets. Reference sediment was collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) on July 29 and 30, 2005, respectively. Prior to analyses, the samples were composited at Battelle based on the compositing scheme provided by USACE. Upon arrival at the laboratory, all samples received an internal sample control number, were logged into the project sample control system, placed in a secure refrigerator, and stored at a temperature of 2-4°C until test initiation.

Control sediment used in the *A. abdita* bioassay was provided by ARO of Hampton, New Hampshire. The control sediment used in the *A. bahia* bioassay was an artificial sediment consisting primarily of silica sand prepared at ESI. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 24°C until test initiation.

Project, reference, and control sediments were all sieved through a 2-mm mesh screen to remove macroinvertebrates, large shell hash, and rocks prior to use in the bioassays.

2.3.2.2 Amphipod and Mysid Solid-Phase Acute Toxicity Tests

Before mysids and amphipods were added to the test vessels, ammonia levels in the overlying water were determined. If the level of ammonia in the overlying water was >20 mg/L (or 0.4 mg/L as unionized ammonia), the sediments were "washed" to reduce ammonia levels. Sediment washing involved removing the overlying water in the test chamber and replacing it with fresh overlying water. In cases where the level of ammonia was <20 mg/L (or 0.4 mg/L as unionized ammonia), the sample was not "washed" prior to testing.

The *A. bahia* and *A. abdita* bioassays were conducted from August 5-14, 2005. The bioassays were both conducted in a static renewal mode. Test chambers were 1 liter beakers modified for static renewal testing, with each beaker containing approximately 4 cm of sediment and filled to the 1-liter mark with seawater. The test chambers were allowed to stabilize for a minimum of 24 hours, or until ammonia levels were within acceptable limits. For the *A. bahia* test, a total of 20 mysids were randomly selected from the pool of organisms and added to each treatment, reference, and control beaker. For the *A. abdita* test, a total of 20 amphipods were randomly selected from the pool of organisms and added to each treatment, reference, and control beaker. Five replicates were used for each treatment.

Each day during the test, chambers received approximately 50% renewal of seawater having similar salinity and temperature as the overlying water in the vessels. Water temperature was 20±2°C, and the salinity regimen was established at 30±2‰. The photoperiod for the *A. bahia* test was set at 16:8 hours light:dark; for the *A. abdita* test, it was set at 24:0 hours light:dark. Dissolved oxygen, pH, salinity, and temperature were measured in one replicate of each treatment daily and in all replicates on days 0 and 10. For the *A. bahia* test, ammonia levels were measured in the overlying water of a surrogate test chamber on days 0, 3, and 10. For the *A. abdita* test, ammonia levels were measured in pore water and overlying water in a surrogate test chamber on days 0, 5, and 10. Dissolved oxygen levels were maintained at 4.0 mg/L or greater, and aeration was initiated if values fell below this threshold. If aeration was required, it was applied to all test vessels. Water quality measurements were completed prior to water renewals. Test chambers were observed daily and any organisms found floating on the surface were noted on the data sheets. Dead animals were removed from the test chambers and live animals were counter sunk. After 10 days of exposure, the organisms were recovered from the sediments.

2.3.2.3 Statistical Analysis

Survival data were analyzed using CETIS® software to determine significant differences between the project sediments and reference sites. Statistical comparisons for each sample were made against each reference site. Survival data were evaluated to determine homogeneity of sample variances and normality of distribution using appropriate statistics. Data sets were subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Pair-wise comparisons were based on the appropriate statistical analysis. Statistical difference was evaluated at $\alpha = 0.05$.

2.3.2.4 Quality Control

As part of the laboratory quality control program, standard reference toxicant bioassays were conducted for each test species on August 5, 2005. These results provided relative health and response data while allowing for comparison with historic data sets. Copper was used as a reference toxicant for *A. bahia*; cadmium was used for *A. abdita*. Survival results were within the acceptable range for each species.

2.3.2.5 Protocol Deviations

Review of the data collected for these bioassays documented no protocol deviations.

2.3.3 Bioaccumulation Tests

Two species of test organisms were used to evaluate bioaccumulation of the New Bedford Harbor sediments:

- *Nereis virens*, a burrowing polychaete
- *Macoma nasuta*, the bentnose clam

Adult *N. virens* were obtained from the Maine Bait Company, Newcastle, Maine. *M. nasuta* (15-40 mm in total length), were obtained from ARO in Hampton, New Hampshire. Both species were collected in the field and shipped to ESI via overnight delivery. Worms were placed in control sediment and flowing seawater and monitored for at least 24 hours prior to use. Bivalves were placed in Hampton Estuary sediment with flowing seawater and monitored for at least 24 hours prior to use. Damaged and inactive bivalves and worms were discarded. Table 2-5 lists all test conditions.

Table 2-5. Bioaccumulation Test Conditions

Parameter	*M. nasuta*	*N. virens*
Treatments	7 New Bedford Harbor composites BBDS and RISDS Reference Site *M. nasuta* control	7 New Bedford Harbor composites BBDS and RISDS Reference Site *N. virens* control
Replicates	5	5
Test population	Adult clam	Adult Polychaete; 3-15 grams
Temperature	Mean of 15 ± 2°C Maximum Deviation of 3°C	Mean of 15 ± 2°C Maximum Deviation of 3°C
Dissolved Oxygen	40% Saturation	40% Saturation
pH	NA	NA
Salinity	25 – 30‰ ±10%	25 – 30‰ ±10%
Ammonia	NA	NA
Feeding	None	None
Reference Toxicant	NA	NA

2.3.3.1 Sediment Sample Preparation

Sediment samples were collected on July 27-29, 2005. Prior to analyses, the samples were composited based on the composting scheme developed by USACE and approved by the U.S. EPA. The samples were received at ESI on July 29 and August 1, 2005 in 2.5-gallon polyethylene buckets. Reference sediment samples were collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) on July 29 and 30, 2005. Upon arrival at the laboratory, all samples received an internal sample control number, were logged into the project sample control system, placed in a secure refrigerator, and stored at a temperature of 2-4°C until test initiation.

Sediment for the laboratory control treatment was collected from the Hampton Estuary, Hampton, New Hampshire. The area is not known to receive any direct industrial inputs and has been used as laboratory reference sediment in the testing of marine sediments for nearly 25 years. Overlying seawater was obtained from the Hampton Estuary. Water from the estuary has been used for the culture and maintenance of test organisms at ESI since 1978. Seawater is obtained through a filter system located on the bottom of the estuary at a point approximately 1 mile from the open ocean. The water is classified as SA-1.

2.3.3.2 Bioaccumulation Evaluation

The bioaccumulation assays were initiated on August 24, 2005 for *N. virens* and on September 14, 2005 for *M. nasuta*. Test chambers consisted of five replicates of 10-gallon aquaria for each bioassay. Approximately 5-7 cm of sediment (control, reference, or project site composite) was placed into the aquaria designed for flow-through testing. Approximately 6 gallons of overlying water was added to each aquarium. Water flow was adjusted to provide approximately 5 volume additions of water/day to each aquarium. Each aquarium was set so that incoming water mixed throughout the tank and did not stratify as a surface layer.

M. nasuta and *N. virens* were indiscriminately selected from the pool of organisms and randomly added to the aquaria. A total of 20 worms and 30 clams were added to each replicate; species were tested in separate test chambers. Temperature was maintained at 15±2°C. Salinity was maintained at 28 ±2‰. The photoperiod was set at 16:8 hours light:dark. Dissolved oxygen, pH, temperature, and salinity were measured daily in one replicate of each treatment. Dissolved oxygen levels were maintained at a minimum level of 5.0 mg/L by providing aeration to all tanks from the start of the assay. Organisms were not fed during the exposure period.

After 28 days of exposure, *M. nasuta* and *N. virens* were recovered from the test sediments and counted. Survival counts were used for statistical survival analysis. All living organisms were transferred to clean test vessels and maintained in flowing water for 24 hours to allow for removal of sediment from the animals' digestive tract. After the depuration period, organisms were transferred to plastic bags and frozen. Frozen tissue samples were transferred to ESI's analytical group for subsequent tissue analysis.

2.3.3.3 Data Analysis

Survival data were analyzed using CETIS® software to determine significant differences between the laboratory sediment and the reference site sediment. Survival data were evaluated to determine homogeneity of sample variances and normality of distribution using appropriate statistics. Data sets were subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Statistical difference was evaluated at $\alpha = 0.05$.

2.3.3.4 Protocol Deviations

Review of the toxicity testing procedures and associated data indicate no protocol deviations occurred during the bioassays. However, the initial *M.nasuta* bioassay was terminated after approximately 10 days due to excessive mortality. No cause was determined for this mortality and a new batch of clams was ordered. The bioassay was re-initiated on September 14, 2005 without incident.

2.4 Quality Assurance/Quality Control Procedures

All field and analytical activities used in the collection and analysis of sediments for physical and chemical testing followed approved SOPs or referenced approved agency methods, or are detailed in the SAP (Battelle 2005a).

2.4.1 Measurement Quality Objectives

Project specific measurement quality objectives (MQOs), against which all data from this project were evaluated, are shown in Table 2-6. Physical and chemical data were evaluated against the MQOs, and data reporting qualifiers (Table 2-7) were applied when the analytical MQOs were exceeded. MQOs are consistent with the USACE/EPA Regional Implementation Manual (RIM) (USACE/EPA 2004).

2.4.2 Chain of Custody

Sample custody forms accompanied all samples from the field to the laboratory and between laboratories. Copies of custody and laboratory receipt forms are provided in Appendices A through F and Appendix L.

2.4.3 Data Audits/QA Review

All data received internal verification and validation following established procedures at the laboratory where the data were generated. QA/QC narratives and QA/QC checklists as required by the RIM (U.S. EPA/USACE 2004) are provided with the sample data in Appendices A through F. These narratives include a discussion of the chemistry QC results; a description of MQO exceedances; and the impact, if any, the exceedances may have on the overall field sample data.

2.4.4 Protocol Deviations

2.4.4.1 Field Survey

There were no protocol deviations identified during the field survey.

2.4.4.2 Physical and Chemical Testing

Recovery of chloropyrifos in the sediment LCS and MS/MSD were initially found to be low. Review of the calibration indicated that the current method of calibration (quadratic fit, not forced through zero) underestimated the recovery of this compound. This is a result of the low response of chloropyrifos on the GC/ECD and the low concentration used to spike the LCS and MS/MSD samples. QC samples were re-quantified using the same quadratic fit but the origin was forced through zero. Recoveries using this method were very good and are reported on the associated data sheets (see Appendices B through F). Sample results were reviewed and no corresponding peaks were detected for chloropyrifos in any samples, therefore no additional quantitation using this method was required.

Table 2-6. Measurement Quality Objectives.

QC Parameter	Measure or Acceptance Criteria	Corrective Action
TOXICITY TESTING SPP	*Menidia menidia:* ≥90% control survival *Mysidopsis bahia*: ≥90% control survival *Arbacia punctulata*: ≥90% control survival	Re-run Test
10-Day Solid Phase Acute Testing	*A. abdita*: control ≥90%mean survival in control *A. bahia*: ≥90%mean survival in control	Re-run Test
Bioaccumulation	*M. nasuta* and *N. virens* bioaccumulation: Numbers of worms in 4-day screening test sediments not reduced versus control and organisms burrow into test sediments	Re-run Test
Reference Toxicity Tests (10-day and SPP)	≥90% mean survival in control (and within control chart limits)	Repeat entire test series
CHEMISTRY (Sediments, water)	Blank: <5×ssMDL (or <5×MDL for metals)	Reextract, reanalyze, and/or blank subtract; document corrective actions
Accuracy LCS	*Organics:* 50-120% R *Metals:* 75-125% R	Reextract, reanalyze, and/or document and justify; all corrective actions documented
MS/MSD	*Organics:* 50-120% R[b] *Metals:* 75-125% R[b]	As above
SRM	*Organics:* ≤30% PD [d] from target concentration plus the 95% confidence interval. *Metals:* Within 25% PD[c] from certified value.	As above
SIS	*Organics:* 30-150% R	As above
Precision	*Replicates:* *Organics*: MS/MSD: ≤30% RPD[b] between % recoveries *Organics:* Sample Duplicate: ≤30% RPD[c] between values *Metals*: ≤20% RPD	As above
GRAIN SIZE/TOC Precision	*Replicates:* TOC and Grain Size: RPD ≤ 25%	Re-analyze and document corrective action.

MDL: method detection limit; PD: percent difference; R: recovery; RPD: relative percent difference; LCS: laboratory control sample; MS/MSD: matrix spike/matrix spike duplicate; SRM: standard reference material; SIS: surrogate internal standard;
[a] Quality control samples are based on an analytical batch size of 20.
[b] Analyte concentration in MS must be >5× background concentration to be used for data quality assessment.
[c] For analytes detected at concentrations >10× MDL.
[d] PD determined using surrogate corrected data. PD only determined for certified analytes.

Table 2-7. Standard Data Reporting Qualifiers.

Data Qualifier	Definition
J	Analyte detected above method detection limit (MDL) but at a level less than the laboratory achieved reporting limit (RL)
E	Estimate, result > highest concentration level in the calibration.
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank (the qualifier is only applied to the affected field samples).
U	Not detected above laboratory achieved method detection limit (MDL): report the reporting limit (RL)
N	QC value outside the accuracy or precision criteria goal
n	QC value outside the accuracy or precision data quality objective, but meets contingency criteria.

3.0 RESULTS

This section summarizes the results obtained from physical, chemical, and biological testing of sediment and water/elutriate samples collected at New Bedford Harbor, Massachusetts.

Chemistry results for the sediment and water/elutriate samples were evaluated against the laboratory based method detection limits (MDL) and reporting limits (RL) such that:

- Organic contaminants and metals not-detected or detected at levels below the MDL[2] were reported as the RL and U flagged, and
- Organic contaminants and metals detected at levels above the MDL and below the RL were J flagged.

3.1 Sediment Chemistry

The eight sediment composite samples from New Bedford Harbor, two sediment grab samples from the reference locations, and three individual samples from Stations 1, 2, and 3 were analyzed for grain size distribution and TOC. The eight sediment composite samples and two sediment grab samples were also analyzed for PAHs, PCB congeners/chlorinated pesticides, and metals.

Grain size and TOC results are presented in Appendix A. Results from sediment chemical testing including PAH, PCB/pesticide, and metals analyses are provided in Appendix B. Results of QC samples, along with QA/QC narratives and QA/QC checklists for the physical and chemical testing of the sediment samples are also included in Appendices A and B.

3.1.1 Grain Size and TOC

Appendix A provides grain size and TOC results. The eight sediment composite samples (EAG-1001 through EAG-1007, and EAG-1010) collected from New Bedford Harbor consisted primarily of silt and clay, while the two sediment grab samples from reference locations (EAG-1008 and EAG-1009) were primarily sand. The individual cores from Stations 1 and 3 had more silt and clay than sand in the samples, and the individual core from Station 2 consisted mostly of sand. Percent TOC correlated well with percent fines for all sediment samples.

Results of duplicate analyses for grain size and TOC indicate that precision of these analyses is good.

3.1.2 PCB Congeners and Chlorinated Pesticides

PCB/pesticides data for the sediment samples are presented in Appendix B-1. PCBs were generally detected at moderate levels in the eight sediment composite samples collected from New Bedford Harbor. PCB concentrations in the samples from northern sampling locations (inner harbor, see Figure 2-2) were approximately 2 to 3 times higher than those from southern sampling locations (outer harbor, see Figure 2-1). As expected, the two sediment grab samples from the reference stations had only several PCB congeners detected at low concentration levels.

Chlorinated pesticides including 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, and hexachlorobenzene were detected at relatively low levels in all eight sediment composite samples collected from New Bedford Harbor. Concentrations of these positively-detected compounds were similar in the eight composite

[2] Sample-specific MDLs and RLs used for organic contaminant evaluations.

samples. The two sediment grab samples from the reference stations had several compounds detected at very low concentrations that were slightly above the sample-specific reporting limits.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that, in general, the quality of the data is acceptable.

3.1.3 PAHs

PAH data for the sediment samples are presented in Appendix B-2. In general, sediment composite samples collected from New Bedford southern sampling locations (outer harbor, see Figure 2-1) including samples EAG-1001, EAG-1002, and EAG-1003 demonstrated moderate contamination of PAHs. Composites collected from northern sampling locations (inner harbor, see Figure 2) including EAG-1004 through EAG-1007 and EAG-1010 contained relatively high concentrations of PAHs. As expected, low levels of PAHs were found in the sediment grab samples EAG-1008 and EAG-1009 from the two reference sites. In addition, both the composites and reference site samples appeared to be dominated by pyrogenic PAHs (high molecular weight PAHs), which represented more than 80% of the total PAH in all samples.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that no PAHs were detected in the procedural blank and that the analytical method was in control based on LCS recoveries. However, one surrogate (D-10 phenanthrene) was found to be affected by matrix interference (as indicated by the flag 'ME') and a number of PAHs were recovered outside of control limits in the MS/MSD. The low recoveries of the low molecular weight PAHs in the MS/MSD were most likely a combination of high PAH concentrations in the sample spiked and interferences from the presence of extremely high PCB concentrations in the native sample. Based on these results, it is possible that PAH results, especially the low molecular weight PAHs, may be biased low.

3.1.4 Metals

Metals data for the eight sediment composite and two sediment grab samples are presented in Appendix B-3. The eight target trace metals were detected at comparable concentrations across the eight composite samples collected in the New Bedford Harbor, with samples collected at northern sampling locations (inner harbor) generally demonstrating higher metals concentrations than those collected at the southern sampling locations (outer harbor). In addition, metals were generally present at higher concentrations in the harbor composite samples than in the sediment grab samples from the two reference stations.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that the quality of the metals data is acceptable.

3.2 Rinsate Blank Analytical Results

Individual rinsate blanks were collected from the sediment grab, vibracorer, and water pump. The sediment grab was used to collect grab samples from the two reference locations; the vibracorer was used to collect cores from the sampling locations in New Bedford Harbor; and the water pump was used to collect water samples from each of the representative sites for the preparation of elutriate and elutriate blank samples. Results of the three rinsate blanks from PAH, PCB/pesticide, pentachlorophenol, and metals analyses are included in Appendices C through F.

3.2.1 PCB Congeners and Chlorinated Pesticides

PCB/pesticides data for the three rinsate blank samples are presented in Appendix E-1.

Only *a*-chlordane and *g*-chlordane were detected at low concentrations in both the rinsate blanks from the sediment grab and vibracorer. Neither *a*-chlordane nor *g*-chlordane was detected in any of the composite sediment samples. Therefore, the detection of these two pesticide compounds in the rinsate blanks does not have any impact on the PCB/pesticide data of the sediment samples (see Appendix B-1 for sediment PCB/pesticide results). No compounds were detected in the rinsate blank sample from the water pump, and therefore the PCB/pesticide results in the associated site water and elutriate samples were not affected.

Results of quality control samples (blank and LCS) indicate that no compounds were detected in the procedural blank and all LCS recoveries were within control limits, indicating the quality of the data is acceptable.

3.2.2 PAHs

PAH data for the three rinsate blank samples are presented in Appendix D.

Naphthalene was detected above the RL in the rinsate blanks from the sediment grab and vibracorer. In addition, phenanthrene and fluoranthene were detected below the RL in the rinsate blank from the sediment grab, and phenanthrene was detected below the RL in the rinsate blank from the vibracorer. Naphthalene concentration in the rinsate blank from the vibracorer was at least 1000 times lower than those found in the composite samples, and therefore does not impact the sediment composite concentrations (see Appendix B-2 for sediment PAH results). The rinsate blank from the sediment grab had naphthalene concentration approximately 10 times lower than that detected in the sediment grab samples from the two reference locations (EAG-1008 and EAG-1009). Therefore, this does not impact sample results for naphthalene. Phenanthrene and fluoranthene concentrations in both rinsate blanks were 100 to 10,000 times lower than those in the sediment composite and grab samples, and therefore do not affect the sample results for these compounds.

Naphthalene was the only compound detected above the RL (58.62 ng/L) in the rinsate blanks from the water pump. Since the site water and elutriate samples associated with this rinsate blank were not analyzed for PAHs, the detection of naphthalene in the rinsate blank does not have any impact on the elutriate sample results.

Results of quality control samples (blank and LCS) indicate that no compounds were detected in the procedural blank and all LCS recoveries were within control limits indicating the quality of the data is acceptable.

3.2.3 Metals

Metal data for the three rinsate blank samples are presented in Appendix C-1.

Low levels of all metals with the exception of Ag were detected in the rinsate blank from the sediment grab. Cu, Hg, Ni, Pb, and Zn were detected in the rinsate blank from the sediment vibracorer at low concentrations. However, concentrations of the detected metals in the rinsate blank were at least 1000 times lower than those detected in the sediments and therefore do not have significant impacts on the sediment sample results (see Appendix B-3 for sediment metal results).

All metals, with the exception of Cd and Se, were detected at low levels in the rinsate blank from the water pump. Metals results for the elutriate, elutriate blank, and site water samples associated with this rinsate blank are presented in Appendix C-2 and discussed in Section 3.3.2. In the rinsate blank, concentrations of five metals (Ag, Cr, Cu, Hg, and Pb) were generally in the same order of magnitude as

those in the eight elutriate blanks and two site water samples from the reference locations. As a result, concentrations of these metals in the elutriate blank and site water samples may have been overestimated due to the potential cross-contamination from the water pump. Concentrations of As and Ni in the rinsate blank were more than 10 times lower than those in the elutriate blank and site water samples, and therefore results for As and Ni in these associated samples were not significantly affected. Metals concentrations in the elutriate samples were generally higher than those in the site water samples and corresponding elutriate blanks. Concentrations of As, Cr, Cu, Hg, Ni, Pb in the rinsate sample were more than 10 times lower than those in the elutriate samples. Therefore, results for these metals in the elutriate samples were not significantly impacted by the positive detection of them in the rinsate blank. Ag, however, was detected in the rinsate blank at a concentration level comparable to those in the elutriate samples, and therefore Ag results in the elutriate samples may have been overestimated. In addition, Zn concentration in the rinsate blank was approximately 10 times higher than those in the two site water samples, but similar to or lower than those in the elutriate and elutriate blank samples. As a result, Zn results in the site water, elutriate, and elutriate blank samples may have been overestimated due to the potential cross-contamination from the water pump. Cd and Se were both non-detect in the rinsate blank, and therefore no impact was expected on the results of these metals in the associated site water, elutriate, and elutriate blank samples.

Nevertheless, the potentially overestimated metal results in the site water, elutriate, and elutriate blank samples that are discussed above were all below the Federal Water Quality Criteria to be used to evaluate the compliance of the sediment disposal (see Table 5 in the RIM). In addition, it is possible that low levels of some of the metals may be found in the water used to prepare the rinsate blanks. Similar concentrations of Cu, Hg, Ni, Pb, and Zn were found in all of the blanks. Therefore, no corrective actions were taken with regard to these results, which were potentially affected by the cross-contamination from the water pump.

3.2.4 Pentachlorophenol

Pentachlorophenol data for the three rinsate blank samples are presented in Appendix F-1.

Pentachlorophenol was not detected in any of the three rinsate blanks from the sediment grab, vibracorer, and water pump, and therefore the elutriate and site water sample results were not impacted.

Results of quality control samples (blank and LCS) indicate that no compounds were detected in the procedural blank and all LCS recoveries were within control limits, indicating the quality of the data is acceptable. Although surrogate recoveries were below control limits in a number of samples, these samples were re-extracted and subsequent surrogate recoveries were acceptable; no pentachlorophenol was detected in the re-extracted samples.

3.3 Reference Site Water and Elutriate Chemistry

Two reference site waters were collected and analyzed in triplicate for all parameters. Elutriate samples were prepared in triplicate at ESI, resulting in three elutriate samples and three elutriate blank samples for each of the eight sediment composite samples from New Bedford Harbor. These elutriate and elutriate blank samples, along with the two site water samples from the two reference locations (RISDS and BBDS), were submitted to appropriate laboratories for analyses of PCB/pesticides, pentachlorophenol, and metals. Elutriate and site water data are included in Appendices C through F.

3.3.1 PCB Congeners and Chlorinated Pesticides

PCB congener and chlorinated pesticide results for the two site water samples are presented in Appendix E-1 and results for the eight elutriate and eight elutriate blank samples are presented in Appendix E-2. Note all samples were analyzed in triplicate.

No PCB and pesticide compounds were detected above the reporting limits in the eight elutriate blank and two site water samples. In the eight elutriate samples, pesticide compounds were all non-detect, probably due to low pesticide concentrations in the original sediment composition samples. Most of the target PCB congeners were detected in the eight elutriate samples at low to moderate concentration levels, and PCB concentrations in these elutriate samples roughly correlated with concentrations in the corresponding sediment composite samples.

Reference site waters were extracted along with the rinsate blanks. Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that the quality of the reference site data is acceptable, including recoveries of chloropyrifos.

Elutriates and elutriate blanks were extracted and analyzed in three separate analytical batches. No PCBs or pesticides were detected in any of the procedural blank, and recoveries of all compounds (except chloropyrifos in one batch) were within control limits. Precision, measured as relative standard deviation (RSD) between triplicate analyses of samples, was within control limits for all samples except for Sample Comp F-K because two of the three replicates had lower surrogate recoveries. Precision measured as relative percent difference (RPD) between MS/MSD recoveries were out of control for the first two batches (Batches 0291 and 0292) where the MS/MSDs were performed on elutriate samples with relatively high analyte concentrations compared to the amounts spiked, which resulted in variable spike recoveries. In the third batch (Batch 0293), an elutriate blank was spiked resulting in acceptable spike recoveries and acceptable spike recovery RPDs. As just mentioned, MS/MSD recoveries for the first two batches were generally very low, especially for PCBs where high concentrations were present in the spiked samples relative to the amount spiked. Pesticides were not generally detected in the elutriates and subsequent MD/MSD recoveries were generally good, with the exception of the MSD in the first and second batches (Batches 0291 and 0292) where recoveries of the pesticides were low reflecting lower surrogate recoveries (<40%). As discussed in Section 2.3.4.2, chloropyrifos recoveries were low in both the LCS and MS/MSD associated with the first batch. While no chloropyrifos was detected in samples from this batch, results are most likely biased low based on low LCS and MS/MSD recoveries.

3.3.2 Metals

Metals results for the eight elutriate, eight elutriate blank, and two site water samples are presented in Appendix C-2. Note all samples were analyzed in triplicate.

All of the target analytes were detected in all of the elutriate, elutriate blank, and site water samples with the exception of Ag which was non-detect in the Composite 8 blank and Se which was non-detect in most of the samples. The eight elutriate samples demonstrated similar concentrations for the ten target analytes. Results of the ten target metals were also comparable across the eight elutriate blank samples. Metals concentrations in the elutriate samples were generally higher than those in the corresponding elutriate blanks, with As and Cr having the largest concentration difference between the elutriate samples and elutriate blanks. Concentrations of As and Cr were 10 to 20 times higher in elutriates than in elutriate blanks. Zn, however, showed a reverse trend in most of the sample comparisons, with Zn concentrations in the elutriate samples lower than those in the corresponding elutriate blanks. In addition, the two site water samples had metals concentrations comparable to those in the eight elutriate blanks with the

exception of Pb and Zn, whose concentrations in the elutriate blanks were approximately five to ten times higher than those in the site water samples.

3.3.3 Pentachlorophenol

Pentachlorophenol results for the two site water samples are presented in Appendix F-1 and results for the eight elutriate and eight elutriate blank samples are presented in Appendix F-2. Note all samples were analyzed in triplicate.

Pentachlorophenol was only detected in BBDS Site Water C (one of the triplicates) and Composite 6 CC-KK-A (one of the triplicates) at 2 µg/L and 2.5 µg/L respectively. The compound was not detected in any other elutriate, elutriate blank, and site water samples above the project-specific reporting limit of 1 µg/L.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and triplicates) indicate that the quality of the data is acceptable. A number of samples, however, had surrogate recoveries outside of quality control limits. The surrogate that relates most closely to pentachlorophenol is 2,4,6-tribrtomophenol, and recoveries of this surrogate were generally within control limits. Because the samples were analyzed in triplicate and because there was limited additional water for re-extraction, generally if more than one replicate for a given composite had surrogate exceedances, only one replicate was re-extracted. In all cases, the re-extracted samples agreed with the original results. Precision and accuracy were also acceptable based on LCS, LCS duplicate, MS/MSD recoveries, and RPDs.

3.4 Suspended Phase Acute Toxicity Tests

Results of the SPP tests are summarized below and in detail in Appendix G.

3.4.1 *Americamysis bahia*

At the end of the 96-hour exposure period, *A. bahia* survival in the Hampton Estuary control treatment for the two series of assays was 98% and 94%. This met the minimum test acceptability criteria of 90% survival and was an indication that the test organisms were healthy and not stressed by handling. At the end of the 96-hour exposure periods, mean mysid survival in the BBDS diluent control was 98% and 100%; mean mysid survival in the RISDS diluent control was 100% for both assays. These results indicate that seawater from the disposal site used to dilute the suspended particulate phase solutions had no adverse impact on the outcome of the assays.

3.4.2 *Menidia beryllina*

At the end of the 96-hour exposure period, *M. beryllina* survival in the Hampton Estuary control treatment for the two series of assays was 92% for both. This met the minimum test acceptability criteria of 90% survival and was an indication that the test organisms were healthy and not stressed by handling. At the end of the 96-hour exposure period, mean minnow survival in the BBDS diluent control was 94% and 92%; mean minnow survival in the RISDS diluent control was 98% and 80%.

3.4.3 *Arbacia punctulata*

Counts made in the Hampton Estuary laboratory surrogate test vessels at the initiation of the *A. punctulata* assays indicate an average initial embryo concentration of 33.2 and 30.2 embryos/mL for the assays. The majority of the larvae (>70%) reached the pluteus larval stage approximately 72 hours after the start of the assays.

For the initial series of assays, counts in the Hampton Estuary control treatment showed 90.1% of the embryos survived after 72 hours with 88.7% of the surviving embryos showing normally developed

pluteus larvae. For the second series of assays, counts in the Hampton Estuary control treatment showed that 76.2% of the embryos survived after 72 hours with 75.6% of the original embryos being normally developed pluteus larvae. In both series of assays survival and development results meet minimum acceptability criteria of 70% embryo survival and 70% normal development.

Counts of the BBDS diluent controls show that an average of 64.9% and 97.0% of the embryos survived and that 64.8% and 97.0% of the original embryos developed into normal pluteus larvae for the two sets of assays. Counts of embryos in the RISDS diluent control for the single set of assays showed that an average of 82.1% of the embryos survived and that 81.5% of the original embryos developed into normal pluteus larvae. These results indicate that the water from the disposal site used to dilute the suspended particulate phase solutions had no adverse impact on the outcome of the assay.

3.4.4 Results Summary

As indicated in Tables 3-1 and 3-2 below and in Appendix G, the SPP solutions prepared from the eight New Bedford Harbor site composite sediments and diluted with water from either the BBDS or RISDS reference sites did not have an adverse impact on the survival of the mysid shrimp (*A. bahia)*. Survival of *M. beryllina* was significantly impacted after 96-hours exposure to SPP solutions prepared from four of the project site composites (Composites 1, 2, 4, and 5). Survival and normal development of the sea urchin larvae (*A. punctulata*) were both significantly impacted by exposure to all eight of the composite sediment SPP solutions.

Table 3-1. Summary of Endpoints and Adverse Effects for SPP Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Sample ID	***Americamysis bahia***	***Menidia beryllina***	***Arbacia punctulata***	
RISDS Diluent	**LC-50 Endpoint**	**LC-50 Endpoint**	**LC-50 Endpoint**	**EC-50 Endpoint**
Composite 1 (-001)	>100%	>100%	23.0%	13.7%
Composite 2 (-002)	>100%	>100%	24.7%	17.9%
Composite 3 (-003)	>100%	>100%	>100%	52.6%
Composite 4 (-004)	>100%	82.3%	11.6%	10.0%
Composite 5 (-005)	>100%	>100%	20.7%	16.2%
Composite 6 (-006)	>100%	>100%	20.6%	16.4%
Composite 7 (-007)	>100%	>100%	19.7%	15.3%
Composite 8 (-008)	>100%	>100%	23.1%	14.2%
RISDS Diluent	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	
Composite 1 (-001)	100%	10%	10%	
Composite 2 (-002)	100%	<1%	1%	
Composite 3 (-003)	100%	100%	1%	
Composite 4 (-004)	100%	10%	1%	
Composite 5 (-005)	100%	<1%	<1%	
Composite 6 (-006)	100%	100%	<1%	
Composite 7 (-007)	100%	100%	1%	
Composite 8 (-008)	100%	100%	1%	

Notes: An "Adverse Effect" was considered to have occurred when there was a significant (p=<0.05) difference in survival between the SPP elutriate and the reference site diluent. The NOEC values identify the lowest concentration not exhibiting a significant negative impact. NOEC of 100% signifies no significant adverse effect.

Table 3-2. Summary of Endpoints and Adverse Effects for SPP Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Sample ID	*Americamysis bahia*	*Menidia beryllina*	*Arbacia punctulata*	
BBDS Diluent	**LC-50 Endpoint**	**LC-50 Endpoint**	**LC-50 Endpoint**	**EC-50 Endpoint**
Composite 1 (-001)	>100%	>100%	30.3%	18.7%
Composite 2 (-002)	>100%	>100%	35.6%	22.6%
Composite 3 (-003)	>100%	>100%	>100%	58.4%
Composite 4 (-004)	>100%	89.3%	27.6%	22.4%
Composite 5 (-005)	>100%	>100%	21.8%	14.5%
Composite 6 (-006)	>100%	>100%	8.0%	5.2%
Composite 7 (-007)	>100%	>100%	32.7%	11.1%
Composite 8 (-008)	>100%	>100%	15.9%	9.2%
BBDS Diluent	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	
Composite 1 (-001)	100%	10%	10%	
Composite 2 (-002)	100%	50%	10%	
Composite 3 (-003)	100%	100%	50%	
Composite 4 (-004)	100%	50%	10%	
Composite 5 (-005)	100%	100%	<1%	
Composite 6 (-006)	100%	100%	<1%	
Composite 7 (-007)	100%	100%	<1%	
Composite 8 (-008)	100%	100%	<1%	

Notes: An "Adverse Effect" was considered to have occurred when there was a significant (p=<0.05) difference in survival between the SPP elutriate and the reference site diluent. The NOEC values identify the lowest concentration not exhibiting a significant negative impact. NOEC of 100% signifies no significant adverse effect.

3.5 10-Day Solid Phase Toxicity Tests

Survival data and subsequent statistical evaluations from the *A. bahia* and *A. abdita* assays are summarized below. Supporting data, including copies of bench sheets and statistical analyses, are provided in Appendix H.

3.5.1 *A. bahia* 10-Day Solid Phase Assay

Mean mysid survival in the laboratory control sediment was 90% with a minimum survival level of 75%. Protocol mandates that mean control survival must be ≥90% and survival cannot be <70% in any

replicate. Based on these data, the mysids were considered healthy and were determined to have had no adverse impact on the outcome of the assay. Mean survival in the RISDS and BBDS reference site sediments was 91 and 93%, respectively.

3.5.2 *A. abdita* 10-Day Solid Phase Assay

Mean amphipod survival in the laboratory control sediment was 91% with a minimum survival level of 80%. Protocol mandates that mean control survival must be ≥90% and survival cannot be <70% in any replicate. Based on the laboratory control sediment data, the amphipods were considered healthy and were determined to have had no adverse impact on the outcome of the assay. Mean survival in the RISDS and BBDS reference site sediments was 85 and 78%, respectively.

3.5.3 Results Summary

Review of data presented in Tables 3-3 and 3-4 below and in Appendix H documents a statistically significant reduction in survival after 10 days of exposure to a portion of the composites for either the amphipod or mysid shrimp, based on statistical comparisons made against the disposal site reference sediments. Of the two species, the amphipod, *A. abdita*, showed the greatest negative response to the sediments.

Table 3-3. Summary of Survival Data: *A. bahia*. 10-Day Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site	Mean Survival	Distribution	Variance	Statistic	Critical Value	p-Value	Significantly "<"	
LAB CONTROL	90%							
RISDS (-009)	91%	Normal	Equal	0.1189	1.8596	0.4542	NO	LAB
BBDS (-010)	93%	Normal	Equal	-0.2585	1.8596	0.5987	NO	LAB
Composite 1 (-001)	89%	Normal	Equal	0.4903	1.8596	0.3185	NO	LAB
		Normal	Equal	0.7537	1.8596	0.2363	NO	RISDS
		Normal	Equal	1.7412	1.8596	0.0599	NO	BBDS
Composite 2 (-002)	82%	Normal	Equal	1.3492	1.8596	0.1071	NO	LAB
		Normal	Equal	1.9922	1.8596	0.0407	YES	RISDS
		Normal	Equal	2.7026	1.8596	0.0135	YES	BBDS
Composite 3 (-003)	94%	Normal	Equal	-0.1823	1.8596	0.6788	NO	LAB
		Normal	Equal	-1.1234	1.8596	0.8531	NO	RISDS
		Normal	Equal	-0.4996	1.8596	0.6846	NO	BBDS
Composite 4 (-004)	90%	Normal	Equal	0.0169	1.8596	0.4935	NO	LAB
		Normal	Equal	-0.0974	1.8596	0.5396	NO	RISDS
		Normal	Equal	0.2841	1.8596	0.3918	NO	BBDS
Composite 5 (-005)	83%	Normal	Equal	1.2174	1.8596	0.1291	NO	LAB
		Normal	Equal	1.7568	1.8596	0.0585	NO	RISDS
		Normal	Equal	2.4292	1.8596	0.0206	YES	BBDS
Composite 6 (-006)	87%	Normal	Equal	0.6322	1.8596	0.2725	NO	LAB
		Normal	Equal	0.8198	1.8596	0.2180	NO	RISDS
		Normal	Equal	1.4097	1.8596	0.0982	NO	BBDS
Composite 7 (-007)	93%	Normal	Equal	-0.2774	1.8596	0.6058	NO	LAB
		Normal	Equal	-0.7153	1.8596	0.7526	NO	RISDS
		Normal	Equal	-0.0722	1.8596	0.5279	NO	BBDS
Composite 8 (-008)	96%	Normal	Equal	-0.9380	1.8596	0.8122	NO	LAB
		Normal	Equal	-2.3953	1.8596	0.9783	NO	RISDS
		Normal	Equal	-1.8700	1.8596	0.9508	NO	BBDS

Table 3-4. Summary of Survival Data: *A. abdita*. 10-Day Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site	Mean Survival	Distribution	Variance	Statistic	Critical Value	p-Value	Significantly "<"	
LAB CONTROL	91%							
RISDS (-009)	85%	Normal	Equal	0.7447	1.8596	0.2389	NO	LAB
BBDS (-010)	78%	Normal	Equal	1.7744	1.8596	0.0570	NO	LAB
Composite 1 (-001)	85%	Normal	Equal	1.2434	1.8596	0.1245	NO	LAB
		Normal	Equal	0.1826	1.8596	0.4298	NO	RISDS
		Normal	Equal	-0.8414	1.8596	0.7877	NO	BBDS
Composite 2 (-002)	8%	Normal	Equal	14.7440	1.8596	0.0000	YES	LAB
		Normal	Equal	9.7333	1.8596	0.0000	YES	RISDS
		Normal	Equal	9.1157	1.8596	0.0000	YES	BBDS
Composite 3 (-003)	93%	Normal	Equal	-0.4278	1.8596	0.6600	NO	LAB
		Normal	Equal	-1.1046	1.8596	0.8493	NO	RISDS
		Normal	Equal	-2.2093	1.8596	0.9709	NO	BBDS
Composite 4 (-004)	14%	Normal	Equal	12.8215	1.8596	0.0000	YES	LAB
		Normal	Equal	8.5389	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.8548	1.8596	0.0000	YES	BBDS
Composite 5 (-005)	20%	Normal	Equal	12.6735	1.8596	0.0000	YES	LAB
		Normal	Equal	8.0098	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.2942	1.8596	0.0000	YES	BBDS
Composite 6 (-006)	14%	Normal	Equal	10.8232	1.8596	0.0000	YES	LAB
		Normal	Equal	7.7856	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.1144	1.8596	0.0001	YES	BBDS
Composite 7 (-007)	11%	Normal	Equal	12.7456	1.8596	0.0000	YES	LAB
		Normal	Equal	8.7627	1.8596	0.0000	YES	RISDS
		Normal	Equal	8.1089	1.8596	0.0000	YES	BBDS
Composite 8 (-008)	88%	Normal	Equal	0.3904	1.8596	0.3532	NO	LAB
		Normal	Equal	-0.3405	1.8596	0.6289	NO	RISDS
		Normal	Equal	-1.2352	1.8596	0.8741	NO	BBDS

3.6 Bioaccumulation Tests

Both survival and tissue chemistry results from the 28-day bioaccumulation tests with *Nereis virens* and *Macoma nasuta* are presented below and in detail in Appendices I and J, respectively.

3.6.1 Survival Results

3.6.1.1 Nereis virens Survival

Mean *N. virens* survival was 94% in the laboratory control. Nereis survival in the two reference site sediments was 96% and 97% in the RISDS and BBDS reference sites, respectively. Surviving organisms from the control and reference site provided sufficient tissue for preparation and analysis of body burdens. The endpoints were met and or exceeded requirements specified in the current version of the RIM.

N. virens survival in the project sites after 28 days of exposure ranged from 93 to 97% (Appendix I, Table 4). Results of statistical evaluation of the data showed no significant reduction in survival for worms maintained in any of the project site sediments when compared to the laboratory sediment or sediments from either of the two reference sites.

3.6.1.2 Macoma nasuta Survival

Mean *M. nasuta* survival was 96% in the laboratory control. Survival in the RISDS and BBDS reference sites was 96.7% and 98%, respectively. Surviving organisms from the control and reference site provided sufficient tissue for preparation and analysis of body burdens. The endpoints were met and or exceeded requirements specified in the current version of the RIM.

Survival of *M. nasuta* in project site sediments ranged from 94 to 96.7%. Results of statistical evaluation of the data showed no significant reduction in survival for bivalves maintained in project site sediments when compared to the laboratory sediment or sediments from either of the two reference sites.

3.6.2 Tissue Chemistry Results

Based on the results of the 10-day solid phase bioassays, it was determined that tissue samples generated from the 28-day bioaccumulation testing for the three sediment composites (Composites 1, 3, and 8) and the two reference sediments (BBDS and RISDS) would be analyzed for PCB congeners, chlorinated pesticides, PAHs, metals, and percent lipids. Five replicate samples were analyzed for each sediment sample and each organism (*N. virens and M. nasuta*). In addition, three replicates were analyzed for each of the laboratory background organisms.

Results for all tissue replicates exposed to the site and reference sediments as well as the background tissues and QC summaries are presented in Appendix J. All results are presented in wet weight. A statistical comparison of the tissues exposed to the three site composite sediments to those exposed to the two reference sediments is discussed in Section 3.6.3. Summary tables of the results of the statistical analyses are provided in Appendix K.

3.6.2.1 PCB Congeners and Chlorinated Pesticides

PCB/pesticide data for the tissue samples are presented in Appendix J-1. Concentrations in the *M. nasuta* tissues were, in general, somewhat higher than those found in *N. virens*. In the tissue samples exposed to the three site composite sediments, some pesticides were detected at low concentration levels. However, PCB congeners were detected at concentration levels that are one to two orders of magnitude higher than the pesticide concentrations, reflecting the highly PCB-contaminated nature of the New Bedford Harbor

sediments. Comparable PCB and pesticide concentrations were found among tissues exposed to the three site composite sediments, with tissues exposed to Composite 8 demonstrating slightly higher PCB concentrations than those exposed to the other two site composites. Tissue samples exposed to the two reference sediments demonstrated detections of some PCB and pesticide compounds at low concentration levels, indicating the relatively clean nature of the reference sediments.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that in general the quality of the data is acceptable. In batch 06-0197, most of the PCB compounds were recovered below the QC criteria of 50% -120%. In addition, the surrogate recoveries for PCB 34 (41%) and PCB 152 (48%) in the LCS, although within the QC criteria of 30%-150%, were low compared to those in the MS/MSD and field samples (~70%). Similar low recoveries in the extract split of the LCS for the PAH analysis (see Section 3.6.2.2) indicated a possible extract loss due to leaky apparatus during the sample preparation process. Because all the samples of this batch had good surrogate recoveries with the exception of the LCS, it was determined that the LCS failure was due to an isolated extract loss and the data quality of the batch was not impacted. Therefore, re-extraction of the sample batch was not performed. Data accuracy was demonstrated by the MS and MSD samples of this batch.

3.6.2.2 PAHs

PAH data for the tissue samples are presented in Appendix J-2. PAH concentrations in the *M. nasuta* tissues were, in general, somewhat higher than those found in *N. virens*. The sixteen target PAHs were detected in all tissue samples exposed to the three site composites and two reference sediments. Among the tissue samples exposed to the site composites, PAHs were detected at comparable concentrations. Tissue samples exposed to the two reference sediments demonstrated similar PAH concentrations that were lower than those in the tissues exposed to the site composite sediments.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that in general the quality of the data is acceptable. In batch 06-0197, many of the PAH compounds were recovered below the QC criteria of 50% -120%. In addition, the surrogate recoveries in the LCS, although within the QC criteria of 30%-150%, were low compared to those in the MS/MSD and field samples. As discussed in Section 3.6.2.1, it was determined that the LCS failure was due to an isolated extract loss and the data quality of the batch was not impacted.

3.6.2.3 Metals

Metals data for the tissue samples are presented in Appendix J-3. Among the eight target elements, As, Cd, Cr, Cu, Ni, and Zn were detected in all the tissue samples exposed to the three site composites and two reference sediments, while Hg and Pb were non-detect in most of the samples. In general, metals concentrations in the *M. nasuta* tissues were somewhat higher than those in *N. virens*. Among the tissue samples exposed to the three site composites, the detected metals were at comparable concentrations. In addition, tissue samples exposed to the two reference sediments also demonstrated similar metal concentrations.

Results of quality control samples (blank, LCS, MS/MSD, SRM, and duplicate) indicate that the quality of the metals data is acceptable.

3.6.2.4 Percent Lipids

Percent lipid results for the tissue samples are presented in Appendix J-4. Percent lipid data are also provided with the PCB/pesticide and PAH results in data tables contained in Appendices G-1 and G-2. Percent lipids in wet *M. nasuta* tissues ranged from 0.66% to 1.04%, while percent lipids in wet *N. virens*

tissues ranged from 0.95% to 1.67%. In general, *N. virens* tissues appeared to have higher lipid contents than *M. nasuta* tissues.

A procedural blank and a laboratory duplicate sample were performed for each sample preparation batch as QC samples for the percent lipid determination. All QC results indicate that the quality of the percent lipid data is acceptable.

3.6.3 Statistical Analysis

This section summarizes the statistical analysis results based on the chemical analyses of five replicates of tissue composites for *M. nasuta* and *N. virens* samples exposed to the three sediment composites (Composite 1, 3, and 8) and the two reference site sediments (BBDS and RISDS). Tissue samples were analyzed for chlorinated pesticides, PCBs, PAHs, metals, and lipids. Results of the statistical analysis for the three site composite sediments versus the BBDS and RISDS reference sediments based on the mean wet weight concentrations of *M. nasuta* and *N. virens* tissues are summarized in Tables 3-5 and 3-6, respectively. The two summary tables are also provided in Appendix K, together with the tissue chemistry data for all tissue replicates used for the statistical analysis.

Statistical analysis of the bioaccumulation data was performed according to Appendix D3 of the Inland Testing Manual (ITM) (U.S. EPA/USACE 1998). Mean calculations and statistical analyses were performed on wet-weight tissue concentrations. For analytes that were not detected (values below the MDL) or estimated (detected below RL but above the MDL), the MDL or estimated values were used in the calculations of means and the statistical analyses.

All concentration data were natural log-transformed. If the data were normally distributed, treatment means were statistically compared to the reference mean using Fisher's Least Significant Difference (LSD) test. If the data were not normally distributed, a nonparametric procedure was used in which data were transformed to ranks and then compared using Fisher's LSD test. The ITM does not provide guidance for the case when a compound is undetected in all five replicates of the reference treatment but is detected in at least 20% of all replicates. When that was the case in this study, no statistical analysis was performed, but treatment means were flagged when greater than reference. Treatment means and standard deviations were calculated with the spreadsheet Microsoft® Excel 2003 and the statistical analyses performed using the statistical software package MINITAB®, Release 13.32.

3.6.3.1 Bioaccumulation of PCBs and Pesticides

The majority of PCB concentrations in the *M. nasuta* and *N. virens* tissues exposed to the three site composites were qualified with an "S", which indicates that the mean concentrations of the analyte in the tissue exposed to the site sediment is statistically greater than the mean concentration in the tissue exposed to the reference sediment. Some PCB concentrations in the tissues exposed to the site sediments were qualified with a "c", which indicates that the analyte was detected in the tissue exposed to the site sediment at a higher mean concentration than that exposed to the reference sediment, but statistical analyses was not conducted because the analyte was not detected in any replicate tissues exposed to the reference sediment. Only PCB 209 in *M. nasuta* tissues exposed to Composite 1 and 3 were qualified with an "a", which indicates that the analyte was not detected above the MDL in at least one replicate, and the mean concentration value was calculated using the MDL. The results from the statistical analysis indicate significant bioaccumulation of PCB compounds in tissues exposed to the site sediment composites compared to those exposed to the reference sediments.

For target chlorinated pesticides, most of the tissues exposed to the site sediment composites were qualified with an "a" or "NS", indicating limited bioaccumulation of these pesticide compounds in the tissue samples and no significant difference between the tissues exposed to the site and reference

sediments. Concentrations of 4,4'-DDE and total DDT in *M. nasuta* tissues exposed to all three site composites, and total chlordanes in *M. nasuta* tissues exposed to Composite 8, were qualified with an "S", indicating significantly greater concentrations in the tissues exposed to site sediments than those exposed to the reference sediments. In addition, many of the chlordane and DDT compounds in *N. virens* tissues were also qualified with an "S".

3.6.3.2 Bioaccumulation of PAHs

Most of the PAH compounds in *M. nasuta* tissues exposed to the three site sediment composites were qualified with an "S", indicating significantly greater concentrations in the tissues than in those exposed to the reference sediments. Fluorene and phenanthrene concentrations in *M.nasuta* tissues exposed to all three site sediments were qualified with an "NS", indicating that no significant difference was found between the tissues exposed to site and reference sediments. In addition, acenaphthene concentrations in the tissues exposed to Composite 1 (vs. BBDS and RISDS) and Composite 3 (vs. BBDS only), and benzo(g,h,i)perylene concentration in the tissue exposed to Composite 3 (vs. BBDS only), were also qualified with an "NS".

The bioaccumulation of PAH compounds in the *N. virens* tissues is less significant than that in the *M. nasuta* tissues. Nearly half of the PAH concentrations in *N. virens* tissues exposed to the site sediment composites were qualified with an "S", and the other half were qualified with either an "a" or "NS".

3.6.3.3 Bioaccumulation of Metals

Nearly half of the metals concentrations in *M. nasuta* tissues exposed to the site sediment composites were qualified with an "S", indicating significantly greater concentrations in the tissues than in those exposed to the reference sediments. These metals include Cd, Cr, Cu, Pb, and Zn. However, the bioaccumulation of metals in *N. virens* tissues is less significant than that in *M. nasuta* tissues, with only Cu concentrations being qualified with an "S" in all the *N. virens* tissues and Cd in the tissues exposed to Composite 3 (vs. RISDS).

Table 3-5. Mean Wet Weight Concentrations of Bioaccumulation Tissues for New Bedford Harbor (*Macoma nasuta* and *Nereis virens*)–vs. BBDS Reference Site

CONTAMINANT	BBDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Metals (ug/g wet weight)								
Arsenic	2.64		2.54	NS	2.54	NS	2.42	NS
Cadmium	0.06		0.07	NS	0.09	S	0.09	S
Chromium	0.98		1.12	NS	1.08	NS	1.24	S
Copper	1.13		1.34	S	1.86	S	2.00	S
Lead	0.28	a	0.41	S	0.49	S	0.46	S
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.65		0.56	NS	0.66	NS	0.62	NS
Zinc	10.60		11.80	S	12.20	S	11.00	NS
Macoma nasuta								
PAHs (ng/g wet weight)								
Acenaphthene	0.21	b	0.23	NS	0.28	NS	0.30	S
Acenaphthylene	0.12	b	0.53	S	0.70	S	0.56	S
Anthracene	0.29		0.93	S	1.21	S	1.17	S
Benzo(a)anthracene	0.46		3.15	S	3.16	S	3.73	S
Benzo(a)pyrene	0.52		3.64	S	4.13	S	3.96	S
Benzo(b)fluoranthene	0.75		2.98	S	3.32	S	3.62	S
Benzo(k)fluoranthene	0.73		3.54	S	3.91	S	4.28	S
Benzo(g,h,i)perylene	0.40		1.91	S	1.48	NS	2.55	S
Chrysene	0.93		4.38	S	4.46	S	5.56	S
Dibenzo(a,h)anthracene	0.08	b	0.47	S	0.60	S	0.51	S
Fluoranthene	3.73		6.91	S	6.68	S	10.12	S
Fluorene	0.67		0.59	NS	0.66	NS	0.70	NS
Indeno(1,2,3-c,d)pyrene	0.34		1.85	S	2.29	S	2.02	S
Naphthalene	0.41		0.59	S	0.84	S	0.73	S
Phenanthrene	5.73		5.03	NS	5.26	NS	6.13	NS
Pyrene	2.62		12.03	S	10.54	S	12.73	S
PAH Total	17.98		48.76	S	49.53	S	58.67	S
Macoma nasuta								
PCB Congeners (ng/g wet wt.)								
8	0.89	a	5.71	S	4.49	S	29.47	S
18	0.06	a	9.59	S	12.67	S	36.14	S
28	0.21		24.67	S	22.18	S	55.73	S
44	0.11		9.93	S	12.42	S	21.41	S
52	0.22		49.39	S	56.65	S	96.83	S
66	0.98		18.79	S	14.52	S	21.02	S
101	0.41		55.47	S	43.74	S	47.55	S
105	0.11		15.41	S	10.48	S	11.61	S
118	0.64		36.62	S	26.52	S	32.10	S
128	0.21		9.52	S	8.51	S	7.20	S
138	0.84		40.71	S	36.99	S	37.31	S
153	0.95		39.22	S	37.39	S	38.77	S
170	0.11		2.58	S	2.47	S	3.10	S
180	0.11		3.37	S	3.25	S	3.50	S
187	0.11		2.32	S	2.49	S	2.86	S
195	0.03	a	0.30	c	0.29	c	0.37	c
206	0.02	a	0.08	c	0.09	c	0.16	c
209	0.03	a	0.03	a	0.03	a	0.06	c
Total PCBs	12.09	S	647.41	S	590.36	S	890.37	S

Table 3-5. Continued.

CONTAMINANT	BBDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.04	a	0.04	a	0.04	a	0.08	S
trans-Chlordane	0.04	a	0.04	a	0.04	a	0.09	c
cis-Nonachlor	0.05	a	0.05	a	0.05	a	1.98	c
trans-Nonachlor	0.04	a	0.04	a	0.04	a	0.04	c
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.22	a	0.22	a	0.22	a	2.24	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDE	0.20		1.67	S	1.49	S	1.87	S
Total DDT	0.30		1.77	S	1.59	S	1.97	S
Dieldrin	0.07	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans (Total)	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.05	a	0.05	a	0.05	a	0.05	a
Toxaphene	3.47	a	3.43	a	3.51	a	2.78	a
Nereis virens								
Metals (ug/g wet weight)								
Arsenic	1.46		1.40	NS	1.16	NS	1.60	NS
Cadmium	0.12		0.12	NS	0.12	NS	0.11	NS
Chromium	0.36		0.37	NS	0.36	NS	0.23	NS
Copper	1.36		1.76	S	1.86	S	1.62	S
Lead	0.21	a	0.20	a	0.26	a NS	0.22	a
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.48		0.35	NS	0.34	NS	0.33	NS
Zinc	12.80		9.42	NS	10.90	NS	11.26	NS
Nereis virens								
PAHs (ng/g wet weight)								
Acenaphthene	0.77	a	1.16	S	0.93	NS	1.15	S
Acenaphthylene	0.06	a b	0.20	b S	0.19	b S	0.17	b S
Anthracene	0.06	a b	0.32	S	0.38	b S	0.30	S
Benzo(a)anthracene	0.03	a b	0.26	b S	0.46	b S	0.12	b S
Benzo(a)pyrene	0.06	a	0.32	a c	0.55	a b c	0.09	c
Benzo(b)fluoranthene	0.05	a b	0.30	b S	0.40	b S	0.17	b S
Benzo(k)fluoranthene	0.05	a b	0.40	b S	0.55	b S	0.24	b S
Benzo(g,h,i)perylene	0.10	a	0.28	a c	0.40	a b c	0.12	a b c
Chrysene	0.08	a b	0.71	S	0.75	S	0.59	S
Dibenzo(a,h)anthracene	0.02	a	0.06	a b c	0.09	a b c	0.04	c
Fluoranthene	0.72		1.75	S	1.94	S	1.69	S
Fluorene	0.31	a	0.62	S	0.48	NS	0.54	S
Indeno(1,2,3-c,d)pyrene	0.08	a	0.22	a c	0.32	a b c	0.09	a b c
Naphthalene	1.15		1.19	NS	1.06	NS	0.94	NS
Phenanthrene	1.84		2.86	S	2.75	S	2.29	NS
Pyrene	0.42		2.04	S	2.11	S	1.56	S
PAH Total	5.82		12.68	S	13.33	S	10.10	S

Table 3-5. Continued.

CONTAMINANT	BBDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Nereis virens								
PCB Congeners (ng/g wet wt.)								
8	0.19	a	1.57	c	1.16	c	1.00	c
18	0.09		14.46	S	11.21	S	34.14	S
28	0.07		9.89	S	6.07	S	24.77	S
44	0.09		6.75	S	5.39	S	13.64	S
52	0.23		38.49	S	33.48	S	82.57	S
66	0.05		4.71	S	3.10	S	7.93	S
101	0.30		34.10	S	21.41	S	34.40	S
105	0.07		11.39	S	7.91	S	11.23	S
118	0.16		14.15	S	8.72	S	15.52	S
128	0.13		8.28	S	6.89	S	8.24	S
138	0.61		37.30	S	28.10	S	39.22	S
153	0.74		35.74	S	28.18	S	36.18	S
170	0.27		4.17	S	3.72	S	4.02	S
180	0.12		5.58	S	5.05	S	4.93	S
187	0.11		3.43	S	2.89	S	3.66	S
195	0.03	a	0.33	c	0.29	c	0.38	c
206	0.02	b	0.23	S	0.22	S	0.32	S
209	0.03	a	0.06	c	0.06	c	0.08	c
Total PCBs	6.61		461.25	S	347.60	S	644.44	S
Nereis virens								
Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.05	a	0.13	S	0.10	S	0.11	S
trans-Chlordane	0.04	a	0.11	S	0.09	S	0.10	S
cis-Nonachlor	0.05	a	1.53	S	1.25	S	1.70	S
trans-Nonachlor	0.25		0.31	S	0.30	S	0.27	NS
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.44		2.14	S	1.79	S	2.23	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	1.78	c	0.90	c	0.05	a
4,4'-DDE	0.06	a	0.48	c	0.33	c	0.69	c
Total DDT	0.16		2.31	S	1.27	S	0.79	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans (Total)	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.23	a	0.05	a	0.05	a NS	0.05	a
Toxaphene	3.09	a	2.81	a	3.81	a	3.34	a

* - Statistical Qualifiers
NA - Not Analyzed
S - Treatment mean is statistically greater than Reference mean (state statistical test used)
NS - Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below MDL) in at least one replicate; mean value was calculated using MDL.
b Analyte estimated (detected below RL but above MDL) in at least one replicate; mean value calculated using estimated value.
c Analyte was detected in the treatment at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates.

Table 3-6. Mean Wet Weight Concentrations of Bioaccumulation Tissues for New Bedford Harbor (*Macoma nasuta* and *Nereis virens*)–vs. RISDS Reference Site

CONTAMINANT	RISDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Metals (ug/g wet weight)								
Arsenic	2.42		2.54	NS	2.54	NS	2.42	NS
Cadmium	0.06		0.07	NS	0.09	S	0.09	S
Chromium	1.02		1.12	NS	1.08	NS	1.24	S
Copper	0.99		1.34	S	1.86	S	2.00	S
Lead	0.21	a	0.41	S	0.49	S	0.46	S
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.65		0.56	NS	0.66	NS	0.62	NS
Zinc	10.32		11.80	S	12.20	S	11.00	NS
PAHs (ng/g wet weight)								
Acenaphthene	0.17	b	0.23	NS	0.28	S	0.30	S
Acenaphthylene	0.08	b	0.53	S	0.70	S	0.56	S
Anthracene	0.18	b	0.93	S	1.21	S	1.17	S
Benzo(a)anthracene	0.25		3.15	S	3.16	S	3.73	S
Benzo(a)pyrene	0.29		3.64	S	4.13	S	3.96	S
Benzo(b)fluoranthene	0.54		2.98	S	3.32	S	3.62	S
Benzo(k)fluoranthene	0.48		3.54	S	3.91	S	4.28	S
Benzo(g,h,i)perylene	0.24		1.91	S	1.48	S	2.55	S
Chrysene	0.66		4.38	S	4.46	S	5.56	S
Dibenzo(a,h)anthracene	0.04	b	0.47	S	0.60	S	0.51	S
Fluoranthene	3.11		6.91	S	6.68	S	10.12	S
Fluorene	0.63		0.59	NS	0.66	NS	0.70	NS
Indeno(1,2,3-c,d)pyrene	0.21		1.85	S	2.29	S	2.02	S
Naphthalene	0.35		0.59	S	0.84	S	0.73	S
Phenanthrene	5.78		5.03	NS	5.26	NS	6.13	NS
Pyrene	1.78		12.03	S	10.54	S	12.73	S
PAH Total	14.82		48.76	S	49.53	S	58.67	S
Macoma nasuta								
PCB Congeners (ng/g wet wt.)								
8	0.50	a	5.71	S	4.49	S	29.47	S
18	0.04	a	9.59	c	12.67	c	36.14	c
28	0.11		24.67	S	22.18	S	55.73	S
44	0.07	a	9.93	S	12.42	S	21.41	S
52	0.10		49.39	S	56.65	S	96.83	S
66	0.20	a	18.79	S	14.52	S	21.02	S
101	0.11		55.47	S	43.74	S	47.55	S
105	0.05	a	15.41	c	10.48	c	11.61	c
118	0.13		36.62	S	26.52	S	32.10	S
128	0.03	a	9.52	c	8.51	c	7.20	c
138	0.22		40.71	S	36.99	S	37.31	S
153	0.16		39.22	S	37.39	S	38.77	S
170	0.06	a	2.58	S	2.47	S	3.10	S
180	0.07	a	3.37	S	3.25	S	3.50	S
187	0.05	a	2.32	S	2.49	S	2.86	S
195	0.03	a	0.30	c	0.29	c	0.37	c
206	0.02	a	0.08	c	0.09	c	0.16	c
209	0.03	a	0.03	a	0.03	a	0.06	c
Total PCBs	3.94		647.41	S	590.36	S	890.37	S

Table 3-6. Continued

CONTAMINANT	RISDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.04	a	0.04	a	0.04	a	0.08	c
trans-Chlordane	0.04	a	0.04	a	0.04	a	0.09	c
cis-Nonachlor	0.05	a	0.05	a	0.05	a	1.98	c
trans-Nonachlor	0.04	a	0.04	a	0.04	a	0.04	c
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.22		0.22	a	0.22	a	2.24	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDE	0.20		1.67	S	1.49	S	1.87	S
Total DDT	0.30		1.77	S	1.59	S	1.97	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.05	a	0.05	a	0.05	a	0.05	a
Toxaphene	3.48	a	3.43	a	3.51	a	2.78	a
Nereis virens								
Metals (ug/g wet weight)								
Arsenic	1.64		1.40	NS	1.16	NS	1.60	NS
Cadmium	0.10		0.12	NS	0.12	S	0.11	NS
Chromium	0.30		0.37	NS	0.36	NS	0.23	NS
Copper	1.38		1.76	S	1.86	S	1.62	S
Lead	0.22	a	0.20	a	0.26	a	0.22	a
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.40		0.35	NS	0.34	NS	0.33	NS
Zinc	9.46		9.42	NS	10.90	NS	11.26	NS
Nereis virens								
PAHs (ng/g wet weight)								
Acenaphthene	1.09		1.16	NS	0.93	NS	1.15	NS
Acenaphthylene	0.08	b	0.20	b S	0.19	b S	0.17	b S
Anthracene	0.08	b	0.32	S	0.38	b S	0.30	S
Benzo(a)anthracene	0.03	a b	0.26	b S	0.46	b S	0.12	b S
Benzo(a)pyrene	0.07	a	0.32	a c	0.55	a b c	0.09	c
Benzo(b)fluoranthene	0.05	a b	0.30	b S	0.40	b S	0.17	b S
Benzo(k)fluoranthene	0.05		0.40	b c	0.55	b c	0.24	b c
Benzo(g,h,i)perylene	0.11	a	0.28	a c	0.40	a b c	0.12	a b c
Chrysene	0.09	b	0.71	S	0.75	S	0.59	S
Dibenzo(a,h)anthracene	0.02	a	0.06	a b c	0.09	a b c	0.04	c
Fluoranthene	0.83		1.75	S	1.94	S	1.69	S
Fluorene	0.51		0.62	NS	0.48	NS	0.54	NS
Indeno(1,2,3-c,d)pyrene	0.08	a	0.22	a c	0.32	a b c	0.09	a b c
Naphthalene	1.13		1.19	NS	1.06	NS	0.94	NS
Phenanthrene	2.41		2.86	NS	2.75	NS	2.29	NS
Pyrene	0.36		2.04	S	2.11	S	1.56	S
PAH Total	6.98		12.68	S	13.33	S	10.10	S

Table 3-6. Continued

CONTAMINANT	RISDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Nereis virens								
PCB Congeners (ng/g wet wt.)								
8	0.19	a	1.57	c	1.16	c	1.00	c
18	0.10		14.46	S	11.21	S	34.14	S
28	0.06	a	9.89	S	6.07	S	24.77	S
44	0.12		6.75	S	5.39	S	13.64	S
52	0.17		38.49	S	33.48	S	82.57	S
66	0.03	a b	4.71	S	3.10	S	7.93	S
101	0.14		34.10	S	21.41	S	34.40	S
105	0.05	a	11.39	S	7.91	S	11.23	S
118	0.07		14.15	S	8.72	S	15.52	S
128	0.07		8.28	S	6.89	S	8.24	S
138	0.30		37.30	S	28.10	S	39.22	S
153	0.31		35.74	S	28.18	S	36.18	S
170	0.24		4.17	S	3.72	S	4.02	S
180	0.10		5.58	S	5.05	S	4.93	S
187	0.09		3.43	S	2.89	S	3.66	S
195	0.03	a	0.33	c	0.29	c	0.38	c
206	0.02	b	0.23	S	0.22	S	0.32	S
209	0.03	a	0.06	S	0.06	S	0.08	S
Total PCBs	4.22		461.25	S	347.60	S	644.44	S
Nereis virens								
Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.06		0.13	S	0.10	S	0.11	S
trans-Chlordane	0.04	b	0.11	S	0.09	S	0.10	S
cis-Nonachlor	0.06		1.53	S	1.25	S	1.70	S
trans-Nonachlor	0.31		0.31	NS	0.30	NS	0.27	NS
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.52		2.14	S	1.79	S	2.23	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	1.78	S	0.90	S	0.05	a
4,4'-DDE	0.06	a	0.48	c	0.33	c	0.69	c
Total DDT	0.16		2.31	S	1.27	S	0.79	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.23	a	0.05	a	0.05	a NS	0.05	a
Toxaphene	3.38	a	2.81	a	3.81	a	3.34	a

* - Statistical Qualifiers
NA - Not Analyzed
S - Treatment mean is statistically greater than Reference mean (state statistical test used)
NS - Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below MDL) in at least one replicate; mean value was calculated using MDL.
b Analyte estimated (detected below RL but above MDL) in at least one replicate; mean value calculated using estimated value.
c Analyte was detected in the treatment at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates.

4.0 REFERENCES

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Appendix A
Sediment Grain Size and TOC Results

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USACE New Bedford Harbor Project

Sediment Grain Size and Water Content Results

Battelle ID	AMS ID	Date Sampled	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	Water Content (%)	TOC Rep 1 (%)	TOC Rep 2 (%)
EAG-1001-D	22608	7/26/2005	0.00	1.33	2.10	9.97	52.84	33.76	112	2.86	2.83
EAG-1002-D	22609	7/26/2005	2.31	0.77	0.69	5.10	51.76	39.37	133	3.72	3.65
EAG-1003-D	22610	7/26/2005	1.76	3.93	8.18	29.56	38.65	17.92	79	1.64	1.73
EAG-1004-D	22611	7/27/2005	1.81	0.80	3.00	21.06	39.06	34.26	104	4.11	4.06
EAG-1005-D	22612	7/25/2005	0.00	0.21	1.23	6.08	53.44	39.04	156	4.62	4.68
EAG-1006-D	22613	7/25/2005	1.36	0.71	2.90	11.24	41.42	42.38	124	4.50	4.58
EAG-1007-D	22614	7/27/2005	0.00	1.14	5.98	16.08	41.85	34.94	126	3.77	4.14
EAG-1008-D	22615	7/30/2005	0.02	0.10	21.45	58.60	7.82	12.01	38	0.38	0.40
EAG-1009-D	22616	7/29/2005	1.83	1.21	10.37	73.07	4.87	8.65	27	0.27	0.30
EAG-1010-D	22617	7/27/2005	0.74	4.13	12.88	25.34	28.86	28.04	82	4.22	3.99
Site 1	22632	7/27/2005	0.22	0.31	2.53	27.18	39.37	30.39	90	3.75	3.69
Site 2	22633	7/27/2005	14.04	9.21	22.00	25.51	17.50	11.74	33	2.36	2.08
Site 3	22634	7/27/2005	5.23	2.89	9.02	21.30	34.56	27.01	70	4.85	4.56

Table II-7: Quality Control Summary for Analyses of Sediment Grain Size and Total Organic Carbon

Method Reference Numbers: ASTM D422 (Particle Size Analysis of Soils), EPA 9060 (Total Organic Carbon)

Quality Control (QC) Element	**Acceptance Criteria***	**Criteria Met? Yes/No**	**List Results Outside Criteria (Cross-Reference Results Table in Data Report)**	**Location of Results (Retained at Lab or in Data Package)**
Grain Size: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD<25%)	Yes	None	In Data Package
Total Organic Carbon: Standard Reference Materials	Within the limits provided by vendor	Yes	None	In Data Package
Total Organic Carbon: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD<30%)	Yes	None	In Data Package

*The Quality Control Acceptance Criteria are general guidelines. If alternative criteria are used, they must be documented in this table.

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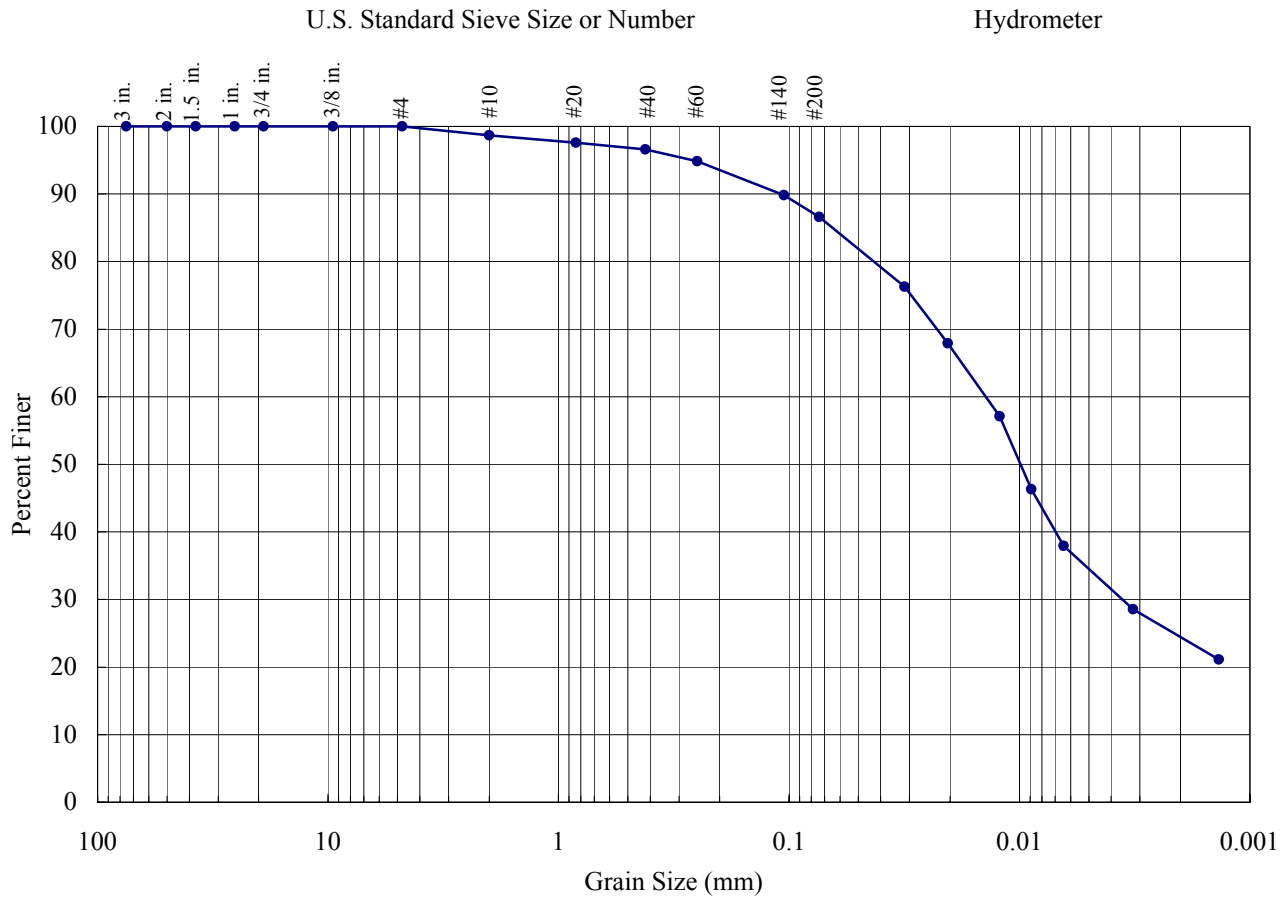

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	0.00	1.33	2.10	9.97	52.84	33.76

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
112	47										

Material Description	USCS
Fat Clay, Black (N1)	CH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: A, C, D, E	AMS P/N: 2005-03-13
	Client ID: EAG-1001-D
	AMS ID: 22608
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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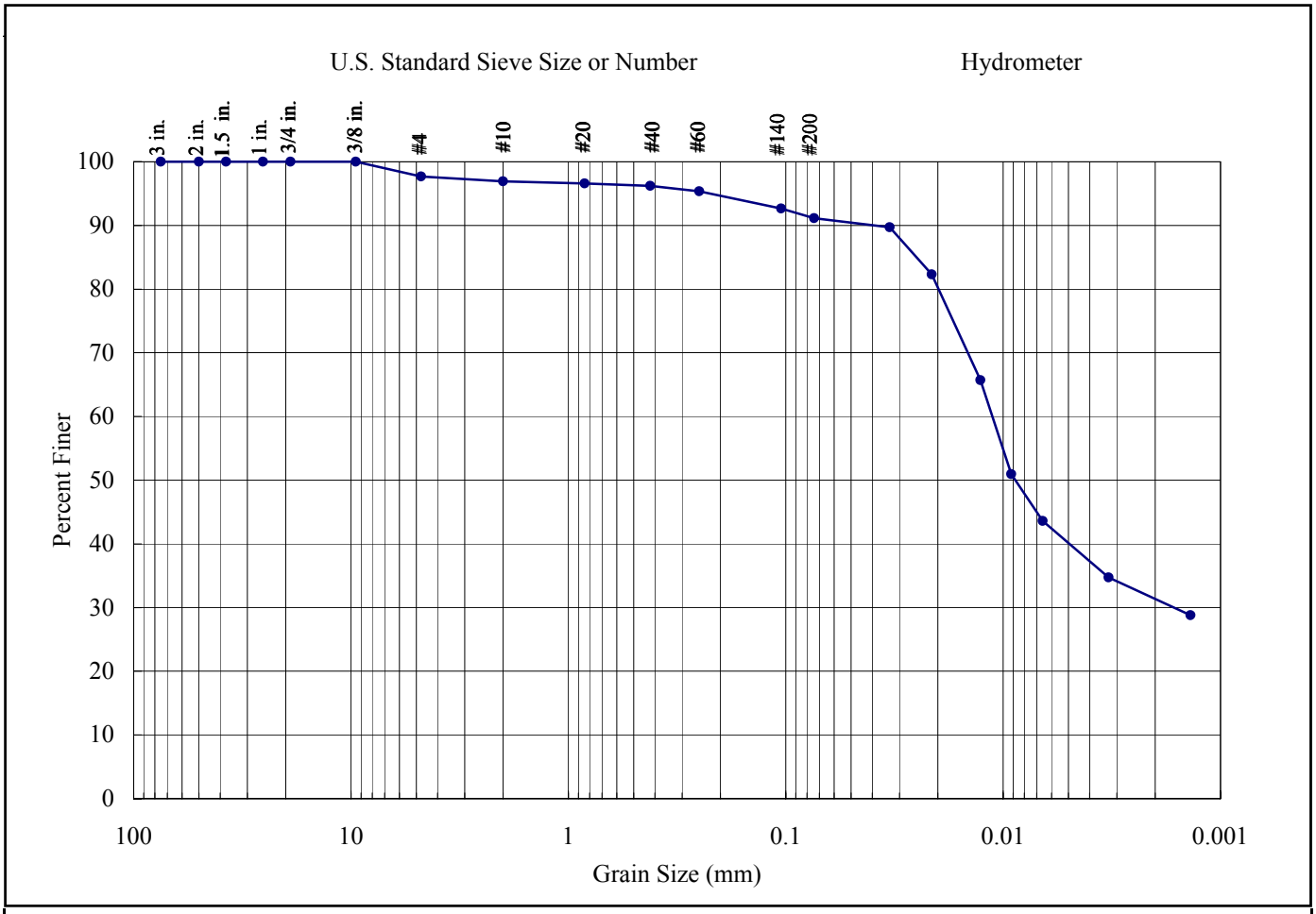

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	2.31	0.77	0.69	5.10	51.76	39.37

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
133	43										

Material Description	USCS
Fat Clay, Black (N1)	CH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: F, G, I, K	AMS P/N: 2005-03-13
	Client ID: EAG-1002-D
	AMS ID: 22609
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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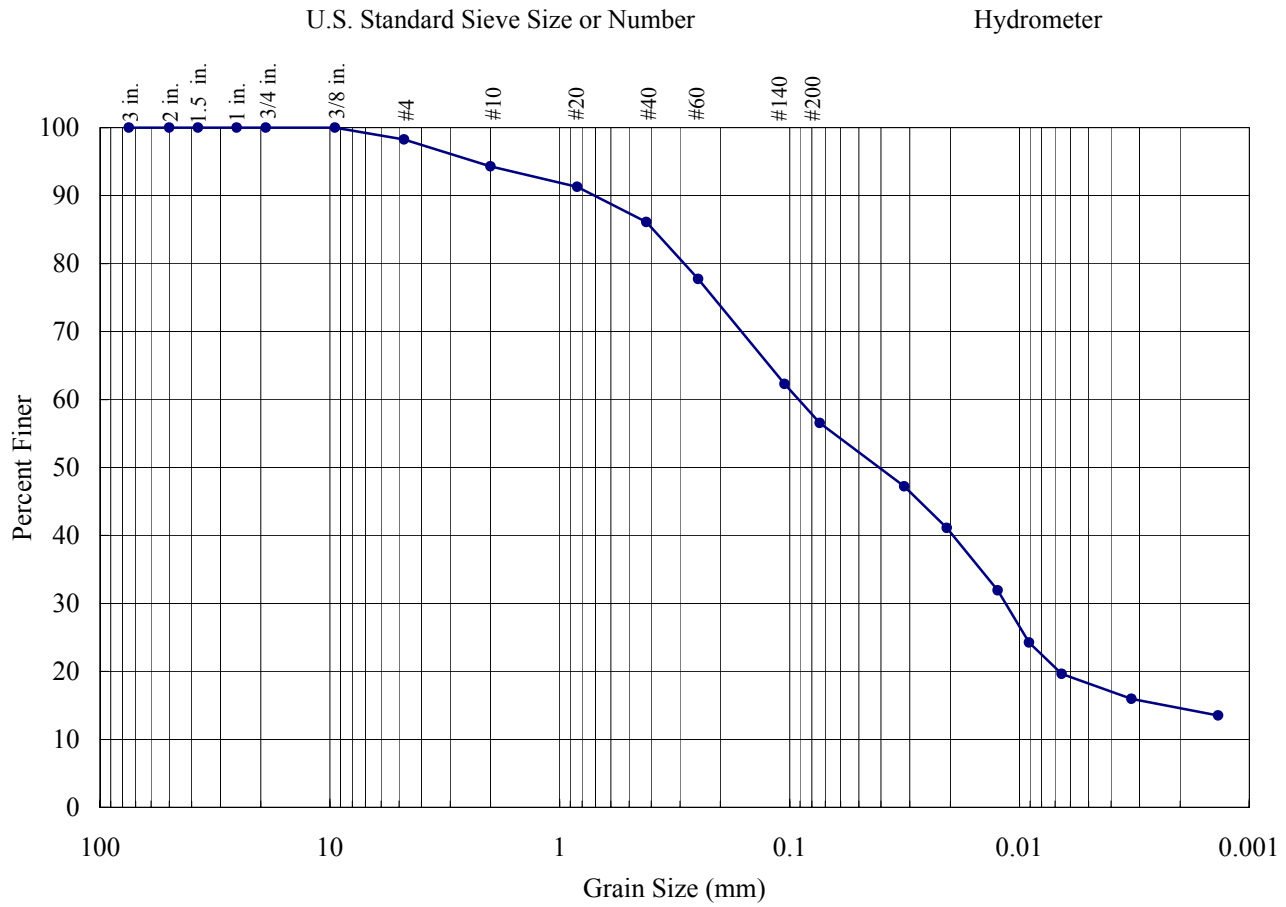

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble	% Gravel	% Sand			% Fines	
		Coarse	Medium	Fine	Silt	Clay
>3"	<3" - #4	#10	#20-#40	#60-#200	0.074-0.005 mm	<0.005 mm
0.00	1.76	3.93	8.18	29.56	38.65	17.92

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
79	56										

Material Description	USCS
Sandy Fat Clay, Black (N1)	CH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: H, J	AMS P/N: 2005-03-13
	Client ID: EAG-1003-D
	AMS ID: 22610
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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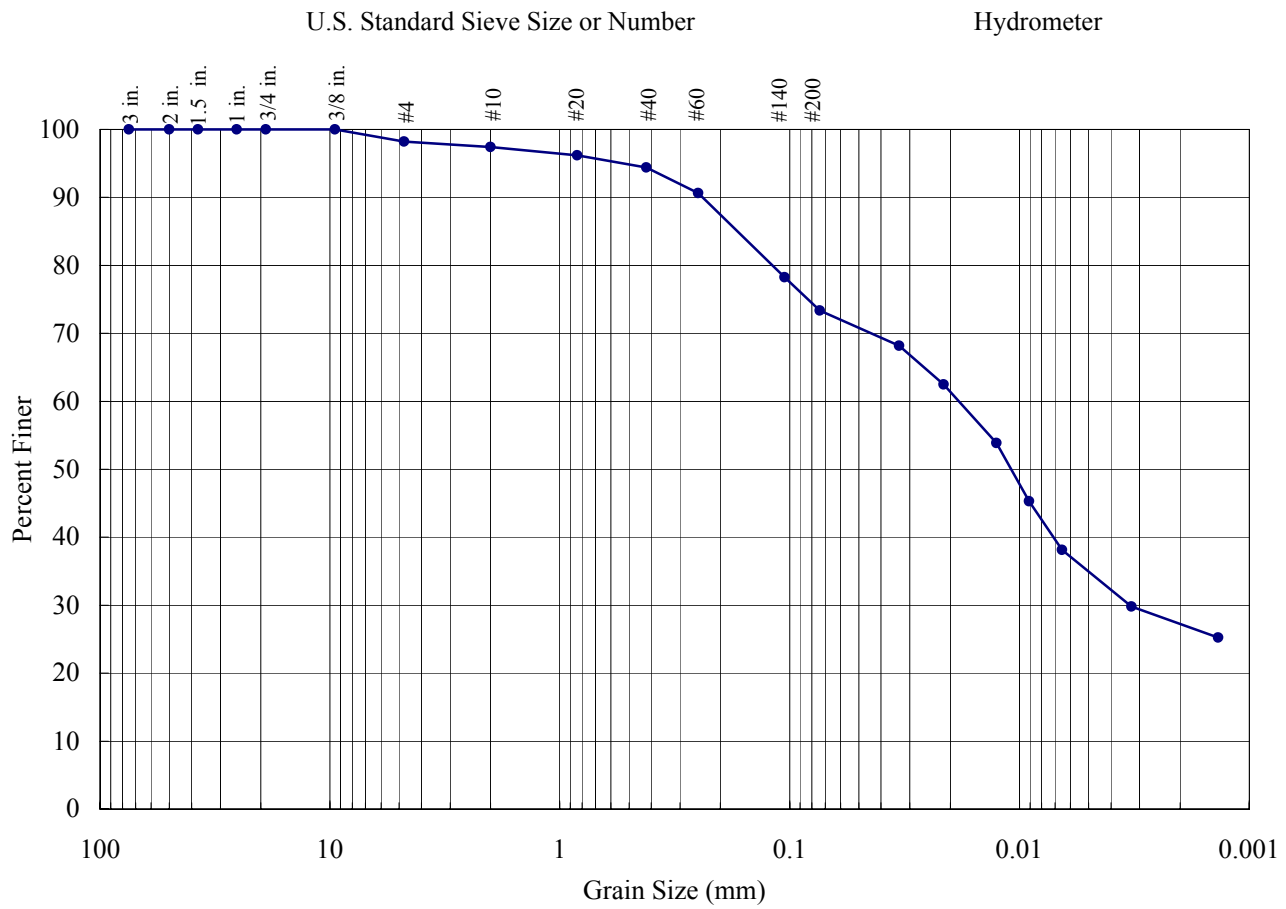

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	1.81	0.80	3.00	21.06	39.06	34.26

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
104	49										

Material Description	USCS
Elastic Silt with Sand, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: L, M, N	AMS P/N: 2005-03-13
	Client ID: EAG-1004-D
	AMS ID: 22611
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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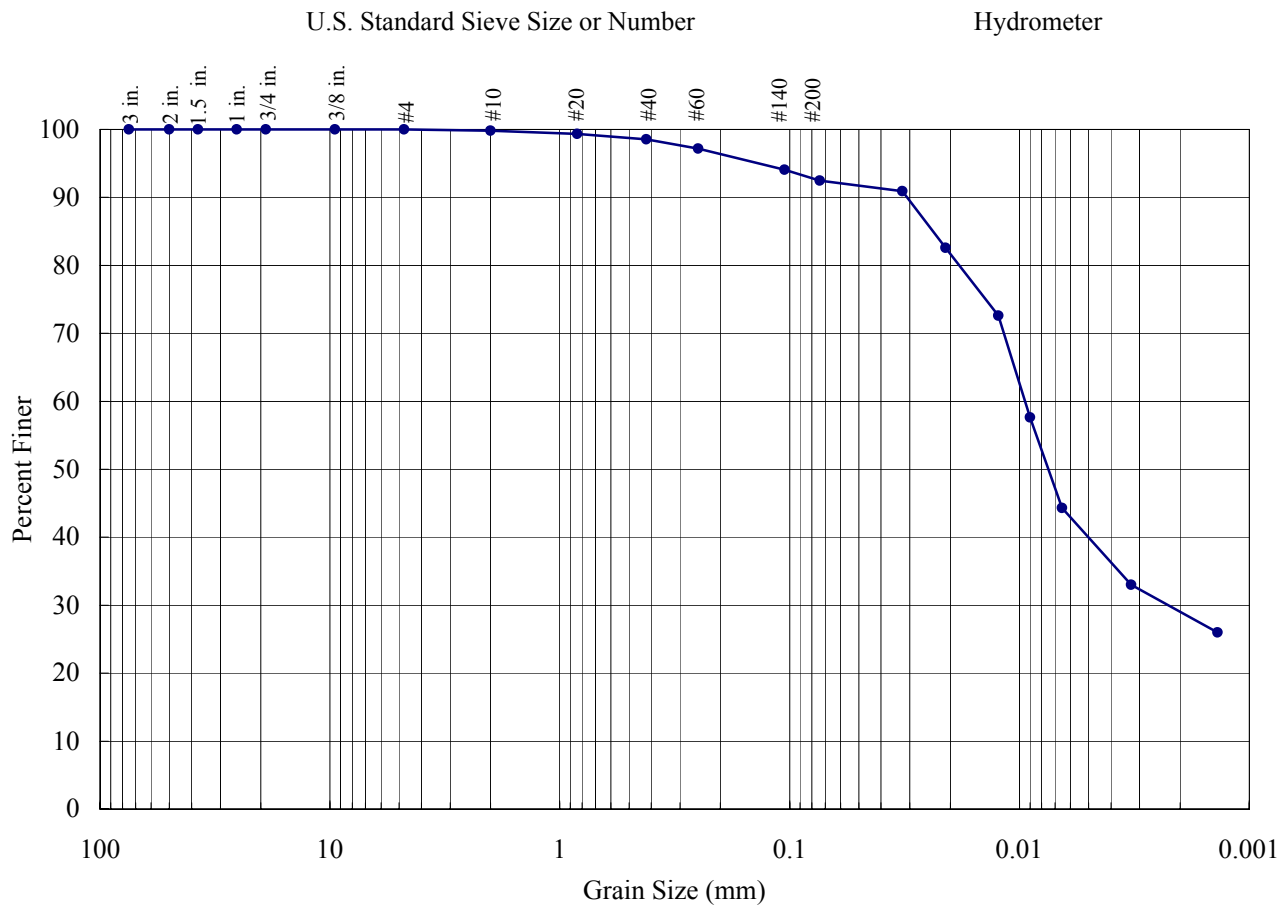

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	0.00	0.21	1.23	6.08	53.44	39.04

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
156	39										

Material Description	USCS
Elastic Silt, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: O, P, Q, R, S, T, U, V, W, X, Y, AA, BB	AMS P/N: 2005-03-13
	Client ID: EAG-1005-D
	AMS ID: 22612
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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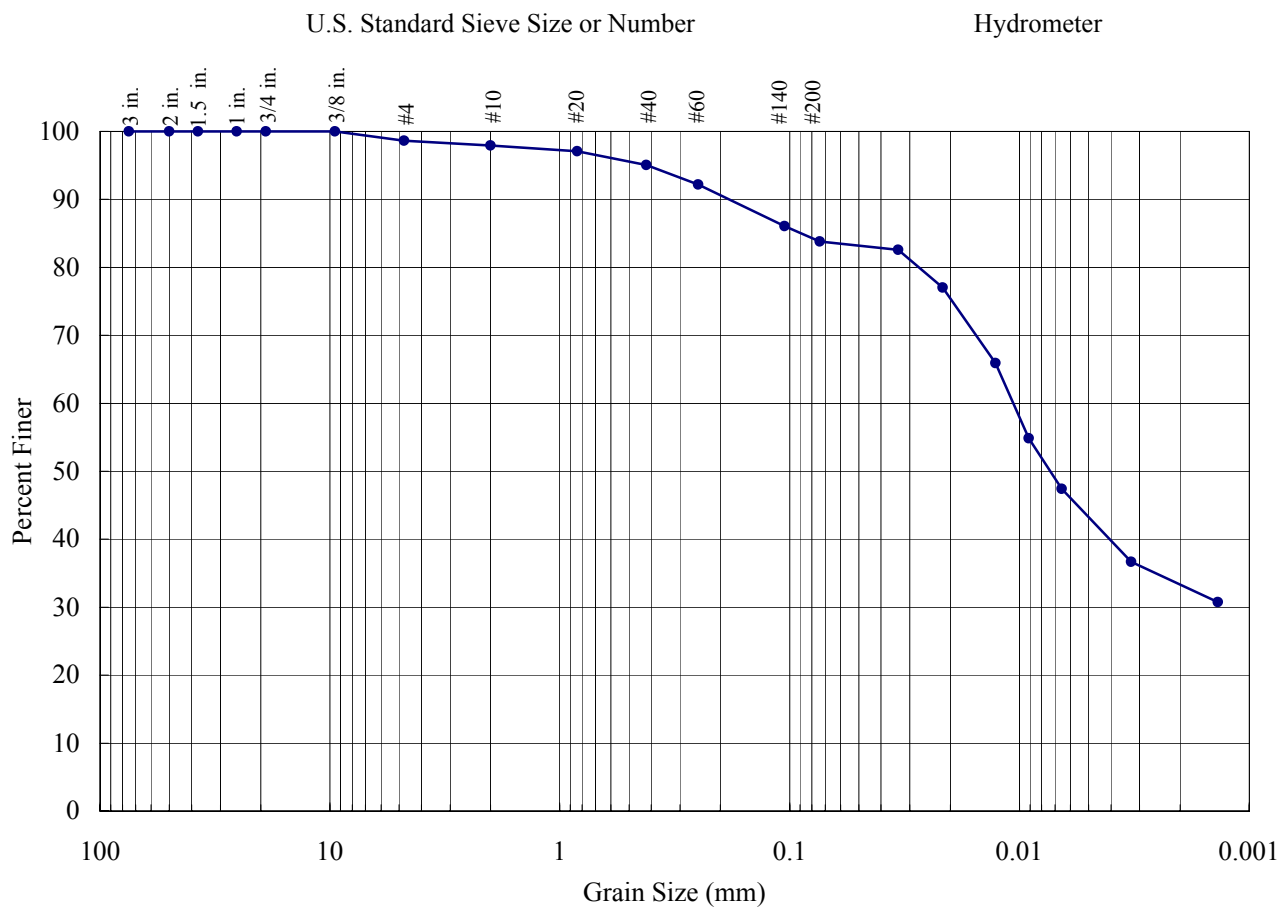

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	1.36	0.71	2.90	11.24	41.42	42.38

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
124	45										

Material Description	USCS
Elastic Silt with Sand, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: CC, DD, GG, HH, LL,, MM, KK	AMS P/N: 2005-03-13
	Client ID: EAG-1006-D
	AMS ID: 22613
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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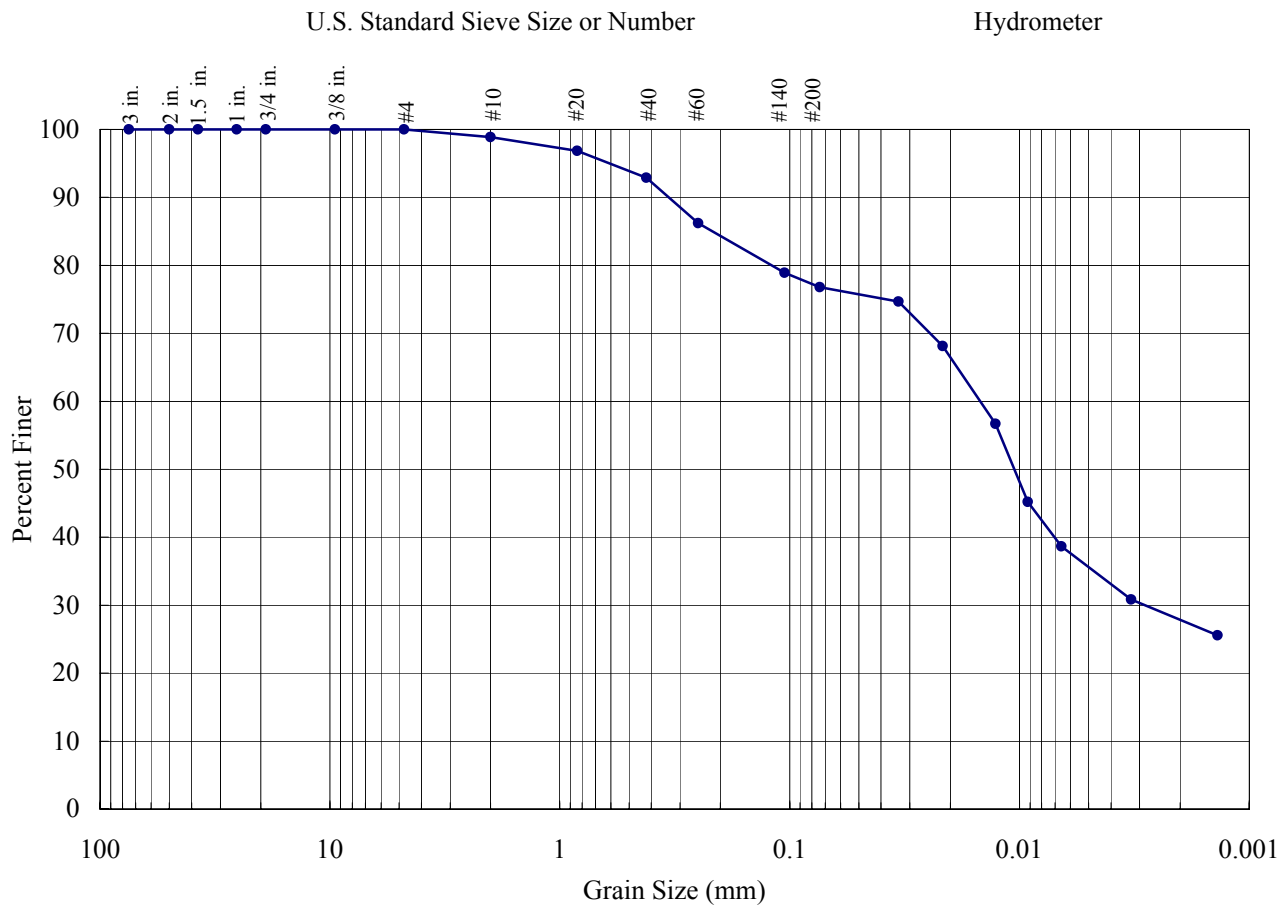

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	0.00	1.14	5.98	16.08	41.85	34.94

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
126	44										

Material Description	USCS
Elastic Silt with Sand, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: EE, FF, II, JJ	AMS P/N: 2005-03-13
	Client ID: EAG-1007-D
	AMS ID: 22614
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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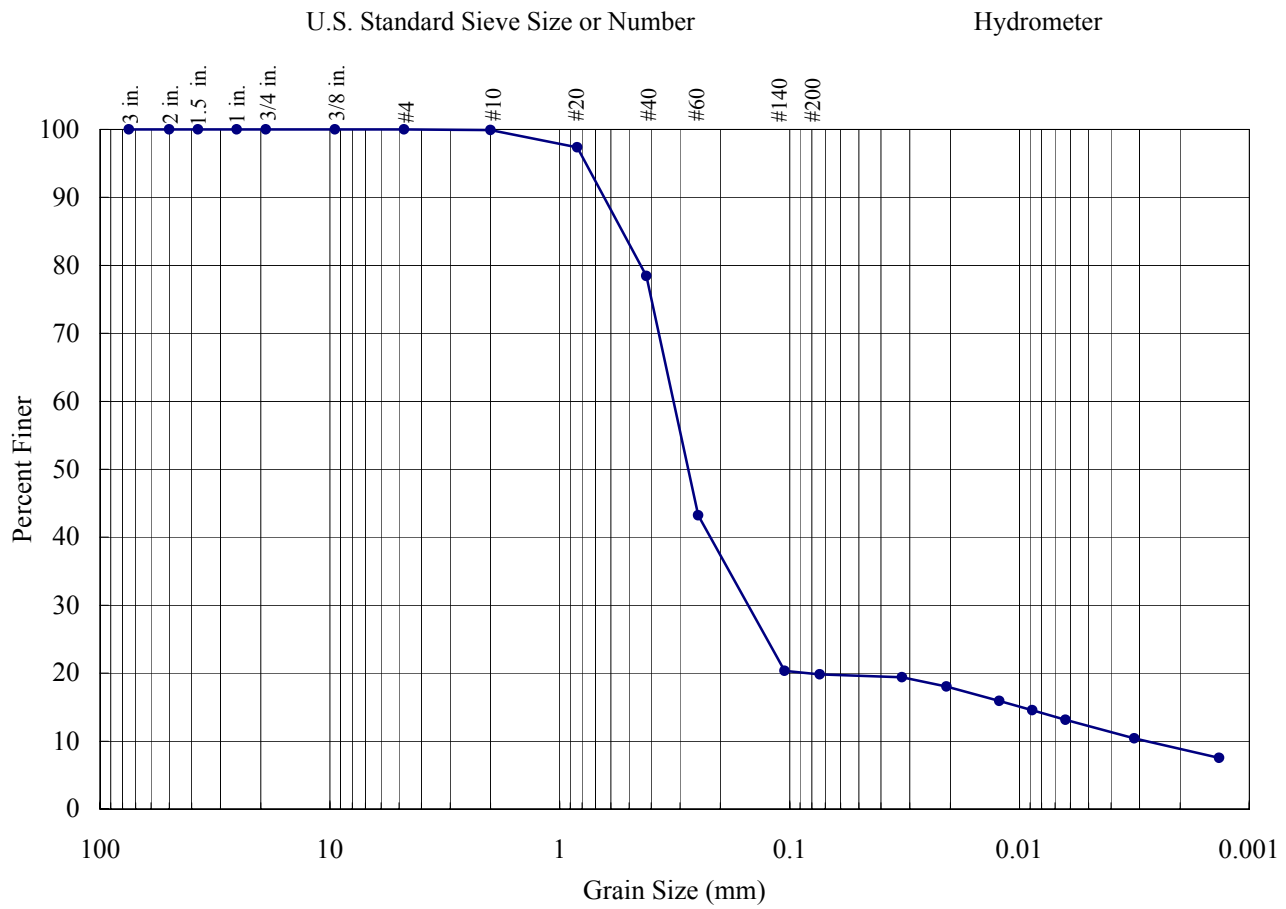

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	0.02	0.10	21.45	58.60	7.82	12.01

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
38	73										

Material Description	USCS
Clayey Sand, Dark Gray (N3)	SC

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: BBDS	AMS P/N: 2005-03-13
	Client ID: EAG-1008-D
	AMS ID: 22615
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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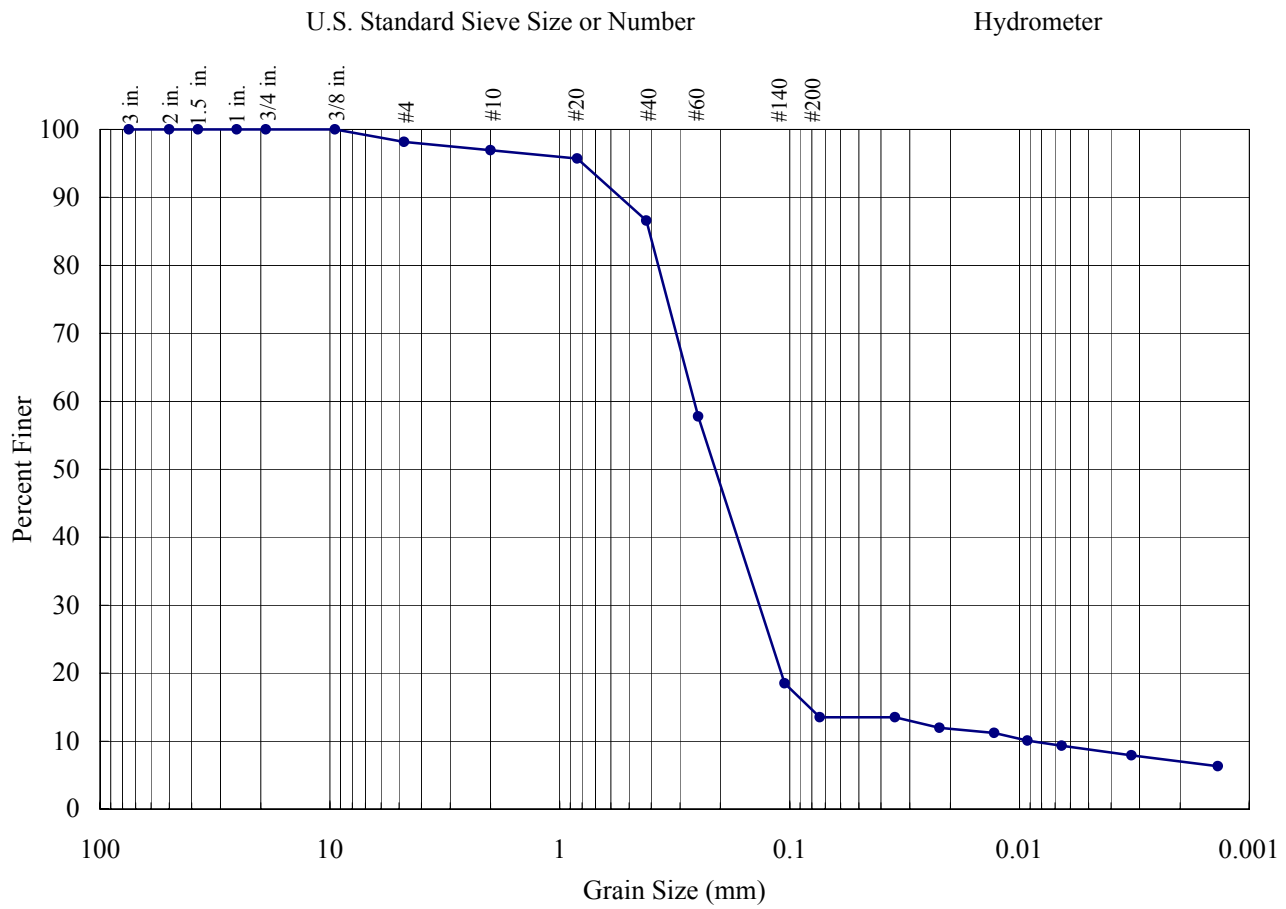

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	1.83	1.21	10.37	73.07	4.87	8.65

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
27	79										

Material Description	USCS
Clayey Sand, Medium Dark Gray (N4)	SC

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: RISDS	AMS P/N: 2005-03-13
	Client ID: EAG-1009-D
	AMS ID: 22616
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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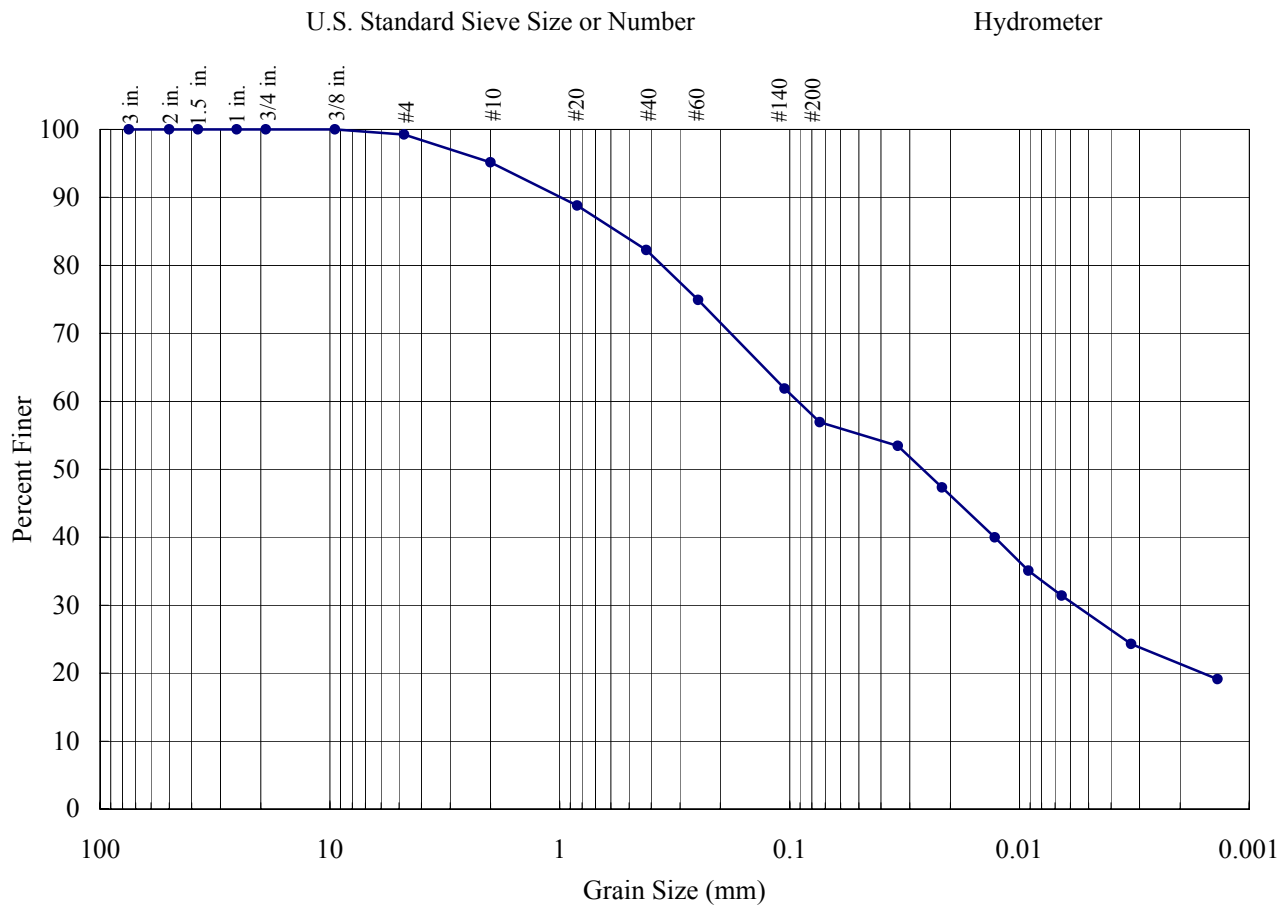

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	0.74	4.13	12.88	25.34	28.86	28.04

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
82	55										

Material Description	USCS
Sandy Fat Clay, Black (N1)	CH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of Sites: 1, 2, 3	AMS P/N: 2005-03-13
	Client ID: EAG-1010-D
	AMS ID: 22617
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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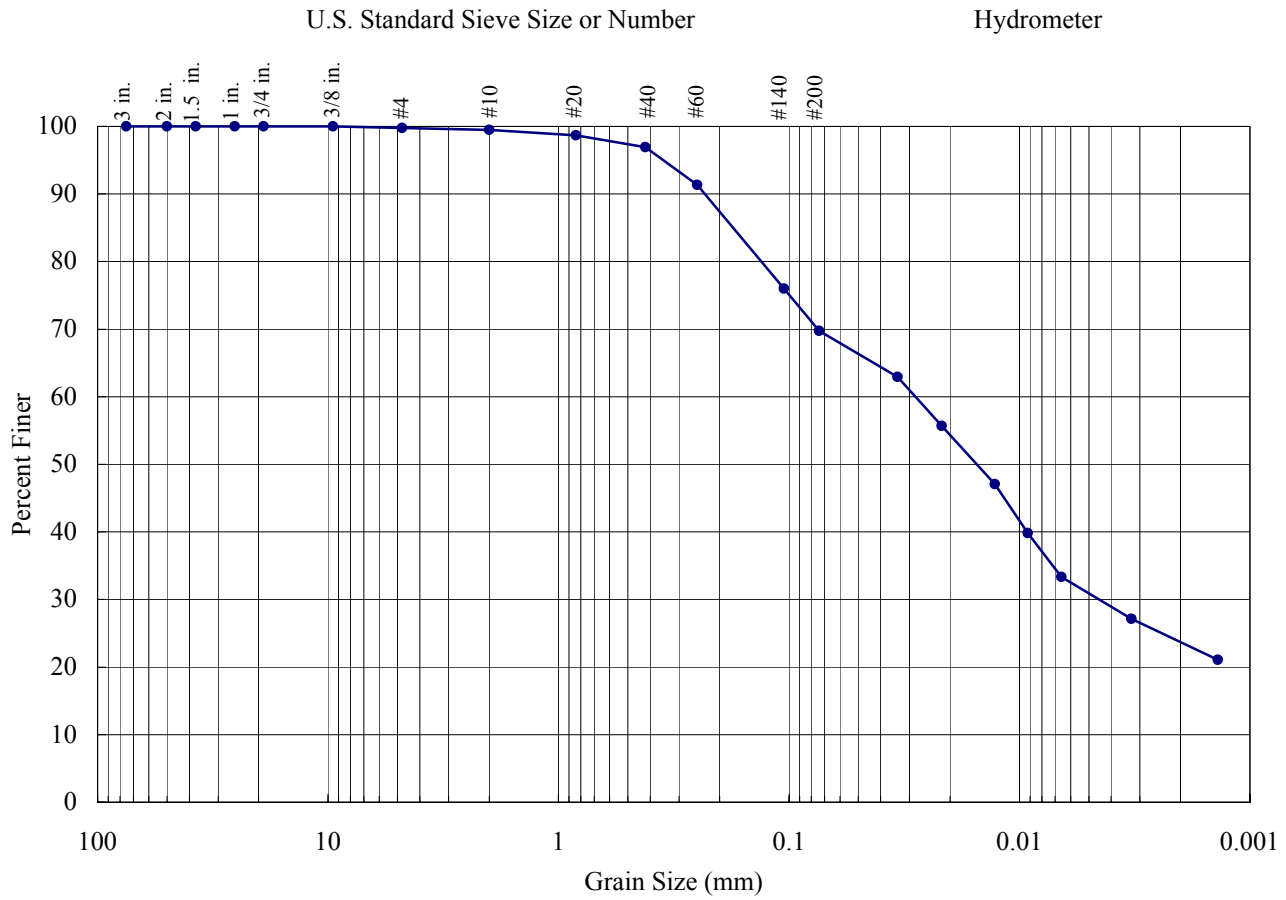

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble	% Gravel	% Sand			% Fines	
		Coarse	Medium	Fine	Silt	Clay
>3"	<3" - #4	#10	#20-#40	#60-#200	0.074-0.005 mm	<0.005 mm
0.00	0.22	0.31	2.53	27.18	39.37	30.39

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
90	53										

Material Description	USCS
Sandy Fat Clay, Black (N1)	CH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of 1 Core from Site 1	AMS P/N: 2005-03-13
	Client ID: Site 1
	AMS ID: 22632
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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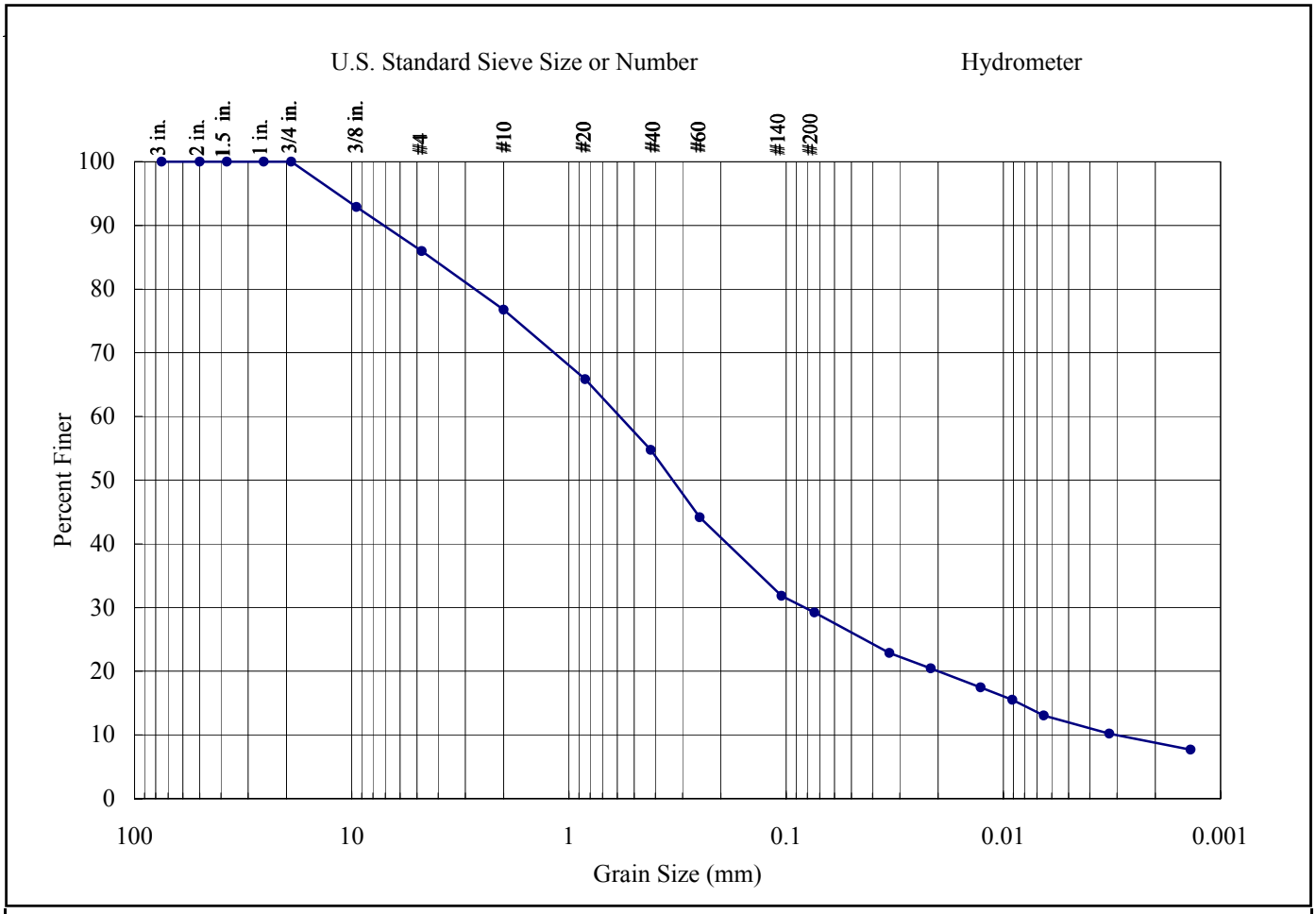

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble	% Gravel	% Sand			% Fines	
		Coarse	Medium	Fine	Silt	Clay
>3"	<3" - #4	#10	#20-#40	#60-#200	0.074-0.005 mm	<0.005 mm
0.00	14.04	9.21	22.00	25.51	17.50	11.74

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
33	75										

Material Description	USCS
Silty Sand, Black (N1)	SM

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of 1 Core from Site 2	AMS P/N: 2005-03-13
	Client ID: Site 2
	AMS ID: 22633
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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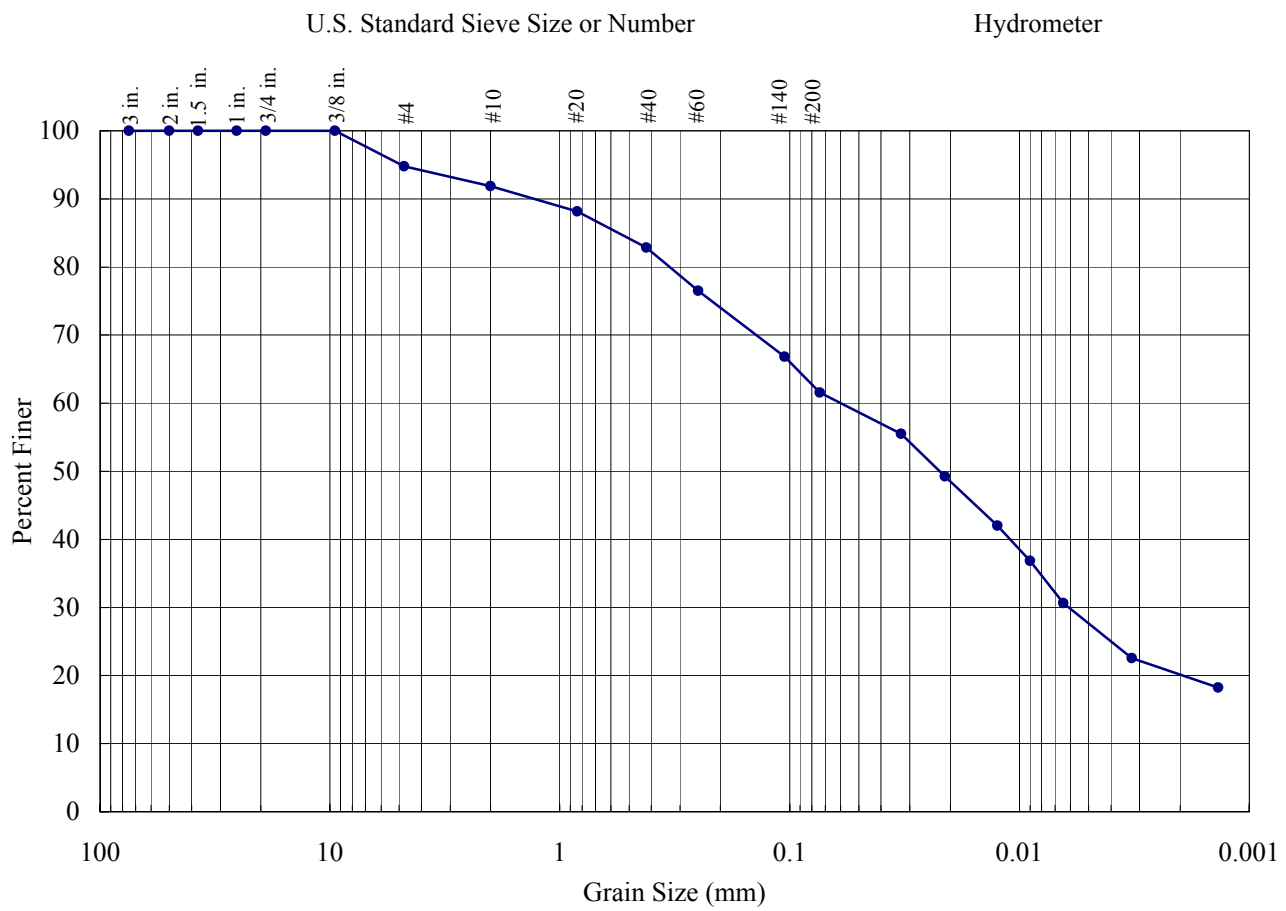

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble >3"	% Gravel <3" - #4	% Sand Coarse #10	% Sand Medium #20-#40	% Sand Fine #60-#200	% Fines Silt 0.074-0.005 mm	% Fines Clay <0.005 mm
0.00	5.23	2.89	9.02	21.30	34.56	27.01

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
70	59										

Material Description	USCS
Sandy Elastic Silt, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of 1 Core from Site 3	AMS P/N: 2005-03-13
	Client ID: Site 3
	AMS ID: 22634
AMS, Inc. Project Manager: *KS Davis, P.G.*	Date Analyzed: 9/6/2005

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AMS QUALITY CONTROL REPORT

Client: Battelle
Project Number: G606416
Project Title: USACE New Bedford Harbor
Client Sample ID: Site 3
AMS Sample ID: 22634

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/4/2005
Date Analyzed: 9/6/2005
Matrix: Sediment
Method: ASTM D422

Replicate Analysis

Particle Diameter (mm)	U.S. Standard Sieve Mesh #	Size Class	Sample Result (%)	Duplicate Result (%)	RPD (%)	#	QC Limits (% RPD)
4.76	No. 4	Gravel	5.23	5.06	3.26		<25
2.00	No. 10	Coarse Sand	2.89	2.59	10.67		<25
0.42	No. 40	Medium Sand	9.02	8.08	11.00		<25
0.074	No. 200	Fine Sand	21.30	20.14	5.60		<25
<0.074-0.005	Hydrometer	Silt	34.56	37.08	7.04		<25
<0.005	Hydrometer	Clay	27.01	27.05	0.14		<25

Column to be used to flag RPD values outside of given limit of 25%
"EXCEEDS" indicates a value outside of the QC Limits

RPD: 0 out of 6 outside limit

Samples in Batch (AMS ID): 22608 22610 22612 22614 22616 22632 22634
22609 22611 22613 22615 22617 22633

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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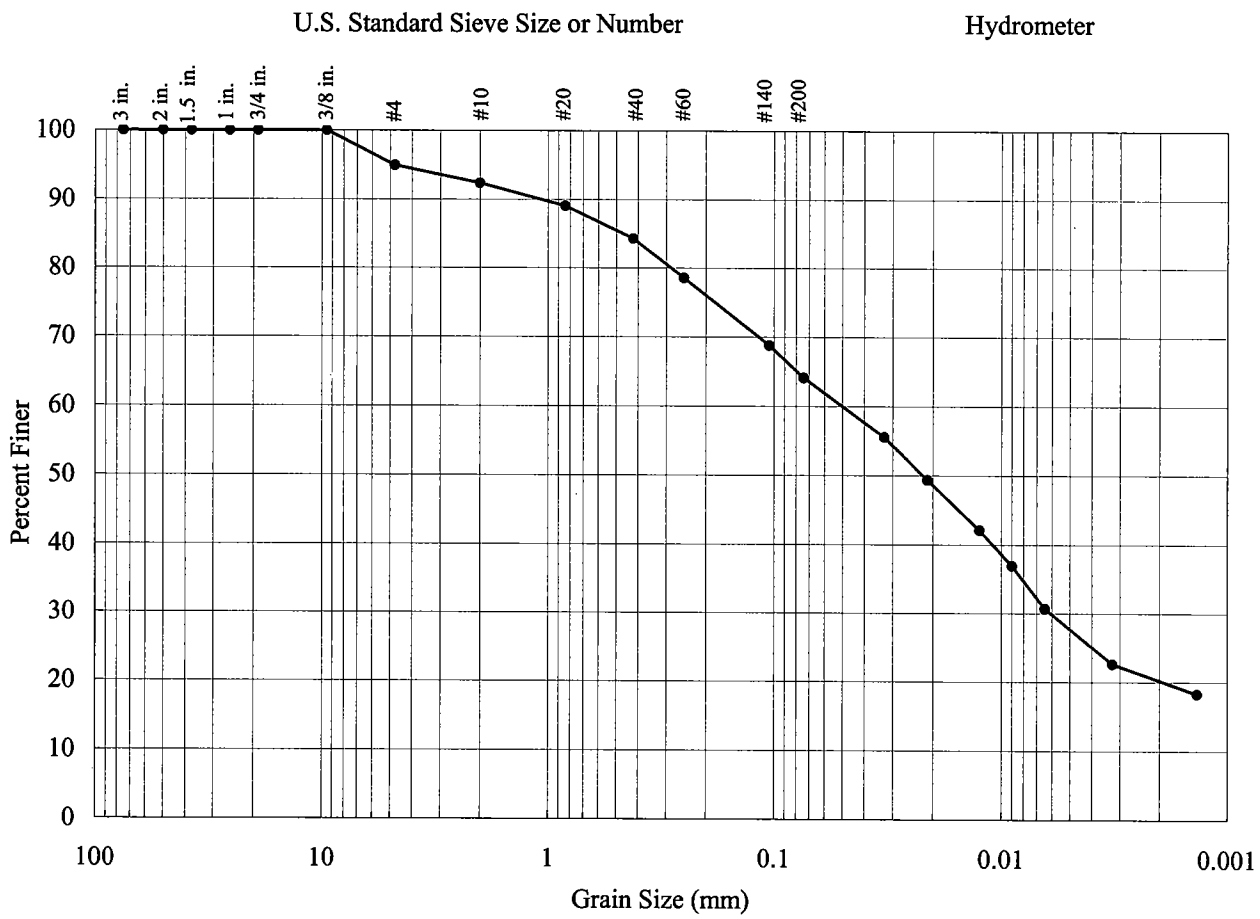

ASTM D422 (Particle-Size Analysis of Soils)

% Cobble	% Gravel	% Sand			% Fines	
		Coarse	Medium	Fine	Silt	Clay
>3"	<3" - #4	#10	#20-#40	#60-#200	0.074-0.005 mm	<0.005 mm
0.00	5.06	2.59	8.08	20.14	37.08	27.05

Water Cont. (%)	Tot. Solids (%)	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
70	59	78	40								

Material Description	USCS
Sandy Elastic Silt, Black (N1)	MH

Project Description	
USACE New Bedford Harbor	Client P/N: G606416
Composite of 1 Core from Site 3	AMS P/N: 2005-03-13
	Client ID: Site 3
	AMS ID: 22634-2
AMS, Inc. Project Manager: KSN	Date Analyzed: 9/6/2005

Battelle

The Business of Innovation

Chain of Custody

397 Washington Street
Duxbury, MA 02332
Phone: 781-952-5200
Fax: 781-934-2124

Proj. No: GL06L116

Proj. Name: New Bedford Harbor

SAMPLERS: Signature: [signature]

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	Client ID ~~BATTELLE ID~~	① ~~CLIENT ID~~	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	~~OTHER~~ TOC/Grainsize	ACIDIFIED	PRESERVED	Total Number of Containers
7/26/05	✓	EAG-1001-D		Composite of sites: A, C, D, E								✓			1
7/26/05	✓	EAG-1002-D		F, G, I, K								✓			
7/26/05	✓	EAG-1003-D		H + J								✓			
7/27/05	✓	EAG-1004-D		L, M, N								✓			
7/25/05	✓	EAG-1005-D		O, P, Q, R, S, T, U, V, W, X, Y, AA + BB								✓			
7/25/05	✓	EAG-1006-D		CC, DD, GG, HH, LL, MM, KK								✓			
7/27/05	✓	EAG-1007-D		EE, FF, II, JJ								✓			
7/30/05	✓	EAG-1008-D		BBDS								✓			
7/29/05	✓	EAG-1009-D		RISDS								✓			
7/27/05	✓	EAG-1010-D		1, 2, 3								✓			

Relinquished by:	Date/Time		Received by:	Date/Time	
[signature]	8/1/05	1500	[signature]	8/2/05	8:45 a.m.
Relinquished by:	Date/Time		Received by:	Date/Time	

Comments:

① ID placed in wrong column - TH.

ORIGINAL

KMS

Battelle
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Chain of Custody

Proj. No: 7606416

Proj. Name: New Bedford Harbor

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER Grain Size	ACIDIFIED	PRESERVED	Total Number of Containers
7/27/05			Site 1	Composite of 1 core from Site 1								✓			1
↓			Site 2	↓ Site 2								✓			1
			Site 3	↓ Site 3								✓			1

Relinquished by:	Date/Time	Received by:	Date/Time
	8/3/05 14:00	Jerry Susie	8/4/05 ~~9/9/05~~ 10:00 am
Relinquished by:	Date/Time	Received by:	Date/Time

Comments: Please see email from Lisa Lefkovitz regarding processing of these samples. T.H.

ORIGINAL

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1001-D - Comp A, C, D, E
AMS Sample ID: 22608

AMS Project Number: 2005-03-13
Date Sampled: 7/26/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	2.86	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	2.83	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: A, C, D, E

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

KSD

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1002-D
AMS Sample ID: 22609

AMS Project Number: 2005-03-13
Date Sampled: 7/26/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	3.72	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	3.65	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: F, G, I, K

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1003-D
AMS Sample ID: 22610

AMS Project Number: 2005-03-13
Date Sampled: 7/26/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	1.64	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	1.73	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: H, J

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1004-D
AMS Sample ID: 22611

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	4.11	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	4.06	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: L, M, N

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1005-D
AMS Sample ID: 22612

AMS Project Number: 2005-03-13
Date Sampled: 7/25/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	4.62	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	4.68	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: O, P, Q, R, S, T, U, V, W, X, Y, AA, BB

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1006-D
AMS Sample ID: 22613

AMS Project Number: 2005-03-13
Date Sampled: 7/25/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	4.50	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	4.58	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: CC, DD, GG, HH, LL, MM, KK

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1007-D
AMS Sample ID: 22614

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	3.77	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	4.14	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: EE, FF, II, JJ

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1008-D
AMS Sample ID: 22615

AMS Project Number: 2005-03-13
Date Sampled: 7/30/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	0.38	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	0.40	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: BBDS

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

KST

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1009-D
AMS Sample ID: 22616

AMS Project Number: 2005-03-13
Date Sampled: 7/29/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	0.27	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	0.30	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: RISDS

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: EAG-1010-D
AMS Sample ID: 22617

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/2/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	4.22	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	3.99	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of Sites: 1, 2, 3

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: Site 1
AMS Sample ID: 22632

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/4/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	3.75	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	3.69	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of 1 Core from Site 1

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: Site 2
AMS Sample ID: 22633

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/4/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	2.36	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	2.08	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of 1 Core from Site 2

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Client: Battelle
Project Title: USACE New Bedford Harbor
Project Number: G606416
Client Sample ID: Site 3
AMS Sample ID: 22634

AMS Project Number: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/4/2005

Parameter	Replicate	Result	Unit	Flag	MDL	Method	Matrix	Date Analyzed
Total Organic Carbon	1	4.85	%		0.01	EPA 9060	Sed	8/11/2005
Total Organic Carbon	2	4.56	%		0.01	EPA 9060	Sed	8/11/2005

Sample Description: Composite of 1 Core from Site 3

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Quality Control Report

Client: Battelle
Project Title: USACE-NAE New Bedford Harbor
Project No.: G606416

AMS Project No.: 2005-03-13
Date Sampled: Various
Date Received: 8/2/2005
Date Analyzed: 8/11/2005
Matrix: Sediment
Method: EPA 9060

Continuing Calibration Data

AMS Sample ID	Parameter	SRM Result (%)	SRM Theoretical (%)	RPD (%)	QC Limits (% RPD)
CC01	TOC	4.69	4.80	2.32	<5

TOC Method Blank

AMS Sample ID	Weight (g)	Result (µg C)	TOC (%)	MDL (%)
CB01	0.4841	4.09	ND	0.01

Samples in Batch (AMS ID): 22608 22611 22614 22617
22609 22612 22615
22610 22613 22616

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

KSN

AMS, Inc. Project Manager

Applied Marine Sciences, Inc.

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Quality Control Report

Client: Battelle
Project Title: USACE-NAE New Bedford Harbor
Project No.: G606416

AMS Project No.: 2005-03-13
Date Sampled: 7/27/2005
Date Received: 8/4/2005
Date Analyzed: 8/11/2005
Matrix: Sediment
Method: EPA 9060

Continuing Calibration Data

AMS Sample ID	Parameter	SRM Result (%)	SRM Theoretical (%)	RPD (%)	QC Limits (% RPD)
CC02	TOC	4.68	4.80	2.53	<5

TOC Method Blank

AMS Sample ID	Weight (g)	Result (µg C)	TOC (%)	MDL (%)
CB02	0.5656	3.16	ND	0.01

Samples in Batch (AMS ID): 22632
22633
22634

Quality Assurance: These analyses were performed in accordance with EPA guidelines for quality assurance.

KSR

AMS, Inc. Project Manager

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Appendix B
Sediment Chemistry Results

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Appendix B-1
Sediment PCB/Pesticide Data

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Pesticide/PCB – Sediment QA/QC Summary
Batch 05-0299

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: Pesticide/PCB
LABORATORY: Battelle, Duxbury, MA
MATRIX: Sediment
SAMPLE CUSTODY: Sediment core and grab samples were collected from New Bedford Harbor and reference locations on July 25-30, 2005. The samples were transported to Battelle, Duxbury on August 02, 2005. No custody issues were noted. The collected sediment cores were then combined into designated composite samples. The samples were logged into LIMS and received unique Battelle IDs. Samples designated for archive were transferred to an access-controlled walk-in freezer while samples requiring organic analysis were originally transferred to an access-controlled walk-in refrigerator. However, due to concerns about meeting the 14-day holding time for refrigerated samples requiring organic analysis, these samples were moved to the walk-in freezer prior to 8/8/05.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Detection Limits and reporting Limits (ng/g dry wt)
Pesticide/PCB	General NS&T	<5 x ss-MDL	30-150% Recovery	50-120% Recovery (concentration of MS must be >5 x background)	≤30% PD plus variance	≤30% RSD (concentration of MS must be >5 x background; sample duplicate values must be > 10 x MDL)	MDL: ~ 0.03 – 1.38 RL: ~0.10 – 10.39

METHOD: Sediment samples were extracted for Pesticide/PCB following general NS&T methods. Approximately 30 g of sediment was spiked with surrogates and extracted three times with dichloromethane using shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. Additionally, all samples were treated with activated copper for the removal of sulfur. The post-HPLC extract was concentrated, fortified with recovery internal standards and split for the required analyses. Extracts intended for Pesticide/PCB analysis were solvent exchanged into hexane then analyzed using gas chromatography/electron capture detector (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds. The analyst has noted that interference from PCB 153 has made quantitation of PCB 184 impossible. All PCB 184 data has been qualified with "UMI".

Rinsate blanks associated with the sediment sample collection were analyzed along with site waters in batch 05-0283. A complete QA/QC summary has been provided with that batch. Rinsate samples were found to be free of PCB and pesticide, except that two of the blanks contained a-chlordane and gamma-chlordane (see data package 05-0443 for specifics). However, those pesticides were not detected in any field samples; therefore there was no impact on the sediment data.

Pesticide/PCB – Sediment QA/QC Summary
Batch 05-0299

HOLDING TIMES:

Samples were prepared for analysis in one analytical batch and were extracted within 28-days of sample compositing and analyzed within 40 days of extraction.

Batch	Extraction Date	Analysis Date
05-0299	8/22/05	8/27/05 – 8/28/05

BLANK:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0299 – No exceedence noted.

Comments – No target pesticides or PCB was detected in the procedural blank. The sample-specific reporting limit (ss-RL) has been reported for non-detects.

LABORATORY CONTROL SAMPLE:

A laboratory control sample (LCS) was prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy.

05-0299 – 3 exceedences noted.

Comments – All target analytes were recovered within the specified laboratory control limits (50-120%), except for heptachlor, and PCB 28. These compounds were under-recovered at 47%, and 49%, respectively. Chromatography and calculations were reviewed. No discrepancies were found. The exceedences were qualified with an "N". All initial calibration standards, instrument calibration checks and continuing calibration checks were within the data quality objectives for these compounds. Additionally, accuracy for heptachlor was adequately demonstrated in both the matrix spike and matrix spike duplicate samples. Although PCB 28 was under-recovered in the LCS sample, it was over-recovered in the MS/MSD samples. However, due to the high background concentrations of PCBs, the MS/MSD samples were not spiked with PCB 28 at a concentration greater than five times the background sample. Therefore the high MS/MSD recoveries for PCB 28 were qualified with an "n" to indicate contingency criteria have been met.

MATRIX SPIKE:

Both a matrix spike (MS) sample and matrix spike duplicate (MSD) sample were prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The RPD between the percent recoveries for Pesticide/PCB is calculated to measure data quality in terms of precision.

05-0299 – MS recovery: 1 exceedences noted
MSD recovery: 2 exceedences noted.
RPD: No exceedences noted

Comments – Due to the high background concentrations of PCBs, numerous PCBs were calculated to be outside of data quality objectives for both percent recovery and RPD. Since these samples were not spiked at a concentration greater than five times the background sample EAG-1001 (COMPOSITE A, C, D, & E), this data should not be used for data quality assessment. Any exceedences calculated for PCBs have been qualified with an "n" to indicate contingency criteria have been met, except for PCB 184. The analyst notes matrix interference from PCB 153 has made quantification of this analyte impossible.

In the MSD sample only, cis-nonachlor was over-recovered at 121%. The analyst notes that the exact integration of cis-nonachlor was difficult because of a co-elution. However, accuracy for this compound was demonstrated in both the LCS and MS sample. Therefore, this exceedence should have no impact on the data. Additionally, cis-nonachlor was not-detected in any field samples.

REPLICATES: Replicate (duplicate) samples were prepared with each analytical batch. The RPD between duplicate analyses for Pesticide/PCB is calculated to measure data quality in terms of precision.
05-0299 – The RPD between duplicate analyses of all target analytes were within the laboratory control limits (<30% RPD)

Comments – None.

SRM: A standard reference material (SRM, NIST 1944) was prepared with each analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

05-0299 – 5 (out of a possible 25) exceedence noted.

Comments – All PD were calculated to be within the laboratory control limit specified by the method (<30% plus variance), except for 4,4-DDT, hexachlorobenzene, PCB 195, PCB 206, and PCB 209. These exceedences were all due to over-recoveries. Chromatography and calculations were reviewed. No discrepancies were found. The exceedences were qualified with an "N". Accuracy for these compounds was adequately demonstrated in the LCS and MS/MSD QC samples. No further corrective action was taken.

SURROGATES: Two surrogate compounds were added prior to extraction, including PCB 34 and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0299 – 2 exceedences noted.

Comments – Percent recoveries for all surrogate compounds were within the laboratory control limits specified by the method (30 – 150% recovery) except for the recoveries calculated for sample EAG-1006 (COMPOSITE CC, DD, GG, HH, LL, MM, & KK). PCB 34 and PCB 152 were both over-recovered in this sample at 157% and 158%, respectively. Chromatography and calculations were reviewed. No discrepancies were found. The sample results for this sample exclusively, may be biased high.

CALIBRATIONS: The instrument is calibrated with a 7-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally an Instrument Calibration Check (ICC) sample is run after each initial calibration. Samples for this batch were run over two sequences. Each sequence had its own initial and continuing calibration as well as its own ICC.

05-0299 – 2 exceedences noted.

Comments – All initial and continuing calibration data were within Battelle criteria, however two ICC exceedences were noted. PCB 206 was under-recovered in both ICC samples. Chromatography and calculations were reviewed. No discrepancies were found. Accuracy for this compound was demonstrated in the LCS, MS, and MSD samples. The exceedences were qualified with an "N" on the ICC quantitation report. No further corrective action was taken.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1005-L	EAG-1006-L	EAG-1001-G	EAG-1002-G
Description	COMPOSITE O, P, Q, R,S,T,U,V,W,X,Y,AA, & BB	COMPOSITE CC, DD, GG, HH, LL, MM, & KK	COMPOSITE A, C, D, & E	COMPOSITE F,G,I,K
Battelle ID	S8688-P	S8689-P	S8694-P	S8695-P
Sample Type	SA	SA	SA	SA
Collection Date	07/25/05	07/25/05	07/26/05	07/26/05
Extraction Date	08/22/05	08/22/05	08/22/05	08/22/05
Analysis Date	08/27/05	08/27/05	08/27/05	08/28/05
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	60.14	56.4	53.23	58.01
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	12.30	13.51	14.39	12.89
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
4,4'-DDD	9.05	13.26	5.90	4.68
4,4'-DDE	13.76	21.07	7.83	10.17
4,4'-DDT	1.63	1.79	1.26	1.39
aldrin	0.14 U	0.12 U	0.12 U	0.13 U
a-chlordane	0.14 U	0.12 U	0.12 U	0.13 U
g-chlordane	0.14 U	0.12 U	0.12 U	0.13 U
Lindane	0.14 U	0.12 U	0.12 U	0.13 U
cis-nonachlor	0.14 U	0.12 U	0.12 U	0.13 U
trans-nonachlor	0.14 U	0.12 U	0.12 U	0.13 U
Chlorpyrifos	0.28 U	0.25 U	0.25 U	0.26 U
oxychlordane	0.07 U	0.12 U	0.12 U	0.13 U
dieldrin	20.00	33.54	11.30	13.48
endosulfan I	0.14 U	0.05 U	0.04 U	0.13 U
endosulfan II	0.14 U	0.12 U	10.46	0.13 U
endrin	0.14 U	0.12 U	0.12 U	0.13 U
heptachlor	0.14 U	0.12 U	0.12 U	0.13 U
heptachlor epoxide	0.14 U	0.12 U	0.12 U	0.13 U
Hexachlorobenzene	1.81	1.61	1.04	1.47
methoxychlor	1.80 U	0.12 U	0.12 U	1.71 U
Toxaphene	13.55 U	12.34 U	11.58 U	12.93 U
Cl2(8)	198.98 D	225.81 D	57.48	173.40 D
Cl3(18)	390.29 D	526.65 D	92.50 D	312.25 D
Cl3(28)	646.21 D	931.62 D	154.28 D	453.41 D
Cl4(44)	391.08 D	626.04 D	137.73 D	277.57 D
Cl4(49)	650.82 D	979.83 D	144.14 D	387.22 D
Cl4(52)	929.81 D	1355.72 D	262.59 D	585.82 D
Cl4(66)	230.12 D	416.36 D	128.97 D	241.30 D
Cl5(87)	276.32 D	460.66 D	165.66 D	193.24 D
Cl5(101)	450.60 D	902.32 D	339.06 D	385.84 D
Cl5(105)	193.56 D	337.89 D	150.08 D	177.24 D
Cl5(118)	476.58 D	856.12 D	341.25 D	420.57 D
Cl6(128)	122.85	178.08 D	93.72	87.03
Cl6(138)	504.47 D	885.62 D	365.16 D	418.99 D
Cl6(153)	499.03 D	865.98 D	322.74 D	390.82 D
Cl7(170)	49.06	70.79	36.09	34.01
Cl7(180)	71.71	111.73	54.25	50.14
Cl7(183)	27.03	40.81	17.61	18.18
Cl7(184)	0.14 UMI	0.12 UMI	0.12 UMI	0.13 UMI
Cl7(187)	48.75	74.00	27.95	31.41
Cl8(195)	3.92	5.46	2.69	3.04
Cl9(206)	3.56	4.61	2.57	2.68
Cl10(209)	2.02	2.44	1.65	1.58
Surrogate Recoveries (%)				
Cl3(34)	82	157 N	95	111
Cl6(152)	107	158 N	93	87

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1003-G	EAG-1004-G	EAG-1007-G	EAG-1008-G
Description	COMPOSITE H & J	COMPOSITE L, M, & N	COMPOSITE EE, FF, II, & JJ	CCOMPOSITE OF BBDS
Battelle ID	S8696-P	S8697-P	S8700-P	S8701-P
Sample Type	SA	SA	SA	SA
Collection Date	07/26/05	07/27/05	07/27/05	07/30/05
Extraction Date	08/22/05	08/22/05	08/22/05	08/22/05
Analysis Date	08/28/05	08/28/05	08/28/05	08/28/05
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	43.24	51.15	57.7	26.63
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	17.08	14.88	12.83	22.10
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
4,4'-DDD	3.87	10.69	8.54	0.08 U
4,4'-DDE	5.09	16.51	14.50	0.35
4,4'-DDT	0.96	1.91	1.55	0.08 U
aldrin	0.11 U	0.11 U	0.13 U	0.08 U
a-chlordane	0.11 U	0.11 U	0.13 U	0.08 U
g-chlordane	0.11 U	0.11 U	0.13 U	0.08 U
Lindane	0.11 U	0.11 U	0.13 U	0.08 U
cis-nonachlor	0.11 U	0.11 U	0.13 U	0.08 U
trans-nonachlor	0.11 U	0.11 U	0.13 U	0.08 U
Chlorpyrifos	0.20 U	0.23 U	0.21 U	0.16 U
oxychlordane	0.11 U	0.11 U	0.13 U	0.08 U
dieldrin	7.07	23.94	22.25	0.08 U
endosulfan I	0.11 U	0.11 U	0.13 U	0.08 U
endosulfan II	0.11 U	0.11 U	0.13 U	0.08 U
endrin	0.11 U	0.11 U	0.13 U	0.08 U
heptachlor	0.11 U	0.11 U	0.13 U	0.08 U
heptachlor epoxide	0.11 U	0.11 U	0.13 U	0.08 U
Hexachlorobenzene	0.88	1.46	1.59	0.17
methoxychlor	0.11 U	0.11 U	0.13 U	0.08 U
Toxaphene	9.76 U	11.20 U	12.99 U	7.54 U
Cl2(8)	56.46	84.26 D	171.73 D	0.08 U
Cl3(18)	86.80 D	205.70 D	376.39 D	0.08 U
Cl3(28)	152.21 D	407.83 D	736.29 D	0.23
Cl4(44)	116.81 D	302.33 D	409.14 D	0.08 U
Cl4(49)	135.85 D	393.24 D	630.51 D	0.08 U
Cl4(52)	240.08 D	626.71 D	827.90 D	0.08 U
Cl4(66)	99.50 D	338.49 D	344.22 D	0.04 J
Cl5(87)	124.94 D	445.46 D	277.93 D	0.12
Cl5(101)	219.94 D	945.57 D	598.08 D	0.08 U
Cl5(105)	106.02 D	352.04 D	226.13 D	0.36
Cl5(118)	243.98 D	868.08 D	586.66 D	1.03
Cl6(128)	56.69	178.90	115.73	0.27
Cl6(138)	258.94 D	831.04 D	562.89 D	0.94
Cl6(153)	238.47 D	840.35 D	560.12 D	1.18
Cl7(170)	21.90	63.52	45.21	0.46
Cl7(180)	32.36	100.25	71.88	0.42
Cl7(183)	11.02	34.44	25.78	0.08 U
Cl7(184)	0.11 UMI	0.11 UMI	0.13 UMI	0.08 UMI
Cl7(187)	18.61	57.27	49.75	0.22
Cl8(195)	1.68	4.54	3.62	0.03 U
Cl9(206)	1.78	3.81	3.29	0.03 U
Cl10(209)	1.23	2.29	1.73	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	103	91	118	69
Cl6(152)	91	148	114	74

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1009-G	EAG-1010-G
Description	COMPOSITE OF RISDS	COMPOSITE OF 1, 2, & 3
Battelle ID	S8702-P	S8703-P
Sample Type	SA	SA
Collection Date	07/29/05	07/27/05
Extraction Date	08/22/05	08/22/05
Analysis Date	08/28/05	08/28/05
Analytical Instrument	ECD	ECD
% Moisture	21.25	45.75
% Lipid	NA	NA
Matrix	SEDIMENT	SEDIMENT
Sample Size	23.82	16.28
Size Unit-Basis	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY
4,4'-DDD	0.07 U	9.18
4,4'-DDE	0.27	11.10
4,4'-DDT	0.07 U	1.41
aldrin	0.07 U	0.10 U
a-chlordane	0.07 U	0.10 U
g-chlordane	0.07 U	0.10 U
Lindane	0.07 U	0.10 U
cis-nonachlor	0.07 U	0.10 U
trans-nonachlor	0.07 U	0.10 U
Chlorpyrifos	0.14 U	0.20 U
oxychlordane	0.07 U	0.10 U
dieldrin	0.07 U	18.54
endosulfan I	0.07 U	0.10 U
endosulfan II	0.07 U	0.10 U
endrin	0.22	0.10 U
heptachlor	0.07 U	0.10 U
heptachlor epoxide	0.07 U	0.10 U
Hexachlorobenzene	0.07 U	1.46
methoxychlor	0.07 U	0.10 U
Toxaphene	7.00 U	10.24 U
Cl2(8)	0.07 U	74.28 D
Cl3(18)	0.07 U	177.85 D
Cl3(28)	0.07 U	413.07 D
Cl4(44)	0.07 U	217.87 D
Cl4(49)	0.07 U	298.74 D
Cl4(52)	0.07 U	390.34 D
Cl4(66)	0.07 U	325.11 D
Cl5(87)	0.05 J	285.38 D
Cl5(101)	0.07 U	596.59 D
Cl5(105)	0.15	238.27 D
Cl5(118)	0.27	598.37 D
Cl6(128)	0.13	105.56
Cl6(138)	0.28	513.89 D
Cl6(153)	0.46	492.09 D
Cl7(170)	0.38	39.38
Cl7(180)	0.35	66.39
Cl7(183)	0.07 U	22.87
Cl7(184)	0.07 UMI	0.10 UMI
Cl7(187)	0.16	40.81
Cl8(195)	0.07 U	3.56
Cl9(206)	0.52	3.27
Cl10(209)	0.43	2.08
Surrogate Recoveries (%)		
Cl3(34)	74	72
Cl6(152)	81	137

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank
Battelle ID	BG948PB-P
Sample Type	PB
Collection Date	08/22/05
Extraction Date	08/22/05
Analysis Date	08/27/05
Analytical Instrument	ECD
% Moisture	47.35
% Lipid	NA
Matrix	SEDIMENT
Sample Size	16.04
Size Unit-Basis	G_DRY
Units	NG/G_DRY
4,4'-DDD	0.10 U
4,4'-DDE	0.10 U
4,4'-DDT	0.10 U
aldrin	0.10 U
a-chlordane	0.10 U
g-chlordane	0.10 U
Lindane	0.10 U
cis-nonachlor	0.10 U
trans-nonachlor	0.10 U
Chlorpyrifos	0.21 U
oxychlordane	0.10 U
dieldrin	0.10 U
endosulfan I	0.10 U
endosulfan II	0.10 U
endrin	0.10 U
heptachlor	0.10 U
heptachlor epoxide	0.10 U
Hexachlorobenzene	0.10 U
methoxychlor	0.10 U
Toxaphene	10.39 U
Cl2(8)	0.10 U
Cl3(18)	0.10 U
Cl3(28)	0.10 U
Cl4(44)	0.10 U
Cl4(49)	0.10 U
Cl4(52)	0.10 U
Cl4(66)	0.10 U
Cl5(87)	0.10 U
Cl5(101)	0.10 U
Cl5(105)	0.10 U
Cl5(118)	0.10 U
Cl6(128)	0.10 U
Cl6(138)	0.10 U
Cl6(153)	0.10 U
Cl7(170)	0.10 U
Cl7(180)	0.10 U
Cl7(183)	0.10 U
Cl7(184)	0.10 U
Cl7(187)	0.10 U
Cl8(195)	0.10 U
Cl9(206)	0.10 U
Cl10(209)	0.10 U
Surrogate Recoveries (%)	
Cl3(34)	70
Cl6(152)	76

Analyzed by Fredriksson, Julie

Not Surrogate Corrected

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	050517-03: Sand, White Quartz				
Battelle ID	BG949LCS-P				
Sample Type	LCS				
Collection Date	08/22/05				
Extraction Date	08/22/05				
Analysis Date	08/27/05				
Analytical Instrument	ECD				
% Moisture	NA				
% Lipid	NA				
Matrix	SEDIMENT				
Sample Size	30.65				
Size Unit-Basis	G_DRY				
Units	NG/G_DRY		Target	% Recovery	Qualifier
4,4'-DDD	1.17		1.31	89	
4,4'-DDE	1.12		1.31	85	
4,4'-DDT	1.19		1.31	91	
aldrin	0.73		1.31	56	
a-chlordane	0.80		1.31	61	
g-chlordane	0.83		1.31	63	
Lindane	0.73		1.31	56	
cis-nonachlor	1.08		1.31	82	
trans-nonachlor	0.79		1.31	60	
Chlorpyrifos	0.74		1.31	56	
oxychlordane	0.67		1.31	51	
dieldrin	1.15		1.31	88	
endosulfan I	1.09		1.31	83	
endosulfan II	1.12		1.31	85	
endrin	1.00		1.31	76	
heptachlor	0.61		1.31	47	N
heptachlor epoxide	0.78		1.31	60	
Hexachlorobenzene	1.24		1.31	95	
methoxychlor	1.38		1.31	105	
Toxaphene	5.44	U			
Cl2(8)	1.02		1.31	78	
Cl3(18)	0.70		1.31	53	
Cl3(28)	0.64		1.31	49	N
Cl4(44)	0.71		1.31	54	
Cl4(49)	0.73		1.31	56	
Cl4(52)	0.71		1.31	54	
Cl4(66)	0.73		1.31	56	
Cl5(87)	0.98		1.31	75	
Cl5(101)	0.72		1.31	55	
Cl5(105)	1.05		1.31	80	
Cl5(118)	1.03		1.31	79	
Cl6(128)	1.07		1.31	82	
Cl6(138)	1.11		1.31	85	
Cl6(153)	1.23		1.31	94	
Cl7(170)	1.22		1.31	93	
Cl7(180)	1.21		1.31	92	
Cl7(183)	1.08		1.31	82	
Cl7(184)	0.87		1.31	66	
Cl7(187)	1.06		1.31	81	
Cl8(195)	1.23		1.31	94	
Cl9(206)	1.18		1.31	90	
Cl10(209)	1.23		1.31	94	
Surrogate Recoveries (%)					
Cl3(34)	65				
Cl6(152)	76				

Analyzed by Fredriksson, Julie

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	040429-01: SRM 1944					
Battelle ID	BG950SRM-P					
Sample Type	SRM					
Collection Date	08/22/05					
Extraction Date	08/22/05					
Analysis Date	08/27/05					
Analytical Instrument	ECD					
% Moisture	1.3					
% Lipid	NA					
Matrix	SEDIMENT					
Sample Size	1.17					
Size Unit-Basis	G_DRY	Certified		Passing	Actual	
Units	NG/G_DRY	Value	+/-	%Difference	%Difference	Qualifier
4,4'-DDD	111.83					
4,4'-DDE	69.38					
4,4'-DDT	176.31	119	11.00	39.24	48.2	N
aldrin	1.44 U					
a-chlordane	10.84	16.51	0.83	35.03	34.3	
g-chlordane	23.26					
Lindane	1.44 U					
cis-nonachlor	8.38					
trans-nonachlor	5.32	8.2	0.51	36.22	35.1	
Chlorpyrifos	2.89 U					
oxychlordane	1.44 U					
dieldrin	30.98					
endosulfan I	1.44 U					
endosulfan II	37.63					
endrin	1.44 U					
heptachlor	1.44 U					
heptachlor epoxide	1.44 U					
Hexachlorobenzene	12.67	6.03	0.35	35.8	110.1	N
methoxychlor	1.44 U					
Toxaphene	142.48 U					
Cl2(8)	25.47	22.3	2.30	40.31	14.2	
Cl3(18)	53.2	51	2.60	35.1	4.3	
Cl3(28)	81.05	80.8	2.70	33.34	0.3	
Cl4(44)	49.16	60.2	2.00	33.32	18.3	
Cl4(49)	55.23	53	1.70	33.21	4.2	
Cl4(52)	74.67	79.4	2.00	32.52	6	
Cl4(66)	53.54	71.9	4.30	35.98	25.5	
Cl5(87)	31.18	29.9	4.30	44.38	4.3	
Cl5(101)	73.38	73.4	2.50	33.41	0	
Cl5(105)	21.05	24.5	1.10	34.49	14.1	
Cl5(118)	53.77	58	4.30	37.41	7.3	
Cl6(128)	9.69	8.47	0.28	33.31	14.4	
Cl6(138)	52.09	62.1	3.00	34.83	16.1	
Cl6(153)	79.83	74	2.90	33.92	7.9	
Cl7(170)	22.59	22.6	1.40	36.19	0	
Cl7(180)	40.68	44.3	1.20	32.71	8.2	
Cl7(183)	12.74	12.19	0.57	34.68	4.5	
Cl7(184)	1.44 UMI					
Cl7(187)	23.97	25.1	1.00	33.98	4.5	
Cl8(195)	13.8	3.75	0.39	40.4	268	N
Cl9(206)	18.32	9.21	0.51	35.54	98.9	N
Cl10(209)	19.57	6.81	0.33	34.85	187.4	N

Surrogate Recoveries (%)

Cl3(34)	81
Cl6(152)	81

Analyzed by Fredriksson, Julie

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1001-G		EAG-1001-G				
Battelle ID	S8694-P		S8694MS-P				
Sample Type	SA		MS				
Collection Date	07/26/05		7/26/2005				
Extraction Date	08/22/05		8/22/2005				
Analysis Date	08/27/05		8/27/2005				
Analytical Instrument	ECD		ECD				
% Moisture	53.23		50.44				
% Lipid	NA		NA				
Matrix	SEDIMENT		SEDIMENT				
Sample Size	14.39		7.66				
Size Unit-Basis	G_DRY		G_DRY				
Units	NG/G_DRY		NG/G_DRY		Target	% Recovery	Qualifier
4,4'-DDD	5.9		12.07		5.22	118	
4,4'-DDE	7.83		11.61		5.22	72	
4,4'-DDT	1.26		5.45		5.22	80	
aldrin	0.12	U	3.12		5.22	60	
a-chlordane	0.12	U	4.61		5.23	88	
g-chlordane	0.12	U	3.23		5.23	62	
Lindane	0.12	U	3.25		5.22	62	
cis-nonachlor	0.12	U	4.91		5.23	94	
trans-nonachlor	0.12	U	2.9		5.23	55	
Chlorpyrifos	0.24	U	4.2		5.23	79	
oxychlordane	0.12	U	3.45		5.23	66	
dieldrin	11.3		16.72		5.22	104	
endosulfan I	0.12	U	4.23		5.23	81	
endosulfan II	10.46		15.83		5.22	103	
endrin	0.12	U	4.69		5.22	90	
heptachlor	0.12	U	3.53		5.22	68	
heptachlor epoxide	0.12	U	3.61		5.22	69	
Hexachlorobenzene	1.04		6.67		5.23	108	
methoxychlor	0.12	U	5.3		5.22	102	
Toxaphene	11.58	U	21.76	U			
Cl2(8)	57.48		68.57		5.24	212	n
Cl3(18)	92.5	D	131.31		5.24	741	n
Cl3(28)	154.28	D	202.67	D	5.23	925	n
Cl4(44)	137.73	D	179.03	D	5.23	790	n
Cl4(49)	144.14	D	184.85	D	5.24	777	n
Cl4(52)	262.59	D	334.3	D	5.22	1374	n
Cl4(66)	128.97	D	170.68	D	5.23	798	n
Cl5(87)	165.66	D	208.83	D	5.22	827	n
Cl5(101)	339.06	D	448.26	D	5.23	2088	n
Cl5(105)	150.08	D	191.9	D	5.23	800	n
Cl5(118)	341.25	D	434.26	D	5.23	1778	n
Cl6(128)	93.72		102.16		5.25	161	n
Cl6(138)	365.16	D	471.16	D	5.23	2027	n
Cl6(153)	322.74	D	419.35	D	5.23	1847	n
Cl7(170)	36.09		42.14		5.25	115	
Cl7(180)	54.25		60.58		5.24	121	n
Cl7(183)	17.61		22.44		5.24	92	
Cl7(184)	0.12	UMI	0.22	UMI	5.24	0	N
Cl7(187)	27.95		33.97		5.24	115	
Cl8(195)	2.69		5.82		5.24	60	
Cl9(206)	2.57		5.5		5.24	56	
Cl10(209)	1.65		4.18		5.23	48	n
Surrogate Recoveries (%)							
Cl3(34)	95		96				
Cl6(152)	93		91				

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1001-G						
Battelle ID	S8694MSD-P						
Sample Type	MSD						
Collection Date	7/26/2005						
Extraction Date	8/22/2005						
Analysis Date	8/28/2005						
Analytical Instrument	ECD						
% Moisture	51.7						
% Lipid	NA						
Matrix	SEDIMENT						
Sample Size	7.65						
Size Unit-Basis	G_DRY						
Units	NG/G_DRY		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDD	10.84		5.23	94		22.6	
4,4'-DDE	11.9		5.23	78		8.0	
4,4'-DDT	5.04		5.23	72		10.5	
aldrin	3.03		5.23	58		3.4	
a-chlordane	3.93		5.23	75		16.0	
g-chlordane	3.46		5.24	66		6.3	
Lindane	3.06		5.23	59		5.0	
cis-nonachlor	6.33		5.23	121	N	25.1	
trans-nonachlor	2.66		5.24	51		7.5	
Chlorpyrifos	4.20		5.24	80		1.0	
oxychlordane	2.87		5.23	55		18.2	
dieldrin	16.59		5.23	101		2.9	
endosulfan I	4.76		5.23	91		11.6	
endosulfan II	15.37		5.23	94		9.1	
endrin	4.75		5.23	91		1.1	
heptachlor	3.41		5.23	65		4.5	
heptachlor epoxide	3.14		5.23	60		14.0	
Hexachlorobenzene	6.53		5.24	105		2.8	
methoxychlor	5.31		5.23	102		0.0	
Toxaphene	21.76						
Cl2(8)	65.41		5.24	151	n	33.6	n
Cl3(18)	124.6		5.24	613	n	18.9	
Cl3(28)	217.28	D	5.23	1205	n	26.3	
Cl4(44)	191.34	D	5.24	1023	n	25.7	
Cl4(49)	198.19	D	5.25	1030	n	28.0	
Cl4(52)	359.55	D	5.23	1854	n	29.7	
Cl4(66)	190.66		5.23	1180	n	38.6	n
Cl5(87)	232.85	D	5.23	1285	n	43.4	n
Cl5(101)	465.3	D	5.24	2409	n	14.3	
Cl5(105)	210.8		5.23	1161	n	36.8	n
Cl5(118)	473.52	D	5.23	2529	n	34.9	n
Cl6(128)	104.84		5.26	211	n	26.9	
Cl6(138)	502.62	D	5.24	2623	n	25.6	
Cl6(153)	453.53	D	5.23	2501	n	30.1	n
Cl7(170)	44.35		5.25	157	n	30.9	n
Cl7(180)	62.41		5.25	155	n	24.6	
Cl7(183)	22.39		5.25	91		1.1	
Cl7(184)	0.22	UMI	5.25	0	N	0.0	
Cl7(187)	33.43		5.24	105		9.1	
Cl8(195)	5.9		5.24	61		1.7	
Cl9(206)	5.44		5.24	55		1.8	
Cl10(209)	4.25		5.23	50		4.1	
Surrogate Recoveries (%)							
Cl3(34)	86						
Cl6(152)	87						

Analyzed by Fredriksson, Julie

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1010-G		EAG-1010-G			
Battelle ID	S8703-P		S8703DUP-P			
Sample Type	SA		QADU			
Collection Date	07/27/05		7/27/2005			
Extraction Date	08/22/05		8/22/2005			
Analysis Date	08/28/05		8/28/2005			
Analytical Instrument	ECD		ECD			
% Moisture	45.75		45.64			
% Lipid	NA		NA			
Matrix	SEDIMENT		SEDIMENT			
Sample Size	16.28		16.65			
Size Unit-Basis	G_DRY		G_DRY			
Units	NG/G_DRY		NG/G_DRY		RPD	Qualifier
4,4'-DDD	9.18		8.16		11.8	
4,4'-DDE	11.10		11.68		5.1	
4,4'-DDT	1.41		1.77		22.6	
aldrin	0.10	U	0.10	U	NA	
a-chlordane	0.10	U	0.10	U	NA	
g-chlordane	0.10	U	0.10	U	NA	
Lindane	0.10	U	0.10	U	NA	
cis-nonachlor	0.10	U	0.10	U	NA	
trans-nonachlor	0.10	U	0.10	U	NA	
Chlorpyrifos	0.21	U	0.20	U	NA	
oxychlordane	0.10	U	0.10	U	NA	
dieldrin	18.54		19.04		2.7	
endosulfan I	0.10	U	0.10	U	NA	
endosulfan II	0.10	U	0.10	U	NA	
endrin	0.10	U	0.10	U	NA	
heptachlor	0.10	U	0.10	U	NA	
heptachlor epoxide	0.10	U	0.10	U	NA	
Hexachlorobenzene	1.46		1.31		10.8	
methoxychlor	0.10	U	0.10	U	NA	
Toxaphene	10.24	U	10.01	U	NA	
Cl2(8)	74.28	D	80.22	D	7.7	
Cl3(18)	177.85	D	175.46	D	1.4	
Cl3(28)	413.07	D	402.32	D	2.6	
Cl4(44)	217.87	D	213.14	D	2.2	
Cl4(49)	298.74	D	292.45	D	2.1	
Cl4(52)	390.34	D	381.83	D	2.2	
Cl4(66)	325.11	D	319.32	D	1.8	
Cl5(87)	285.38	D	280.15	D	1.8	
Cl5(101)	596.59	D	588.27	D	1.4	
Cl5(105)	238.27	D	238.01	D	0.1	
Cl5(118)	598.37	D	594.41	D	0.7	
Cl6(128)	105.56		112.07		6.0	
Cl6(138)	513.89	D	517.08	D	0.6	
Cl6(153)	492.09	D	498.65	D	1.3	
Cl7(170)	39.38		39.29		0.2	
Cl7(180)	66.39		71.52		7.4	
Cl7(183)	22.87		24.27		5.9	
Cl7(184)	0.10	UMI	0.10	UMI	NA	
Cl7(187)	40.81		42.67		4.5	
Cl8(195)	3.56		3.72		4.4	
Cl9(206)	3.27		3.12		4.7	
Cl10(209)	2.08		1.97		5.4	
Surrogate Recoveries (%)						
Cl3(34)	72		73			
Cl6(152)	137		138			

Analyzed by Fredriksson, Julie

Not Surrogate Corrected

Table II-4: Quality Control Summary for Analyses of Polychorinated Biphenyls (PCB congeners) in Sediment, Tissue and Water Matrices

Method Reference Number: 8082A **Batch 05-0299 (sediments)**

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration. (80 to 120% recovery of each compound)	Yes/No	PCB 206 was under-recovered in the two calibration verifications.	Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes/No	PCB 195, PCB 206 and PCB 209 were over-recovered outside the laboratory control limit of <30% PD. See SRM results for 05-0299.	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes/No	Contingency criteria were met with the exception of PCB 184. MS/MSD samples were not spiked at 5x the background concentrations. See QC summary and MS/MSD results for 05-0299.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes/No	PCB 34 and PCB 152 were both over-recovered in sample EAG-1006 at 157% and 158%, respectively. See surrogate results for 05-0299.	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-3: Quality Control Summary for Analyses of Pesticides in Sediment, Tissue and Water Matrices

Method Reference Number: 8081B **Batch 05-0299 (sediments)**

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (< 20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes/No	4,4-DDT and hexachlorobenzene did not meet the laboratory control limit of <30% PD. See SRM results for 05-0299.	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes/No	Cis-nonachlor was over-recovered at 121% in the MSD sample. See MS/MSD results for 05-0299.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes/No	PCB 34 and PCB 152 were both over-recovered in sample EAG-1006 at 157% and 158%, respectively. See surrogate results for 05-0299.	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

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Appendix B-2
Sediment PAH Data

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PAH – SEDIMENT QA/QC SUMMARY
Batch 05-0299

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: PAH
LABORATORY: Battelle, Duxbury, MA
MATRIX: Sediment
SAMPLE CUSTODY: Sediment core and grab samples were collected from New Bedford Harbor and reference locations on July 25-30, 2005. The samples were transported to Battelle, Duxbury on August 02, 2005, and the cooler temperature was recorded as ambient. No custody issues were noted. The collected sediment cores were then combined into designated composite samples. The samples were logged into LIMS and received unique Battelle IDs. Samples designated for archive were transferred to an access-controlled walk-in freezer while samples requiring organic analysis were originally transferred to an access-controlled walk-in refrigerator. However, due to concerns about meeting the 14-day holding time for refrigerated samples requiring organic analysis, these samples were moved to the walk-in freezer prior to 8/8/05.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Detection Limits (ng/g dry wt)
PAH	General NS&T	B<5xMDL	30-150% Recovery	50-120% Recovery LCS 50-120% Recovery MS/MSD (analyte conc. in MS must be >5x background)	≤30% PD PD determined using surrogate corrected data. PD only determined for certified analysis.	MS/MSD: ≤30% RPD between % recoveries; analyte concentration in MS must be > 5x background concentration to be used for data quality assessment. Sample Duplicate: ≤30% RPD between values; for analytes detected at concentrations > 10 x MDL	MDL: ~0.05 –1.04

METHOD: Sediment samples were extracted for PAH following general NS&T methods. Approximately 30 g of sediment was spiked with surrogates and extracted three times with dichloromethane using shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was concentrated, fortified with recovery internal standards and split for the required analyses. Extracts intended for PAH analysis were analyzed using gas chromatography/mass spectrometry (GC/MS), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds.

PAH – SEDIMENT QA/QC SUMMARY
Batch 05-0299

BLANK:

A procedural blank (PB) was prepared with each analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0299 – No exceedences noted.

Comments – All target analytes were recovered within the laboratory control limits specified by the client. Phenanthrene, fluoranthene, and pyrene were detected in the procedural blank, but at concentrations less than three times the respective MDLs, and less than the respective RLs. These data were qualified with a "J" in the procedural blank. Concentrations of these compounds in the field samples were all greater than five times the levels detected in the procedural blank, and therefore no further corrective action was taken.

LABORATORY CONTROL SAMPLE:

A laboratory control sample (LCS) was prepared with each analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy.

05-0299 – All target analytes were recovered within the specified laboratory control limits (50-120%).

Comments – None.

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples were prepared with each analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The relative percent difference (RPD) between concentrations of target analytes detected in the MS and MSD was calculated to measure data quality in terms of precision.

05-0299 – No exceedence noted.

Comments – In the MS sample, anthracene, phenanthrene, fluoranthene, and pyrene were under-recovered at 37%, 35%, 16%, and 14% respectively, and benzo(a)pyrene was over-recovered at 131%. In the MSD sample, anthracene, phenanthrene, fluoranthene, pyrene were under-recovered at 35%, 36%, 23%, and 23% respectively, and benzo(a)pyrene. indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene were over-recovered at 151%, 127%, and 134% respectively. All other target analytes were recovered within the laboratory control limits of 50% - 120%. Due to limited knowledge of background concentrations of target analytes in the original sample before extraction and analysis, spiked concentrations in the MS and MSD were lower than five times reported background concentrations. Therefore, the exceedences were qualified for with an "n" to indicate that contingency criteria were met and no further corrective action was taken.

In addition, the low recovery of anthracene, phenanthrene, fluoranthene, and pyrene in the MS and MSD samples may also due to an unknown "site-specific" matrix interference which was suppressing the recovery of these compounds in the samples collected from New Bedford Harbor. As discussed below in the "Surrogates" section, recoveries of surrogate compound phenanthrene-d10 in all the New Bedford Harbor samples were flagged with a "ME" indicating matrix interference. Phenanthrene-d10 was recovered relatively low in most of the New Bedford Harbor samples as well, although the recovery values were not below the surrogate recovery control limits of 30% - 150%. No matrix interference was observed in the two samples collected from references sites outside the New Bedford Harbor.

%RPDs for fluoranthene and pyrene in the MS and MSD were outside the project-specific laboratory control limits (≤30%). These exceedances were also due to the fact that spiked concentrations in the MS and MSD were lower than five times reported background concentrations in the original sample. Therefore, the exceedences were qualified with an "n" indicating contingency criteria were met and no further corrective action was taken.

REPLICATES: Duplicate samples were prepared with each analytical batch. The RPD between duplicate analyses for PAH is calculated to measure data quality in terms of precision.

05-0299 – The RPD between duplicate analyses of all target analytes were within the laboratory control limits (<30% RPD).

Comments – None.

SRM: A standard reference material (SRM, NIST 1944) was prepared with each analytical batch. The percent difference (PD) between the measured value and the certified range was calculated to measure data quality in terms of accuracy. If the detected value fell within the certified range then the PD was calculated using the nearest end of the certified range.

05-0299 – Five exceedences noted.

Comments – Benzo(a)anthracene, chrysene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene were recovered outside the required control limits of ≤30% PD. Chromatography and calculations were reviewed and no significant discrepancies were found. The exceedence was qualified with an "N". No further corrective action was taken.

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SURROGATES: Five surrogate compounds were added prior to extraction, including naphthalene-d8, acenaphthene-d10, phenanthrene-d10, benzo(b)-fluoranthene-d12, and benzo(a)pyrene-d12. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0299 – Percent recoveries for all surrogate compounds were within the laboratory control limits specified by the method (30 – 150% recovery).

Comments – Recoveries of surrogate compound phenanthrene-d10 in all the New Bedford Harbor samples were flagged with a "ME" indicating matrix interference observed in the chromatographs. Phenanthrene-d10 was recovered relatively low in most of the New Bedford Harbor samples, although the recovery values were not below the control limits. No matrix interference was observed in the two samples collected from references sites outside the New Bedford Harbor, indicating the matrix interference issue may be specific to the New Bedford Harbor samples.

CALIBRATIONS: The GC/MS is calibrated with a minimum of a 5 level curve. The RSD between response factors for the individual target analytes must be <20%. Each batch of samples analyzed is bracketed by a calibration check sample, run at a frequency of minimally every 10 samples. This PD between the initial calibration RF and the check should be <20% for individual analytes; 15% on average.

05-0299 – No initial calibration exceedences; no calibration check exceedence.
Comments - None.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1005-L	EAG-1006-L	EAG-1001-G	EAG-1002-G
Description	COMPOSITE O, P, Q, R,S,T,U,V,W,X,Y, AA, & BB	COMPOSITE CC, DD, GG, HH, LL, MM, & KK	COMPOSITE A, C, D, & E	COMPOSITE F,G,I,K
Battelle ID	S8688-P	S8689-P	S8694-P	S8695-P
Sample Type	SA	SA	SA	SA
Collection Date	07/25/05	07/25/05	07/26/05	07/26/05
Extraction Date	08/22/05	08/22/05	08/22/05	08/22/05
Analysis Date	08/28/05	08/29/05	08/28/05	08/28/05
Analytical Instrument	MS	MS	MS	MS
% Moisture	60.14	56.4	53.23	58.01
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	12.30	13.51	14.39	12.89
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
Naphthalene	905.56	800.58	118.82	154.42
Acenaphthylene	236.06	146.09	43.48	40.67
Acenaphthene	161.82	88.44	17.33	22.61
Fluorene	128.39	111.19	23.53	27.1
Anthracene	311.11	260.75	33.71	46.18
Phenanthrene	503.49	482.71	98.2	134.64
Fluoranthene	842.88	808.14	150.02	209.21
Pyrene	1148.84	1042.47	194.8	251.66
Benzo(a)anthracene	1205.53	938.42	246.03	259.28
Chrysene	1291.82	1156.96	288.11	311.06
Benzo(b)fluoranthene	1054.01	1004.91	242.84	267.88
Benzo(k)fluoranthene	1136.14	1020.91	278.63	301.71
Benzo(a)pyrene	1685.79	1377.65	296.02	352.59
Indeno(1,2,3-cd)pyrene	1046.76	950.1	240.17	233.51
Dibenz(a,h)anthracene	276.39	250.92	57.53	53.1
Benzo(g,h,i)perylene	1041.29	953.63	249.38	261.95
Surrogate Recoveries (%)				
Naphthalene-d8	109	135	67	62
Acenaphthene-d10	52	56	57	52
Phenanthrene-d10	83 ME	64 ME	44 ME	60 ME
Benzo(b)fluoranthene-d12	90	95	74	73
Benzo(a)pyrene-d12	74	85	59	60

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1003-G	EAG-1004-G	EAG-1007-G	EAG-1010-G
Description	COMPOSITE H & J	COMPOSITE L, M, & N	COMPOSITE EE, FF, II, & JJ	COMPOSITE OF 1, 2, & 3
Battelle ID	S8696-P	S8697-P	S8700-P	S8703-P
Sample Type	SA	SA	SA	SA
Collection Date	07/26/05	07/27/05	07/27/05	07/27/05
Extraction Date	08/22/05	08/22/05	08/22/05	08/22/05
Analysis Date	08/28/05	08/28/05	08/28/05	08/29/05
Analytical Instrument	MS	MS	MS	MS
% Moisture	43.24	51.15	57.7	45.75
% Lipid	NA	NA	NA	NA
Matrix	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
Sample Size	17.08	14.88	12.83	16.28
Size Unit-Basis	G_DRY	G_DRY	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY	NG/G_DRY	NG/G_DRY
Naphthalene	78.96	683.14	548.88	400.71
Acenaphthylene	23.49	159.78	130.88	115.14
Acenaphthene	11.13	62.94	65.61	50.29
Fluorene	14.51	89.75	75.82	67.56
Anthracene	20.76	240.73	248.2	162.2
Phenanthrene	56.23	411.44	322.22	309.3
Fluoranthene	87.19	701	683.79	581.91
Pyrene	117.43	1017.86	953.16	823.75
Benzo(a)anthracene	155.5	1045.22	861.79	839.26
Chrysene	187	1187.92	999.4	968.57
Benzo(b)fluoranthene	154.51	1010.84	883.82	939.86
Benzo(k)fluoranthene	194.16	1167.89	974.07	949.58
Benzo(a)pyrene	219.53	1584.43	1225.52	1317.27
Indeno(1,2,3-cd)pyrene	152.57	1082.93	818.74	921.55
Dibenz(a,h)anthracene	35.42	277.66	211.62	237.78
Benzo(g,h,i)perylene	164.73	1084.06	828.85	928.79
Surrogate Recoveries (%)				
Naphthalene-d8	63	138	118	118
Acenaphthene-d10	59	61	54	53
Phenanthrene-d10	36 ME	70 ME	79 ME	60 ME
Benzo(b)fluoranthene-d12	82	101	89	94
Benzo(a)pyrene-d12	68	93	78	83

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1008-G	EAG-1009-G
Description	CCOMPOSITE OF Reference Site BBDS	COMPOSITE OF Reference Site RISDS
Battelle ID	S8701-P	S8702-P
Sample Type	SA	SA
Collection Date	07/30/05	07/29/05
Extraction Date	08/22/05	08/22/05
Analysis Date	08/28/05	08/28/05
Analytical Instrument	MS	MS
% Moisture	26.63	21.25
% Lipid	NA	NA
Matrix	SEDIMENT	SEDIMENT
Sample Size	22.10	23.82
Size Unit-Basis	G_DRY	G_DRY
Units	NG/G_DRY	NG/G_DRY
Naphthalene	1.94	0.94 B
Acenaphthylene	0.83	0.5
Acenaphthene	0.2 J	0.16 J
Fluorene	0.51	0.27 J
Anthracene	1.05	0.55
Phenanthrene	4.63	2.74
Fluoranthene	8.45	5.38
Pyrene	10.67	4.73
Benzo(a)anthracene	4.38	1.98
Chrysene	6.32	3.14
Benzo(b)fluoranthene	6.93	3.27
Benzo(k)fluoranthene	7.72	3.96
Benzo(a)pyrene	6.89	3.07
Indeno(1,2,3-cd)pyrene	5.37	2.8
Dibenz(a,h)anthracene	1.04	0.5
Benzo(g,h,i)perylene	6.45	3.12
Surrogate Recoveries (%)		
Naphthalene-d8	64	68
Acenaphthene-d10	62	65
Phenanthrene-d10	80	84
Benzo(b)fluoranthene-d12	101	107
Benzo(a)pyrene-d12	82	85

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank	
Battelle ID	BG948PB-P	
Sample Type	PB	
Collection Date	08/22/05	
Extraction Date	08/22/05	
Analysis Date	08/28/05	
Analytical Instrument	MS	
% Moisture	47.35	
% Lipid	NA	
Matrix	SEDIMENT	
Sample Size	16.04	
Size Unit-Basis	G_DRY	
Units	NG/G_DRY	
Naphthalene	0.20	J
Acenaphthylene	0.52	U
Acenaphthene	0.52	U
Fluorene	0.52	U
Anthracene	0.52	U
Phenanthrene	0.08	J
Fluoranthene	0.05	J
Pyrene	0.05	J
Benzo(a)anthracene	0.52	U
Chrysene	0.52	U
Benzo(b)fluoranthene	0.52	U
Benzo(k)fluoranthene	1.04	U
Benzo(a)pyrene	0.52	U
Indeno(1,2,3-cd)pyrene	0.52	U
Dibenz(a,h)anthracene	0.52	U
Benzo(g,h,i)perylene	0.52	U
Surrogate Recoveries (%)		
Naphthalene-d8	77	
Acenaphthene-d10	70	
Phenanthrene-d10	81	
Benzo(b)fluoranthene-d12	100	
Benzo(a)pyrene-d12	71	

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	050517-03: Sand, White Quartz			
Battelle ID	BG949LCS-P			
Sample Type	LCS			
Collection Date	08/22/05			
Extraction Date	08/22/05			
Analysis Date	08/28/05			
Analytical Instrument	MS			
% Moisture	NA			
% Lipid	NA			
Matrix	SEDIMENT			
Sample Size	30.65			
Size Unit-Basis	G_DRY			
Units	NG/G_DRY	Target	% Recovery	Qualifier
Naphthalene	21.61	32.65	66	
Acenaphthylene	20.67	32.65	63	
Acenaphthene	21.21	32.65	65	
Fluorene	21.53	32.65	66	
Anthracene	21.34	32.65	65	
Phenanthrene	24.24	32.65	74	
Fluoranthene	25.88	32.64	79	
Pyrene	24.74	32.64	76	
Benzo(a)anthracene	22.63	32.65	69	
Chrysene	24.66	32.65	76	
Benzo(b)fluoranthene	23.47	32.65	72	
Benzo(k)fluoranthene	27.65	32.65	85	
Benzo(a)pyrene	23.36	32.65	72	
Indeno(1,2,3-cd)pyrene	21.09	32.65	65	
Dibenz(a,h)anthracene	24.12	32.64	74	
Benzo(g,h,i)perylene	23.24	32.65	71	
Surrogate Recoveries (%)				
Naphthalene-d8	68			
Acenaphthene-d10	63			
Phenanthrene-d10	77			
Benzo(b)fluoranthene-d12	96			
Benzo(a)pyrene-d12	65			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	040429-01: SRM 1944
Battelle ID	BG950SRM-P
Sample Type	SRM
Collection Date	08/22/05
Extraction Date	08/22/05
Analysis Date	08/28/05
Analytical Instrument	MS
% Moisture	1.3
% Lipid	NA
Matrix	SEDIMENT
Sample Size	1.17
Size Unit-Basis	G_DRY
Units	NG/G_DRY

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
Naphthalene	1246.38	1650	310.04	48.79	24.5	
Acenaphthylene	751.41					
Acenaphthene	348.49					
Fluorene	364.67					
Anthracene	1195.56	1770	329.93	48.64	32.5	
Phenanthrene	4783.81	5270	219.76	34.17	9.2	
Fluoranthene	6018.51	8920	320.23	33.59	32.5	
Pyrene	6410.57	9700	420.01	34.33	33.9	
Benzo(a)anthracene	8432.53	4720	109.98	32.33	78.7	N
Chrysene	10541.76	5900	270.22	34.58	78.7	N
Benzo(b)fluoranthene	2814.83	3870	419.90	40.85	27.3	
Benzo(k)fluoranthene	3302.35	4390	640.06	44.58	24.8	
Benzo(a)pyrene	3657.14	4300	129.86	33.02	15	
Indeno(1,2,3-cd)pyrene	4197.86	2780	100.08	33.6	51	N
Dibenz(a,h)anthracene	1147.82	759	81.97	40.8	51.2	N
Benzo(g,h,i)perylene	4316.85	2840	99.97	33.52	52	N

Surrogate Recoveries (%)

Naphthalene-d8	68	
Acenaphthene-d10	66	
Phenanthrene-d10	41	ME
Benzo(b)fluoranthene-d12	113	
Benzo(a)pyrene-d12	110	

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1001-G	EAG-1001-G			
Battelle ID	S8694-P	S8694MS-P			
Sample Type	SA	MS			
Collection Date	07/26/05	07/26/05			
Extraction Date	08/22/05	08/22/05			
Analysis Date	08/28/05	08/28/05			
Analytical Instrument	MS	MS			
% Moisture	53.23	50.44			
% Lipid	NA	NA			
Matrix	SEDIMENT	SEDIMENT			
Sample Size	14.39	7.66			
Size Unit-Basis	G_DRY	G_DRY			
Units	NG/G_DRY	NG/G_DRY	Target	% Recovery	Qualifier
Naphthalene	118.82	200.11	130.63	62	
Acenaphthylene	43.48	118.06	130.63	57	
Acenaphthene	17.33	102.30	130.65	65	
Fluorene	23.53	92.26	130.64	53	
Anthracene	33.71	81.68	130.63	37	n
Phenanthrene	98.20	143.54	130.63	35	n
Fluoranthene	150.02	170.27	130.61	16	n
Pyrene	194.80	213.55	130.61	14	n
Benzo(a)anthracene	246.03	353.51	130.63	82	
Chrysene	288.11	393.86	130.65	81	
Benzo(b)fluoranthene	242.84	355.16	130.65	86	
Benzo(k)fluoranthene	278.63	401.04	130.63	94	
Benzo(a)pyrene	296.02	466.80	130.63	131	n
Indeno(1,2,3-cd)pyrene	240.17	379.27	130.63	106	
Dibenz(a,h)anthracene	57.53	170.64	130.62	87	
Benzo(g,h,i)perylene	249.38	388.55	130.64	107	
Surrogate Recoveries (%)					
Naphthalene-d8	67	68			
Acenaphthene-d10	57	62			
Phenanthrene-d10	44 ME	41 ME			
Benzo(b)fluoranthene-d12	74	92			
Benzo(a)pyrene-d12	59	79			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1001-G					
Battelle ID	S8694MSD-P					
Sample Type	MSD					
Collection Date	07/26/05					
Extraction Date	08/22/05					
Analysis Date	08/28/05					
Analytical Instrument	MS					
% Moisture	51.7					
% Lipid	NA					
Matrix	SEDIMENT					
Sample Size	7.65					
Size Unit-Basis	G_DRY					
Units	NG/G_DRY	Target	% Recovery	Qualifier	RPD (%)	Qualifier
Naphthalene	202.15	130.80	64		3.2	
Acenaphthylene	123.39	130.80	61		6.8	
Acenaphthene	104.96	130.82	67		3.0	
Fluorene	94.04	130.81	54		1.9	
Anthracene	79.19	130.80	35	n	5.6	
Phenanthrene	145.52	130.80	36	n	2.8	
Fluoranthene	180.10	130.78	23	n	35.9	n
Pyrene	224.48	130.78	23	n	48.6	n
Benzo(a)anthracene	383.24	130.80	105		24.6	
Chrysene	424.49	130.82	104		24.9	
Benzo(b)fluoranthene	369.76	130.82	97		12.0	
Benzo(k)fluoranthene	425.82	130.80	113		18.4	
Benzo(a)pyrene	494.03	130.80	151	n	14.2	
Indeno(1,2,3-cd)pyrene	406.53	130.80	127	n	18.0	
Dibenz(a,h)anthracene	186.27	130.79	98		11.9	
Benzo(g,h,i)perylene	425.09	130.81	134	n	22.4	

Surrogate Recoveries (%)

Naphthalene-d8	69	
Acenaphthene-d10	63	
Phenanthrene-d10	43	ME
Benzo(b)fluoranthene-d12	95	
Benzo(a)pyrene-d12	83	

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-1010-G	EAG-1010-G		
Description	COMPOSITE OF 1, 2, & 3	COMPOSITE OF 1, 2, & 3		
Battelle ID	S8703-P	S8703DUP-P		
Sample Type	SA	QADU		
Collection Date	07/27/05	07/27/05		
Extraction Date	08/22/05	08/22/05		
Analysis Date	08/29/05	08/29/05		
Analytical Instrument	MS	MS		
% Moisture	45.75	45.64		
% Lipid	NA	NA		
Matrix	SEDIMENT	SEDIMENT		
Sample Size	16.28	16.65		
Size Unit-Basis	G_DRY	G_DRY		
Units	NG/G_DRY	NG/G_DRY	RPD	Qualifier
Naphthalene	400.71	406.21	1.4	
Acenaphthylene	115.14	116.77	1.4	
Acenaphthene	50.29	59.80	17.3	
Fluorene	67.56	72.87	7.6	
Anthracene	162.20	189.00	15.3	
Phenanthrene	309.30	380.63	20.7	
Fluoranthene	581.91	646.41	10.5	
Pyrene	823.75	860.43	4.4	
Benzo(a)anthracene	839.26	917.57	8.9	
Chrysene	968.57	1059.15	8.9	
Benzo(b)fluoranthene	939.86	1034.50	9.6	
Benzo(k)fluoranthene	949.58	1079.98	12.9	
Benzo(a)pyrene	1317.27	1462.91	10.5	
Indeno(1,2,3-cd)pyrene	921.55	1053.39	13.4	
Dibenz(a,h)anthracene	237.78	267.32	11.7	
Benzo(g,h,i)perylene	928.79	1032.77	10.6	
Surrogate Recoveries (%)				
Naphthalene-d8	118	129		
Acenaphthene-d10	53	56		
Phenanthrene-d10	60 ME	63 ME		
Benzo(b)fluoranthene-d12	94	99		
Benzo(a)pyrene-d12	83	89		

Table II-2: Quality Control Summary for Analyses of Polyaromatic Hydrocarbons (PAHs) and other base-neutrals in Sediment and Tissue Matrices

Method Reference Number: 8270C **Batch 05-0299 (sediments)**

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes/No	Benzo(a)anthracene, chrysene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene were recovered outside the required control limits of <30% PD. See SRM results for 05-0299.	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes	Contingency criteria were met. MS/MSD samples were not spiked at 5x the background concentrations. See QC summary and MS/MSD results for 05-0299.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes	Recoveries of surrogate compound phenanthrene-d10 in all the New Bedford Harbor samples were flagged with a "ME" indicating matrix interference observed in the chromatographs. See QC summary for 05-0299.	In Data Package
Internal Standard Areas	Within 50 to 200% of internal standards in continuing calibration check	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Appendix B-3
Sediment Metal Data

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Analytical Chemistry Data Package
Inorganics Analysis

Project: USACE - NED
New Bedford Harbor
Ocean Monitoring

Analysis of Metals in Sediment and Rinsate Blank Water

Battelle Project No. 49649
CF No. 2441

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Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
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CERTIFICATION STATEMENT AND DATA RELEASE

Battelle Marine Sciences Laboratory is releasing the following data set:

NEW BEDFORD HARBOR OCEAN MONITORING

METALS IN SEDIMENT AND RINSATE BLANK WATER

We certify that the data contained within this data set is authentic:

9/15/05

Jill M. Brandenberger — Date
MSL Metals Chemistry Project Manager

9/16/05

Janet Cloutier — Date
MSL QA Officer

Table II-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue and Water Matrices

Method Reference Numbers: Various Reference Numbers

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Linear Range Determination for ICP	Performed Quarterly	YES		Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient ≥0.995)	YES		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	YES		In Data Package
Initial Calibration Verification/ Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	YES		Retained at Lab
Initial Calibration Blank/ Continuing Calibration Blank	No target analytes > Instrument Detection Limit (IDL)	YES		Retained at Lab
Standard Reference Materials	Percent difference ≤25% for analytes certified >10* the MDL	YES		In Data Package
Method Blank	No target analytes > RL	YES		In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (75 to 125%; RPD < 20% or < 35%)	YES		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	YES		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

BATTELLE MARINE SCIENCES LABORATORIES
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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Sediment
(Units: ug/g dry wt)

SPONSOR CODE	Site Description (Composite ID)	MSL Code	Date Received	Date Collected	Percent Moisture	As	Cd	Cr	Cu	Hg	Ni
					Method:	6020mod	6020mod	6010B	6010B	245.5mod	6010B
					CAS Code:	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0
					Achieved MDL	**0.0185**	**0.00714**	**0.0592**	**0.132**	**0.00541**	**0.0535**
					Project RLs (3.18 x MDL)	0.0588	0.0227	0.188	0.420	0.0172	0.170
					NED RIM RL	0.4	0.07	0.5	0.5	0.02	0.5
EAG-1001-H	A,C,D,E	2441-6r1	08/02/05	07/26/05	53.0	7.80	2.11	122	167	0.463	20.8
EAG-1001-H	A,C,D,E	2441-6r2	08/02/05	07/26/05	53.0	7.46	2.20	122	168	0.460	20.4
EAG-1002-H	F,G,I,K	2441-7	08/02/05	07/26/05	57.6	8.99	3.06	193	282	0.597	25.3
EAG-1003-H	H & J	2441-8	08/02/05	07/26/05	44.9	5.21	1.44	99.7	152	0.358	14.9
EAG-1004-H	L, M, N	2441-9	08/02/05	07/27/05	51.5	7.97	2.61	198	506	1.21	23.7
EAG-1005-H	O,P,Q,R,S,T,U,V,W, X,Y,AA,BB	2441-10	08/02/05	07/25/05	61.1	10.4	4.72	281	553	0.946	32.7
EAG-1006-H	CC,DD,GG,HH,LL, MM,KK	2441-11	08/02/05	07/25/05	56.6	10.4	4.95	326	731	1.07	38.3
EAG-1007-H	EE, FF, II, JJ	2441-12	08/02/05	07/27/05	58.3	9.22	4.58	291	578	0.786	31.7
EAG-1008-H	BBDS	2441-13	08/02/05	07/30/05	28.0	2.08	0.0404	17.4	3.28	0.0293	6.07
EAG-1009-H	RISDS	2441-14	08/02/05	07/28/05	20.9	2.64	0.0418	16.5	3.00	0.0125	5.87
EAG-1010-H	1,2, & 3	2441-15	08/02/05	07/27/05	44.6	8.42	3.64	234	628	1.52	29.8
METHOD BLANK											
MB 1		Blank 081005	08/02/05	08/02/05	*48.1*	0.0185 U	0.00714 U	0.0592 U	0.132 U	0.0138 j	0.0535 U
LABORATORY CONTROL SAMPLE RESULTS											
LCS 1		LCS 081005	08/02/05	08/02/05	*48.1*	21.2	25.4	25.2	24.8	2.09	25.0
MB 1		Blank 081005	08/02/05	08/02/05	*48.1*	0.0185 U	0.00714 U	0.0592 U	0.132 U	0.0138 j	0.0535 U
		Spike conc				25	25	25	25	2	25
		Percent Recovery				**85%**	**102%**	**101%**	**99%**	**104%**	**100%**
MATRIX SPIKE RESULTS											
MS 1	RISDS	2441-14MS	08/02/05	07/28/05	20.9	4.61	2.11	64.9	52.6	2.15	53.6
MSD 1	RISDS	2441-14MSD	08/02/05	07/28/05	20.9	4.61	2.12	65.4	51.8	2.13	53.5
	RISDS	2441-14	08/02/05	07/28/05	20.9	2.64	0.0418	16.5	3.00	0.0125	5.87
		Spike conc, MS				2.02	2.02	49.4	49.4	2.02	49.4
		Spike conc, MSD				2.00	2.00	48.4	48.4	2.00	48.4
		% Rec, MS				**98%**	**102%**	**98%**	**100%**	**106%**	**97%**
		% Rec, MSD				**99%**	**104%**	**101%**	**101%**	**106%**	**98%**
		RPD				**1%**	**1%**	**3%**	**0%**	**0%**	**2%**

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Sediment
(Units: ug/g dry wt)

SPONSOR CODE	Site Description (Composite ID)	MSL Code	Date Received	Date Collected	Percent Moisture	As	Cd	Cr	Cu	Hg	Ni
					Method:	6020mod	6020mod	6010B	6010B	245.5mod	6010B
					CAS Code:	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0
					Achieved MDL	**0.0185**	**0.00714**	**0.0592**	**0.132**	**0.00541**	**0.0535**
					Project RLs (3.18 x MDL)	0.0588	0.0227	0.188	0.420	0.0172	0.170
					NED RIM RL	0.4	0.07	0.5	0.5	0.02	0.5
STANDARD REFERENCE MATERIAL RESULTS											
SRM 1		1944 081005	08/02/05	08/02/05	0.0	14.1	8.28	202	330	3.36	59.0
		certified/ref value				18.9	8.80	266	380	3.4	76.1
		range				±2.8	±1.40	±24	±40	±0.09	±5.6
		Percent Difference				**25%**	**6%**	**24%**	**13%**	**1%**	**23%**
LABORATORY DUPLICATE RESULTS											
EAG-1001-H	A,C,D,E	2441-6r1	08/02/05	07/26/05	53.0	7.80	2.11	122	167	0.463	20.8
EAG-1001-H	A,C,D,E	2441-6r2	08/02/05	07/26/05	53.0	7.46	2.20	122	168	0.460	20.4
		Mean				7.63	2.16	122	168	0.46	20.6
		RPD				**4%**	**4%**	**1%**	**1%**	**1%**	**2%**

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Sediment
(Units: ug/g dry wt)

SPONSOR CODE	Site Description (Composite ID)	MSL Code	Date Received	Date Collected	Percent Moisture	Pb	Zn
					Method:	6010B	6010B
					CAS Code:	7439-92-1	7440-66-6
					Achieved MDL	**0.117**	**0.151**
					Project RLs (3.18 x MDL)	0.372	0.480
					NED RIM RL	0.5	1
EAG-1001-H	A,C,D,E	2441-6r1	08/02/05	07/26/05	53.0	88.9	186
EAG-1001-H	A,C,D,E	2441-6r2	08/02/05	07/26/05	53.0	88.8	189
EAG-1002-H	F,G,I,K	2441-7	08/02/05	07/26/05	57.6	115	245
EAG-1003-H	H & J	2441-8	08/02/05	07/26/05	44.9	63.9	144
EAG-1004-H	L, M, N	2441-9	08/02/05	07/27/05	51.5	163	321
EAG-1005-H	O,P,Q,R,S,T,U,V,W, X,Y,AA,BB	2441-10	08/02/05	07/25/05	61.1	173	394
EAG-1006-H	CC,DD,GG,HH,LL, MM,KK	2441-11	08/02/05	07/25/05	56.6	201	483
EAG-1007-H	EE, FF, II, JJ	2441-12	08/02/05	07/27/05	58.3	169	380
EAG-1008-H	BBDS	2441-13	08/02/05	07/30/05	28.0	7.77	24.5
EAG-1009-H	RISDS	2441-14	08/02/05	07/28/05	20.9	8.59	26.4
EAG-1010-H	1,2, & 3	2441-15	08/02/05	07/27/05	44.6	217	444
METHOD BLANK							
MB 1		Blank 081005	08/02/05	08/02/05	*48.1*	0.117 U	0.151 U
LABORATORY CONTROL SAMPLE RESULTS							
LCS 1		LCS 081005	08/02/05	08/02/05	*48.1*	24.8	24.9
MB 1		Blank 081005	08/02/05	08/02/05	*48.1*	0.117 U	0.151 U
		Spike conc				25	25
		Percent Recovery				**99%**	**100%**
MATRIX SPIKE RESULTS							
MS 1	RISDS	2441-14MS	08/02/05	07/28/05	20.9	55.9	175
MSD 1	RISDS	2441-14MSD	08/02/05	07/28/05	20.9	55.6	174
	RISDS	2441-14	08/02/05	07/28/05	20.9	8.59	26.4
		Spike conc, MS				49.4	148
		Spike conc, MSD				48.4	145
		% Rec, MS				**96%**	**100%**
		% Rec, MSD				**97%**	**102%**
		RPD				**1%**	**1%**

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Sediment
(Units: ug/g dry wt)

SPONSOR CODE	Site Description (Composite ID)	MSL Code	Date Received	Date Collected	Percent Moisture	Pb	Zn
					Method:	6010B	6010B
					CAS Code:	7439-92-1	7440-66-6
					Achieved MDL	**0.117**	**0.151**
					Project RLs (3.18 x MDL)	0.372	0.480
					NED RIM RL	0.5	1
STANDARD REFERENCE MATERIAL RESULTS							
SRM 1		1944 081005	08/02/05	08/02/05	0.0	264	547
		certified/ref value				330	656
		range				±48	±75
		Percent Difference				**20%**	**17%**
LABORATORY DUPLICATE RESULTS							
EAG-1001-H	A,C,D,E	2441-6r1	08/02/05	07/26/05	53.0	88.9	186
EAG-1001-H	A,C,D,E	2441-6r2	08/02/05	07/26/05	53.0	88.8	189
		Mean				89	187
		RPD				**0%**	**1%**

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NEW BEDFORD HARBOR - OCEAN MONITORING
Metals in Rinsate Blank Water
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Received	Date Collected	Ag	As	Cd	Cr	Cu	Hg	Ni	Pb	Se	Zn
				Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1631E	1638mod	1638mod	1638mod	1638mod
				CAS Code:	7440-22-4	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0	7439-92-1	7782-49-2	7440-66-6
				Achieved MDL (2005 MDL)	**0.006**	**0.009**	**0.004**	**0.04**	**0.02**	**0.0002**	**0.006**	**0.006**	**0.1**	**0.02**
				RLs (3.18 x MDL)	0.02	0.03	0.02	0.2	0.07	0.0007	0.02	0.02	0.4	0.07
				NED RIM RL	0.5	1	1	1	0.6	0.4	1	1	1	1
EAG-052-H	rinsate blank for grab	2441-2r1	08/02/05	07/29/05	0.006 U	0.152	0.0131 j	1.03	0.162	0.000474 j	0.926	0.0517	0.793	0.861
EAG-052-H	rinsate blank for grab	2441-2r2	08/02/05	07/29/05	0.006 U	0.157	0.0138 j	1.02	0.166	See Note	0.930	0.0558	0.800	0.924
EAG-053-H	rinsate blank for corer	2441-3	08/02/05	07/29/05	0.006 U	0.009 U	0.004 U	0.04 U	0.782	0.00181	0.0363	0.0306	0.1 U	0.427
EAG-054-H	rinsate blank for pump	2441-4	08/02/05	07/29/05	0.0108 j	0.0123 j	0.004 U	0.0863 j	0.121	0.000418 j	0.0326	0.0959	0.1 U	2.89
METHOD BLANK														
MB 1		Blank 1			0.006 U	0.009 U	0.004 U	0.04 U	0.02 U	0.0002 U	0.006 U	0.006 U	0.1 U	0.0408 j
LABORATORY CONTROL SAMPLE RESULTS														
LCS 1		LCS R1			5.34	5.15	5.18	5.18	5.34	0.00586	5.45	5.61	5.02	4.99
LCS 2		LCS R2			5.21	5.03	5.15	5.15	5.25	0.00560	5.32	5.67	4.72	4.94
LCS Blank		Blank 1 or Blank082905 (Hg)			0.006 U	0.009 U	0.004 U	0.04 U	0.02 U	0.000542 j	0.006 U	0.006 U	0.1 U	0.0408 j
		Spike conc			5	5	5	5	5	0.00497	5	5	5	5
		% Rec, R1			**107%**	**103%**	**104%**	**104%**	**107%**	**107%**	**109%**	**112%**	**100%**	**99%**
		% Rec, R2			**104%**	**101%**	**103%**	**103%**	**105%**	**102%**	**106%**	**113%**	**94%**	**98%**
		RPD			**2%**	**2%**	**1%**	**1%**	**2%**	**5%**	**2%**	**1%**	**6%**	**1%**
STANDARD REFERENCE MATERIAL RESULTS														
SRM 1		1640 TRM/1641d			7.59	26.7	22.9	39.3	85.9	1680	28.3	29.4	22.2	53.3
		certified/ref value			7.62	26.67	22.79	38.60	85.2	1690	27.4	27.89	21.96	53.2
		range			± 0.25	± 0.41	± 1.6	± 0.96	± 1.20	±18	± 0.80	± 0.14	±0.51	± 1.10
		Percent Difference			**0%**	**0%**	**0%**	**2%**	**1%**	**1%**	**3%**	**5%**	**1%**	**0%**
LABORATORY DUPLICATE RESULTS														
EAG-052-H	rinsate blank for grab	2441-2r1	08/02/05	07/29/05	0.006 U	0.152	1.03	0.04 U	0.162	0.000474 j	0.926	0.0517	0.793	0.861
EAG-052-H	rinsate blank for grab	2441-2r2	08/02/05	07/29/05	0.006 U	0.157	1.02	0.04 U	0.166	See Note	0.930	0.0558	0.800	0.924
		Mean			--	0.155	1.03	--	0.164	--	0.928	0.0538	0.797	0.893
		RPD			--	**3%**	**1%**	--	**2%**	--	**0%**	**8%**	**1%**	**7%**

NOTE: Hg samples analyzed with seawater samples. QC samples reported with seawater data.

QA/QC NARRATIVE

PROJECT: New Bedford Harbor Ocean Monitoring
PARAMETER: Metals
LABORATORY: Battelle Marine Sciences Laboratory (MSL), Sequim, Washington
MATRIX: Sediment
SAMPLE CUSTODY AND PROCESSING: Ten sediment samples for metals analyses were received at MSL on 08/02/05. All samples were received in good condition (i.e., no sample containers were broken). Samples were assigned a Battelle Central File (CF) identification number (2441) and were entered into Battelle's laboratory information management system.

The following lists information on sample receipt and processing activities:

Lab Sample IDs:	2441*6-15
Description:	Marine Sediment
Sample collection dates:	07/25/05, 07/26/05, 07/27/05, 07/28/05, 07/30/05
Laboratory arrival date:	08/02/05
Cooler temp. on arrival:	5.1°C
Digestion (HNO_3/HCl)	08/10/05
CVAA Analysis Date (Hg)	08/18/05
ICP-OES Analysis Date (Cr, Cu, Pb, Ni, Zn)	08/19/05
ICP-MS Analysis Date (As, Cd)	08/29/05

DATA QUALITY OBJECTIVES:

Analyte	Analytical Method	Range of Recovery	SRM Accuracy	Laboratory Duplicate Precision	RIM RL (µg/g)	Project MDL (2) (µg/g)	Project RL (3) (µg/g)
As	ICP-MS	75-125%	≤25% (1)	≤30% (1)	0.4	0.0185	0.0588
Cd	ICP-MS	75-125%	≤25% (1)	≤30% (1)	0.07	0.00714	0.0227
Cr	ICP-OES	75-125%	≤25% (1)	≤30% (1)	0.5	0.0592	0.188
Cu	ICP-OES	75-125%	≤25% (1)	≤30% (1)	0.5	0.132	0.420
Hg	CVAA	75-125%	≤25% (1)	≤30% (1)	0.02	0.00541	0.0172
Ni	ICP-OES	75-125%	≤25% (1)	≤30% (1)	0.5	0.0535	0.170
Pb	ICP-OES	75-125%	≤25% (1)	≤30% (1)	0.5	0.117	0.372
Zn	ICP-OES	75-125%	≤25% (1)	≤30% (1)	1	0.151	0.480

(1) Evaluated for analytes >10x the MDL
(2) Reported from the Annual Sediment Method Detection Limit (MDL) Study as determined on a dry weight basis using seven replicates of quartz sand.
(3) Reporting Limit (RL) determined as 3.18 * achieved MDL.

METHODS: Sediment samples were analyzed for eight metals: arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), and zinc (Zn). Samples were freeze-dried and homogenized using a ball-mill prior to digestion according to Battelle SOP MSL-C-003, *Percent Dry Weight and Homogenizing Dry Sediment, Soil and Tissue*. Sediment samples were digested in accordance with Battelle SOP MSL-I-006, *Mixed Acid Sediment Digestion*. An approximately 200-mg (dry weight) aliquot of each sample was combined with nitric and hydrochloric acids (aqua regia) in a Teflon bomb and heated in an oven at 130ºC (±10ºC) for a minimum of eight hours. After heating and cooling, deionized water was added to the sediment digestate to achieve analysis volume. Digestates were submitted for analysis by three methods.

QA/QC NARRATIVE

METHODS:

Digested samples were analyzed for Hg using cold-vapor atomic absorption spectroscopy (CVAA) according to Battelle SOP MSL-I-016, *Total Mercury in Tissues and Sediments by Cold Vapor Atomic Absorption*. This procedure is based on modification of EPA Method 245.5

Digested samples were analyzed for As and Cd using inductively coupled plasma-mass spectrometry (ICP-MS) according to Battelle SOP MSL-I-022, *Determination of Elements in Aqueous and Digestate Samples by ICP/MS*. The base methods for this procedure are EPA Method 1638 and EPA Method 6020 with adaptations for the analysis of trace level metals in digested sediment and tissue samples.

Digested samples were analyzed for all other metals using inductively coupled plasma optical emissions spectroscopy (ICP-OES) according to Battelle SOP MSL-I-033, *Determination of Elements in Aqueous and Digestate Samples by ICP-OES*. This procedure is based on two methods modified and adapted for analysis of low level samples: EPA Method 6010B and 200.7.

HOLDING TIMES:

The target holding time of six months was achieved for all samples.

DETECTION LIMITS:

Project MDLs and RLs were provided to the client on June 29, 2005. Analytical results were reported to laboratory achieved method detection limits (MDL) and achieved reporting limits (RL) defined as 3.18*MDL. Data were evaluated and flagged in accordance with the following criteria:

U Not detected above laboratory achieved MDL; MDL reported

j Analyte detected is less than the achieved RL, but greater than MDL

N QC value outside the accuracy or precision criteria goal (Spikes ±30%R; SRM ≤25%PD; Replicates ±30%RPD)

n QC value outside the accuracy or precision data quality objective, but meets contingency criteria.

METHOD BLANKS:

One method blank was analyzed with the set of sediment samples. Analytes concentrations in the method blank were either not detected at a level greater than the project RL. The data are not blank corrected.

LABORATORY CONTROL SAMPLE ACCURACY:

One laboratory control sample (LCS) was analyzed with the set of samples. The percent recoveries for the LCS ranged from 85% to 104% and were within the QC acceptance criterion of 75-125% recovery for all metals.

MATRIX SPIKE ACCURACY:

The reference sediment was selected for a matrix spike/matrix spike duplicate sample. The percent recoveries for the MS/MSD samples ranged from 96% to 104% and were within the QC acceptance criterion of 75-125% recovery for all metals.

DUPLICATE PRECISION:

Precision for this set of samples was assessed by the analysis of laboratory duplicates and matrix spike duplicates. Precision was expressed as the relative percent difference (RPD) of replicate results. The RPD values for the duplicates ranged from 0% to 4% and were within the QC criterion of ≤30% RPD. The RPD values for the MS/MSD samples ranged from 0% to 3% and were within the QC criterion of ≤20% RPD.

STANDARD REFERENCE MATERIAL ACCURACY:

SRM accuracy was expressed as the percent difference (PD) between the measured and certified or reference value for the SRM.

The SRM analyzed with this set of sediment samples was SRM 1944 New York/New Jersey Waterway Sediment. The percent differences ranged from 1% to 25% and were within the QC acceptance criterion of PD ≤25% for all metals.

QA/QC NARRATIVE

PROJECT: New Bedford Harbor Ocean Monitoring

PARAMETER: Metals

LABORATORY: Battelle Marine Sciences Laboratory, Sequim, Washington

MATRIX: Rinsate Blanks

SAMPLE CUSTODY AND PROCESSING: Three rinsate blanks for metals analyses were received at MSL on 08/02/05. All samples were received in good condition (i.e., no sample containers were broken). Samples were assigned a Battelle Central File (CF) identification number (2441) and were entered into Battelle's laboratory information management system.

The following lists information on sample receipt and processing activities:

Lab Sample IDs:	2441*2-4
Description:	Rinsate Blanks
Sample collection dates:	07/29/05
Laboratory arrival date:	08/02/05
Cooler temp. on arrival:	5.1°C
CVAF Analysis Date: (Hg)	08/30/05
ICP-MS Analysis Date: (Ag, As, Cd, Cr, Cu, Pb, Ni, Se, Zn)	08/25/05

QA/QC DATA QUALITY OBJECTIVES:

Analyte	Analytical Method for Freshwater	MS Range of Recovery[1]	SRM Percent Difference[1]	Replicate Precision[1]	NED Reporting Limits (µg/L)	Lab Detection Limits (µg/L)[2]	Lab Reporting Limits (µg/L)[3]
Silver	ICP-MS	75-125%	≤25%	≤30%	0.5	0.006	0.02
Arsenic	ICP-MS	75-125%	≤25%	≤30%	1	0.009	0.03
Cadmium	ICP-MS	75-125%	≤25%	≤30%	1	0.004	0.02
Chromium	ICP-MS	75-125%	≤25%	≤30%	1	0.04	0.2
Copper	ICP-MS	75-125%	≤25%	≤30%	0.6	0.02	0.07
Mercury	CVAF	75-125%	≤25%	≤30%	0.4	0.006	0.0007
Nickel	ICP-MS	75-125%	≤25%	≤30%	1	0.006	0.02
Lead	ICP-MS	75-125%	≤25%	≤30%	1	0.0002	0.02
Selenium	ICP-MS	75-125%	≤25%	≤30%	1	0.1	0.4
Zinc	ICP-MS	75-125%	≤25%	≤30%	1	0.2	0.07

[1] Evaluated for analytes >10x the MDL
[2] Reported from the Water Method Detection Limit (MDL) Study as determined using seven replicates of spiked DI water.
[3] Lab Reporting Limit (RL) determined as 3.18 * achieved MDL.

METHODS: Equipment rinsate blanks were analyzed for ten metals: silver (Ag), arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), selenium (Se), and zinc (Zn). The samples were submitted for the analyses by two methods.

Samples were analyzed for Total Hg by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP *MSL-I-013*, *Total Mercury in Aqueous Samples by CVAF based on EPA Method 1631 Revision E.*

Samples were analyzed for all other metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP *MSL-I-022, Determination of Elements in Aqueous and Digestate Samples by ICP/MS.* Samples were acid solubilized prior to analysis by ICP-MS in accordance with the total recoverable metals (TRM) method in Battelle SOP *MSL-I-022.* The analysis guidelines for this procedure are adapted from

QA/QC NARRATIVE

METHODS, cont.: USEPA Method 1638 Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry. The TRM methodology is adapted from USEPA Method 1640 - Determination of Trace Elements in Ambient Waters by On-Line Chelation Preconcentration and Inductively Coupled Plasma-Mass Spectrometry.

All data are in units of µg/L for each sample.

HOLDING TIMES: Established holding times of 90 days for Hg and six months for trace metals were achieved for all samples.

DETECTION LIMITS: Laboratory achieved detection limit are reported from the Annual MDL study for freshwater. The reporting limits provided are determined as 3.18 times the laboratory achieved MDL. Data were evaluated and flagged to the following criteria:

U Not detected above laboratory achieved MDL; MDL reported.

j Analyte detected is less than the achieved RL, but greater than MDL

N QC value outside the accuracy or precision criteria goal (Spikes ±30%R; SRM ≤25%PD; Replicates ±30%RPD)

n QC value outside the accuracy or precision data quality objective, but meets contingency criteria.

METHOD BLANKS: One method blank was analyzed with this batch of samples. Method blank concentrations were all less than the project-reporting limit (RL). Samples were not blank corrected.

BLANK SPIKE /LABORATORY CONTROL SAMPLES: Two laboratory control samples (LCS) or Ongoing Precision and Recovery (OPR) samples were prepared and analyzed with this batch of samples. Percent recoveries for the LCS samples ranged from 94% to 113% and were within the QC acceptance criteria of 75% to 125% for all metals.

MATRIX SPIKE ACCURACY: The sample matrix for rinsate blanks is deionized water; therefore LCS samples serve as matrix spikes.

DUPLICATE PRECISION: Precision for this set of samples was assessed by the analysis of laboratory duplicates and LCS duplicates. Precision was expressed as the relative percent difference (RPD) of replicate results. The RPD values for the duplicates ranged from 0% to 8% and were within the QC criterion of ≤30% RPD. The RPD values for the LCS duplicates ranged from 1% to 6% and were within the QC criterion of ≤20% RPD.

Note: The rinsate blank samples and seawater elutriate samples were analyzed as a batch for Hg. The laboratory duplicates analyzed with the batch are reported with the elutriate data.

STANDARD REFERENCE MATERIAL ACCURACY: Two standard reference materials were analyzed with this batch of samples. SRM 1641d for Hg and SRM 1640 for metals analyzed by ICP-MS. Accuracy for SRMs was expressed as the percent difference (PD) between the measured and certified values.

One replicate of SRM 1641d for Hg was analyzed with this batch of samples. The SRM recovery was 1% percent difference and within the QC acceptance criterion of ± 25%.

One replicate of SRM 1640 were analyzed with this batch of samples. Percent differences ranged from 0% to 5% and were within the QC acceptance criterion of ± 25% for all metal.

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Chain of Custody

Proj. No: 60404/6-0001b
Proj. Name: New Bedford Harbor
SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7/29/05	1015	EAG-051-H.	2441-1	(*) RISDS site water 1L Jar							✓				1
	0800	EAG-052-H.	2	Rinsate blank for Grab 1L jar							✓				1
	1400	EAG-053-H.	3	Rinsate blank for corer "							✓				1
	"	EAG-054-H.	4	" " " pump "							✓				1
7-30-05	0830	EAG-056-H.	2441-5	(*) BBDS site water 1L Jar							✓				1

Relinquished by:	Date/Time	Received by:	Date/Time
	7-29-05 1800		8/1/05 06:30
Relinquished by:	Date/Time	Received by:	Date/Time
	8/1/05 13:00		08/02/05 1330

Comments:
(*) RISDS and BBDS are to be analyzed in triplicate. An MS and MSD should be performed on of these samples.

ORIGINAL

New Bedford Harbor OM Metals Report

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Battelle

The Business of Innovation

Chain of Custody

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Duxbury, MA 02332
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Proj. No: G6064 16

Proj. Name: New Bedford Harbor

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7/26/05		2441 + 6	EAG-1001-H	Composite of Sites A, C, D, + E							✓				1
7/26/05		7	EAG-1002-H	" " F, G, I, + K							✓				1
7/26/05		8	EAG-1003-H	" " H + J							✓				1
7/27/05		9	EAG-1004-H	" " L, M, + N							✓				1
7/25/05		10	EAG-1005-H	" " " O, P, Q, R, S, T, U, V, W, X, Y, AA + BB							✓				1
7/25/05		11	EAG-1006-H	" " " CC, DD, GG, HH, LL, MM, + KK							✓				1
7/27/05		12	EAG-1007-H	" " " EE, FF, II, JJ							✓				1
7/30/05		13	EAG-1008-H	" " " BBDS							✓				1
7/28/05		14	EAG-1009-H	" " " RISDS							✓				1
7/27/05		2441 15	EAG-1010H	" " " 1, 2, + 3											

Relinquished by:	Date/Time		Received by:	Date/Time	
	8/1/05	14:50		08/02/05	1330
Relinquished by:	Date/Time		Received by:	Date/Time	

Comments:

ORIGINAL

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2441 Sample No(s): 1-15 Project Manager: Brandenburger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
☐	☐	Navy-type Project (requires high-level sample tracking procedures)
☐	☐	Filter Samples: Amount: Entire sample Half of sample
☐	☐	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
☐	☐	Special instructions:

Sample Preservation Instructions:

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
☐	☑	☐	Was a custody seal present?
☐	☐	☑	Was the custody seal intact?
☑	☐	☐	Was cooler(s) temperature(s) within acceptable range of 4±2°C? 5.1 °C (if multiple coolers, note temp. of each) °C
☐	☐	☑	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
☑	☐	☐	Were all chain of custody forms signed and dated?
☐	☑	☐	Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Spex Other:

Notes:

Completed By: [signature] Date/Time: 08/02/05 1330

SAMPLE PRESERVATION

- [x] Sample(s) were preserved at MSL
- [ ] Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type:
- [x] 0.2% HNO3 Notes: LOT# 1203080 1-5
- [ ] 0.5% HCl (Hg samples) Notes:
- [x] Refrigerate/Freeze Notes: 6-15 deep freeze [illegible] 08/02/05 1330
- [ ] Other Notes:

Completed By: [signature] Date/Time: 8/2/05 14:25

Revsed 031303

Storage: L2D

Battelle Marine Science Laboratory

Method Detection Limit Study Summary

Date: 9/15/2005

MATRIX: QUARTZ SAND

	As	Cd	Cr	Cu	Hg	Ni	Pb	Zn
Instrument:	ICP-MS	ICP-MS	ICP-OES	ICP-OES	CVAA	ICP-OES	ICP-OES	ICP-OES
CAS Code:	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0	7439-92-1	7440-66-6
MDL 1	0.0567	0.0546	0.299	0.442	0.0134	0.297	0.119	0.317
MDL 2	0.0431	0.0548	0.336	0.509	0.0157	0.283	0.171	0.175
MDL 3	0.0406	0.0529	0.334	0.411	0.0134	0.259	0.194	0.220
MDL 4	0.0474	0.0538	0.329	0.411	0.0151	0.274	0.177	0.262
MDL 5	0.0501	0.0523	0.361	0.434	0.0139	0.300	0.229	0.208
MDL 6	0.0547	0.0518	0.322	0.396	0.0119	0.308	0.182	0.205
MDL 7	0.0457	0.0586	0.318	0.382	0.0107	0.297	0.132	0.199
MEAN	0.0483	0.0541	0.328	0.427	0.0134	0.288	0.172	0.227
STDEV	0.00590	0.00227	0.0188	0.0419	0.00172	0.0170	0.0372	0.0480
MDL	0.0185	0.00714	0.0592	0.132	0.00541	0.0534	0.117	0.151

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Appendix C
Metals in Water

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Appendix C-1

Metals in Rinsate Blanks

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BATTELLE MARINE SCIENCES LABORATORIES
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Sequim, Washington 98382
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NEW BEDFORD HARBOR - OCEAN MONITORING
Metals in Rinsate Blank Water
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Received	Date Collected	Ag	As	Cd	Cr	Cu	Hg	Ni	Pb	Se	Zn
				Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1631E	1638mod	1638mod	1638mod	1638mod
				CAS Code:	7440-22-4	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0	7439-92-1	7782-49-2	7440-66-6
				Achieved MDL	**0.006**	**0.009**	**0.004**	**0.04**	**0.02**	**0.0002**	**0.006**	**0.006**	**0.1**	**0.02**
				RLs (3.18 x MDL)	0.02	0.03	0.02	0.2	0.07	0.0007	0.02	0.02	0.4	0.07
				NED RIM RL	0.5	1	1	1	0.6	0.4	1	1	1	1
EAG-052-H	rinsate blank for grab	2441-2r1	08/02/05	07/29/05	0.006 U	0.152	0.0131 j	1.03	0.162	0.000474 j	0.926	0.0517	0.793	0.861
EAG-052-H	rinsate blank for grab	2441-2r2	08/02/05	07/29/05	0.006 U	0.157	0.0138 j	1.02	0.166	See Note	0.930	0.0558	0.800	0.924
EAG-053-H	rinsate blank for corer	2441-3	08/02/05	07/29/05	0.006 U	0.009 U	0.004 U	0.04 U	0.782	0.00181	0.0363	0.0306	0.1 U	0.427
EAG-054-H	rinsate blank for pump	2441-4	08/02/05	07/29/05	0.0108 j	0.0123 j	0.004 U	0.0863 j	0.121	0.000418 j	0.0326	0.0959	0.1 U	2.89
METHOD BLANK														
MB 1		Blank 1			0.006 U	0.009 U	0.004 U	0.04 U	0.02 U	0.0002 U	0.006 U	0.006 U	0.1 U	0.0408 j
LABORATORY CONTROL SAMPLE RESULTS														
LCS 1		LCS R1			5.34	5.15	5.18	5.18	5.34	0.00586	5.45	5.61	5.02	4.99
LCS 2		LCS R2			5.21	5.03	5.15	5.15	5.25	0.00560	5.32	5.67	4.72	4.94
LCS Blank		Blank 1 or Blank082905 (Hg)			0.006 U	0.009 U	0.004 U	0.04 U	0.02 U	0.000542 j	0.006 U	0.006 U	0.1 U	0.0408 j
		Spike conc			5	5	5	5	5	0.00497	5	5	5	5
		% Rec, R1			**107%**	**103%**	**104%**	**104%**	**107%**	**107%**	**109%**	**112%**	**100%**	**99%**
		% Rec, R2			**104%**	**101%**	**103%**	**103%**	**105%**	**102%**	**106%**	**113%**	**94%**	**98%**
		RPD			**2%**	**2%**	**1%**	**1%**	**2%**	**5%**	**2%**	**1%**	**6%**	**1%**
STANDARD REFERENCE MATERIAL RESULTS														
SRM 1		1640 TRM/1641d			7.59	26.7	22.9	39.3	85.9	1680	28.3	29.4	22.2	53.3
		certified/ref value			7.62	26.67	22.79	38.60	85.2	1690	27.4	27.89	21.96	53.2
		range			± 0.25	± 0.41	± 1.6	± 0.96	± 1.20	±18	± 0.80	± 0.14	±0.51	± 1.10
		Percent Difference			**0%**	**0%**	**0%**	**2%**	**1%**	**1%**	**3%**	**5%**	**1%**	**0%**
LABORATORY DUPLICATE RESULTS														
EAG-052-H	rinsate blank for grab	2441-2r1	08/02/05	07/29/05	0.006 U	0.152	1.03	0.04 U	0.162	0.000474 j	0.926	0.0517	0.793	0.861
EAG-052-H	rinsate blank for grab	2441-2r2	08/02/05	07/29/05	0.006 U	0.157	1.02	0.04 U	0.166	See Note	0.930	0.0558	0.800	0.924
		Mean			--	0.155	1.03	--	0.164	--	0.928	0.0538	0.797	0.893
		RPD			--	**3%**	**1%**	--	**2%**	--	**0%**	**8%**	**1%**	**7%**

NOTE: Hg samples analyzed with seawater samples. QC samples reported with seawater data.

BATTELLE MARINE SCIENCES LABORATORIES
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NEW BEDFORD HARBOR
Lab Qualifiers

B	Analyte found in the associated blank as well as the sample.
D	Result is reported at a secondary dilution factor.
E	Concentration exceeds the range of the calibration curve for that particular analyte.
j	Analyte detected below the Reporting Limit (RL) and above the MDL.
U	Analyte detected below the MDL. The RL is reported.
N	Outside DQO limits
n	QC value outside the accuracy or precision data quality objective, but meets contingency criteria.

QAPP Data Quality Objectives:

MB	< RL if sample or < 5x sample concentration
SRM	Percent Difference ≤25% of true values
MS/LCS	%R 75 –125
DUPS	RPD <30 when sample values >5x RL

QA/QC NARRATIVE

PROJECT: New Bedford Harbor Ocean Monitoring

PARAMETER: Metals

LABORATORY: Battelle Marine Sciences Laboratory, Sequim, Washington

MATRIX: Rinsate Blanks

SAMPLE CUSTODY AND PROCESSING: Three rinsate blanks for metals analyses were received at MSL on 08/02/05. All samples were received in good condition (i.e., no sample containers were broken). Samples were assigned a Battelle Central File (CF) identification number (2441) and were entered into Battelle's laboratory information management system.

The following lists information on sample receipt and processing activities:

Lab Sample IDs:	2441*2-4
Description:	Rinsate Blanks
Sample collection dates:	07/29/05
Laboratory arrival date:	08/02/05
Cooler temp. on arrival:	5.1°C
CVAF Analysis Date: (Hg)	08/30/05
ICP-MS Analysis Date: (Ag, As, Cd, Cr, Cu, Pb, Ni, Se, Zn)	08/25/05

QA/QC DATA QUALITY OBJECTIVES:

Analyte	Analytical Method for Freshwater	MS Range of Recovery[1]	SRM Percent Difference[1]	Replicate Precision[1]	NED Reporting Limits (µg/L)	Lab Detection Limits (µg/L)[2]	Lab Reporting Limits (µg/L)[3]
Silver	ICP-MS	75-125%	≤25%	≤30%	0.5	0.006	0.02
Arsenic	ICP-MS	75-125%	≤25%	≤30%	1	0.009	0.03
Cadmium	ICP-MS	75-125%	≤25%	≤30%	1	0.004	0.02
Chromium	ICP-MS	75-125%	≤25%	≤30%	1	0.04	0.2
Copper	ICP-MS	75-125%	≤25%	≤30%	0.6	0.02	0.07
Mercury	CVAF	75-125%	≤25%	≤30%	0.4	0.006	0.0007
Nickel	ICP-MS	75-125%	≤25%	≤30%	1	0.006	0.02
Lead	ICP-MS	75-125%	≤25%	≤30%	1	0.0002	0.02
Selenium	ICP-MS	75-125%	≤25%	≤30%	1	0.1	0.4
Zinc	ICP-MS	75-125%	≤25%	≤30%	1	0.2	0.07

[1] Evaluated for analytes >10x the MDL
[2] Reported from the Water Method Detection Limit (MDL) Study as determined using seven replicates of spiked DI water.
[3] Lab Reporting Limit (RL) determined as 3.18 * achieved MDL.

METHODS: Equipment rinsate blanks were analyzed for ten metals: silver (Ag), arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), selenium (Se), and zinc (Zn). The samples were submitted for the analyses by two methods.

Samples were analyzed for Total Hg by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP *MSL-I-013*, *Total Mercury in Aqueous Samples by CVAF based on EPA Method 1631 Revision E.*

Samples were analyzed for all other metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP *MSL-I-022, Determination of Elements in Aqueous and Digestate Samples by ICP/MS.* Samples were acid solubilized prior to analysis by ICP-MS in accordance with the total recoverable metals (TRM) method in Battelle SOP *MSL-I-022.* The analysis guidelines for this procedure are adapted from

QA/QC NARRATIVE

METHODS, cont.: USEPA Method 1638 Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry. The TRM methodology is adapted from USEPA Method 1640 - Determination of Trace Elements in Ambient Waters by On-Line Chelation Preconcentration and Inductively Coupled Plasma-Mass Spectrometry.

All data are in units of µg/L for each sample.

HOLDING TIMES: Established holding times of 90 days for Hg and six months for trace metals were achieved for all samples.

DETECTION LIMITS: Laboratory achieved detection limit are reported from the Annual MDL study for freshwater. The reporting limits provided are determined as 3.18 times the laboratory achieved MDL. Data were evaluated and flagged to the following criteria:

U Not detected above laboratory achieved MDL; MDL reported.

j Analyte detected is less than the achieved RL, but greater than MDL

N QC value outside the accuracy or precision criteria goal (Spikes ±30%R; SRM ≤25%PD; Replicates ±30%RPD)

n QC value outside the accuracy or precision data quality objective, but meets contingency criteria.

METHOD BLANKS: One method blank was analyzed with this batch of samples. Method blank concentrations were all less than the project-reporting limit (RL). Samples were not blank corrected.

BLANK SPIKE /LABORATORY CONTROL SAMPLES: Two laboratory control samples (LCS) or Ongoing Precision and Recovery (OPR) samples were prepared and analyzed with this batch of samples. Percent recoveries for the LCS samples ranged from 94% to 113% and were within the QC acceptance criteria of 75% to 125% for all metals.

MATRIX SPIKE ACCURACY: The sample matrix for rinsate blanks is deionized water; therefore LCS samples serve as matrix spikes.

DUPLICATE PRECISION: Precision for this set of samples was assessed by the analysis of laboratory duplicates and LCS duplicates. Precision was expressed as the relative percent difference (RPD) of replicate results. The RPD values for the duplicates ranged from 0% to 8% and were within the QC criterion of ≤30% RPD. The RPD values for the LCS duplicates ranged from 1% to 6% and were within the QC criterion of ≤20% RPD.

Note: The rinsate blank samples and seawater elutriate samples were analyzed as a batch for Hg. The laboratory duplicates analyzed with the batch are reported with the elutriate data.

STANDARD REFERENCE MATERIAL ACCURACY: Two standard reference materials were analyzed with this batch of samples. SRM 1641d for Hg and SRM 1640 for metals analyzed by ICP-MS. Accuracy for SRMs was expressed as the percent difference (PD) between the measured and certified values.

One replicate of SRM 1641d for Hg was analyzed with this batch of samples. The SRM recovery was 1% percent difference and within the QC acceptance criterion of ± 25%.

One replicate of SRM 1640 were analyzed with this batch of samples. Percent differences ranged from 0% to 5% and were within the QC acceptance criterion of ± 25% for all metal.

Appendix C-2

Metals in Reference Site Waters and Elutriates

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Analytical Chemistry Data Package
Inorganics Analysis

Project: **USACE - NED**
New Bedford Harbor
Ocean Monitoring

Analysis of Metals in Seawater Samples: Elutriates and Elutriate Blanks

Battelle Project No. 49649
CF No. 2441

Battelle
. . . Putting Technology To Work

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
(360) 681-4564

CERTIFICATION STATEMENT AND DATA RELEASE

Battelle Marine Sciences Laboratory is releasing the following data set:

NEW BEDFORD HARBOR OCEAN MONITORING

METALS IN SEAWATER

We certify that the data contained within this data set is authentic:

Jill M. Brandenberger — Date: 10/3/05
MSL Metals Chemistry Project Manager

Janet Cloutier — Date: 10/2/05
MSL QA Officer

BATTELLE MARINE SCIENCES LABORATORIES
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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Collected	Date Received	Ag	As	Cd	Cr	Cu	Hg
				Method:	200.9	206.3mod	1638mod	1638mod	1638mod	1631E
				CAS Code:	7440-22-4	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6
				Achieved MDL	**0.005**	**0.03**	**0.006**	**0.04**	**0.05**	**0.0002**
				RLs (3.18 x MDL)	0.02	0.1	0.02	0.2	0.2	0.0007
				NED RIM RL	0.5	1	1	1	0.6	0.4
EAG-051-H	site water	2441-1 R1	07/29/05	08/02/05	0.0108 j	1.04	0.0253	0.0910 j	0.314	0.000782
EAG-051-H	site water	2441-1 R2	07/29/05	08/02/05	0.0146 j	1.03	0.0260	0.103 j	0.322	0.000944
EAG-051-H	site water	2441-1 R3	07/29/05	08/02/05	0.0106 j	1.02	0.0265	0.117 j	0.344	0.00111
EAG-056-H	BBDS site water	2441-5 R1	07/30/05	08/02/05	0.0124 j	1.05	0.0276	0.129 j	0.654	0.00175
EAG-056-H	BBDS site water	2441-5 R2	07/30/05	08/02/05	0.0129 j	1.00	0.0286	0.139 j	0.567	0.00166
EAG-056-H	BBDS site water	2441-5 R3	07/30/05	08/02/05	0.0127 j	1.08	0.0252	0.139 j	0.576	0.00160
Comp 1; A,C,D,E	Elutriate	2441-16 R1	08/09/05	08/11/05	0.0112 j	8.61	0.0161 j	6.20	1.53	0.00453
Comp 1; A,C,D,E	Elutriate	2441-16 R2	08/09/05	08/11/05	0.0168 j	8.46	0.0169 j	6.16	1.52	0.00452
Comp 1; A,C,D,E	Elutriate	2441-16 R3	08/09/05	08/11/05	0.0181 j	8.27	0.0176 j	6.35	1.54	0.00432
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	08/09/05	08/11/05	0.0316	5.88	0.0427	10.8	9.64	0.01995
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	08/09/05	08/11/05	0.0350	5.85	0.0396	10.8	9.29	0.01938
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	08/09/05	08/11/05	0.0277	6.19	0.0403	10.8	9.42	0.01931
Comp 3; H,J	Elutriate	2441-18 R1	08/09/05	08/11/05	0.0249	7.58	0.0163 j	2.90	2.04	0.00342
Comp 3; H,J	Elutriate	2441-18 R2	08/09/05	08/11/05	0.0246	7.63	0.0157 j	2.90	1.99	0.00355
Comp 3; H,J	Elutriate	2441-18 R3	08/09/05	08/11/05	0.0216	7.83	0.0159 j	2.93	1.99	0.00382
Comp 4; Site L,M,N	Elutriate	2441-19 R1	08/09/05	08/11/05	0.0195 j	8.16	0.0323	10.6	7.99	0.0163
Comp 4; Site L,M,N	Elutriate	2441-19 R2	08/09/05	08/11/05	0.0196 j	8.26	0.0298	10.8	8.02	0.0153
Comp 4; Site L,M,N	Elutriate	2441-19 R3	08/09/05	08/11/05	0.0246	8.18	0.0321	11.2	8.18 *	0.0163
Comp 5; Site O-BB	Elutriate	2441-20 R1	08/10/05	08/11/05	0.0658	15.3	0.0710	16.4	10.2 *	0.0146
Comp 5; Site O-BB	Elutriate	2441-20 R2	08/10/05	08/11/05	0.0520	15.0	0.0633	15.2	9.56 *	0.0144
Comp 5; Site O-BB	Elutriate	2441-20 R3	08/10/05	08/11/05	0.0564	14.0	0.0642	15.9	10.0 *	0.0145
Comp 6; CC-KK	Elutriate	2441-21 R1	08/10/05	08/11/05	0.0351	12.7	0.0737	18.0	13.3 *	0.0190
Comp 6; CC-KK	Elutriate	2441-21 R2	08/10/05	08/11/05	0.0341	12.3	0.0649	17.0	12.3 *	0.0190
Comp 6; CC-KK	Elutriate	2441-21 R3	08/10/05	08/11/05	0.0370	12.4	0.0738	18.0	12.9 *	0.0193
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	0.0503	12.1	0.0853	17.2	11.7 *	0.0161
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	0.0526	11.8	0.0792	17.6	11.8 *	0.0165
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	0.0432	11.9	0.0845	17.3	11.9 *	0.0157
Comp 8 F-K	Elutriate	2441-24 R1	08/10/05	08/12/05	0.0542	15.2	0.0286	9.14	3.82 *	0.00563
Comp 8 F-K	Elutriate	2441-24 R2	08/10/05	08/12/05	0.0391	15.3	0.0209	9.92	3.02 *	0.00551
Comp 8 F-K	Elutriate	2441-24 R3	08/10/05	08/12/05	0.0597	15.2	0.0247	11.2	3.58 *	0.00542

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Collected	Date Received	Ag	As	Cd	Cr	Cu	Hg
				Method:	200.9	206.3mod	1638mod	1638mod	1638mod	1631E
				CAS Code:	7440-22-4	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6
				Achieved MDL	**0.005**	**0.03**	**0.006**	**0.04**	**0.05**	**0.0002**
				RLs (3.18 x MDL)	0.02	0.1	0.02	0.2	0.2	0.0007
				NED RIM RL	0.5	1	1	1	0.6	0.4
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	08/11/05	08/12/05	0.00897 j	1.15	0.0290	0.429	0.906 *	0.00171
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	08/11/05	08/12/05	0.00674 j	1.13	0.0294	0.407	0.883 *	0.00171
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	08/11/05	08/12/05	0.0117 j	1.14	0.0288	0.430	0.888 *	0.00197
Comp 2 1,2.3	Blank	2441-26 R1	08/11/05	08/12/05	0.00700 j	1.09	0.0398	0.294	2.79 *	0.00115
Comp 2 1,2.3	Blank	2441-26 R2	08/11/05	08/12/05	0.00666 j	1.10	0.0430	0.318	2.95 *	0.00100
Comp 2 1,2.3	Blank	2441-26 R3	08/11/05	08/12/05	0.00969 j*	1.13	0.0437	0.332	3.01 *	0.000963
Comp 3 H,J	Blank	2441-27 R1	08/11/05	08/12/05	0.00957 j*	1.10	0.0302	0.152 j	1.11 *	0.000913
Comp 3 H,J	Blank	2441-27 R2	08/11/05	08/12/05	0.005 j*	1.13	0.0321	0.170 j	1.16 *	0.000993
Comp 3 H,J	Blank	2441-27 R3	08/11/05	08/12/05	0.00645 j*	1.05	0.0313	0.164 j	1.13 *	0.000781
Comp 4 L,M,N	Blank	2441-28 R1	08/11/05	08/12/05	0.0105 j	1.09	0.0433	0.141 j	2.39 *	0.000659 j
Comp 4 L,M,N	Blank	2441-28 R2	08/11/05	08/12/05	0.005 U	1.03	0.0441	0.150 j	2.39 *	0.000687 j
Comp 4 L,M,N	Blank	2441-28 R3	08/11/05	08/12/05	0.005 U	1.01	0.0436	0.146 j	2.37 *	0.000606 j
Comp 5 O-BB	Blank	2441-29 R1	08/11/05	08/12/05	0.00522 j	1.08	0.0527	0.293	3.23 *	0.000767
Comp 5 O-BB	Blank	2441-29 R2	08/11/05	08/12/05	0.0113 j	1.01	0.0514	0.269	3.09 *	0.000776
Comp 5 O-BB	Blank	2441-29 R3	08/11/05	08/12/05	0.00564 j	1.03	0.0537	0.263	3.16 *	0.000920
Comp 6 CC-KK	Blank	2441-30 R1	08/11/05	08/12/05	0.005 U	1.10	0.0580	0.187 j	3.44 *	0.000635 j
Comp 6 CC-KK	Blank	2441-30 R2	08/11/05	08/12/05	0.00660 j	1.07	0.0555	0.181 j	3.23 *	0.000636 j
Comp 6 CC-KK	Blank	2441-30 R3	08/11/05	08/12/05	0.00933 j	1.04	0.0561	0.165 j	3.33 *	0.000635 j
Comp 7 FF-JJ	Blank	2441-31 R1	08/11/05	08/12/05	0.00899 j	1.08	0.0633	0.425	3.54 *	0.00116
Comp 7 FF-JJ	Blank	2441-31 R2	08/11/05	08/12/05	0.005 U	1.05	0.0631	0.394	3.41 *	0.00113
Comp 7 FF-JJ	Blank	2441-31 R3	08/11/05	08/12/05	0.00885 j	1.07	0.0607	0.430	3.48 *	0.00139
Comp 8 Blank	Blank	2441-32 R1	08/11/05	08/12/05	0.005 U	1.11	0.0259	0.123 j	0.962 *	0.00110
Comp 8 Blank	Blank	2441-32 R2	08/11/05	08/12/05	0.005 U	1.11	0.0291	0.140 j	1.01 *	0.000735
Comp 8 Blank	Blank	2441-32 R3	08/11/05	08/12/05	0.005 U	1.04	0.0290	0.141 j	0.971 *	0.000763

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Collected	Date Received	Ni	Pb	Se	Zn
				Method:	1638mod	1638mod	270.3mod	1638mod
				CAS Code:	7440-02-0	7439-92-1	7782-49-2	7440-66-6
				Achieved MDL	**0.06**	**0.004**	**0.07**	**0.2**
				RLs (3.18 x MDL)	0.2	0.02	0.3	0.7
				NED RIM RL	1	1	1	1
EAG-051-H	site water	2441-1 R1	07/29/05	08/02/05	0.337	0.0276	0.07 U	0.320 j
EAG-051-H	site water	2441-1 R2	07/29/05	08/02/05	0.369	0.0263	0.07 U	0.244 j
EAG-051-H	site water	2441-1 R3	07/29/05	08/02/05	0.382	0.0293	0.07 U	0.380 j
EAG-056-H	BBDS site water	2441-5 R1	07/30/05	08/02/05	0.477	0.115	0.07 U	1.12
EAG-056-H	BBDS site water	2441-5 R2	07/30/05	08/02/05	0.473	0.110	0.07 U	0.944
EAG-056-H	BBDS site water	2441-5 R3	07/30/05	08/02/05	0.445	0.109	0.07 U	0.673 j
Comp 1; A,C,D,E	Elutriate	2441-16 R1	08/09/05	08/11/05	1.16	1.26	0.0894 j	2.48
Comp 1; A,C,D,E	Elutriate	2441-16 R2	08/09/05	08/11/05	1.18	1.25	0.115 j	3.68
Comp 1; A,C,D,E	Elutriate	2441-16 R3	08/09/05	08/11/05	1.16	1.26	0.0965 j	2.47
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	08/09/05	08/11/05	1.47	3.85	0.195 j	5.42
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	08/09/05	08/11/05	1.47	3.99	0.196 j	5.29
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	08/09/05	08/11/05	1.47	3.91	0.150 j	5.35
Comp 3; H,J	Elutriate	2441-18 R1	08/09/05	08/11/05	0.587	1.14	0.109 j	1.83
Comp 3; H,J	Elutriate	2441-18 R2	08/09/05	08/11/05	0.571	1.09	0.0934 j	1.84
Comp 3; H,J	Elutriate	2441-18 R3	08/09/05	08/11/05	0.589	1.13	0.123 j	1.83
Comp 4; Site L,M,N	Elutriate	2441-19 R1	08/09/05	08/11/05	1.44	3.46	0.183 j	4.92
Comp 4; Site L,M,N	Elutriate	2441-19 R2	08/09/05	08/11/05	1.46	3.39	0.158 j	5.00
Comp 4; Site L,M,N	Elutriate	2441-19 R3	08/09/05	08/11/05	1.50	3.49	0.144 j	5.25
Comp 5; Site O-BB	Elutriate	2441-20 R1	08/10/05	08/11/05	2.59	4.37	0.201 j	7.48
Comp 5; Site O-BB	Elutriate	2441-20 R2	08/10/05	08/11/05	2.33	4.12	0.178 j	7.24
Comp 5; Site O-BB	Elutriate	2441-20 R3	08/10/05	08/11/05	2.43	4.22	0.233 j	7.47
Comp 6; CC-KK	Elutriate	2441-21 R1	08/10/05	08/11/05	2.60	4.60	0.165 j	7.95
Comp 6; CC-KK	Elutriate	2441-21 R2	08/10/05	08/11/05	2.36	4.32	0.203 j	7.51
Comp 6; CC-KK	Elutriate	2441-21 R3	08/10/05	08/11/05	2.52	4.57	0.188 j	7.98
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	1.90	4.59	0.187 j	7.45
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	1.91	4.75	0.153 j	7.62
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/10/05	08/11/05	1.90	4.70	0.193 j	7.85
Comp 8 F-K	Elutriate	2441-24 R1	08/10/05	08/12/05	2.04	2.11	0.161 j	3.08
Comp 8 F-K	Elutriate	2441-24 R2	08/10/05	08/12/05	1.74	2.14	0.197 j	3.81
Comp 8 F-K	Elutriate	2441-24 R3	08/10/05	08/12/05	2.00	2.42	0.141 j	3.30

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(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Date Collected	Date Received	Ni	Pb	Se	Zn
				Method:	1638mod	1638mod	270.3mod	1638mod
				CAS Code:	7440-02-0	7439-92-1	7782-49-2	7440-66-6
				Achieved MDL	**0.06**	**0.004**	**0.07**	**0.2**
				RLs (3.18 x MDL)	0.2	0.02	0.3	0.7
				NED RIM RL	1	1	1	1
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	08/11/05	08/12/05	0.518	0.405	0.07 U	3.38
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	08/11/05	08/12/05	0.524	0.399	0.07 U	3.41
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	08/11/05	08/12/05	0.510	0.409	0.130 j	3.57
Comp 2 1,2.3	Blank	2441-26 R1	08/11/05	08/12/05	0.560	0.334	0.07 U	11.4
Comp 2 1,2.3	Blank	2441-26 R2	08/11/05	08/12/05	0.612	0.363	0.07 U	12.2
Comp 2 1,2.3	Blank	2441-26 R3	08/11/05	08/12/05	0.656	0.366	0.0761 j	12.3
Comp 3 H,J	Blank	2441-27 R1	08/11/05	08/12/05	0.484	0.0814	0.07 U	3.90
Comp 3 H,J	Blank	2441-27 R2	08/11/05	08/12/05	0.524	0.0874	0.07 U	3.74
Comp 3 H,J	Blank	2441-27 R3	08/11/05	08/12/05	0.558	0.0835	0.07 U	4.18
Comp 4 L,M,N	Blank	2441-28 R1	08/11/05	08/12/05	0.641	0.138	0.07 U*	11.9
Comp 4 L,M,N	Blank	2441-28 R2	08/11/05	08/12/05	0.656	0.137	0.07 U*	11.7
Comp 4 L,M,N	Blank	2441-28 R3	08/11/05	08/12/05	0.661	0.137	0.0927 j*	12.9
Comp 5 O-BB	Blank	2441-29 R1	08/11/05	08/12/05	0.851	0.315	0.07 U*	16.3
Comp 5 O-BB	Blank	2441-29 R2	08/11/05	08/12/05	0.812	0.296	0.07 U*	15.9
Comp 5 O-BB	Blank	2441-29 R3	08/11/05	08/12/05	0.814	0.307	0.07 U*	16.5
Comp 6 CC-KK	Blank	2441-30 R1	08/11/05	08/12/05	0.725	0.202	0.07 U*	17.2
Comp 6 CC-KK	Blank	2441-30 R2	08/11/05	08/12/05	0.714	0.198	0.07 U*	16.3
Comp 6 CC-KK	Blank	2441-30 R3	08/11/05	08/12/05	0.802	0.197	0.07 U*	17.0
Comp 7 FF-JJ	Blank	2441-31 R1	08/11/05	08/12/05	0.845	0.464	0.07 U*	17.2
Comp 7 FF-JJ	Blank	2441-31 R2	08/11/05	08/12/05	0.836	0.453	0.07 U*	16.7
Comp 7 FF-JJ	Blank	2441-31 R3	08/11/05	08/12/05	0.850	0.461	0.07 U*	17.0
Comp 8 Blank	Blank	2441-32 R1	08/11/05	08/12/05	0.516	0.0949	0.07 U*	2.77
Comp 8 Blank	Blank	2441-32 R2	08/11/05	08/12/05	0.546	0.0993	0.0825 j*	2.95
Comp 8 Blank	Blank	2441-32 R3	08/11/05	08/12/05	0.529	0.0962	0.07 U*	2.82

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NEW BEDFORD HARBOR
Lab Qualifiers

B	Analyte detected in the associated blank > RL.
b	Average reagent blank subtracted from sample value.
D	Result is reported at a secondary dilution factor.
E	Concentration exceeds the range of the calibration curve for that particular analyte.
j	Analyte detected below the Reporting Limit (RL) and above the MDL.
U	Analyte detected below the MDL. The RL is reported.
N	Outside DQO limits
n	QC value outside the accuracy or precision data quality objective, but meets contingency criteria.
*	Bracketing CCVs recovered at 111%, see narrative

QAPP Data Quality Objectives:

MB	< RL if sample or < 5x sample concentration
SRM	Percent Difference ≤25% of true values
MS/LCS	%R 75 –125
DUPS	RPD <30 when sample values >5x RL

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ICP-MS (Fe/Pd) Preconcentration QC Summary
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Cd	Cr	Cu	Ni	Pb	Zn
			Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1638mod
			CAS Code:	7440-43-9	7440-47-3	7440-50-8	7440-02-0	7439-92-1	7440-66-6
			Achieved MDL	**0.006**	**0.04**	**0.05**	**0.06**	**0.004**	**0.2**
			RLs (3.18 x MDL)	0.02	0.2	0.2	0.2	0.02	0.7
			NED RIM RL	1	1	0.6	1	1	1
EAG-051-H	site water	2441-1 R1	9/2/2005	0.0253	0.0910 j	0.314	0.337	0.0276	0.320 j
EAG-051-H	site water	2441-1 R2	9/2/2005	0.0260	0.103 j	0.322	0.369	0.0263	0.244 j
EAG-051-H	site water	2441-1 R3	9/2/2005	0.0265	0.117 j	0.344	0.382	0.0293	0.380 j
		MEAN		**0.0259**	**0.104**	**0.327**	**0.363**	**0.0277**	**0.315**
		RSD		**2%**	**13%**	**5%**	**6%**	**5%**	**22%**
EAG-056-H	BBDS site water	2441-5 R1	9/2/2005	0.0276	0.129 j	0.654	0.477	0.115	1.12
EAG-056-H	BBDS site water	2441-5 R2	9/2/2005	0.0286	0.139 j	0.567	0.473	0.110	0.944
EAG-056-H	BBDS site water	2441-5 R3	9/2/2005	0.0252	0.139 j	0.576	0.445	0.109	0.673 j
		MEAN		**0.0271**	**0.136**	**0.599**	**0.465**	**0.111**	**0.912**
		RSD		**6%**	**4%**	**8%**	**4%**	**3%**	**25%**
Comp 1; A,C,D,E	Elutriate	2441-16 R1	9/2/2005	0.0161 j	6.20	1.53	1.16	1.26	2.48
Comp 1; A,C,D,E	Elutriate	2441-16 R2	9/2/2005	0.0169 j	6.16	1.52	1.18	1.25	3.68
Comp 1; A,C,D,E	Elutriate	2441-16 R3	9/2/2005	0.0176 j	6.35	1.54	1.16	1.26	2.47
		MEAN		**0.0169**	**6.24**	**1.53**	**1.17**	**1.26**	**2.88**
		RSD		**4%**	**2%**	**1%**	**1%**	**0%**	**24%**
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	9/2/2005	0.0427	10.8	9.64	1.47	3.85	5.42
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	9/2/2005	0.0396	10.8	9.29	1.47	3.99	5.29
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	9/2/2005	0.0403	10.8	9.42	1.47	3.91	5.35
		MEAN		**0.0409**	**10.8**	**9.45**	**1.47**	**3.92**	**5.35**
		RSD		**4%**	**0%**	**2%**	**0%**	**2%**	**1%**
Comp 3; H,J	Elutriate	2441-18 R1	9/2/2005	0.0163 j	2.90	2.04	0.587	1.14	1.83
Comp 3; H,J	Elutriate	2441-18 R2	9/2/2005	0.0157 j	2.90	1.99	0.571	1.09	1.84
Comp 3; H,J	Elutriate	2441-18 R3	9/2/2005	0.0159 j	2.93	1.99	0.589	1.13	1.83
		MEAN		**0.0160**	**2.91**	**2.01**	**0.582**	**1.12**	**1.83**
		RSD		**2%**	**1%**	**1%**	**2%**	**2%**	**0%**
Comp 4; Site L,M,N	Elutriate	2441-19 R1	9/2/2005	0.0323	10.6	7.99	1.44	3.46	4.92
Comp 4; Site L,M,N	Elutriate	2441-19 R2	9/2/2005	0.0298	10.8	8.02	1.46	3.39	5.00
Comp 4; Site L,M,N	Elutriate	2441-19 R3	9/2/2005	0.0321	11.2	8.18	1.50	3.49	5.25
		MEAN		**0.0314**	**10.9**	**8.06**	**1.47**	**3.45**	**5.06**
		RSD		**4%**	**3%**	**1%**	**2%**	**1%**	**3%**
Comp 5; Site O-BB	Elutriate	2441-20 R1	9/2/2005	0.0710	16.4	10.2	2.59	4.37	7.48
Comp 5; Site O-BB	Elutriate	2441-20 R2	9/2/2005	0.0633	15.2	9.56	2.33	4.12	7.24
Comp 5; Site O-BB	Elutriate	2441-20 R3	9/2/2005	0.0642	15.9	10	2.43	4.22	7.47
		MEAN		**0.0662**	**15.8**	**9.92**	**2.45**	**4.24**	**7.40**
		RSD		**6%**	**4%**	**3%**	**5%**	**3%**	**2%**
Comp 6; CC-KK	Elutriate	2441-21 R1	9/2/2005	0.0737	18.0	13.3	2.60	4.60	7.95
Comp 6; CC-KK	Elutriate	2441-21 R2	9/2/2005	0.0649	17.0	12.3	2.36	4.32	7.51
Comp 6; CC-KK	Elutriate	2441-21 R3	9/2/2005	0.0738	18.0	12.9	2.52	4.57	7.98
		MEAN		**0.0708**	**17.7**	**12.8**	**2.49**	**4.50**	**7.81**
		RSD		**7%**	**3%**	**4%**	**5%**	**3%**	**3%**
Comp 7; FF-JJ	Elutriate	2441-22 R1	9/2/2005	0.0853	17.2	11.7	1.90	4.59	7.45
Comp 7; FF-JJ	Elutriate	2441-22 R1	9/2/2005	0.0792	17.6	11.8	1.91	4.75	7.62
Comp 7; FF-JJ	Elutriate	2441-22 R1	9/2/2005	0.0845	17.3	11.9	1.90	4.70	7.85
		MEAN		**0.0830**	**17.4**	**11.8**	**1.90**	**4.68**	**7.64**
		RSD		**4%**	**1%**	**1%**	**0%**	**2%**	**3%**

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Cd	Cr	Cu	Ni	Pb	Zn
			Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1638mod
			CAS Code:	7440-43-9	7440-47-3	7440-50-8	7440-02-0	7439-92-1	7440-66-6
			Achieved MDL	**0.006**	**0.04**	**0.05**	**0.06**	**0.004**	**0.2**
			RLs (3.18 x MDL)	0.02	0.2	0.2	0.2	0.02	0.7
			NED RIM RL	1	1	0.6	1	1	1
Comp 8 F-K	Elutriate	2441-24 R1	9/2/2005	0.0286	9.14	3.82	2.04	2.11	3.08
Comp 8 F-K	Elutriate	2441-24 R2	9/2/2005	0.0209	9.92	3.02	1.74	2.14	3.81
Comp 8 F-K	Elutriate	2441-24 R3	9/2/2005	0.0247	11.2	3.58	2.00	2.42	3.30
		MEAN		**0.0247**	**10.1**	**3.47**	**1.93**	**2.22**	**3.40**
		RSD		**16%**	**10%**	**12%**	**8%**	**8%**	**11%**
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	9/2/2005	0.0290	0.429	0.906	0.518	0.405	3.38
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	9/2/2005	0.0294	0.407	0.883	0.524	0.399	3.41
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	9/2/2005	0.0288	0.430	0.888	0.510	0.409	3.57
		MEAN		**0.0291**	**0.422**	**0.892**	**0.517**	**0.404**	**3.45**
		RSD		**1%**	**3%**	**1%**	**1%**	**1%**	**3%**
Comp 2 1,2.3	Blank	2441-26 R1	9/2/2005	0.0398	0.294	2.79	0.560	0.334	11.4
Comp 2 1,2.3	Blank	2441-26 R2	9/2/2005	0.0430	0.318	2.95	0.612	0.363	12.2
Comp 2 1,2.3	Blank	2441-26 R3	9/2/2005	0.0437	0.332	3.01	0.656	0.366	12.3
		MEAN		**0.0422**	**0.315**	**2.92**	**0.609**	**0.354**	**12.0**
		RSD		**5%**	**6%**	**4%**	**8%**	**5%**	**4%**
Comp 3 H,J	Blank	2441-27 R1	9/2/2005	0.0302	0.152 j	1.11	0.484	0.0814	3.90
Comp 3 H,J	Blank	2441-27 R2	9/2/2005	0.0321	0.170 j	1.16	0.524	0.0874	3.74
Comp 3 H,J	Blank	2441-27 R3	9/2/2005	0.0313	0.164 j	1.13	0.558	0.0835	4.18
		MEAN		**0.0312**	**0.162**	**1.13**	**0.522**	**0.0841**	**3.94**
		RSD		**3%**	**6%**	**2%**	**7%**	**4%**	**6%**
Comp 4 L,M,N	Blank	2441-28 R1	9/2/2005	0.0433	0.141 j	2.39	0.641	0.138	11.9
Comp 4 L,M,N	Blank	2441-28 R2	9/2/2005	0.0441	0.150 j	2.39	0.656	0.137	11.7
Comp 4 L,M,N	Blank	2441-28 R3	9/2/2005	0.0436	0.146 j	2.37	0.661	0.137	12.9
		MEAN		**0.0437**	**0.146**	**2.38**	**0.653**	**0.137**	**12.2**
		RSD		**1%**	**3%**	**0%**	**2%**	**0%**	**5%**
Comp 5 O-BB	Blank	2441-29 R1	9/2/2005	0.0527	0.293	3.23	0.851	0.315	16.3
Comp 5 O-BB	Blank	2441-29 R2	9/2/2005	0.0514	0.269	3.09	0.812	0.296	15.9
Comp 5 O-BB	Blank	2441-29 R3	9/2/2005	0.0537	0.263	3.16	0.814	0.307	16.5
		MEAN		**0.0526**	**0.275**	**3.16**	**0.826**	**0.306**	**16.2**
		RSD		**2%**	**6%**	**2%**	**3%**	**3%**	**2%**
Comp 6 CC-KK	Blank	2441-30 R1	9/2/2005	0.0580	0.187 j	3.44	0.725	0.202	17.2
Comp 6 CC-KK	Blank	2441-30 R2	9/2/2005	0.0555	0.181 j	3.23	0.714	0.198	16.3
Comp 6 CC-KK	Blank	2441-30 R3	9/2/2005	0.0561	0.165 j	3.33	0.802	0.197	17.0
		MEAN		**0.0565**	**0.178**	**3.33**	**0.747**	**0.199**	**16.8**
		RSD		**2%**	**6%**	**3%**	**6%**	**1%**	**3%**
Comp 7 FF-JJ	Blank	2441-31 R1	9/2/2005	0.0633	0.425	3.54	0.845	0.464	17.2
Comp 7 FF-JJ	Blank	2441-31 R2	9/2/2005	0.0631	0.394	3.41	0.836	0.453	16.7
Comp 7 FF-JJ	Blank	2441-31 R3	9/2/2005	0.0607	0.430	3.48	0.850	0.461	17.0
		MEAN		**0.0624**	**0.416**	**3.48**	**0.844**	**0.459**	**17.0**
		RSD		**2%**	**5%**	**2%**	**1%**	**1%**	**1%**
Comp 8 Blank	Blank	2441-32 R1	9/2/2005	0.0259	0.123 j	0.962	0.516	0.0949	2.77
Comp 8 Blank	Blank	2441-32 R2	9/2/2005	0.0291	0.140 j	1.01	0.546	0.0993	2.95
Comp 8 Blank	Blank	2441-32 R3	9/2/2005	0.0290	0.141 j	0.971	0.529	0.0962	2.82
		MEAN		**0.0280**	**0.135**	**0.981**	**0.530**	**0.0968**	**2.85**
		RSD		**6%**	**8%**	**3%**	**3%**	**2%**	**3%**

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ICP-MS (Fe/Pd) Preconcentration QC Summary
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Cd	Cr	Cu	Ni	Pb	Zn
			Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1638mod
			CAS Code:	7440-43-9	7440-47-3	7440-50-8	7440-02-0	7439-92-1	7440-66-6
			Achieved MDL	**0.006**	**0.04**	**0.05**	**0.06**	**0.004**	**0.2**
			RLs (3.18 x MDL)	0.02	0.2	0.2	0.2	0.02	0.7
			NED RIM RL	1	1	0.6	1	1	1
METHOD BLANK									
MB 1		BLANK DI-2	9/2/2005	0.00103 U	0.00 U	0.0883 j	0.0517 U	0.00354 U	0.0569 U
MB 2		BLANK DI-3	9/2/2005	0.000847 U	0.00953 U	0.0869 j	0.0571 U	0.00451 j	0.00 U
MB 3		BLANK DI-4	9/2/2005	0.00149 U	0.00 U	0.101 j	0.0541 U	0.00451 j	--
		MEAN		0.00112 U	0.00318 U	0.0921 j	0.0543 U	0.00419 j	0.0285 U
LABORATORY CONTROL SAMPLE RESULTS									
LCS 1		SBLCS-r1	9/2/2005	4.26	5.00	4.76	4.78	4.46	4.94
LCSBLANK 1		SB Blank-r1	9/2/2005	0.0664 j	0.138 j	0.473	0.465	0.0121 j	0.390 j
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, LCS 1			**84%**	**97%**	**86%**	**86%**	**89%**	**91%**
LCS 2		SBLCS-r2	9/2/2005	4.44	5.15	5.01	5.02	4.52	5.71
LCSBLANK 2		SB Blank-r2	9/2/2005	0.0677 j	0.171 j	0.477	0.472	0.0111 j	0.824
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, LCS 2			**87%**	**100%**	**91%**	**91%**	**90%**	**98%**
LCS 3		SBLCS-r3	9/2/2005	4.25	5.07	5.08	5.04	4.43	5.14
LCSBLANK 3		SB Blank-r3	9/2/2005	0.0678 j	0.144 j	0.525	0.501	0.0135 j	0.514 j
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, LCS 3			**84%**	**99%**	**91%**	**91%**	**88%**	**93%**
MATRIX SPIKE RESULTS									
MS 1		2441-1MS	9/2/2005	4.16	5.00	4.63	4.74	4.44	4.92
MSD 1		2441-1MSD	9/2/2005	4.32	5.00	4.73	4.77	4.41	5.18
EAG-051-H	site water	2441-1 R1	9/2/2005	0.0253	0.0910 j	0.314	0.337	0.0276	0.320 j
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, MS			**83%**	**98%**	**86%**	**88%**	**88%**	**92%**
	Percent Recovery, MSD			**86%**	**98%**	**88%**	**89%**	**88%**	**97%**
	RPD			**4%**	**0%**	**2%**	**1%**	**1%**	**5%**
MS 2		2441-20MS	9/2/2005	3.86	21.0	14.8	6.79	8.67	13.8
MSD 2		2441-20MSD	9/2/2005	3.84	21.2	14.7	6.89	8.89	12.5
Comp 5; Site O-BB	Elutriate	2441-20 R1	9/2/2005	0.0710	16.4	10.2	2.59	4.37	7.48
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, MS			**76%**	**92%**	**92%**	**84%**	**86%**	**126% n**
	Percent Recovery, MSD			**75%**	**96%**	**90%**	**86%**	**90%**	**100%**
	RPD			**1%**	**4%**	**2%**	**2%**	**5%**	**23%**
MS 3		2441-24MS	9/2/2005	3.89	15.5	7.92	6.30	6.63	7.54
MSD 3		2441-24MSD	9/2/2005	3.95	15.3	8.07	6.36	6.68	7.54
Comp 8 F-K	Elutriate	2441-24 R1	9/2/2005	0.0286	9.14	3.82	2.04	2.11	3.08
		Spiking Level		5	5	5	5	5	5
	Percent Recovery, MS			**77%**	**127% n**	**82%**	**85%**	**90%**	**89%**
	Percent Recovery, MSD			**78%**	**123%**	**85%**	**86%**	**91%**	**89%**
	RPD			**2%**	**3%**	**4%**	**1%**	**1%**	**0%**

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NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Cd	Cr	Cu	Ni	Pb	Zn
			Method:	1638mod	1638mod	1638mod	1638mod	1638mod	1638mod
			CAS Code:	7440-43-9	7440-47-3	7440-50-8	7440-02-0	7439-92-1	7440-66-6
			Achieved MDL	**0.006**	**0.04**	**0.05**	**0.06**	**0.004**	**0.2**
			RLs (3.18 x MDL)	0.02	0.2	0.2	0.2	0.02	0.7
			NED RIM RL	1	1	0.6	1	1	1
STANDARD REFERENCE MATERIAL RESULTS									
SRM 1		1640 Direct	9/2/2005	24.6	37.4	88.9	28.1	27.8	61.9
		certified/ref value		22.79	38.60	85.2	27.4	27.89	53.2
		range		± 1.6	± 0.96	± 1.20	± 0.80	± 0.14	± 1.10
	Percent Difference, SRM 1			**8%**	**3%**	**4%**	**3%**	**0%**	**16%**
SRM 2		CASS4-r1	9/2/2005	0.0237	0.155 j	0.683	0.434	0.0132 j	0.364 j
SRM 3		CASS4-r2	9/2/2005	0.0239	0.156 j	0.682	0.419	0.0150 j	0.485 j
SRM 4		CASS4-r3	9/2/2005	0.0323	0.119 j	0.676	0.387	0.0154 j	0.457 j
		certified/ref value		0.026	0.14	0.592	0.314	0.0098	0.381 j
		range		± 0.0	± 0.03	± 0.055	± 0.03	± 0.00	± 0.06
	Percent Difference, SRM 2			**9%**	**8%**	**15%**	**38% n**	**35% n**	**4%**
	Percent Difference, SRM 3			**8%**	**8%**	**15%**	**33% n**	**53% n**	**27% n**
	Percent Difference, SRM 4			**24%**	**17%**	**14%**	**23%**	**57% n**	**20% n**
SRM 2		CASS4-r1	9/2/2005	0.0226 b	0.152 b	0.591 b	0.380 b	0.00901 b	0.336 b
SRM 3		CASS4-r2	9/2/2005	0.0228 b	0.153 b	0.590 b	0.365 b	0.0108 b	0.457 b
SRM 4		CASS4-r3	9/2/2005	0.0312 b	0.116 b	0.584 b	0.333 b	0.0112 b	0.429 b
		certified/ref value		0.026	0.14	0.592	0.314	0.0098	0.381
		range		± 0.0	± 0.03	± 0.055	± 0.03	± 0.00	± 0.06
	Percent Difference, SRM 2			**13%**	**5%**	**0%**	**21%**	**8%**	**12%**
	Percent Difference, SRM 3			**12%**	**6%**	**0%**	**16%**	**10%**	**20%**
	Percent Difference, SRM 4			**20%**	**20%**	**1%**	**6%**	**14%**	**12%**

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GFAA (Fe/Pd) Preconcentration QC Summary
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Ag
			Method:	200.9
			CAS Code:	7440-22-4
			Achieved MDL	**0.005**
			RLs (3.18 x MDL)	0.02
			NED RIM RL	0.5
EAG-051-H	site water	2441-1 R1	09/07/05	0.0108 j
EAG-051-H	site water	2441-1 R2	09/07/05	0.0146 j
EAG-051-H	site water	2441-1 R3	09/07/05	0.0106 j
		MEAN		**0.0120**
		RSD		**18%**
EAG-056-H	BBDS site water	2441-5 R1	09/07/05	0.0124 j
EAG-056-H	BBDS site water	2441-5 R2	09/07/05	0.0129 j
EAG-056-H	BBDS site water	2441-5 R3	09/07/05	0.0127 j
		MEAN		**0.0127**
		RSD		**2%**
Comp 1; A,C,D,E	Elutriate	2441-16 R1	09/07/05	0.0112 j
Comp 1; A,C,D,E	Elutriate	2441-16 R2	09/07/05	0.0168 j
Comp 1; A,C,D,E	Elutriate	2441-16 R3	09/07/05	0.0181 j
		MEAN		**0.0153**
		RSD		**24%**
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	09/07/05	0.0316
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	09/07/05	0.0350
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	09/07/05	0.0277
		MEAN		**0.0314**
		RSD		**12%**
Comp 3; H,J	Elutriate	2441-18 R1	09/07/05	0.0249
Comp 3; H,J	Elutriate	2441-18 R2	09/07/05	0.0246
Comp 3; H,J	Elutriate	2441-18 R3	09/07/05	0.0216
		MEAN		**0.0237**
		RSD		**8%**
Comp 4; Site L,M,N	Elutriate	2441-19 R1	09/07/05	0.0195 j
Comp 4; Site L,M,N	Elutriate	2441-19 R2	09/07/05	0.0196 j
Comp 4; Site L,M,N	Elutriate	2441-19 R3	09/07/05	0.0246
		MEAN		**0.0212**
		RSD		**14%**
Comp 5; Site O-BB	Elutriate	2441-20 R1	09/07/05	0.0658
Comp 5; Site O-BB	Elutriate	2441-20 R2	09/07/05	0.0520
Comp 5; Site O-BB	Elutriate	2441-20 R3	09/07/05	0.0564
		MEAN		**0.0581**
		RSD		**12%**
Comp 6; CC-KK	Elutriate	2441-21 R1	09/07/05	0.0351
Comp 6; CC-KK	Elutriate	2441-21 R2	09/07/05	0.0341
Comp 6; CC-KK	Elutriate	2441-21 R3	09/07/05	0.0370
		MEAN		**0.0354**
		RSD		**4%**
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	0.0503
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	0.0526
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	0.0432
		MEAN		**0.0487**
		RSD		**10%**

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GFAA (Fe/Pd) Preconcentration QC Summary
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Ag
			Method:	200.9
			CAS Code:	7440-22-4
			Achieved MDL	**0.005**
			RLs (3.18 x MDL)	0.02
			NED RIM RL	0.5
Comp 8 F-K	Elutriate	2441-24 R1	09/07/05	0.0542
Comp 8 F-K	Elutriate	2441-24 R2	09/07/05	0.0391
Comp 8 F-K	Elutriate	2441-24 R3	09/07/05	0.0597
		MEAN		**0.0510**
		RSD		**21%**
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	09/07/05	0.00897 j
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	09/07/05	0.00674 j
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	09/07/05	0.0117 j
		MEAN		**0.00913**
		RSD		**27%**
Comp 2 1,2.3	Blank	2441-26 R1	09/07/05	0.00700 j
Comp 2 1,2.3	Blank	2441-26 R2	09/07/05	0.00666 j
Comp 2 1,2.3	Blank	2441-26 R3	09/07/05	0.00969 j
		MEAN		**0.00778**
		RSD		**21%**
Comp 3 H,J	Blank	2441-27 R1	09/07/05	0.00957 j
Comp 3 H,J	Blank	2441-27 R2	09/07/05	0.005 U
Comp 3 H,J	Blank	2441-27 R3	09/07/05	0.00645 j
		MEAN		**0.00701**
		RSD		**NA**
Comp 4 L,M,N	Blank	2441-28 R1	09/07/05	0.0105 j
Comp 4 L,M,N	Blank	2441-28 R2	09/07/05	0.005 U
Comp 4 L,M,N	Blank	2441-28 R3	09/07/05	0.005 U
		MEAN		**0.00683**
		RSD		**NA**
Comp 5 O-BB	Blank	2441-29 R1	09/07/05	0.00522 j
Comp 5 O-BB	Blank	2441-29 R2	09/07/05	0.0113 j
Comp 5 O-BB	Blank	2441-29 R3	09/07/05	0.00564 j
		MEAN		**0.00738**
		RSD		**46%** n
Comp 6 CC-KK	Blank	2441-30 R1	09/07/05	0.005 U
Comp 6 CC-KK	Blank	2441-30 R2	09/07/05	0.00660 j
Comp 6 CC-KK	Blank	2441-30 R3	09/07/05	0.00933 j
		MEAN		**0.00698**
		RSD		**NA**
Comp 7 FF-JJ	Blank	2441-31 R1	09/07/05	0.00899 j
Comp 7 FF-JJ	Blank	2441-31 R2	09/07/05	0.005 U
Comp 7 FF-JJ	Blank	2441-31 R3	09/07/05	0.00885 j
		MEAN		**0.00761**
		RSD		**NA**

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GFAA (Fe/Pd) Preconcentration QC Summary
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Ag
			Method:	200.9
			CAS Code:	7440-22-4
			Achieved MDL	**0.005**
			RLs (3.18 x MDL)	0.02
			NED RIM RL	0.5
Comp 8 Blank	Blank	2441-32 R1	09/07/05	0.005 U
Comp 8 Blank	Blank	2441-32 R2	09/07/05	0.005 U
Comp 8 Blank	Blank	2441-32 R3	09/07/05	0.005 U
		MEAN		**0.00500**
		RSD		**NA**
METHOD BLANK				
MB 1		BLANK DI-2	09/07/05	0.00952 j
MB 2		BLANK DI-3	09/07/05	0.00713 j
MB 3		BLANK DI-4	09/07/05	0.005 U
		MEAN		0.00722 j
LABORATORY CONTROL SAMPLE RESULTS				
LCS 1		SBLCS-r1	09/07/05	4.16
LCSBLANK 1		SB Blank-r1	09/07/05	0.0116 j
		Spiking Level		5
		Percent Recovery, LCS 1		**83%**
LCS 2		SBLCS-r2	09/07/05	3.70
LCSBLANK 2		SB Blank-r2	09/07/05	0.00770 j
		Spiking Level		5
		Percent Recovery, LCS 2		**74% N**
LCS 3		SBLCS-r3	09/07/05	3.72
LCSBLANK 3		SB Blank-r3	09/07/05	0.00654 j
		Spiking Level		5
		Percent Recovery, LCS 3		**74% N**
MATRIX SPIKE RESULTS				
MS 1		2441-1MS	09/07/05	3.94
MSD 1		2441-1MSD	09/07/05	4.13
EAG-051-H	site water	2441-1 R1	09/07/05	0.0108 j
		Spiking Level		5
		Percent Recovery, MS		**79%**
		Percent Recovery, MSD		**82%**
		RPD		**5%**
MS 2		2441-20MS	09/07/05	3.94
MSD 2		2441-20MSD	09/07/05	3.64
Comp 5; Site O-BB	Elutriate	2441-20 R1	09/07/05	0.0658
		Spiking Level		5
		Percent Recovery, MS		**78%**
		Percent Recovery, MSD		**71% N**
		RPD		**8%**

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OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Ag
			Method:	200.9
			CAS Code:	7440-22-4
			Achieved MDL	**0.005**
			RLs (3.18 x MDL)	0.02
			NED RIM RL	0.5
MS 3		2441-24MS	09/07/05	3.72
MSD 3		2441-24MSD	09/07/05	3.86
Comp 8 F-K	Elutriate	2441-24 R1	09/07/05	0.0542
		Spiking Level		5
		Percent Recovery, MS		**73% N**
		Percent Recovery, MSD		**76%**
		RPD		**4%**
STANDARD REFERENCE MATERIAL RESULTS				
SRM 1		1640 (2X)		7.35
SRM 2		1640 (2X)		7.10
SRM 3		1640		6.87
		certified/ref value		7.62
		range		± 0.25
		Percent Difference, SRM 1		**4%**
		Percent Difference, SRM 2		**7%**
		Percent Difference, SRM 3		**10%**

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FIAS QC SUMMARY
NEW BEDFORD HARBOR
OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Elutriate Reanalysis date for Se	As	Se
				Method:	206.3mod	270.3mod
				CAS Code:	7440-38-2	7782-49-2
				Achieved MDL	**0.03**	**0.07**
				RLs (3.18 x MDL)	0.1	0.3
				NED RIM RL	1	1
EAG-051-H	site water	2441-1 R1	09/07/05	NA	1.04	0.07 U
EAG-051-H	site water	2441-1 R2	09/07/05	NA	1.03	0.07 U
EAG-051-H	site water	2441-1 R3	09/07/05	NA	1.02	0.07 U
		MEAN			**1.03**	**NA**
		RSD			**1%**	
EAG-056-H	BBDS site water	2441-5 R1	09/07/05	NA	1.05	0.07 U
EAG-056-H	BBDS site water	2441-5 R2	09/07/05	NA	1.00	0.07 U
EAG-056-H	BBDS site water	2441-5 R3	09/07/05	NA	1.08	0.07 U
		MEAN			**1.04**	**NA**
		RSD			**4%**	
Comp 1; A,C,D,E	Elutriate	2441-16 R1	09/07/05	09/12/05	8.61	0.0894 j
Comp 1; A,C,D,E	Elutriate	2441-16 R2	09/07/05	09/12/05	8.46	0.115 j
Comp 1; A,C,D,E	Elutriate	2441-16 R3	09/07/05	09/12/05	8.27	0.0965 j
		MEAN			**8.45**	**0.100**
		RSD			**2%**	**13%**
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	09/07/05	09/12/05	5.88	0.195 j
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	09/07/05	09/12/05	5.85	0.196 j
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	09/07/05	09/12/05	6.19	0.150 j
		MEAN			**5.97**	**0.180**
		RSD			**3%**	**15%**
Comp 3; H,J	Elutriate	2441-18 R1	09/07/05	09/12/05	7.58	0.109 j
Comp 3; H,J	Elutriate	2441-18 R2	09/07/05	09/12/05	7.63	0.0934 j
Comp 3; H,J	Elutriate	2441-18 R3	09/07/05	09/12/05	7.83	0.123 j
		MEAN			**7.68**	**0.109**
		RSD			**2%**	**14%**
Comp 4; Site L,M,N	Elutriate	2441-19 R1	09/07/05	09/12/05	8.16	0.183 j
Comp 4; Site L,M,N	Elutriate	2441-19 R2	09/07/05	09/12/05	8.26	0.158 j
Comp 4; Site L,M,N	Elutriate	2441-19 R3	09/07/05	09/12/05	8.18	0.144 j
		MEAN			**8.20**	**0.162**
		RSD			**1%**	**12%**
Comp 5; Site O-BB	Elutriate	2441-20 R1	09/07/05	09/12/05	15.3	0.201 j
Comp 5; Site O-BB	Elutriate	2441-20 R2	09/07/05	09/12/05	15.0	0.178 j
Comp 5; Site O-BB	Elutriate	2441-20 R3	09/07/05	09/12/05	14.0	0.233 j
		MEAN			**14.7**	**0.204**
		RSD			**4%**	**14%**
Comp 6; CC-KK	Elutriate	2441-21 R1	09/07/05	09/12/05	12.7	0.165 j
Comp 6; CC-KK	Elutriate	2441-21 R2	09/07/05	09/12/05	12.3	0.203 j
Comp 6; CC-KK	Elutriate	2441-21 R3	09/07/05	09/12/05	12.4	0.188 j
		MEAN			**12.4**	**0.185**
		RSD			**2%**	**10%**
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	09/12/05	12.1	0.187 j
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	09/12/05	11.8	0.153 j
Comp 7; FF-JJ	Elutriate	2441-22 R1	09/07/05	09/12/05	11.9	0.193 j
		MEAN			**11.9**	**0.178**
		RSD			**1%**	**12%**

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OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Elutriate Reanalysis date for Se	As	Se
				Method:	206.3mod	270.3mod
				CAS Code:	7440-38-2	7782-49-2
				Achieved MDL	**0.03**	**0.07**
				RLs (3.18 x MDL)	0.1	0.3
				NED RIM RL	1	1
Comp 8 F-K	Elutriate	2441-24 R1	09/07/05	09/12/05	15.2	0.161 j
Comp 8 F-K	Elutriate	2441-24 R2	09/07/05	09/12/05	15.3	0.197 j
Comp 8 F-K	Elutriate	2441-24 R3	09/07/05	09/12/05	15.2	0.141 j
		MEAN			**15.2**	**0.166**
		RSD			**0%**	**17%**
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	09/07/05	NA	1.15	0.07 U
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	09/07/05	NA	1.13	0.07 U
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	09/07/05	NA	1.14	0.130 j
		MEAN			**1.14**	**NA**
		RSD			**1%**	
Comp 2 1,2.3	Blank	2441-26 R1	09/07/05	NA	1.09	0.07 U
Comp 2 1,2.3	Blank	2441-26 R2	09/07/05	NA	1.10	0.07 U
Comp 2 1,2.3	Blank	2441-26 R3	09/07/05	NA	1.13	0.0761 j
		MEAN			**1.11**	**NA**
		RSD			**2%**	
Comp 3 H,J	Blank	2441-27 R1	09/07/05	NA	1.10	0.07 U
Comp 3 H,J	Blank	2441-27 R2	09/07/05	NA	1.13	0.07 U
Comp 3 H,J	Blank	2441-27 R3	09/07/05	NA	1.05	0.07 U
		MEAN			**1.09**	**NA**
		RSD			**4%**	
Comp 4 L,M,N	Blank	2441-28 R1	09/07/05	NA	1.09	0.07 U
Comp 4 L,M,N	Blank	2441-28 R2	09/07/05	NA	1.03	0.07 U
Comp 4 L,M,N	Blank	2441-28 R3	09/07/05	NA	1.01	0.0927 j
		MEAN			**1.04**	**NA**
		RSD			**4%**	
Comp 5 O-BB	Blank	2441-29 R1	09/07/05	NA	1.08	0.07 U
Comp 5 O-BB	Blank	2441-29 R2	09/07/05	NA	1.01	0.07 U
Comp 5 O-BB	Blank	2441-29 R3	09/07/05	NA	1.03	0.07 U
		MEAN			**1.04**	**NA**
		RSD			**3%**	
Comp 6 CC-KK	Blank	2441-30 R1	09/07/05	NA	1.10	0.07 U
Comp 6 CC-KK	Blank	2441-30 R2	09/07/05	NA	1.07	0.07 U
Comp 6 CC-KK	Blank	2441-30 R3	09/07/05	NA	1.04	0.07 U
		MEAN			**1.07**	**NA**
		RSD			**3%**	
Comp 7 FF-JJ	Blank	2441-31 R1	09/07/05	NA	1.08	0.07 U
Comp 7 FF-JJ	Blank	2441-31 R2	09/07/05	NA	1.05	0.07 U
Comp 7 FF-JJ	Blank	2441-31 R3	09/07/05	NA	1.07	0.07 U
		MEAN			**1.07**	**NA**
		RSD			**1%**	
Comp 8 Blank	Blank	2441-32 R1	09/07/05	NA	1.11	0.07 U
Comp 8 Blank	Blank	2441-32 R2	09/07/05	NA	1.11	0.0825 j
Comp 8 Blank	Blank	2441-32 R3	09/07/05	NA	1.04	0.07 U
		MEAN			**1.09**	**NA**
		RSD			**3%**	

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SPONSOR CODE	Site Description	MSL Code	Analysis Date	Elutriate Reanalysis date for Se	As	Se
				Method:	206.3mod	270.3mod
				CAS Code:	7440-38-2	7782-49-2
				Achieved MDL	**0.03**	**0.07**
				RLs (3.18 x MDL)	0.1	0.3
				NED RIM RL	1	1
METHOD BLANK						
MB 1		BLANK 1	09/07/05	NA	0.03 U	0.07 U
MB 2		BLANK 2	09/07/05	NA	0.03 U	0.07 U
MB 3		BLANK 3	09/07/05	NA	0.03 U	0.07 U
		MEAN			0.03 U	0.07 U
MB 4		Elutriate Re-analysis BLANK 1		9/12/2005	NA	0.07 U
LABORATORY CONTROL SAMPLE RESULTS						
LCS 1		LCS R1	9/7/2005	NA	5.05	5.36
MB 1		BLANK 1	09/07/05	NA	0.03 U	0.07 U
		Spiking Level			5	5
		Percent Recovery, LCS 1			**101%**	**107%**
LCS 2		LCS R2	09/07/05	NA	4.96	4.83
MB 2		BLANK 2	09/07/05	NA	0.03 U	0.07 U
		Spiking Level			5	5
		Percent Recovery, LCS 2			**99%**	**97%**
LCS 3		LCS R3	09/07/05	NA	5.09	4.75
MB 3		BLANK 3	09/07/05	NA	0.03 U	0.07 U
		Spiking Level			5	5
		Percent Recovery, LCS 3			**102%**	**95%**
LCS 4		LCS R1		9/12/2005	NA	4.94
MB 4		Elutriate Re-analysis BLANK 1		9/12/2005	NA	0.07 U
		Spiking Level			NA	5
		Percent Recovery, LCS 4			NA	**99%**
MATRIX SPIKE RESULTS						
MS 1		2441-1MS	09/07/05	NA	5.92	4.86
MSD 1		2441-1MSD	09/07/05	NA	6.11	4.96
EAG-051-H	site water	2441-1 R1	09/07/05	NA	1.04	0.07 U
		Spiking Level			5	5
		Percent Recovery, MS			**98%**	**97%**
		Percent Recovery, MSD			**101%**	**99%**
		RPD			**4%**	**2%**
MS 2		2441-20MS	09/07/05	09/12/05	19.5	4.75
MSD 2		2441-20MSD	09/07/05	09/12/05	19.6	4.76
Comp 5; Site O-BB	Elutriate	2441-20 R1	09/07/05	09/12/05	15.3	0.201 j
		Spiking Level			5	5
		Percent Recovery, MS			**85%**	**91%**
		Percent Recovery, MSD			**87%**	**91%**
		RPD			**3%**	**0%**

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SPONSOR CODE	Site Description	MSL Code	Analysis Date	Elutriate Reanalysis date for Se	As	Se
				Method:	206.3mod	270.3mod
				CAS Code:	7440-38-2	7782-49-2
				Achieved MDL	**0.03**	**0.07**
				RLs (3.18 x MDL)	0.1	0.3
				NED RIM RL	1	1
MS 3		2441-24MS	09/07/05	09/12/05	19.4	4.80
MSD 3		2441-24MSD	09/07/05	09/12/05	20.2	4.87
Comp 8 F-K	Elutriate	2441-24 R1	09/07/05	09/12/05	15.2	0.161 j
		Spiking Level			5	5
		Percent Recovery, MS			**84%**	**93%**
		Percent Recovery, MSD			**100%**	**94%**
		RPD			**17%**	**1%**
STANDARD REFERENCE MATERIAL RESULTS						
SRM 1		Cass-4 R1	09/07/05	NA	1.14	NA
SRM 2		Cass-4 R2	09/07/05	NA	1.03	NA
SRM 3		Cass-4 R3	09/07/05	NA	1.06	NA
		certified/ref value			1.11	NA
		range			± 0.16	NA
		Percent Difference, SRM 1			**3%**	NA
		Percent Difference, SRM 2			**7%**	NA
		Percent Difference, SRM 3			**5%**	NA
SRM 4		1640	9/7/2005	NA	NA	24.5
SRM 5		1640 R2	9/7/2005	NA	NA	22.0
SRM 6		1640 R3	9/7/2005	NA	NA	22.1
		certified/ref value			NA	21.96
		range			NA	± 0.51
		Percent Difference, SRM 4			NA	**12%**
		Percent Difference, SRM 5			NA	**0%**
		Percent Difference, SRM 6			NA	**0%**

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CVAF QC Summary
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OCEAN MONITORING
Metals in Seawater
(Units: ug/L)

SPONSOR CODE	Site Description	MSL Code	Analysis Date	Hg
			Method:	1631E
			CAS Code:	7439-97-6
			Achieved MDL	**0.0002**
			RLs (3.18 x MDL)	0.0007
			NED RIM RL	0.4
EAG-051-H	site water	2441-1 R1	08/30/05	0.000782
EAG-051-H	site water	2441-1 R2	08/30/05	0.000944
EAG-051-H	site water	2441-1 R3	08/30/05	0.00111
		MEAN		**0.000945**
		RSD		**17%**
EAG-056-H	BBDS site water	2441-5 R1	08/30/05	0.00175
EAG-056-H	BBDS site water	2441-5 R2	08/30/05	0.00166
EAG-056-H	BBDS site water	2441-5 R3	08/30/05	0.00160
		MEAN		**0.00167**
		RSD		**5%**
Comp 1; A,C,D,E	Elutriate	2441-16 R1	08/30/05	0.00453
Comp 1; A,C,D,E	Elutriate	2441-16 R2	08/30/05	0.00452
Comp 1; A,C,D,E	Elutriate	2441-16 R3	08/30/05	0.00432
		MEAN		**0.00446**
		RSD		**3%**
Comp 2; Site 1,2,3	Elutriate	2441-17 R1	08/30/05	0.01995
Comp 2; Site 1,2,3	Elutriate	2441-17 R2	08/30/05	0.01938
Comp 2; Site 1,2,3	Elutriate	2441-17 R3	08/30/05	0.01931
		MEAN		**0.01955**
		RSD		**2%**
Comp 3; H,J	Elutriate	2441-18 R1	08/30/05	0.00342
Comp 3; H,J	Elutriate	2441-18 R2	08/30/05	0.00355
Comp 3; H,J	Elutriate	2441-18 R3	08/30/05	0.00382
		MEAN		**0.00360**
		RSD		**6%**
Comp 4; Site L,M,N	Elutriate	2441-19 R1	08/31/05	0.0163
Comp 4; Site L,M,N	Elutriate	2441-19 R2	08/31/05	0.0153
Comp 4; Site L,M,N	Elutriate	2441-19 R3	08/31/05	0.0163
		MEAN		**0.0160**
		RSD		**4%**
Comp 5; Site O-BB	Elutriate	2441-20 R1	08/31/05	0.0146
Comp 5; Site O-BB	Elutriate	2441-20 R2	08/31/05	0.0144
Comp 5; Site O-BB	Elutriate	2441-20 R3	08/31/05	0.0145
		MEAN		**0.0145**
		RSD		**0%**
Comp 6; CC-KK	Elutriate	2441-21 R1	08/31/05	0.0190
Comp 6; CC-KK	Elutriate	2441-21 R2	08/31/05	0.0190
Comp 6; CC-KK	Elutriate	2441-21 R3	08/31/05	0.0193
		MEAN		**0.0191**
		RSD		**1%**
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/31/05	0.0161
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/31/05	0.0165
Comp 7; FF-JJ	Elutriate	2441-22 R1	08/31/05	0.0157
		MEAN		**0.0161**
		RSD		**2%**

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SPONSOR CODE	Site Description	MSL Code	Analysis Date	Hg
			Method:	1631E
			CAS Code:	7439-97-6
			Achieved MDL	**0.0002**
			RLs (3.18 x MDL)	0.0007
			NED RIM RL	0.4
Comp 8 F-K	Elutriate	2441-24 R1	09/01/05	0.00563
Comp 8 F-K	Elutriate	2441-24 R2	09/01/05	0.00551
Comp 8 F-K	Elutriate	2441-24 R3	09/01/05	0.00542
		MEAN		**0.00552**
		RSD		**2%**
Comp 1 A,C,D,E Blank	Blank	2441-25 R1	08/31/05	0.00171
Comp 1 A,C,D,E Blank	Blank	2441-25 R2	08/31/05	0.00171
Comp 1 A,C,D,E Blank	Blank	2441-25 R3	08/31/05	0.00197
		MEAN		**0.00179**
		RSD		**8%**
Comp 2 1,2.3	Blank	2441-26 R1	09/01/05	0.00115
Comp 2 1,2.3	Blank	2441-26 R2	09/01/05	0.00100
Comp 2 1,2.3	Blank	2441-26 R3	09/01/05	0.000963
		MEAN		**0.00104**
		RSD		**9%**
Comp 3 H,J	Blank	2441-27 R1	09/01/05	0.000913
Comp 3 H,J	Blank	2441-27 R2	09/01/05	0.000993
Comp 3 H,J	Blank	2441-27 R3	09/01/05	0.000781
		MEAN		**0.000895**
		RSD		**12%**
Comp 4 L,M,N	Blank	2441-28 R1	09/01/05	0.000659 j
Comp 4 L,M,N	Blank	2441-28 R2	09/01/05	0.000687 j
Comp 4 L,M,N	Blank	2441-28 R3	09/01/05	0.000606 j
		MEAN		**0.000650**
		RSD		**6%**
Comp 5 O-BB	Blank	2441-29 R1	09/01/05	0.000767
Comp 5 O-BB	Blank	2441-29 R2	09/01/05	0.000776
Comp 5 O-BB	Blank	2441-29 R3	09/01/05	0.000920
		MEAN		**0.000821**
		RSD		**10%**
Comp 6 CC-KK	Blank	2441-30 R1	09/01/05	0.000635 j
Comp 6 CC-KK	Blank	2441-30 R2	09/01/05	0.000636 j
Comp 6 CC-KK	Blank	2441-30 R3	09/01/05	0.000635 j
		MEAN		**0.000636**
		RSD		**0%**
Comp 7 FF-JJ	Blank	2441-31 R1	09/01/05	0.00116
Comp 7 FF-JJ	Blank	2441-31 R2	09/01/05	0.00113
Comp 7 FF-JJ	Blank	2441-31 R3	09/01/05	0.00139
		MEAN		**0.00123**
		RSD		**12%**

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SPONSOR CODE	Site Description	MSL Code	Analysis Date	Hg
			Method:	1631E
			CAS Code:	7439-97-6
			Achieved MDL	**0.0002**
			RLs (3.18 x MDL)	0.0007
			NED RIM RL	0.4
Comp 8 Blank	Blank	2441-32 R1	09/01/05	0.00110
Comp 8 Blank	Blank	2441-32 R2	09/01/05	0.000735
Comp 8 Blank	Blank	2441-32 R3	09/01/05	0.000763
		MEAN		**0.000866**
		RSD		**23%**
METHOD BLANK				
MB 1		Method Blank	08/30/05	0.0002 U
MB 2		Method Blank	08/30/05	0.0002 U
MB 3		Method Blank	08/30/05	0.0002 U
		MEAN		0.0002 U
MB 4		Method Blank	08/31/05	0.0002 U
MB 5		Method Blank	08/31/05	0.0002 U
MB 6		Method Blank	08/31/05	0.000237 j
		MEAN		0.000212 j
MB 7		Method Blank	09/01/05	0.0002 U
MB 8		Method Blank	09/01/05	0.0002 U
MB 9		Method Blank	09/01/05	0.0002 U
		MEAN		0.0002 U
LABORATORY CONTROL SAMPLE RESULTS				
LCS 1		OPR082905run1	08/30/05	0.00586
LCS 2		OPR082905run2	08/30/05	0.00560
LCSBLANK 1		BLANK082905	08/30/05	0.000542 j
		Spiking Level		0.00497
		Percent Recovery, LCS 1		**107%**
		Percent Recovery, LCS 2		**102%**
LCS 3		OPR083005run1	08/31/05	0.00523
LCS 4		OPR083005run2	08/31/05	0.00486
LCSBLANK 2		BLANK083005	08/31/05	0.000368 j
		Spiking Level		0.00497
		Percent Recovery, LCS 3		**98%**
		Percent Recovery, LCS 4		**90%**
LCS 5		OPR083105run1	09/01/05	0.00541
LCS 6		OPR083105run2	09/01/05	0.00548
LCSBLANK 3		BLANK083105	09/01/05	0.000440 j
		Spiking Level		0.00506
		Percent Recovery, LCS 5		**98%**
		Percent Recovery, LCS 6		**100%**

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SPONSOR CODE	Site Description	MSL Code	Analysis Date	Hg
			Method:	1631E
			CAS Code:	7439-97-6
			Achieved MDL	**0.0002**
			RLs (3.18 x MDL)	0.0007
			NED RIM RL	0.4
MATRIX SPIKE RESULTS				
MS 1		2441-5MS	08/30/05	0.0126
MSD 1		2441-5MSD	08/30/05	0.0126
EAG-056-H	BBDS site water	2441-5 R1	08/30/05	0.00175
		Spiking Level, MS		0.0104
		Spiking Level, MSD		0.0103
		Percent Recovery, MS		**104%**
		Percent Recovery, MSD		**105%**
		RPD		**1%**
MS 2		2441-20MS	08/31/05	0.0251
MSD 2		2441-20MSD	08/31/05	0.0245
Comp 5; Site O-BB	Elutriate	2441-20 R1	08/31/05	0.0146
		Spiking Level, MS		0.0104
		Spiking Level, MSD		0.0108
		Percent Recovery, MS		**102%**
		Percent Recovery, MSD		**92%**
		RPD		**10%**
MS 3		2441-24MS	09/01/05	0.0156
MSD 3		2441-24MSD	09/01/05	0.0158
Comp 8 F-K	Elutriate	2441-24 R1	09/01/05	0.00563
		Spiking Level, MS		0.0100
		Spiking Level, MSD		0.0104
		Percent Recovery, MS		**100%**
		Percent Recovery, MSD		**97%**
		RPD		**3%**
STANDARD REFERENCE MATERIAL RESULTS				
SRM 1		1641d082905	8/30/2005	1675
SRM 2		1641d083005	8/31/2005	1619
SRM 3		1641d083105	9/1/2005	1640
		certified/ref value		1590
		range		± 18
		Percent Difference, SRM 1		**5%**
		Percent Difference, SRM 2		**2%**
		Percent Difference, SRM 3		**3%**

Table II-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue and Water Matrices

Method Reference Numbers: Various Reference Numbers

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Linear Range Determination for ICP	Performed Quarterly	YES		Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient ≥0.995)	YES		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	YES		In Data Package
Initial Calibration Verification/ Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	YES/NO	Analytical batches for Cu, Se, and Ag contained one or more CCVs that exceeded the criterion. The data are flagged with a "*". Impact is negligible they exceeded the criterion by no greater than 2%.	Retained at Lab
Initial Calibration Blank/ Continuing Calibration Blank	No target analytes > Instrument Detection Limit (IDL)	YES		Retained at Lab
Standard Reference Materials	Percent difference ≤25% for analytes certified >10* the MDL	YES	See QC narrative for discussion on reagent blank correction.	In Data Package
Method Blank	No target analytes > RL	YES		In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (75 to 125%; RPD < 20% or < 35%)	YES/NO	Two matrix spikes for Ag were outside the criterion.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	YES	All samples were analyzed in triplicate.	In Data Package

QA/QC NARRATIVE

PROJECT: New Bedford Harbor Ocean Monitoring
PARAMETER: Metals
LABORATORY: Battelle Marine Sciences Laboratory, Sequim, Washington
MATRIX: Seawater

SAMPLE CUSTODY AND PROCESSING: Battelle received seawater samples in three separate shipments: 08/02/05, 08/11/05, and 08/12/05. All samples were received in good condition. Samples were assigned a Battelle Central File (CF) identification number (2441) and were entered into Battelle's sample tracking system.

The following lists information on sample receipt and processing activities:

MSL Sample IDs:	2441*1, 5, 16-32 (sample 2441*23 was an extra bottle for sample 2441*24)
Sample Receipt Date:	08/02/05, 08/11/05, 08/12/05
Cooler temp. on arrival	5.1, 2.1, 5.3°C
Collection dates	07/29/05, 07/30/05, 08/09/05, 08/10/05, 08/11/05
CVAF Analysis Date (Hg)	08/30/05, 08/31/05, 09/01/05
FIAS Analysis Date (As, Se)	09/07/05 and Se Elutriates 09/12/05
Fe/Pd Preconcentration Date: (Cd, Cr, Cu, Ni, Pb, Zn + Ag)	08/31/05
GFAA Analysis Date: (Ag)	09/07/05
ICP-MS Fe/Pd analysis date (Cd, Cr, Cu, Ni, Pb, Zn)	09/02/05

QA/QC DATA QUALITY OBJECTIVES:

Analyte	Analytical Method	MS/LCS Range of Recovery	SRM Percent Difference	Replicate Precision	RIM Reporting Limits (µg/L)	Detection Limits (µg/L)	Reporting Limits (µg/L)
Cadmium	ICP-MS	75-125%	≤25% (1)	≤30% (1)	1	0.006	0.02
Chromium	ICP-MS	75-125%	≤25% (1)	≤30% (1)	1	0.04	0.2
Copper	ICP-MS	75-125%	≤25% (1)	≤30% (1)	0.6	0.05	0.2
Nickel	ICP-MS	75-125%	≤25% (1)	≤30% (1)	1	0.06	0.2
Lead	ICP-MS	75-125%	≤25% (1)	≤30% (1)	1	0.004	0.02
Zinc	ICP-MS	75-125%	≤25% (1)	≤30% (1)	1	0.2	0.7
Silver	GFAA	75-125%	≤25% (1)	≤30% (1)	0.5	0.005	0.02
Arsenic	FIAS	75-125%	≤25% (1)	≤30% (1)	1	0.03	0.1
Selenium	FIAS	75-125%	≤25% (1)	≤30% (1)	1	0.07	0.3
Mercury	CVAF	75-125%	≤25% (1)	≤30% (1)	0.4	0.0002	0.0007

(1) Evaluated for analytes >10x the MDL
(2) Reported from the Annual Seawater Method Detection Limit (MDL) Study as determined from seven replicates of seawater.
(3) Reporting Limit (RL) determined as 3.18 * achieved MDL.

QA/QC NARRATIVE

METHODS: Seawater samples were analyzed for ten metals: cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn), silver (Ag), selenium (Se), and mercury (Hg). Samples were submitted for analyses by four methods.

All samples were analyzed for Hg by Cold Vapor Atomic Fluorescence (CVAF) in accordance with Battelle SOP *MSL-I-013*, *Total Mercury in Aqueous Samples by CVAF*, following EPA Method 1631 revision E.

Samples were analyzed for As and Se using hydride generation flow injection atomic absorption spectroscopy (FIAS) according to Battelle SOP MSL-I-030 Determination of Metals in Aqueous and Digestate Samples by HGAA-FIAS. This method was adopted from EPA Method 206.3 for As and 270.3 for Se. A matrix interference for Se in the elutriate samples resulted in low matrix spike recoveries using our standard preparation method. The preparation method was altered to convert all species of selenium to Se^{+4}. Changes to the method included the addition of potassium persulfate and then heated for 30 minutes at 90°C prior to refluxing with HCl.

All samples were preconcentrated for Cd, Cr, Cu, Ni, Pb, Zn, and Ag prior to analysis in accordance with Battelle SOP *MSL-I-025, Methods of Sample Preconcentration: Iron (Fe) and Palladium (Pd)/APDC Coprecipitation and Borohydride Reductive Precipitation for Trace Metals Analysis in Water.*

Preconcentrated seawater samples were analyzed for Cd, Cr, Cu, Ni, Pb and Zn by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP *MSL-I-022, Determination of Elements in Aqueous and Digestate Samples by ICP/MS.* The base methods for this procedure are EPA Method 1638 and EPA Method 1640.

Preconcentrated seawater samples were analyzed for Ag by graphite furnace atomic absorption (GFAA) following Battelle SOP MSL-I-029, Determination of Metals in Aqueous and Digestate Samples by GFAA, based on EPA Method 200.9.

Results are reported in units of µg/L for each sample. The results are NOT REAGENT BLANK CORRECTED; however, it is recommended the data be reagent corrected due to the presence of trace quantities of the reported metals in the chelating agents used in the preconcentration step. See Method Blank and SRM sections for more information.

HOLDING TIMES: All samples were analyzed within the established holding times of 90 days for Hg and six months for all other metals.

DETECTION LIMITS: Analytical results were reported to laboratory achieved method detection limits (MDL) and achieved reporting limits (RL) defined as 3.18*MDL. Data were evaluated and flagged in accordance with the following criteria:

- U Not detected above laboratory achieved MDL; MDL reported
- j Analyte detected is less than the achieved RL, but greater than MDL
- N QC value outside the accuracy or precision criteria goal (Spikes ±25%R; SRM ≤25%PD; Replicates ±30%RPD)
- n QC value outside the accuracy or precision data quality objective, but meets contingency criteria.
- B Analyte detected in the associated blank > RL.
- b Average reagent blank subtracted from sample value.
- * Bracketing CCVs recovered at 111%, see narrative.

QA/QC NARRATIVE

CCVs: Continuing calibration verification (CCV) samples were analyzed using the ICP-MS at a frequency of 1 per 10 samples. All CCVs were within the QC criterion of 90-110% with the exception of Cu. Twelve CCVs were analyzed in the analytical batch. The final four CCVs of the analytical run recovered at 111% and one at 112%. The analytical run was completed with the analysis of two linear range standards, which recovered at 104% and 93%. QC samples analyzed with the batch were all within the QC criteria for Cu. There was insufficient sample available for reanalysis of each sample in triplicate. The data may be considered biased high by up to 2%; however, the supporting QC samples indicate there was no impact to the quality of the data.

CCV samples were analyzed for Se using the FIAS. Eleven CCV samples were analyzed in the analytical run. CCV number seven recovered at 88% and was outside the QC criterion; however, the following CCV recovered at 102%. Data were not impacted.

CCV samples were analyzed for Ag in two analytical batches using the GFAA. In the T090705A analytical batch seven CCV samples were analyzed. The final CCV recovered at 88%. All other CCV samples were within the QC criterion. The data may be considered biased low. The samples potentially impacted by the low CCV were both seawater blanks. The other seawater blank samples analyzed with acceptable QC samples were all less than the RL. The potentially impacted samples were also less than the RL. The data are not considered impacted.

METHOD BLANKS: A minimum of one method blank per 20 samples was analyzed with this batch of samples. Average method blank concentrations were less than the RL for all metals. Sample concentrations less than the MDL for Cd, Cr, Cu, Ni, Pb, and Zn were not replaced by the MDL value so the true average could be used for reagent blank correction for samples preconcentrated by Fe/Pd.
Analytical note on the detected blanks in preconcentrated seawater. The required preconcentration procedure for select metals in low level seawater samples includes the addition of chelating agents to induce precipitation of metals under specific conditions. Subsequently, reagents added to the samples should be of the purest quality to result in zero addition of metals to the samples. The current reagents available contain traces of the metals of interest; therefore the data should be reagent blank corrected.

LABORATORY CONTROL SAMPLES: A minimum of one LCS samples per 20 field samples was prepared and analyzed with this batch of samples. Percent recoveries for the LCS samples ranged from 83% to 107% and were within the QC acceptance criterion of 75% to 125% for all metals except two replicates for Ag (74% and 74%). Acceptable accuracy was demonstrated on the MS/MSD samples and the SRMs.

MATRIX SPIKE ACCURACY: Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at a frequency of 1 per 20 samples. Percent recoveries for MS/MSD pairs ranged from 75% to 123% and were within the QC limits of 75% to 125% for all metals except two spikes for Ag (71%, 73%). One spike for Cr (127%) and one spike for Zn (126%) meet the contingency criterion of spiking level less than one times the sample concentration.

REPLICATE PRECISION: Laboratory precision was evaluated using both laboratory triplicates and replicate spiked samples (MS/MSD). Precision for the laboratory triplicates was expressed as the relative standard deviation (RSD) of replicate results. The RSD values ranged from 0% to 27% and were within the QC acceptance criterion of ≤30% for all metals greater than the RL. Precision between the matrix spike pairs was reported as the RPD between the pair of matrix spike recoveries. RPD values ranged from 0% to 23% and were within the QC acceptance criterion of ≤25% for all metals.

QA/QC NARRATIVE

STANDARD REFERENCE MATERIAL ACCURACY:

Three replicates of the certified reference material 1641d demonstrated analytical accuracy for Hg, and were expressed as the percent difference (PD) between the measured and certified value. The percent differences were 5%, 2%, and 3% and were within the QC acceptance criterion of ≤25%.

Three replicates of the certified reference material 1640 demonstrated analytical accuracy for each batch of samples analyzed for Cd, Cr, Cu, Ni, Pb, Zn, Ag, and Se. Percent differences ranged from 0% to 16% and were within the acceptance criterion.

The SRM CASS-4 is a low-level seawater reference material. Currently, there is no seawater SRM certified at a practical quantification level for all analytes of interest. The required preconcentration procedure for low-level seawater samples includes the addition of chelating agents to induce precipitation of select metals under specific conditions. Subsequently, reagents added to the samples should be of the purest quality to result in zero addition of metals to the samples. The current reagents available contain traces of Cd, Cr, Cu, Ni, Pb, and Zn; therefore, the percent differences for CASS-4 are reported as reagent blank corrected for these metals. In addition, CASS-4 is certified less than MDL for Zn and less than 10 times the MDL for Cd, Cr, Ni, and Pb. All reagent corrected replicates for CASS-4 were within the QC Criterion.

Battelle Marine Science Laboratory

Method Detection Limit Study Summary

Date: 9/15/2005

MATRIX: Sequim Bay Seawater

	Ag	As	Cd	Cr	Cu	Hg	Ni	Pb	Se	Zn
Instrument:	GFAA	FIAS	ICP-MS	ICP-MS	ICP-MS	CVAF	ICP-MS	ICP-MS	FIAS	ICP-MS
CAS Code:	7440-22-4	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-97-6	7440-02-0	7439-92-1	7782-49-2	7440-66-6
MDL 1	0.0108	0.495	0.0596	0.183	0.362	0.000660	0.367	0.013	0.475	0.900
MDL 2	0.0146	0.501	0.0553	0.172	0.344	0.000775	0.344	0.014	0.459	0.791
MDL 3	0.0106	0.483	0.0583	0.205	0.387	0.000749	0.394	0.015	0.466	0.778
MDL 4	0.0124	0.485	0.0554	0.190	0.359	0.000818	0.350	0.014	0.467	0.794
MDL 5	0.0129	0.475	0.0583	0.189	0.360	0.000701	0.368	0.012	0.430	0.737
MDL 6	0.0127	0.482	0.0576	0.197	0.373	0.000708	0.360	0.013	0.426	0.826
MDL 7	0.0112	0.479	0.0557	0.189	0.366	0.000696	0.380	0.012	0.470	0.837
MEAN	0.0122	0.4858	0.0572	0.189	0.364	0.000729	0.366	0.0132	0.456	0.809
STDEV	0.00140	0.00925	0.00170	0.0104	0.0133	0.000054	0.0171	0.0011	0.0199	0.0517
MDL	0.0044	0.0290	0.00535	0.0326	0.042	0.000169	0.0538	0.0034	0.0624	0.162

Sequ

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Chain of Custody

Metals Sediment Data Package

Proj. No: G6X04/6-0001b

Proj. Name: New Bedford Harbor

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7/29/05	1015	EAG-051-H.	2441-1	(*) RISDS site water 1L Jar							✓				1
"	0800	EAG-052-H.	2	Rinsate blank for grab 1L jar							✓				1
"	1400	EAG-053-H.	3	Rinsate blank for corer "							✓				1
"	"	EAG-054-H.	4	" " " pump "							✓				1
7-30-05	0830	EAG-056-H.	2441-5	(*) BBDS site water 1L Jar							✓				1

Relinquished by:	Date/Time	Received by:	Date/Time
	7-29-05 1800		8/1/05 06:30
Relinquished by:	Date/Time	Received by:	Date/Time
	8/1/05 13:00		08/02/05 1330

Comments:
(*) RISDS and BBDS are to be analyzed in triplicate. An MS and MSD should be performed on of these samples.

ORIGINAL

SAMPLE CUSTODY RECORD

(SOP# MSL-A-001 & MSL-A-002)

Date: 8/10/05

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Pacific Northwest Division
Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382

Project Name: New Bedford Harbor Dredge
Project Manager: Lisa Lefkovitz
Phone Number:

Shipment Method:
Preservation: none

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	Test Parameters: metals (as per Project SOW)					Laboratory ID	Observations/Comments
1	Comp1; AC, DE	8/9/05	water	1						2441-16	elutriate
2	Comp2; Site 1,2,3	8/9/05	water	1						17	elutriate
3	Comp3; H, J	8/9/05	water	1						18	elutriate
4	Comp4; Site L,M,N	8/9/05	water	1						19	elutriate
5	Comp5, Site O-BB	8/10/05	water	2						20a&b	elutriate
6	Comp6; CC-KK	8/10/05	water	1						21	elutriate
7	Comp7; FF-JJ	8/10/05	water	1						22	elutriate
8	Comp8, Site F-K	8/10/05								2441-23	elutriate (extra sample)
9											
10											
11											
12											
13											
14											
15											

Relinquished By:	Company: EnviroSystems	Received By:	Company: MSL
Kenneth A Sim	8/10/05 16:45	MLFH McGahan	08/11/05 1300
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

Relinquished By:	Company:	Received By:	Company:
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

Rev. 020102COC

Distribution: White - Laboratory, Project Files Yellow - Laboratory, Client Pink - Sampler

Page 1 of 1

SAMPLE CUSTODY RECORD

(SOP# MSL-A-001 & MSL-A-002)

Date: 8/11/05

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Pacific Northwest Division
Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382

Project Name: NEW BEDFORD
Project Manager:
Phone Number:

Shipment Method: FEDEX
Preservation: NONE - ICE

Line	Field Sample ID	Collection Date/Time	Matrix	No. of Containers	Test Parameters					Laboratory ID	Observations/Comments
1	COMP 8 F-K	8/10/05	WATER	2						2441 - 24 a & b	Elutriate
2	COMP 1 A, D, E	BLANK 8/11/05	"	1						25	Blank
3	COMP 2 1,2,3	" 8/11/05	"	1						26	Blank
4	COMP 3 H, J	" "	"	1						27	Blank
5	COMP 4 L, M, N	" "	"	1						28	Blank
6	COMP 5 O-BB	" "	"	1						29	Blank
7	COMP 6 CC-KK	" "	"	1						30	Blank
8	COMP 7 FF-JJ	" "	"	1						31	Blank
9	comp 8 Blank									2441 - 32	Blank
10											
11											
12											
13											
14											
15											

Relinquished By:	Company: ESI	Received By:	Company: MSL
P. Karbe / P. KARBE	8/11/05 6:00PM	McGahan / MLFMcGahan	08/12/05 1240
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

Relinquished By:	Company:	Received By:	Company:
Signature/Printed Name	Date/Time	Signature/Printed Name	Date/Time

Rev. 020102COC

Distribution: White - Laboratory, Project Files Yellow - Laboratory, Client Pink - Sampler

Page _____ of _____

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2441 Sample No(s): 1-15 Project Manager: Brandenburger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
		Navy-type Project (requires high-level sample tracking procedures)
		Filter Samples: *Amount:* Entire sample Half of sample
		Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
		Special instructions:

Sample Preservation Instructions:

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Was a custody seal present?
		✓	Was the custody seal intact?
✓			Was cooler(s) temperature(s) within acceptable range of 4±2°C? 5.1 °C (if multiple coolers, note temp. of each) °C
		✓	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
✓			Were all chain of custody forms signed and dated?
	✓		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Spex Other:

Notes:

Completed By: [signature] Date/Time: 08/02/05 1330

SAMPLE PRESERVATION

- [x] Sample(s) were preserved at MSL
- [ ] Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type:			Notes:
	[x]	0.2% HNO3	LOT# 1203080 1-5
	[ ]	0.5% HCl (Hg samples)	
	✓	Refrigerate/Freeze	6-15 deep freeze [signature] 08/02/05 1330
	[ ]	Other	

Completed By: [signature] Date/Time: 8/2/05 14:25

Storage: LZD

LOG-IN CHECKLIST New Bedford Harbor OM

Reference SOP# MSL-A-001

Central File #: 2441 Sample No(s): 16-23 Project Manager: JMB

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: Seawater WP# W75742

Yes	No	
	✓	Navy-type Project (requires high-level sample tracking procedures)
	✓	Filter Samples: Amount: Entire sample Half of sample
	✓	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
✓		Special instructions: check pH

Sample Preservation Instructions: Acidify 0.2% HNO_3 if pH > 2.0

Date To Archive: Date To Dispose:

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Was a custody seal present?
		✓	Was the custody seal intact?
✓			Was cooler(s) temperature(s) within acceptable range of 4±2°C? 2.1 °C (if multiple coolers, note temp. of each) °C
		✓	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
✓			Were all chain of custody forms signed and dated?
	✓		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Spex Other:

Notes:

Completed By: [signature] Date/Time: 08/11/05 1230

SAMPLE PRESERVATION

- ✓ Sample(s) were preserved at MSL
- ☐ Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- ✓ Random pH checked for ~10% of samples (use dip paper) Sample IDs: all were, none were acidified
- ☐ Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type:		Notes:
✓	0.2% HNO3	lot # 1203080
	0.5% HCl (Hg samples)	
	Refrigerate/Freeze	
	Other	

Completed By: [signature] Date/Time: 08/11/05 1350

K-F-B

Revsed 031303

LOG-IN CHECKLIST New Bedford Harbor DM

Reference SOP# MSL-A-001

Central File #: 2441 Sample No(s): 24-32 Project Manager: JMB

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: Seawater WP# ~~W75452~~ W75742

Yes	No	
	✓	Navy-type Project (requires high-level sample tracking procedures)
	✓	Filter Samples: Amount: Entire sample Half of sample
	✓	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
✓		Special instructions: check pH

Sample Preservation Instructions: preserve @ 0.2% HNO_3

Date To Archive: Date To Dispose:

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	N/A		Was a custody seal present?
		N/A	Was the custody seal intact?
N/A			Was cooler(s) temperature(s) within acceptable range of 4±2°C? 5.3 °C (if multiple coolers, note temp. of each) °C
		N/A	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
N/A			Were all chain of custody forms signed and dated?
	N/A		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Spex Other:

Notes:

Completed By: [signature] Date/Time: 08/12/05 1130

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved at MSL
- [ ] Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type:			Notes:
	✓	0.2% HNO3	Fisher Lot # 1203080
		0.5% HCl (Hg samples)	
		Refrigerate/Freeze	
		Other	

Completed By: [signature] **Date/Time:** 8/12/05 1630

Revsed 031303

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Appendix D
PAHs in Rinsate Blanks

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PAH – Water QA/QC Summary
Batch 05-0283

PROJECT: USACE/NAE – New Bedford Harbor
PARAMETER: PAH
LABORATORY: Battelle, Duxbury, MA
MATRIX: Rinsate Blanks
SAMPLE CUSTODY: Rinsate blanks were collected on 7/29/05 and 7/30/05 for the New Bedford Harbor Project. These waters were hand delivered to the Organic Chemistry Sample Custodian on 8/2/05. The samples were logged into LIMS and received unique Battelle IDs. The samples were stored at 4° C in an access controlled walk-in refrigerator until sample preparation could begin.

	Reference Method	Method Blank	Surrogate Recovery	LCS Recovery	Detection Limits and Reporting Limits (ng/L)
PAH	General NS&T	< 5 x ss-MDL	30-150% Recovery	50-120% Recovery	MDL: ~0.48 – 20.83 RL: ~ 8.37

METHOD: Water samples were extracted for PAH following general NS&T methods. Approximately 1 liter of water was spiked with surrogates and extracted three times with dichloromethane using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated and processed through alumina cleanup column. The extract was then fortified with RIS and split quantitatively for the required analyses. Extracts were analyzed using gas chromatography/mass spectrometry (GC/MS), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds.

HOLDING TIMES: Samples were prepared for analysis in one analytical batch and were extracted within 6 days of sample collection and analyzed within 40 days of extraction. All holding times were met.

Batch	Extraction Date	Analysis Date
05-0283	8/4/05	8/16/05 – 8/17/05

PAH – Water QA/QC Summary
Batch 05-0283

BLANK: One procedural blank (PB) sample was prepared with the analytical batch. The procedural blank was analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0283 – No exceedences noted.

Comments – Most target analytes were not detected in the procedural blank at a concentration greater than the ss-MDL. However, three compounds, fluoranthene, pyrene, and benzo(g,h,i)perylene were detected in the blank at concentrations less than the ss-RL. This data was qualified with a "J". No further corrective action was taken.

LABORATORY CONTROL SAMPLE: A laboratory control sample (LCS) was prepared with each analytical batch. The percent recoveries of target PAH were calculated to measure data quality in terms of accuracy.

05-0283 –All target analytes were recovered within the laboratory control limits specified by the client (50% - 120%).

Comments – None.

SURROGATES: Five surrogate compounds were added prior to extraction, including naphthalene-d8, acenaphthene-d10, phenanthrene-d10, benzo(b)fluoranthene-d12, and chrysene-d12. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0283 – All percent recoveries were within the laboratory control limits (30% - 150%).

Comments – None.

CALIBRATIONS: The instrument is calibrated with a 5-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally an Instrument Calibration Check (ICC) sample is run after each initial calibration.

05-0283 – No exceedences noted.

Comments – None.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	EAG-052-G	EAG-053-G	EAG-054-G
Description	Grab Rinsate Blank	Core Rinsate Blank	Pump Rinsate Blank
Battelle ID	S8670-P	S8671-P	S8672-P
Sample Type	SA	SA	SA
Collection Date	07/29/05	07/29/05	07/29/05
Extraction Date	08/04/05	08/04/05	08/04/05
Analysis Date	08/13/05	08/13/05	08/13/05
Analytical Instrument	MS	MS	MS
% Moisture	NA	NA	NA
% Lipid	NA	NA	NA
Matrix	WATER	WATER	WATER
Sample Size	1.06	1.06	1.06
Size Unit-Basis	L_LIQUID	L_LIQUID	L_LIQUID
Units	NG/L_LIQUID	NG/L_LIQUID	NG/L_LIQUID
Naphthalene	147.26	35.11	58.62
Acenaphthylene	11.84 U	11.84 U	11.84 U
Acenaphthene	11.84 U	11.84 U	11.84 U
Fluorene	11.84 U	11.84 U	11.84 U
Anthracene	11.84 U	11.84 U	11.84 U
Phenanthrene	10.64 J	10.90 J	11.84 U
Fluoranthene	1.51 J	11.84 U	11.84 U
Pyrene	11.82 U	11.82 U	11.82 U
Benzo(a)anthracene	11.84 U	11.84 U	11.84 U
Chrysene	11.84 U	11.84 U	11.84 U
Benzo(b)fluoranthene	11.84 U	11.84 U	11.84 U
Benzo(k)fluoranthene	11.82 U	11.82 U	11.82 U
Benzo(a)pyrene	11.84 U	11.84 U	11.84 U
Indeno(1,2,3-cd)pyrene	11.84 U	11.84 U	11.84 U
Dibenz(a,h)anthracene	11.84 U	11.84 U	11.84 U
Benzo(g,h,i)perylene	11.84 U	11.84 U	11.84 U
Surrogate Recoveries (%)			
Naphthalene-d8	89	90	89
Acenaphthene-d10	91	88	88
Phenanthrene-d10	100	97	98
Benzo(b)fluoranthene-d12	110	133	109
Benzo(a)pyrene-d12	74	99	74

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank
Battelle ID	BG884PB-P
Sample Type	PB
Collection Date	08/04/05
Extraction Date	08/04/05
Analysis Date	08/13/05
Analytical Instrument	MS
% Moisture	NA
% Lipid	NA
Matrix	LIQUID
Sample Size	1.00
Size Unit-Basis	L_LIQUID
Units	NG/L_LIQUID
Naphthalene	8.37 U
Acenaphthylene	8.37 U
Acenaphthene	8.37 U
Fluorene	8.37 U
Anthracene	8.37 U
Phenanthrene	8.37 U
Fluoranthene	1.24 J
Pyrene	1.56 J
Benzo(a)anthracene	8.37 U
Chrysene	8.37 U
Benzo(b)fluoranthene	8.37 U
Benzo(k)fluoranthene	8.35 U
Benzo(a)pyrene	8.37 U
Indeno(1,2,3-cd)pyrene	8.37 U
Dibenz(a,h)anthracene	8.37 U
Benzo(g,h,i)perylene	2.64 J
Surrogate Recoveries (%)	
Naphthalene-d8	76
Acenaphthene-d10	71
Phenanthrene-d10	78
Benzo(b)fluoranthene-d12	92
Benzo(a)pyrene-d12	62

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Laboratory Control Sample			
Battelle ID	BG885LCS-P			
Sample Type	LCS			
Collection Date	08/04/05			
Extraction Date	08/04/05			
Analysis Date	08/13/05			
Analytical Instrument	MS			
% Moisture	NA			
% Lipid	NA			
Matrix	LIQUID			
Sample Size	1.00			
Size Unit-Basis	L_LIQUID			
Units	NG/L_LIQUID	Target	% Recovery	Qualifier
Naphthalene	743.62	1000.60	74	
Acenaphthylene	723.18	1000.65	72	
Acenaphthene	758.76	1000.75	76	
Fluorene	764.32	1000.70	76	
Anthracene	728.13	1000.65	73	
Phenanthrene	777.26	1000.65	78	
Fluoranthene	789.33	1000.50	79	
Pyrene	772.92	1000.50	77	
Benzo(a)anthracene	702.66	1000.60	70	
Chrysene	823.08	1000.75	82	
Benzo(b)fluoranthene	693.37	1000.75	69	
Benzo(k)fluoranthene	798.51	1000.65	80	
Benzo(a)pyrene	722.18	1000.65	72	
Indeno(1,2,3-cd)pyrene	742.47	1000.60	74	
Dibenz(a,h)anthracene	828.90	1000.55	83	
Benzo(g,h,i)perylene	767.66	1000.70	77	
Surrogate Recoveries (%)				
Naphthalene-d8	74			
Acenaphthene-d10	70			
Phenanthrene-d10	80			
Benzo(b)fluoranthene-d12	92			
Benzo(a)pyrene-d12	64			

Table II-2: Quality Control Summary for Analyses of Polyaromatic Hydrocarbons (PAHs) and other base-neutrals Matrices in Sediment and Tissue

Method Reference Number: 8270C **Batch 05-0283 (Rinsate Blank)**

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	NA		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	NA		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	NA		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package
Internal Standard Areas	Within 50 to 200% of internal standards in continuing calibration check	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Appendix E
PCB/Pesticides in Water

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Appendix E-1

PCB/Pesticides in Rinsate Blanks and Reference Site Waters

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PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0283

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: PCB/Pesticide
LABORATORY: Battelle, Duxbury, MA
MATRIX: Site Water and Rinsate Blanks
SAMPLE CUSTODY: Site water and rinsate blanks were collected between 7/29/05 and 7/30/05 for the New Bedford Harbor Project. These waters were hand delivered to the Organic Chemistry Sample Custodian on 8/2/05. The samples were logged into LIMS and received unique Battelle IDs. The samples were stored at 4° C in an access controlled walk-in refrigerator until sample preparation could begin.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	Sample Replicate Relative Precision	Detection Limits and Reporting Limits (ng/L)
PCB/ Pesticide	General NS&T	< 5 x ss-MDL	30-150% Recovery	50-120% Recovery (concentration of MS must be >5 x background)	≤30% RSD (concentration of MS must be >5 x background; sample duplicate values must be > 10 x MDL)	MDL: ~0.26 – 1.46 RL: ~1.68 – 166.7

METHOD: Water samples were extracted for PCB and pesticides following general NS&T methods. Approximately 1 liter of water was spiked with surrogates and extracted three times with dichloromethane using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract (non-fractionated for rinsate blanks only) was concentrated, fortified with RIS and solvent exchanged into hexane. Extracts were analyzed using gas chromatography/electron capture detection (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds. Note: In addition to the PCB and pesticide that site water and QC samples were analyzed for, rinsate blank samples were analyzed for 4,4-DDD, 4,4-DDE, cis-nonachlor, trans-nonachlor, oxychlordane, hexachlorobenzene, and methoxychlor. This extended pesticide list is the same target analyte list that the sediment samples were analyzed for.

HOLDING TIMES: Samples were prepared for analysis in one analytical batch and were extracted within 6 days of sample collection and analyzed within 40 days of extraction. All holding times were met.

Batch	Extraction Date	Analysis Date
05-0283	8/4/05	8/16/05 – 8/17/05

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0283

BLANK: A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0283 – No target analytes were detected in the blank

Comments – None.

LABORATORY CONTROL SAMPLE: A laboratory control sample (LCS) was prepared with the analytical batch. The percent recoveries of target PCB and pesticides were calculated to measure data quality in terms of accuracy.

05-0283 –All target analytes were recovered within the laboratory control limits specified by the client (50% - 120%).

Comments – None.

MATRIX SPIKE: Both a matrix spike (MS) sample and matrix spike duplicate (MSD) sample were prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The RPD between the percent recoveries for Pesticide/PCB is calculated to measure data quality in terms of precision.

05-0283 – All target analytes were recovered within the laboratory control limits specified by the client (50% - 120%). All RPDs between percent recoveries were calculated to be less than 30%.

Comments – None.

REPLICATES: Triplicate samples were prepared from both site water samples. The RSD among triplicate analyses for PCB/pesticides is calculated to measure data quality in terms of precision.

05-0283 – No exceedences noted.

Comments – No target analytes were detected in the site water samples.

SURROGATES: Two surrogate compounds were added prior to extraction, including PCB 34 and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0283 – All percent recoveries were within the laboratory control limits (30% - 150%).

Comments – None.

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0283

CALIBRATIONS: The instrument is calibrated with a 7-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally an Instrument Calibration Check (ICC) sample is run after each initial calibration. Samples for this batch were run over two sequences. Each sequence had its own initial and continuing calibration as well as its own ICC.

05-0283 – No exceedences noted.

Comments – None.

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Client ID	EAG-052-G	EAG-053-G	EAG-054-G
Description	GRAB RINSATE BLANK	CORE RINSATE BLANK	PUMP RINSATE BLANK
Battelle ID	S8670-P	S8671-P	S8672-P
Sample Type	SA	SA	SA
Collection Date	07/29/05	07/29/05	07/29/05
Extraction Date	08/04/05	08/04/05	08/04/05
Analysis Date	08/17/05	08/17/05	08/17/05
Analytical Instrument	ECD	ECD	ECD
% Moisture	NA	NA	NA
% Lipid	NA	NA	NA
Matrix	WATER	WATER	WATER
Sample Size	1.06	1.06	1.06
Size Unit-Basis	L_LIQUID	L_LIQUID	L_LIQUID
Units	NG/L_LIQUID	NG/L_LIQUID	NG/L_LIQUID
4,4'-DDD	2.38 U	2.38 U	2.38 U
4,4'-DDE	2.38 U	2.38 U	2.38 U
4,4'-DDT	2.38 U	2.38 U	2.38 U
aldrin	2.38 U	2.38 U	2.38 U
a-chlordane	6.00	6.28	2.38 U
g-chlordane	7.04	7.32	2.38 U
Lindane	2.38 U	2.38 U	2.38 U
cis-nonachlor	2.38 U	2.38 U	2.38 U
trans-nonachlor	2.38 U	2.38 U	2.38 U
Chlorpyrifos	4.79 U	4.79 U	4.79 U
oxychlordane	2.38 U	2.38 U	2.38 U
dieldrin	2.38 U	2.38 U	2.38 U
endosulfan I	2.38 U	2.38 U	2.38 U
endosulfan II	2.38 U	2.38 U	2.38 U
endrin	2.38 U	2.38 U	2.38 U
heptachlor	2.38 U	2.38 U	2.38 U
heptachlor epoxide	2.38 U	2.38 U	2.38 U
Hexachlorobenzene	2.38 U	2.38 U	2.38 U
methoxychlor	2.38 U	2.38 U	2.38 U
Toxaphene	235.85 U	235.85 U	235.85 U
Cl2(8)	2.38 U	2.38 U	2.38 U
Cl3(18)	2.38 U	2.38 U	2.38 U
Cl3(28)	2.36 U	2.36 U	2.36 U
Cl4(44)	2.36 U	2.36 U	2.36 U
Cl4(49)	2.36 U	2.36 U	2.36 U
Cl4(52)	2.38 U	2.38 U	2.38 U
Cl4(66)	2.38 U	2.38 U	2.38 U
Cl5(87)	2.36 U	2.36 U	2.36 U
Cl5(101)	2.38 U	2.38 U	2.38 U
Cl5(105)	2.36 U	2.36 U	2.36 U
Cl5(118)	2.38 U	2.38 U	2.38 U
Cl6(128)	2.38 U	2.38 U	2.38 U
Cl6(138)	2.38 U	2.38 U	2.38 U
Cl6(153)	2.38 U	2.38 U	2.38 U
Cl7(170)	2.38 U	2.38 U	2.38 U
Cl7(180)	2.38 U	2.38 U	2.38 U
Cl7(183)	2.36 U	2.36 U	2.36 U
Cl7(184)	2.38 U	2.38 U	2.38 U
Cl7(187)	2.36 U	2.36 U	2.36 U
Cl8(195)	2.38 U	2.38 U	2.38 U
Cl9(206)	2.38 U	2.38 U	2.38 U
Cl10(209)	2.36 U	2.36 U	2.36 U
Surrogate Recoveries (%)			
Cl3(34)	108	101	101
Cl6(152)	98	94	91

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Client ID	EAG-051-G	EAG-056-G
Description	RISDS	BBDS
Battelle ID	S8669-P	S8673-P
Sample Type	SA	SA
Collection Date	07/29/05	07/30/05
Extraction Date	08/04/05	08/04/05
Analysis Date	08/16/05	08/17/05
Analytical Instrument	ECD	ECD
% Moisture	NA	NA
% Lipid	NA	NA
Matrix	WATER	WATER
Sample Size	1.00	1.00
Size Unit-Basis	L_LIQUID	L_LIQUID
Units	NG/L_LIQUID	NG/L_LIQUID
4,4'-DDT	1.68 U	1.68 U
aldrin	1.68 U	1.68 U
a-chlordane	1.68 U	1.68 U
g-chlordane	1.68 U	1.68 U
Lindane	1.68 U	1.68 U
Chlorpyrifos	3.38 U	3.38 U
dieldrin	1.68 U	1.68 U
endosulfan I	1.68 U	1.68 U
endosulfan II	1.68 U	1.68 U
endrin	1.68 U	1.68 U
heptachlor	1.68 U	1.68 U
heptachlor epoxide	1.68 U	1.68 U
Toxaphene	166.70 U	166.70 U
Cl2(8)	1.68 U	1.68 U
Cl3(18)	1.68 U	1.68 U
Cl3(28)	1.67 U	1.67 U
Cl4(44)	1.67 U	1.67 U
Cl4(49)	1.67 U	1.67 U
Cl4(52)	1.68 U	1.68 U
Cl4(66)	1.68 U	1.68 U
Cl5(87)	1.67 U	1.67 U
Cl5(101)	1.68 U	1.68 U
Cl5(105)	1.67 U	1.67 U
Cl5(118)	1.68 U	1.68 U
Cl6(128)	1.68 U	1.68 U
Cl6(138)	1.68 U	1.68 U
Cl6(153)	1.68 U	1.68 U
Cl7(170)	1.68 U	1.68 U
Cl7(180)	1.68 U	1.68 U
Cl7(183)	1.67 U	1.67 U
Cl7(184)	1.68 U	1.68 U
Cl7(187)	1.67 U	1.67 U
Cl8(195)	1.68 U	1.68 U
Cl9(206)	1.68 U	1.68 U
Cl10(209)	1.67 U	1.67 U
Surrogate Recoveries (%)		
Cl3(34)	84	93
Cl6(152)	79	86

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Client ID	Procedural Blank
Battelle ID	BG884PB-P
Sample Type	PB
Collection Date	08/04/05
Extraction Date	08/04/05
Analysis Date	08/16/05
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	LIQUID
Sample Size	1.00
Size Unit-Basis	L_LIQUID
Units	NG/L_LIQUID
4,4'-DDT	1.68 U
aldrin	1.68 U
a-chlordane	1.68 U
g-chlordane	1.68 U
Lindane	1.68 U
Chlorpyrifos	3.38 U
dieldrin	1.68 U
endosulfan I	1.68 U
endosulfan II	1.68 U
endrin	1.68 U
heptachlor	1.68 U
heptachlor epoxide	1.68 U
Toxaphene	166.70 U
Cl2(8)	1.68 U
Cl3(18)	1.68 U
Cl3(28)	1.67 U
Cl4(44)	1.67 U
Cl4(49)	1.67 U
Cl4(52)	1.68 U
Cl4(66)	1.68 U
Cl5(87)	1.67 U
Cl5(101)	1.68 U
Cl5(105)	1.67 U
Cl5(118)	1.68 U
Cl6(128)	1.68 U
Cl6(138)	1.68 U
Cl6(153)	1.68 U
Cl7(170)	1.68 U
Cl7(180)	1.68 U
Cl7(183)	1.67 U
Cl7(184)	1.68 U
Cl7(187)	1.67 U
Cl8(195)	1.68 U
Cl9(206)	1.68 U
Cl10(209)	1.67 U
Surrogate Recoveries (%)	
Cl3(34)	80
Cl6(152)	76

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Client ID	Laboratory Control Sample				
Battelle ID	BG885LCS-P				
Sample Type	LCS				
Collection Date	08/04/05				
Extraction Date	08/04/05				
Analysis Date	08/16/05				
Analytical Instrument	ECD				
% Moisture	NA				
% Lipid	NA				
Matrix	LIQUID				
Sample Size	1.00				
Size Unit-Basis	L_LIQUID				
Units	NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	43.05		40.02	108	
aldrin	35.86		40.01	90	
a-chlordane	38.17		40.03	95	
g-chlordane	38.34		40.06	96	
Lindane	38.01		40.01	95	
Chlorpyrifos	38.35		40.10	96	
dieldrin	38.13		40.01	95	
endosulfan I	35.47		40.03	89	
endosulfan II	35.45		40.02	89	
endrin	37.84		40.01	95	
heptachlor	38.13		40.00	95	
heptachlor epoxide	40.33		40.01	101	
Toxaphene	166.70	U			
Cl2(8)	32.06		40.12	80	
Cl3(18)	28.33		40.12	71	
Cl3(28)	29.48		40.04	74	
Cl4(44)	32.04		40.08	80	
Cl4(49)	30.84		40.16	77	
Cl4(52)	30.17		40.00	75	
Cl4(66)	36.95		40.04	92	
Cl5(87)	30.57		40.00	76	
Cl5(101)	33.81		40.08	84	
Cl5(105)	34.97		40.04	87	
Cl5(118)	32.93		40.04	82	
Cl6(128)	35.66		40.24	89	
Cl6(138)	33.60		40.08	84	
Cl6(153)	33.93		40.04	85	
Cl7(170)	35.61		40.20	89	
Cl7(180)	35.07		40.16	87	
Cl7(183)	31.16		40.16	78	
Cl7(184)	26.30		40.16	65	
Cl7(187)	29.95		40.12	75	
Cl8(195)	35.26		40.12	88	
Cl9(206)	31.78		40.12	79	
Cl10(209)	31.80		40.04	79	
Surrogate Recoveries (%)					
Cl3(34)	83				
Cl6(152)	77				

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Client ID	EAG-051-G		EAG-051-G		EAG-051-G			
Description	RISDS		RISDS		RISDS			
Battelle ID	S8669-P		S8669DUP-P		S8669TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	07/29/05		07/29/05		07/29/05			
Extraction Date	08/04/05		08/04/05		08/04/05			
Analysis Date	08/16/05		08/17/05		08/17/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	SITE WATER		SITE WATER		SITE WATER			
Sample Size	1.00		1.00		1.00			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	1.68	U	1.68	U	1.68	U	NA	
Cl3(18)	1.68	U	1.68	U	1.68	U	NA	
Cl3(28)	1.67	U	1.67	U	1.67	U	NA	
Cl4(44)	1.67	U	1.67	U	1.67	U	NA	
Cl4(49)	1.67	U	1.67	U	1.67	U	NA	
Cl4(52)	1.68	U	1.68	U	1.68	U	NA	
Cl4(66)	1.68	U	1.68	U	1.68	U	NA	
Cl5(87)	1.67	U	1.67	U	1.67	U	NA	
Cl5(101)	1.68	U	1.68	U	1.68	U	NA	
Cl5(105)	1.67	U	1.67	U	1.67	U	NA	
Cl5(118)	1.68	U	1.68	U	1.68	U	NA	
Cl6(128)	1.68	U	1.68	U	1.68	U	NA	
Cl6(138)	1.68	U	1.68	U	1.68	U	NA	
Cl6(153)	1.68	U	1.68	U	1.68	U	NA	
Cl7(170)	1.68	U	1.68	U	1.68	U	NA	
Cl7(180)	1.68	U	1.68	U	1.68	U	NA	
Cl7(183)	1.67	U	1.67	U	1.67	U	NA	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	1.67	U	1.67	U	1.67	U	NA	
Cl8(195)	1.68	U	1.68	U	1.68	U	NA	
Cl9(206)	1.68	U	1.68	U	1.68	U	NA	
Cl10(209)	1.67	U	1.67	U	1.67	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	84		80		86			
Cl6(152)	79		83		78			

Battelle
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Client ID	EAG-056-G		EAG-056-G		EAG-056-G			
Description	BBDS		BBDS		BBDS			
Battelle ID	S8673-P		S8673DUP-P		S8673TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	07/30/05		07/30/05		07/30/05			
Extraction Date	08/04/05		08/04/05		08/04/05			
Analysis Date	08/17/05		08/17/05		08/17/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	SITE WATER		SITE WATER		SITE WATER			
Sample Size	1.00		1.00		1.00			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	1.68	U	1.68	U	1.68	U	NA	
Cl3(18)	1.68	U	1.68	U	1.68	U	NA	
Cl3(28)	1.67	U	1.67	U	1.67	U	NA	
Cl4(44)	1.67	U	1.67	U	1.67	U	NA	
Cl4(49)	1.67	U	1.67	U	1.67	U	NA	
Cl4(52)	1.68	U	1.68	U	1.68	U	NA	
Cl4(66)	1.68	U	1.68	U	1.68	U	NA	
Cl5(87)	1.67	U	1.67	U	1.67	U	NA	
Cl5(101)	1.68	U	1.68	U	1.68	U	NA	
Cl5(105)	1.67	U	1.67	U	1.67	U	NA	
Cl5(118)	1.68	U	1.68	U	1.68	U	NA	
Cl6(128)	1.68	U	1.68	U	1.68	U	NA	
Cl6(138)	1.68	U	1.68	U	1.68	U	NA	
Cl6(153)	1.68	U	1.68	U	1.68	U	NA	
Cl7(170)	1.68	U	1.68	U	1.68	U	NA	
Cl7(180)	1.68	U	1.68	U	1.68	U	NA	
Cl7(183)	1.67	U	1.67	U	1.67	U	NA	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	1.67	U	1.67	U	1.67	U	NA	
Cl8(195)	1.68	U	1.68	U	1.68	U	NA	
Cl9(206)	1.68	U	1.68	U	1.68	U	NA	
Cl10(209)	1.67	U	1.67	U	1.67	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	93		79		85			
Cl6(152)	86		75		81			

Battelle
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Client ID	EAG-056-G		EAG-056-G			
Description	BBDS		BBDS			
Battelle ID	S8673-P		S8673MS-P			
Sample Type	SA		MS			
Collection Date	07/30/05		7/30/2005			
Extraction Date	08/04/05		8/4/2005			
Analysis Date	08/17/05		8/17/2005			
Analytical Instrument	ECD		ECD			
% Moisture	NA		NA			
% Lipid	NA		NA			
Matrix	WATER		WATER			
Sample Size	1.00		1			
Size Unit-Basis	L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	1.68	U	42.60		40.02	106	
aldrin	1.68	U	37.67		40.01	94	
a-chlordane	1.68	U	37.66		40.03	94	
g-chlordane	1.68	U	37.57		40.06	94	
Lindane	1.68	U	37.27		40.01	93	
Chlorpyrifos	1.06	U	35.15		40.10	88	
dieldrin	1.68	U	37.77		40.01	94	
endosulfan I	1.68	U	35.99		40.03	90	
endosulfan II	1.68	U	35.52		40.02	89	
endrin	1.68	U	37.09		40.01	93	
heptachlor	1.68	U	38.62		40.00	97	
heptachlor epoxide	1.68	U	39.66		40.01	99	
Toxaphene	166.70	U	166.70	U			
Cl2(8)	1.68	U	29.93		40.12	75	
Cl3(18)	1.68	U	24.26		40.12	60	
Cl3(28)	1.67	U	29.45		40.04	74	
Cl4(44)	1.67	U	31.73		40.08	79	
Cl4(49)	1.67	U	31.17		40.16	78	
Cl4(52)	1.68	U	29.30		40.00	73	
Cl4(66)	1.68	U	35.33		40.04	88	
Cl5(87)	1.67	U	30.72		40.00	77	
Cl5(101)	1.68	U	32.52		40.08	81	
Cl5(105)	1.67	U	33.92		40.04	85	
Cl5(118)	1.68	U	32.12		40.04	80	
Cl6(128)	1.68	U	33.92		40.24	84	
Cl6(138)	1.68	U	33.16		40.08	83	
Cl6(153)	1.68	U	32.87		40.04	82	
Cl7(170)	1.68	U	34.13		40.20	85	
Cl7(180)	1.68	U	33.72		40.16	84	
Cl7(183)	1.67	U	30.58		40.16	76	
Cl7(184)	1.68	U	28.20		40.16	70	
Cl7(187)	1.67	U	29.12		40.12	73	
Cl8(195)	1.68	U	33.64		40.12	84	
Cl9(206)	1.68	U	30.38		40.12	76	
Cl10(209)	1.67	U	31.03		40.04	77	
Surrogate Recoveries (%)							
Cl3(34)	93		84				
Cl6(152)	86		78				

Battelle
The Business of Innovation

Client ID	EAG-056-G						
Description	BBDS						
Battelle ID	S8673MSD-P						
Sample Type	MSD						
Collection Date	7/30/2005						
Extraction Date	8/4/2005						
Analysis Date	8/17/2005						
Analytical Instrument	ECD						
% Moisture	NA						
% Lipid	NA						
Matrix	WATER						
Sample Size	1						
Size Unit-Basis	L_LIQUID						
Units	NG/L_LIQUID		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDT	44.03		40.02	110		3.7	
aldrin	38.83		40.01	97		3.1	
a-chlordane	39.44		40.03	99		5.2	
g-chlordane	38.81		40.06	97		3.1	
Lindane	37.24		40.01	93		0.0	
Chlorpyrifos	37.59		40.10	94		0.1	
dieldrin	38.84		40.01	97		3.1	
endosulfan I	38.03		40.03	95		5.4	
endosulfan II	36.76		40.02	92		3.3	
endrin	38.38		40.01	96		3.2	
heptachlor	38.66		40.00	97		0.0	
heptachlor epoxide	40.90		40.01	102		3.0	
Toxaphene	166.70	U					
Cl2(8)	23.01		40.12	57		27.3	
Cl3(18)	24.02		40.12	60		0.0	
Cl3(28)	31.29		40.04	78		5.3	
Cl4(44)	32.95		40.08	82		3.7	
Cl4(49)	32.51		40.16	81		3.8	
Cl4(52)	30.95		40.00	77		5.3	
Cl4(66)	38.37		40.04	96		8.7	
Cl5(87)	31.00		40.00	78		1.3	
Cl5(101)	33.80		40.08	84		3.6	
Cl5(105)	35.83		40.04	89		4.6	
Cl5(118)	34.05		40.04	85		6.1	
Cl6(128)	36.24		40.24	90		6.9	
Cl6(138)	34.37		40.08	86		3.6	
Cl6(153)	34.61		40.04	86		4.8	
Cl7(170)	36.15		40.20	90		5.7	
Cl7(180)	35.89		40.16	89		5.8	
Cl7(183)	32.45		40.16	81		6.4	
Cl7(184)	30.05		40.16	75		6.9	
Cl7(187)	30.70		40.12	77		5.3	
Cl8(195)	35.95		40.12	90		6.9	
Cl9(206)	32.39		40.12	81		6.4	
Cl10(209)	33.18		40.04	83		7.5	

Surrogate Recoveries (%)

Cl3(34)	86
Cl6(152)	81

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Appendix E-2

PCB/Pesticides in Elutriates Waters

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PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0291

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: PCB/Pesticide
LABORATORY: Battelle, Duxbury, MA
MATRIX: Elutriates
SAMPLE CUSTODY: Elutriate samples were prepared between 8/9/05 and 8/11/05. They were received at Battelle Duxbury on 8/12/05. Upon arrival, cooler temperatures were recorded at 0.4°C – 1.9°C. No custody issues were noted. The samples were logged into LIMS and received unique Battelle IDs. The samples were stored at 4° C in an access controlled walk-in refrigerator until sample preparation could begin. All samples were prepared in triplicate.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	Sample Replicate Relative Precision	Detection Limits and Reporting Limits (ng/L)
PCB/ Pesticide	General NS&T	< 5 x ss-MDL	30-150% Recovery	50-120% Recovery (concentration of MS must be >5 x background)	≤30% RSD (concentration of MS must be >5 x background; sample duplicate values must be > 10 x MDL)	MDL: ~0.26 – 1.46 RL: ~1.68 – 166.7

METHOD: Water samples were extracted for PCB and pesticides following general NS&T methods. Approximately 1 liter of water was spiked with surrogates and extracted three times with dichloromethane using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was concentrated, fortified with RIS and solvent exchanged into hexane. Extracts were analyzed using gas chromatography/electron capture detection (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds.

HOLDING TIMES: Samples were prepared for analysis in one analytical batch and were extracted within 6 days of sample collection and analyzed within 40 days of extraction. All holding times were met.

Batch	Extraction Date	Analysis Date
05-0291	8/12/05	8/19/05 – 8/22/05

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0291

BLANK: A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0291 – No target analytes were detected in the blank

Comments – None.

LABORATORY CONTROL SAMPLE: A laboratory control sample (LCS) was prepared with the analytical batch. The percent recoveries of target PCB and pesticides were calculated to measure data quality in terms of accuracy.

05-0291 – 1 exceedence noted.

Comments – All target analytes were recovered outside the laboratory control limits specified by the client (50% - 120%).

MATRIX SPIKE: Both a matrix spike (MS) sample and matrix spike duplicate (MSD) sample were prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The RPD between the percent recoveries for Pesticide/PCB is calculated to measure data quality in terms of precision.

05-0291 – MS recovery: 4 exceedences noted
MSD recovery: 12 exceedences noted.
RPD: 12 exceedences noted

Comments – Due to the high background concentrations of PCBs, numerous PCBs were calculated to be outside of data quality objectives in the MS/MSD samples. Since these samples were not spiked at a concentration greater than five times the background (COMP5 O-BB), this data should not be used for data quality assessment. Any exceedences calculated for PCBs have been qualified with an “n” to indicate contingency criteria have been met, except for PCB 184. The analyst notes the co-elution of this analyte with PCB 153 has made quantification difficult.

In the MS sample, aldrin, Lindane, and heptachlor were under-recovered at 45%, 49%, and 46% respectively. The results for these compounds were qualified with an “N”. The analytical accuracy of aldrin, Lindane, and heptachlor were demonstrated by the LCS sample. However, Chlorpyrifos was also under-recovered in the LCS sample at 15%. Since the field samples did not contain any pesticides, it is not likely that the four compounds would’ve been found in the field samples despite the low recoveries in the MS sample.

Additionally, in the MSD sample, nearly all pesticides are under-recovered. SIS recoveries, although acceptable, are also low, at 33% and 34%. Chromatography and calculations were reviewed. No discrepancies were found. This data most likely indicates a sample loss during sample preparation. RPD exceedences may also due to this sample loss.

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0291

REPLICATES: Triplicate samples were prepared for all elutriate samples. The RSD among triplicate analyses for PCB/pesticides is calculated to measure data quality in terms of precision.

05-0291 – All RPDs were calculated to be within the laboratory control limits specified by the client (<30%RPD)

Comments – None.

SURROGATES: Two surrogate compounds were added prior to extraction, including PCB 34 and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0291 – All percent recoveries were within the laboratory control limits (30% - 150%).

Comments – None.

CALIBRATIONS: The instrument is calibrated with a 7-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally, an Instrument Calibration Check (ICC) sample is run after each initial calibration. Samples for this batch were run over two sequences. Each sequence had its own initial and continuing calibration as well as its own ICC.

05-0291 – 1 exceedence noted.

Comments – PCB 206 was recovered just over the method control limit in the ICC sample. All other QC and calibration criteria were met for this compound. No further corrective action was taken.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP1 A,C,D,E	COMP1 A,C,D,E	COMP1 A,C,D,E		
Battelle ID	S8985-P	S8985DUP-P	S8985TRP-P		
Sample Type	SA	QADU	QATP		
Collection Date	08/09/05	8/9/2005	8/9/2005		
Extraction Date	08/12/05	8/12/2005	8/12/2005		
Analysis Date	08/20/05	8/20/2005	8/20/2005		
Analytical Instrument	ECD	ECD	ECD		
% Moisture	NA	NA	NA		
% Lipid	NA	NA	NA		
Matrix	WATER	WATER	WATER		
Sample Size	1.00	1	1		
Size Unit-Basis	L_LIQUID	L_LIQUID	L_LIQUID		
Units	NG/L_LIQUID	NG/L_LIQUID	NG/L_LIQUID	RSD	Qualifier
4,4'-DDT	1.68 U	1.68 U	1.68 U	NA	
aldrin	1.68 U	1.68 U	1.68 U	NA	
a-chlordane	1.68 U	1.68 U	1.68 U	NA	
g-chlordane	1.68 U	1.68 U	1.68 U	NA	
Lindane	1.68 U	1.68 U	1.68 U	NA	
Chlorpyrifos	3.38 U	3.38 U	3.38 U	NA	
dieldrin	1.68 U	1.68 U	1.68 U	NA	
endosulfan I	1.68 U	1.68 U	1.68 U	NA	
endosulfan II	1.68 U	1.68 U	1.68 U	NA	
endrin	1.68 U	1.68 U	1.68 U	NA	
heptachlor	1.68 U	1.68 U	1.68 U	NA	
heptachlor epoxide	1.68 U	1.68 U	1.68 U	NA	
Toxaphene	166.70 U	166.70 U	166.70 U	NA	
Cl2(8)	9.07	8.36	8.36	4.8	
Cl3(18)	36.4	34.87	36.95	3.0	
Cl3(28)	42.28	40.87	44.72	4.6	
Cl4(44)	59.53	58.04	62.57	3.8	
Cl4(49)	66.39	64.69	69.37	3.5	
Cl4(52)	127.89	125.19	133.83	3.4	
Cl4(66)	34.49	34.05	37.12	4.7	
Cl5(87)	76.65	77.21	81.88	3.7	
Cl5(101)	175.35	175.29	185.75	3.4	
Cl5(105)	52.23	52.09	54.27	2.3	
Cl5(118)	128.1	129.2	135.74	3.2	
Cl6(128)	41.7	41.9	44.29	3.4	
Cl6(138)	201.49	202.75	213.66	3.2	
Cl6(153)	192.48	194.36	205.26	3.5	
Cl7(170)	26.41	26.7	27.76	2.6	
Cl7(180)	34.99	34.94	36.65	2.7	
Cl7(183)	12.35	12.33	13.13	3.6	
Cl7(184)	1.68 U	1.68 U	1.68 U	NA	
Cl7(187)	17.37	17.54	18.01	1.9	
Cl8(195)	11.07	11.12	11.35	1.3	
Cl9(206)	13.3	13.37	13.41	0.4	
Cl10(209)	10.23	10.17	10.24	0.4	
Surrogate Recoveries (%)					
Cl3(34)	73	71	75		
Cl6(152)	78	75	80		

Analyzed by Fredriksson, Julie

Battelle
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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP2 1,2,3		COMP2 1,2,3		COMP2 1,2,3			
Battelle ID	S8986-P		S8986DUP-P		S8986TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/9/2005		8/9/2005		8/9/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/20/2005		8/20/2005		8/20/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	25.05		28.05		27.74		6.1	
Cl3(18)	92.42		101.78		100.64		5.2	
Cl3(28)	204.65		223.26		218.05		4.5	
Cl4(44)	143.18		159.06		154.78		5.4	
Cl4(49)	213.11		236.4		228.94		5.3	
Cl4(52)	273.68		301.71		294.46		5.0	
Cl4(66)	209.52		231.5		220.56		5.0	
Cl5(87)	179.76		198.68		191.69		5.0	
Cl5(101)	515.38		577.02		565.14		5.9	
Cl5(105)	145.4		157.86		154.72		4.2	
Cl5(118)	393.22		435.83		421.26		5.2	
Cl6(128)	78.44		86.01		83.76		4.7	
Cl6(138)	426.93		471.89		458.84		5.1	
Cl6(153)	417.81		463.99		447.56		5.3	
Cl7(170)	46.51		50.58		48.87		4.2	
Cl7(180)	70.92		77.94		76.01		4.8	
Cl7(183)	24.96		27.61		26.45		5.0	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	39.21		43.05		41.32		4.7	
Cl8(195)	13.56		14		13.74		1.6	
Cl9(206)	15.92		16.1		15.98		0.6	
Cl10(209)	11.5		11.71		11.4		1.4	
Surrogate Recoveries (%)								
Cl3(34)	46		51		49			
Cl6(152)	46		51		50			

Analyzed by Fredriksson, Julie

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP3 H,J		COMP3 H,J		COMP3 H,J			
Battelle ID	S8987-P		S8987DUP-P		S8987TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/9/2005		8/9/2005		8/9/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/20/2005		8/20/2005		8/20/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	3.18		3.52		3.02		7.9	
Cl3(18)	24.85		24.1		23.61		2.6	
Cl3(28)	23.62		23.19		22.02		3.6	
Cl4(44)	37.8		37.79		34.36		5.4	
Cl4(49)	50.99		50.61		47.1		4.3	
Cl4(52)	95.32		93.6		88.45		3.9	
Cl4(66)	12.06		13.07		10.53		10.8	
Cl5(87)	46.96		47.25		43.57		4.5	
Cl5(101)	95.72		94.5		87.19		5.0	
Cl5(105)	28.69		28.41		26		5.3	
Cl5(118)	70.17		70.69		66.22		3.5	
Cl6(128)	27.42		27.13		25.82		3.2	
Cl6(138)	132.34		130.62		122.96		3.9	
Cl6(153)	135.88		135.4		127.78		3.4	
Cl7(170)	20.68		20.76		19.89		2.4	
Cl7(180)	26.96		25.82		25.34		3.2	
Cl7(183)	9.78		9.87		9.31		3.1	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	14		13.85		13.05		3.7	
Cl8(195)	10.88		11.17		10.82		1.7	
Cl9(206)	13.02		12.99		12.95		0.3	
Cl10(209)	10.11		10.13		10.07		0.3	
Surrogate Recoveries (%)								
Cl3(34)	71		67		65			
Cl6(152)	75		77		70			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP4 L,M,N		COMP4 L,M,N		COMP4 L,M,N			
Battelle ID	S8988-P		S8988DUP-P		S8988TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/9/2005		8/9/2005		8/9/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/21/2005		8/21/2005		8/21/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	21.39		21.21		19.01		6.5	
Cl3(18)	98.71		103.61		94.12		4.8	
Cl3(28)	153.05		158.32		143.55		4.9	
Cl4(44)	185.17		199.01		176.98		6.0	
Cl4(49)	265.07		283.58		253.58		5.7	
Cl4(52)	409.06		437.48		391.33		5.6	
Cl4(66)	163.33		175.45		160.04		4.9	
Cl5(87)	258.9		277.17		249.73		5.3	
Cl5(101)	708.95		765.74		677.36		6.2	
Cl5(105)	169.27		181.5		166.31		4.7	
Cl5(118)	480.71		513.92		461.66		5.4	
Cl6(128)	118.38		128.09		115.83		5.4	
Cl6(138)	651.15		702.58		630.86		5.6	
Cl6(153)	633.42		678.66		610.31		5.4	
Cl7(170)	64.91		71.76		65.4		5.7	
Cl7(180)	99.32		108.26		97.42		5.7	
Cl7(183)	34.72		36.8		33.85		4.3	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	52.9		57.57		51.91		5.6	
Cl8(195)	15.11		15.57		14.78		2.6	
Cl9(206)	16.91		17.41		16.82		1.9	
Cl10(209)	11.62		11.84		11.66		1.0	
Surrogate Recoveries (%)								
Cl3(34)	71		75		65			
Cl6(152)	69		74		63			

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Not Surrogate Corrected

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The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP5 O-BB		COMP5 O-BB		COMP5 O-BB			
Battelle ID	S8989-P		S8989DUP-P		S8989TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/10/2005		8/10/2005		8/10/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/21/2005		8/21/2005		8/21/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	74.3		76.84		72.82		2.7	
Cl3(18)	218.35		223.58		213.11		2.4	
Cl3(28)	333.72		342.06		324.93		2.6	
Cl4(44)	261.41		264.7		256.21		1.6	
Cl4(49)	483.94		492.02		474.94		1.8	
Cl4(52)	668.79		681.62		657.23		1.8	
Cl4(66)	103.75		101.99		103.21		0.9	
Cl5(87)	155.64		155.11		152.02		1.3	
Cl5(101)	342.83		350.46		338.74		1.7	
Cl5(105)	85.25		86.23		85.71		0.6	
Cl5(118)	239.01		242.55		235.2		1.5	
Cl6(128)	75.35		78.12		75.95		1.9	
Cl6(138)	389.06		397.17		384.53		1.6	
Cl6(153)	399.94		407.81		394.28		1.7	
Cl7(170)	48.22		48.51		47.78		0.8	
Cl7(180)	67.63		69.25		66.2		2.3	
Cl7(183)	25.84		26.39		25.43		1.9	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	42.86		43.81		42.56		1.5	
Cl8(195)	13.52		13.83		13.89		1.4	
Cl9(206)	16.05		16.11		15.95		0.5	
Cl10(209)	11.31		11.46		11.33		0.7	
Surrogate Recoveries (%)								
Cl3(34)	75		79		72			
Cl6(152)	71		73		68			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP6 CC-KK		COMP6 CC-KK		COMP6 CC-KK			
Battelle ID	S8990-P		S8990DUP-P		S8990TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/10/2005		8/10/2005		8/10/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/21/2005		8/21/2005		8/22/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	47.6		60.57		58.97		12.7	
Cl3(18)	201.89		236.86		241.73		9.6	
Cl3(28)	311.55		368.83		377.16		10.1	
Cl4(44)	305.71		358.52		371.18		10.1	
Cl4(49)	531.8		620.61		643.74		9.9	
Cl4(52)	733.09		856.6		893.19		10.1	
Cl4(66)	148.74		183.78		183.6		11.7	
Cl5(87)	203.27		231.8		244.9		9.4	
Cl5(101)	517.93		617.08		640.26		11.0	
Cl5(105)	121.82		144.54		150.72		10.9	
Cl5(118)	352.46		408.28		428.64		9.9	
Cl6(128)	99.11		116.12		120.68		10.2	
Cl6(138)	523.64		614.72		636.69		10.1	
Cl6(153)	525.88		606.4		632.53		9.4	
Cl7(170)	59.6		69.89		70.86		9.3	
Cl7(180)	86.51		101.68		104.66		10.0	
Cl7(183)	31.55		36.98		37.97		9.7	
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	52.29		61.46		63.2		9.9	
Cl8(195)	15.44		15.93		15.8		1.6	
Cl9(206)	16.95		17.73		18.25		3.7	
Cl10(209)	11.76		12.04		12.12		1.6	
Surrogate Recoveries (%)								
Cl3(34)	66		81		84			
Cl6(152)	63		74		81			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank
Battelle ID	BG922PB-P
Sample Type	PB
Collection Date	08/12/05
Extraction Date	08/12/05
Analysis Date	08/19/05
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	LIQUID
Sample Size	1.00
Size Unit-Basis	L_LIQUID
Units	NG/L_LIQUID
4,4'-DDT	1.68 U
aldrin	1.68 U
a-chlordane	1.68 U
g-chlordane	1.68 U
Lindane	1.68 U
Chlorpyrifos	3.38 U
dieldrin	1.68 U
endosulfan I	1.68 U
endosulfan II	1.68 U
endrin	1.68 U
heptachlor	1.68 U
heptachlor epoxide	1.68 U
Toxaphene	166.7 U
Cl2(8)	1.68 U
Cl3(18)	1.68 U
Cl3(28)	1.67 U
Cl4(44)	1.67 U
Cl4(49)	1.67 U
Cl4(52)	1.68 U
Cl4(66)	1.68 U
Cl5(87)	1.67 U
Cl5(101)	1.68 U
Cl5(105)	1.67 U
Cl5(118)	1.68 U
Cl6(128)	1.68 U
Cl6(138)	1.68 U
Cl6(153)	1.68 U
Cl7(170)	1.68 U
Cl7(180)	1.68 U
Cl7(183)	1.67 U
Cl7(184)	1.68 U
Cl7(187)	1.67 U
Cl8(195)	1.68 U
Cl9(206)	1.68 U
Cl10(209)	1.67 U
Surrogate Recoveries (%)	
Cl3(34)	80
Cl6(152)	83

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Laboratory Control Sample				
Battelle ID	BG923LCS-P				
Sample Type	LCS				
Collection Date	08/12/05				
Extraction Date	08/12/05				
Analysis Date	08/20/05				
Analytical Instrument	ECD				
% Moisture	NA				
% Lipid	NA				
Matrix	LIQUID				
Sample Size	1.00				
Size Unit-Basis	L_LIQUID				
Units	NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	37.77		40.02	94	
aldrin	24.20		40.01	60	
a-chlordane	26.43		40.03	66	
g-chlordane	27.29		40.06	68	
Lindane	29.35		40.01	73	
Chlorpyrifos	6.01		40.10	75	
dieldrin	37.70		40.01	94	
endosulfan I	35.62		40.03	89	
endosulfan II	35.77		40.02	89	
endrin	21.39		40.01	53	
heptachlor	26.44		40.00	66	
heptachlor epoxide	30.15		40.01	75	
Toxaphene	166.70	U			
Cl2(8)	44.57		40.12	111	
Cl3(18)	24.88		40.12	62	
Cl3(28)	24.03		40.04	60	
Cl4(44)	24.53		40.08	61	
Cl4(49)	25.26		40.16	63	
Cl4(52)	24.92		40.00	62	
Cl4(66)	24.64		40.04	62	
Cl5(87)	32.09		40.00	80	
Cl5(101)	23.29		40.08	58	
Cl5(105)	33.32		40.04	83	
Cl5(118)	33.03		40.04	82	
Cl6(128)	33.27		40.24	83	
Cl6(138)	34.80		40.08	87	
Cl6(153)	38.77		40.04	97	
Cl7(170)	37.16		40.20	92	
Cl7(180)	37.58		40.16	94	
Cl7(183)	34.74		40.16	87	
Cl7(184)	28.97		40.16	72	
Cl7(187)	34.95		40.12	87	
Cl8(195)	37.88		40.12	94	
Cl9(206)	36.20		40.12	90	
Cl10(209)	37.75		40.04	94	
Surrogate Recoveries (%)					
Cl3(34)	85				
Cl6(152)	86				

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP5 O-BB		COMP5 O-BB				
Battelle ID	S8989-P		S8989MS-P				
Sample Type	SA		MS				
Collection Date	08/10/05		8/10/2005				
Extraction Date	08/12/05		8/12/2005				
Analysis Date	08/21/05		8/21/2005				
Analytical Instrument	ECD		ECD				
% Moisture	NA		NA				
% Lipid	NA		NA				
Matrix	WATER		WATER				
Sample Size	1.00		1				
Size Unit-Basis	L_LIQUID		L_LIQUID				
Units	NG/L_LIQUID		NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	1.68	U	29.26		40.02	73	
aldrin	1.68	U	17.81		40.01	45	N
a-chlordane	1.68	U	19.97		40.03	50	
g-chlordane	1.68	U	20.13		40.06	50	
Lindane	1.68	U	19.43		40.01	49	N
Chlorpyrifos	3.38	U	3.38	U	40.10	0	N
dieldrin	1.68	U	35.80		40.01	89	
endosulfan I	1.68	U	20.54		40.03	51	
endosulfan II	1.68	U	31.37		40.02	78	
endrin	1.68	U	27.87		40.01	70	
heptachlor	1.68	U	18.40		40.00	46	N
heptachlor epoxide	1.68	U	25.27		40.01	63	
Toxaphene	166.70	U	166.70	U			
Cl2(8)	74.30		82.89		40.12	21	n
Cl3(18)	218.35		198.57		40.12	0	n
Cl3(28)	333.72		291.97		40.04	0	n
Cl4(44)	261.41		239.66		40.08	0	n
Cl4(49)	483.94		424.88		40.16	0	n
Cl4(52)	668.79		579.28		40.00	0	n
Cl4(66)	103.75		107.45		40.04	9	n
Cl5(87)	155.64		148.08		40.00	0	n
Cl5(101)	342.83		311.18		40.08	0	n
Cl5(105)	85.25		95.90		40.04	27	n
Cl5(118)	239.01		220.23		40.04	0	n
Cl6(128)	75.35		84.38		40.24	22	n
Cl6(138)	389.06		347.63		40.08	0	n
Cl6(153)	399.94		352.15		40.04	0	n
Cl7(170)	48.22		59.68		40.20	29	n
Cl7(180)	67.63		78.00		40.16	26	n
Cl7(183)	25.84		42.47		40.16	41	n
Cl7(184)	1.68	U	20.19		40.16	50	
Cl7(187)	42.86		56.62		40.12	34	n
Cl8(195)	13.52		30.16		40.12	41	n
Cl9(206)	16.05		29.72		40.12	34	n
Cl10(209)	11.31		27.35		40.04	40	n
Surrogate Recoveries (%)							
Cl3(34)	75		59				
Cl6(152)	71		57				

Analyzed by Fredriksson, Julie

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP5 O-BB						
Battelle ID	S8989MSD-P						
Sample Type	MSD						
Collection Date	8/10/2005						
Extraction Date	8/12/2005						
Analysis Date	8/21/2005						
Analytical Instrument	ECD						
% Moisture	NA						
% Lipid	NA						
Matrix	WATER						
Sample Size	1						
Size Unit-Basis	L_LIQUID						
Units	NG/L_LIQUID		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDT	19.36		40.02	48	N	41.3	N
aldrin	7.39		40.01	18	N	85.7	N
a-chlordane	7.54		40.03	19	N	89.9	N
g-chlordane	8.00		40.06	20	N	85.7	N
Lindane	9.70		40.01	24	N	68.5	N
Chlorpyrifos	3.38	U	40.10	0	N	0.0	
dieldrin	24.41		40.01	61		37.3	N
endosulfan I	10.00		40.03	25	N	68.4	N
endosulfan II	19.78		40.02	49	N	45.7	N
endrin	18.37		40.01	46	N	41.4	N
heptachlor	7.70		40.00	19	N	83.1	N
heptachlor epoxide	10.66		40.01	27	N	80.0	N
Toxaphene	166.70	U					
Cl2(8)	46.59		40.12	0	n	200.0	n
Cl3(18)	123.48		40.12	0	n	0.0	
Cl3(28)	188.54		40.04	0	n	0.0	
Cl4(44)	151.23		40.08	0	n	0.0	
Cl4(49)	269.55		40.16	0	n	0.0	
Cl4(52)	368.97		40.00	0	n	0.0	
Cl4(66)	65.48		40.04	0	n	200.0	n
Cl5(87)	95.67		40.00	0	n	0.0	
Cl5(101)	195.83		40.08	0	n	0.0	
Cl5(105)	61.70		40.04	0	n	200.0	n
Cl5(118)	141.34		40.04	0	n	0.0	
Cl6(128)	55.21		40.24	0	n	200.0	n
Cl6(138)	223.70		40.08	0	n	0.0	
Cl6(153)	233.96		40.04	0	n	0.0	
Cl7(170)	41.39		40.20	0	n	200.0	n
Cl7(180)	51.18		40.16	0	n	200.0	n
Cl7(183)	27.72		40.16	5	n	156.5	n
Cl7(184)	7.43		40.16	19	N	89.9	N
Cl7(187)	36.85		40.12	0	n	200.0	n
Cl8(195)	22.54		40.12	22	n	60.3	n
Cl9(206)	23.19		40.12	18	n	61.5	n
Cl10(209)	20.97		40.04	24	n	50.0	n
Surrogate Recoveries (%)							
Cl3(34)	33						
Cl6(152)	34						

Analyzed by Fredriksson, Julie
Not Surrogate Corrected 9/18/2006 MS: Copy of Elutriate PCB_Pest(1)_L05-0291ECD-Master_128LCSxls.xls

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0292

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: PCB/Pesticide
LABORATORY: Battelle, Duxbury, MA
MATRIX: Elutriates and Elutriate Blanks
SAMPLE CUSTODY: Elutriate samples were prepared between 8/9/05 and 8/11/05. They were received at Battelle Duxbury on 8/12/05. Upon arrival, cooler temperatures were recorded at 0.4°C – 1.9°C. No custody issues were noted. The samples were logged into LIMS and received unique Battelle IDs. The samples were stored at 4° C in an access controlled walk-in refrigerator until sample preparation could begin. All samples were prepared in triplicate.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	Sample Replicate Relative Precision	Detection Limits and Reporting Limits (ng/L)
PCB/ Pesticide	General NS&T	< 5 x ss-MDL	30-150% Recovery	50-120% Recovery (concentration of MS must be >5 x background)	≤30% RSD (concentration of MS must be >5 x background; sample duplicate values must be > 10 x MDL)	MDL: ~0.26 – 1.46 RL: ~1.68 – 166.7

METHOD: Water samples were extracted for PCB and pesticides following general NS&T methods. Approximately 1 liter of water was spiked with surrogates and extracted three times with dichloromethane using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was concentrated, fortified with RIS and solvent exchanged into hexane. Extracts were analyzed using gas chromatography/electron capture detection (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds.

HOLDING TIMES: Samples were prepared for analysis in one analytical batch and were extracted within 6 days of sample collection and analyzed within 40 days of extraction. All holding times were met.

Batch	Extraction Date	Analysis Date
05-0292	8/12/05	8/21/05 – 8/23/05

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0292

BLANK: A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-0292 – No target analytes were detected in the blank

Comments – None.

LABORATORY CONTROL SAMPLE: A laboratory control sample (LCS) was prepared with the analytical batch. The percent recoveries of target PCB and pesticides were calculated to measure data quality in terms of accuracy.

05-0292 –All target analytes were recovered within the laboratory control limits specified by the client (50% - 120%).

Comments – None.

MATRIX SPIKE: Both a matrix spike (MS) sample and matrix spike duplicate (MSD) sample were prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The RPD between the percent recoveries for Pesticide/PCB is calculated to measure data quality in terms of precision.

05-0292 – MS recovery: 1 exceedences noted
MSD recovery: 15 exceedences noted.
RPD: 18 exceedences noted

Comments – Due to the high background concentrations of PCBs, numerous PCBs were calculated to be outside of data quality objectives. Since these samples were not spiked at a concentration greater than five times the background (COMP8 F-K), this data should not be used for data quality assessment. Any exceedences calculated for PCBs have been qualified with an “n” to indicate contingency criteria have been met, except for PCB 184. The analyst notes the co-elution of this analyte with PCB 153 has made quantification difficult.

Additionally, in the MSD sample, all pesticides are under-recovered, as well as the SIS compounds. Chromatography and calculations were reviewed. No discrepancies were found. This data most likely indicates a sample loss during sample preparation. RPD exceedences are also due to this sample loss.

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-0292

REPLICATES: Triplicate samples were prepared for all elutriate and elutriate blank samples. The RSD among triplicate analyses for PCB/pesticides is calculated to measure data quality in terms of precision.

05-0292 – 6 exceedences noted.

Comments – Six samples were extracted and analyzed in triplicate for this batch. All RPDs calculated among triplicates were within the laboratory control limits (< 30%RPD), except for 8 exceedences calculated among S8992 replicates (COMP F-K). Chromatography and calculations were reviewed. No discrepancies were found. Two of the exceedences, PCB 183 and PCB 206 involve compounds that were detected at concentrations not great enough for data quality assessment. The other exceedences are most likely due to varying degrees of extract efficiency as indicated by the surrogate recoveries (see table for specifics).

SURROGATES: Two surrogate compounds were added prior to extraction, including PCB 34 and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-0292 – 3 exceedences noted.

Comments – All percent recoveries were within the laboratory control limits (30% - 150%), except for PCB 152 in sample S8992MSD (background COMP8 F-K), and PCB 34 and PCB 152 in sample S8997 (COMP5 O-BB BLANK). These surrogates were all under-recovered at 29%, 28%, and 27%, respectively. Chromatography and calculations were reviewed. No discrepancies were found. The exceedences were qualified with an "N" and are most likely indicative of an extract loss during sample preparation.

CALIBRATIONS: The instrument is calibrated with a 7-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally, an Instrument Calibration Check (ICC) sample is run after each initial calibration. Samples for this batch were run over two sequences. Each sequence had its own initial and continuing calibration as well as its own ICC.

05-0292 – No exceedences noted.

Comments – None.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP7 FF-JJ	COMP7 FF-JJ	COMP7 FF-JJ		
Battelle ID	S8991-P	S8991DUP-P	S8991TRP-P		
Sample Type	SA	QADU	QATP		
Collection Date	08/10/05	8/10/2005	8/10/2005		
Extraction Date	08/12/05	8/12/2005	8/12/2005		
Analysis Date	08/21/05	8/21/2005	8/22/2005		
Analytical Instrument	ECD	ECD	ECD		
% Moisture	NA	NA	NA		
% Lipid	NA	NA	NA		
Matrix	WATER	WATER	WATER		
Sample Size	1.00	1	1		
Size Unit-Basis	L_LIQUID	L_LIQUID	L_LIQUID		
Units	NG/L_LIQUID	NG/L_LIQUID	NG/L_LIQUID	RSD	Qualifier
4,4'-DDT	1.68 U	1.68 U	1.68 U	NA	
aldrin	1.68 U	1.68 U	1.68 U	NA	
a-chlordane	1.68 U	1.68 U	1.68 U	NA	
g-chlordane	1.68 U	1.68 U	1.68 U	NA	
Lindane	1.68 U	1.68 U	1.68 U	NA	
Chlorpyrifos	3.38 U	3.38 U	3.38 U	NA	
dieldrin	1.68 U	1.68 U	1.68 U	NA	
endosulfan I	1.68 U	1.68 U	1.68 U	NA	
endosulfan II	1.68 U	1.68 U	1.68 U	NA	
endrin	1.68 U	1.68 U	1.68 U	NA	
heptachlor	1.68 U	1.68 U	1.68 U	NA	
heptachlor epoxide	1.68 U	1.68 U	1.68 U	NA	
Toxaphene	166.70 U	166.70 U	166.70 U	NA	
Cl2(8)	41.41	40.65	43.90	4.00	
Cl3(18)	126.81	159.78	165.76	13.90	
Cl3(28)	219.59	278.11	287.99	14.10	
Cl4(44)	157.62	196.60	203.60	13.30	
Cl4(49)	255.44	319.41	330.63	13.40	
Cl4(52)	323.21	407.09	417.32	13.50	
Cl4(66)	113.33	144.94	150.09	14.60	
Cl5(87)	100.68	127.62	133.47	14.50	
Cl5(101)	275.05	346.65	357.85	13.80	
Cl5(105)	76.24	97.54	103.99	15.70	
Cl5(118)	226.81	284.04	297.87	14.00	
Cl6(128)	53.13	68.52	71.83	15.50	
Cl6(138)	259.16	328.22	338.76	14.00	
Cl6(153)	291.43	369.13	382.78	14.20	
Cl7(170)	30.65	39.08	38.80	13.20	
Cl7(180)	44.46	57.64	58.45	14.70	
Cl7(183)	13.27	18.07	18.70	17.80	
Cl7(184)	1.68 U	1.68 U	1.68 U	NA	
Cl7(187)	25.50	32.41	34.48	15.30	
Cl8(195)	5.25	6.58	6.53	12.30	
Cl9(206)	3.10	4.09	3.96	14.50	
Cl10(209)	1.67 U	1.67 U	1.67 U	NA	
Surrogate Recoveries (%)					
Cl3(34)	52	69	70		
Cl6(152)	44	60	62		

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP8 F-K		COMP8 F-K		COMP8 F-K			
Battelle ID	S8992-P		S8992DUP-P		S8992TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/10/2005		8/10/2005		8/10/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/22/2005		8/22/2005		8/22/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.68	U	1.68	U	1.68	U	NA	
aldrin	1.68	U	1.68	U	1.68	U	NA	
a-chlordane	1.68	U	1.68	U	1.68	U	NA	
g-chlordane	1.68	U	1.68	U	1.68	U	NA	
Lindane	1.68	U	1.68	U	1.68	U	NA	
Chlorpyrifos	3.38	U	3.38	U	3.38	U	NA	
dieldrin	1.68	U	1.68	U	1.68	U	NA	
endosulfan I	1.68	U	1.68	U	1.68	U	NA	
endosulfan II	1.68	U	1.68	U	1.68	U	NA	
endrin	1.68	U	1.68	U	1.68	U	NA	
heptachlor	1.68	U	1.68	U	1.68	U	NA	
heptachlor epoxide	1.68	U	1.68	U	1.68	U	NA	
Toxaphene	166.70	U	166.70	U	166.70	U	NA	
Cl2(8)	17.87		16.28		30.16		35.40	N
Cl3(18)	58.09		61.72		95.82		29.00	
Cl3(28)	63.60		68.08		100.78		26.20	
Cl4(44)	51.92		55.57		85.40		28.60	
Cl4(49)	77.54		83.41		128.23		28.80	
Cl4(52)	117.13		125.34		191.04		28.00	
Cl4(66)	25.55		28.08		43.91		30.60	N
Cl5(87)	31.29		33.72		51.68		28.60	
Cl5(101)	73.52		79.78		121.94		28.70	
Cl5(105)	23.24		24.79		36.76		26.20	
Cl5(118)	61.57		67.02		101.92		28.50	
Cl6(128)	18.29		19.90		31.55		31.10	N
Cl6(138)	90.95		98.86		148.77		27.80	
Cl6(153)	105.24		112.38		167.92		26.70	
Cl7(170)	10.89		12.28		18.58		29.40	
Cl7(180)	13.55		15.33		24.47		32.90	N
Cl7(183)	0.47	J	1.23	J	4.61		104.80	n
Cl7(184)	1.68	U	1.68	U	1.68	U	NA	
Cl7(187)	3.07		3.14		9.66		71.50	N
Cl8(195)	1.57	J	1.81		2.88		33.40	N
Cl9(206)	0.69	J	0.94	J	1.68		46.70	n
Cl10(209)	1.67	U	1.67	U	1.67	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	38		42		66			
Cl6(152)	33		36		66			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP2 1,2,3 BLANK		COMP2 1,2,3 BLANK		COMP2 1,2,3 BLANK			
Battelle ID	S8994-P		S8994DUP-P		S8994TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/11/2005		8/11/2005		8/11/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/22/2005		8/22/2005		8/22/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	77		90		77			
Cl6(152)	79		92		81			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP3 H,J BLANK		COMP3 H,J BLANK		COMP3 H,J BLANK			
Battelle ID	S8995-P		S8995DUP-P		S8995TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/11/2005		8/11/2005		8/11/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/22/2005		8/23/2005		8/23/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	75		85		83			
Cl6(152)	78		83		84			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP4 L,M,N BLANK		COMP4 L,M,N BLANK		COMP4 L,M,N BLANK			
Battelle ID	S8996-P		S8996DUP-P		S8996TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/11/2005		8/11/2005		8/11/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/23/2005		8/23/2005		8/23/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	68		81		63			
Cl6(152)	71		79		65			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP5 O-BB BLANK		COMP5 O-BB BLANK		COMP5 O-BB BLANK			
Battelle ID	S8997-P		S8997DUP-P		S8997TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	8/11/2005		8/11/2005		8/11/2005			
Extraction Date	8/12/2005		8/12/2005		8/12/2005			
Analysis Date	8/23/2005		8/23/2005		8/23/2005			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	WATER		WATER		WATER			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	28	N	71		79			
Cl6(152)	27	N	74		77			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank
Battelle ID	BG924PB-P
Sample Type	PB
Collection Date	08/12/05
Extraction Date	08/12/05
Analysis Date	08/21/05
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	LIQUID
Sample Size	1.00
Size Unit-Basis	L_LIQUID
Units	NG/L_LIQUID
4,4'-DDT	1.68 U
aldrin	1.68 U
a-chlordane	1.68 U
g-chlordane	1.68 U
Lindane	1.68 U
Chlorpyrifos	3.38 U
dieldrin	1.68 U
endosulfan I	1.68 U
endosulfan II	1.68 U
endrin	1.68 U
heptachlor	1.68 U
heptachlor epoxide	1.68 U
Toxaphene	166.7 U
Cl2(8)	1.68 U
Cl3(18)	1.68 U
Cl3(28)	1.67 U
Cl4(44)	1.67 U
Cl4(49)	1.67 U
Cl4(52)	1.68 U
Cl4(66)	1.68 U
Cl5(87)	1.67 U
Cl5(101)	1.68 U
Cl5(105)	1.67 U
Cl5(118)	1.68 U
Cl6(128)	1.68 U
Cl6(138)	1.68 U
Cl6(153)	1.68 U
Cl7(170)	1.68 U
Cl7(180)	1.68 U
Cl7(183)	1.67 U
Cl7(184)	1.68 U
Cl7(187)	1.67 U
Cl8(195)	1.68 U
Cl9(206)	1.68 U
Cl10(209)	1.67 U
Surrogate Recoveries (%)	
Cl3(34)	82
Cl6(152)	80

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Laboratory Control Sample				
Battelle ID	BG925LCS-P				
Sample Type	LCS				
Collection Date	08/12/05				
Extraction Date	08/12/05				
Analysis Date	08/21/05				
Analytical Instrument	ECD				
% Moisture	NA				
% Lipid	NA				
Matrix	LIQUID				
Sample Size	1.00				
Size Unit-Basis	L_LIQUID				
Units	NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	42.06		40.02	105	
aldrin	35.36		40.01	88	
a-chlordane	37.32		40.03	93	
g-chlordane	37.56		40.06	94	
Lindane	39.25		40.01	98	
Chlorpyrifos	29.82		40.10	74	
dieldrin	38.88		40.01	97	
endosulfan I	32.39		40.03	81	
endosulfan II	36.46		40.02	91	
endrin	37.52		40.01	94	
heptachlor	34.71		40.00	87	
heptachlor epoxide	41.42		40.01	104	
Toxaphene	166.70	U			
Cl2(8)	42.50		40.12	106	
Cl3(18)	26.82		40.12	67	
Cl3(28)	30.80		40.04	77	
Cl4(44)	30.71		40.08	77	
Cl4(49)	30.03		40.16	75	
Cl4(52)	29.64		40.00	74	
Cl4(66)	33.07		40.04	83	
Cl5(87)	30.80		40.00	77	
Cl5(101)	31.58		40.08	79	
Cl5(105)	31.68		40.04	79	
Cl5(118)	32.06		40.04	80	
Cl6(128)	32.95		40.24	82	
Cl6(138)	32.50		40.08	81	
Cl6(153)	33.30		40.04	83	
Cl7(170)	33.66		40.20	84	
Cl7(180)	33.62		40.16	84	
Cl7(183)	30.67		40.16	76	
Cl7(184)	28.12		40.16	70	
Cl7(187)	29.41		40.12	73	
Cl8(195)	33.54		40.12	84	
Cl9(206)	29.97		40.12	75	
Cl10(209)	30.99		40.04	77	

Surrogate Recoveries (%)

Cl3(34)	89
Cl6(152)	83

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP8 F-K	COMP8 F-K			
Battelle ID	S8992-P	S8992MS-P			
Sample Type	SA	MS			
Collection Date	08/10/05	8/10/2005			
Extraction Date	08/12/05	8/12/2005			
Analysis Date	08/22/05	8/22/2005			
Analytical Instrument	ECD	ECD			
% Moisture	NA	NA			
% Lipid	NA	NA			
Matrix	WATER	WATER			
Sample Size	1.00	1			
Size Unit-Basis	L_LIQUID	L_LIQUID			
Units	NG/L_LIQUID	NG/L_LIQUID	Target	% Recovery	Qualifier
4,4'-DDT	1.68 U	32.20	40.02	80	
aldrin	1.68 U	28.72	40.01	72	
a-chlordane	1.68 U	28.39	40.03	71	
g-chlordane	1.68 U	28.38	40.06	71	
Lindane	1.68 U	30.01	40.01	75	
Chlorpyrifos	1.06 U	29.09	40.10	73	
dieldrin	1.68 U	33.37	40.01	83	
endosulfan I	1.68 U	29.08	40.03	73	
endosulfan II	1.68 U	30.35	40.02	76	
endrin	1.68 U	28.98	40.01	72	
heptachlor	1.68 U	29.00	40.00	73	
heptachlor epoxide	1.68 U	30.93	40.01	77	
Toxaphene	166.70 U	166.70 U			
Cl2(8)	17.87	47.19	40.12	73	
Cl3(18)	58.09	109.15	40.12	127	n
Cl3(28)	63.60	112.54	40.04	122	n
Cl4(44)	51.92	101.44	40.08	124	n
Cl4(49)	77.54	139.81	40.16	155	n
Cl4(52)	117.13	197.32	40.00	200	n
Cl4(66)	25.55	64.81	40.04	98	
Cl5(87)	31.29	71.84	40.00	101	
Cl5(101)	73.52	134.40	40.08	152	n
Cl5(105)	23.24	58.03	40.04	87	
Cl5(118)	61.57	117.98	40.04	141	n
Cl6(128)	18.29	53.16	40.24	87	
Cl6(138)	90.95	160.97	40.08	175	n
Cl6(153)	105.24	183.16	40.04	195	n
Cl7(170)	10.89	39.82	40.20	72	
Cl7(180)	13.55	46.17	40.16	81	
Cl7(183)	0.47 J	29.08	40.16	71	
Cl7(184)	1.68 U	13.83	40.16	34	N
Cl7(187)	3.07	33.86	40.12	77	
Cl8(195)	1.57 J	26.56	40.12	62	
Cl9(206)	0.69 J	23.64	40.12	57	
Cl10(209)	1.67 U	22.59	40.04	56	
Surrogate Recoveries (%)					
Cl3(34)	38	61			
Cl6(152)	33	59			

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP8 F-K						
Battelle ID	S8992MSD-P						
Sample Type	MSD						
Collection Date	8/10/2005						
Extraction Date	8/12/2005						
Analysis Date	8/22/2005						
Analytical Instrument	ECD						
% Moisture	NA						
% Lipid	NA						
Matrix	WATER						
Sample Size	1						
Size Unit-Basis	L_LIQUID						
Units	NG/L_LIQUID		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDT	22.16		40.02	55		37.0	N
aldrin	19.23		40.01	48	N	40.0	N
a-chlordane	18.81		40.03	47	N	40.7	N
g-chlordane	18.70		40.06	47	N	40.7	N
Lindane	20.80		40.01	52		36.2	N
Chlorpyrifos	17.50		40.10	44	N	49.8	N
dieldrin	21.36		40.01	53		44.1	N
endosulfan I	19.60		40.03	49	N	39.3	N
endosulfan II	18.24		40.02	46	N	49.2	N
endrin	18.07		40.01	45	N	46.2	N
heptachlor	17.74		40.00	44	N	49.6	N
heptachlor epoxide	19.66		40.01	49	N	44.4	N
Toxaphene	166.70	U					
Cl2(8)	28.61		40.12	27	n	92.0	n
Cl3(18)	63.50		40.12	13	n	162.9	n
Cl3(28)	70.39		40.04	17	n	151.1	n
Cl4(44)	60.60		40.08	22	n	139.7	n
Cl4(49)	83.53		40.16	15	n	164.7	n
Cl4(52)	117.66		40.00	1	n	198.0	n
Cl4(66)	36.82		40.04	28	n	111.1	n
Cl5(87)	40.18		40.00	22	n	128.5	n
Cl5(101)	81.01		40.08	19	n	155.6	n
Cl5(105)	35.01		40.04	29	n	100.0	n
Cl5(118)	67.40		40.04	15	n	161.5	n
Cl6(128)	31.08		40.24	32	n	92.4	n
Cl6(138)	94.38		40.08	9	n	180.4	n
Cl6(153)	104.35		40.04	0	n	200.0	n
Cl7(170)	24.24		40.20	33	n	74.3	n
Cl7(180)	27.18		40.16	34	n	81.7	n
Cl7(183)	15.84		40.16	38	N	60.6	N
Cl7(184)	5.13		40.16	13	N	89.4	N
Cl7(187)	17.68		40.12	36	N	72.6	N
Cl8(195)	16.43		40.12	37	N	50.5	N
Cl9(206)	14.56		40.12	35	N	47.8	N
Cl10(209)	13.06		40.04	33	N	51.7	N
Surrogate Recoveries (%)							
Cl3(34)	33						
Cl6(152)	29	N					

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-293

PROJECT: USACE/NAE New Bedford Harbor
PARAMETER: PCB/Pesticide
LABORATORY: Battelle, Duxbury, MA
MATRIX: Elutriate Blanks
SAMPLE CUSTODY: Elutriate blanks were prepared on 8/11/05. They were received at Battelle Duxbury on 8/12/05 along with elutriate samples. Upon arrival, cooler temperatures were recorded at 0.4°C – 1.9°C. No custody issues were noted. The samples were logged into LIMS and received unique Battelle IDs. The samples were stored at 4° C in an access controlled walk-in refrigerator until sample preparation could begin. All samples were prepared in triplicate.

	Reference Method	Method Blank	Surrogate Recovery	LCS/MS Recovery	Sample Replicate Relative Precision	Detection Limits and Reporting Limits (ng/L)
PCB/ Pesticide	General NS&T	< 5 x ss-MDL	30-150% Recovery	50-120% Recovery (concentration of MS must be >5 x background)	≤30% RSD (concentration of MS must be >5 x background; sample duplicate values must be > 10 x MDL)	MDL: ~0.11 – 0.87 RL: ~1.01 – 100.00

METHOD: Water samples were extracted for PCB and pesticides following general NS&T methods. Approximately 1 liter of water was spiked with surrogates and extracted three times with dichloromethane using separatory funnel techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, fortified with RIS, and solvent exchanged into hexane. Extracts were analyzed using gas chromatography/electron capture detection (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds.

HOLDING TIMES: Samples were prepared for analysis in one analytical batch and were extracted within 6 days of sample collection and analyzed within 40 days of extraction. All holding times were met.

Batch	Extraction Date	Analysis Date
05-293	8/15/05	8/20/05

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-293

BLANK: A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

05-293 – No target analytes were detected in the blank

Comments – None.

LABORATORY CONTROL SAMPLE: A laboratory control sample (LCS) was prepared with the analytical batch. The percent recoveries of target PCB and pesticides were calculated to measure data quality in terms of accuracy.

05-293 –All target analytes were recovered within the laboratory control limits specified by the client (50% - 120%).

Comments – None.

MATRIX SPIKE: Both a matrix spike (MS) sample and matrix spike duplicate (MSD) sample were prepared with the analytical batch. The percent recoveries of target analytes were calculated to measure data quality in terms of accuracy. The RPD between the percent recoveries for Pesticide/PCB is calculated to measure data quality in terms of precision.

05-293 – MS recovery: 1 exceedence noted
MSD recovery: 1 exceedence noted.
RPD: No exceedences noted

Comments – PCB 8 was over-recovered in the MS and MSD samples at 259% and 231%, respectively. The analyst notes that this exceedence is due to an interfering peak in the chromatography. The data has been qualified with an "ME". Accuracy for this compound has adequately been demonstrated in the LCS sample. Since this compound was not detected in any of the elutriate blanks, this over-recovery has had no impact on the data. No further corrective action was required.

REPLICATES: Triplicate samples were prepared for all elutriate blank samples. The RSD among triplicate analyses for PCB/pesticides is calculated to measure data quality in terms of precision.

05-293 – No exceedences noted.

Comments – No analytes were detected in the elutriate blanks.

SURROGATES: Two surrogate compounds were added prior to extraction, including PCB 34 and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

05-293 – No exceedences noted.

Comments – All percent recoveries were within the laboratory control limits (30% - 150%).

PCB/Pesticide – WATER QA/QC SUMMARY
Batch 05-293

CALIBRATIONS: The instrument is calibrated with a 7-level calibration. Calibration checks are analyzed minimally every 12 hours. Additionally, an Instrument Calibration Check (ICC) sample is run after each initial calibration. Samples for this batch were run over two sequences. Each sequence had its own initial and continuing calibration as well as its own ICC.

05-293 – No exceedences noted.

Comments – None.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

	COMP1 A,C,D,E		COMP1 A,C,D,E		COMP1 A,C,D,E			
Client ID	BLANK		BLANK		BLANK			
Battelle ID	S8993-P		S8993DUP-P		S8993TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	08/11/05		08/11/05		08/11/05			
Extraction Date	08/15/05		08/15/05		08/15/05			
Analysis Date	08/20/05		08/20/05		08/20/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	ELUTRIATE BLANK		ELUTRIATE BLANK		ELUTRIATE BLANK			
Sample Size	1.00		1.00		1.00			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	84		88		85			
Cl6(152)	88		85		89			

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

	COMP6 CC-KK		COMP6 CC-KK		COMP6 CC-KK			
Client ID	BLANK		BLANK		BLANK			
Battelle ID	S8998-P		S8998DUP-P		S8998TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	08/11/05		08/11/05		08/11/05			
Extraction Date	08/15/05		08/15/05		08/15/05			
Analysis Date	08/20/05		08/20/05		08/20/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	ELUTRIATE BLANK		ELUTRIATE BLANK		ELUTRIATE BLANK			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	81		79		85			
Cl6(152)	84		92		89			

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

	COMP7 FF-JJ		COMP7 FF-JJ		COMP7 FF-JJ			
Client ID	BLANK		BLANK		BLANK			
Battelle ID	S8999-P		S8999DUP-P		S8999TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	08/11/05		08/11/05		08/11/05			
Extraction Date	08/15/05		08/15/05		08/15/05			
Analysis Date	08/20/05		08/20/05		08/20/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	ELUTRIATE BLANK		ELUTRIATE BLANK		ELUTRIATE BLANK			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	75		68		71			
Cl6(152)	85		74		84			

Battelle
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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP8 F-K BLANK		COMP8 F-K BLANK		COMP8 F-K BLANK			
Battelle ID	S9000-P		S9000DUP-P		S9000TRP-P			
Sample Type	SA		QADU		QATP			
Collection Date	08/11/05		08/11/05		08/11/05			
Extraction Date	08/15/05		08/15/05		08/15/05			
Analysis Date	08/20/05		08/20/05		08/20/05			
Analytical Instrument	ECD		ECD		ECD			
% Moisture	NA		NA		NA			
% Lipid	NA		NA		NA			
Matrix	ELUTRIATE BLANK		ELUTRIATE BLANK		ELUTRIATE BLANK			
Sample Size	1		1		1			
Size Unit-Basis	L_LIQUID		L_LIQUID		L_LIQUID			
Units	NG/L_LIQUID		NG/L_LIQUID		NG/L_LIQUID		RSD	Qualifier
4,4'-DDT	1.01	U	1.01	U	1.01	U	NA	
aldrin	1.01	U	1.01	U	1.01	U	NA	
a-chlordane	1.01	U	1.01	U	1.01	U	NA	
g-chlordane	1.01	U	1.01	U	1.01	U	NA	
Lindane	1.01	U	1.01	U	1.01	U	NA	
Chlorpyrifos	2.03	U	2.03	U	2.03	U	NA	
dieldrin	1.01	U	1.01	U	1.01	U	NA	
endosulfan I	1.01	U	1.01	U	1.01	U	NA	
endosulfan II	1.01	U	1.01	U	1.01	U	NA	
endrin	1.01	U	1.01	U	1.01	U	NA	
heptachlor	1.01	U	1.01	U	1.01	U	NA	
heptachlor epoxide	1.01	U	1.01	U	1.01	U	NA	
Toxaphene	100.00	U	100.00	U	100.00	U	NA	
Cl2(8)	1.01	U	1.01	U	1.01	U	NA	
Cl3(18)	1.01	U	1.01	U	1.01	U	NA	
Cl3(28)	1.00	U	1.00	U	1.00	U	NA	
Cl4(44)	1.00	U	1.00	U	1.00	U	NA	
Cl4(49)	1.00	U	1.00	U	1.00	U	NA	
Cl4(52)	1.01	U	1.01	U	1.01	U	NA	
Cl4(66)	1.01	U	1.01	U	1.01	U	NA	
Cl5(87)	1.00	U	1.00	U	1.00	U	NA	
Cl5(101)	1.01	U	1.01	U	1.01	U	NA	
Cl5(105)	1.00	U	1.00	U	1.00	U	NA	
Cl5(118)	1.01	U	1.01	U	1.01	U	NA	
Cl6(128)	1.01	U	1.01	U	1.01	U	NA	
Cl6(138)	1.01	U	1.01	U	1.01	U	NA	
Cl6(153)	1.01	U	1.01	U	1.01	U	NA	
Cl7(170)	1.01	U	1.01	U	1.01	U	NA	
Cl7(180)	1.01	U	1.01	U	1.01	U	NA	
Cl7(183)	1.00	U	1.00	U	1.00	U	NA	
Cl7(184)	1.01	U	1.01	U	1.01	U	NA	
Cl7(187)	1.00	U	1.00	U	1.00	U	NA	
Cl8(195)	1.01	U	1.01	U	1.01	U	NA	
Cl9(206)	1.01	U	1.01	U	1.01	U	NA	
Cl10(209)	1.00	U	1.00	U	1.00	U	NA	
Surrogate Recoveries (%)								
Cl3(34)	71		59		80			
Cl6(152)	88		69		89			

Battelle
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Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Procedural Blank
Battelle ID	BG926PB-P
Sample Type	PB
Collection Date	08/15/05
Extraction Date	08/15/05
Analysis Date	08/19/05
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	LIQUID
Sample Size	1.00
Size Unit-Basis	L_LIQUID
Units	NG/L_LIQUID
4,4'-DDT	1.01 U
aldrin	1.01 U
a-chlordane	1.01 U
g-chlordane	1.01 U
Lindane	1.01 U
Chlorpyrifos	2.03 U
dieldrin	1.01 U
endosulfan I	1.01 U
endosulfan II	1.01 U
endrin	1.01 U
heptachlor	1.01 U
heptachlor epoxide	1.01 U
Toxaphene	100.00 U
Cl2(8)	1.01 U
Cl3(18)	1.01 U
Cl3(28)	1.00 U
Cl4(44)	1.00 U
Cl4(49)	1.00 U
Cl4(52)	1.01 U
Cl4(66)	1.01 U
Cl5(87)	1.00 U
Cl5(101)	1.01 U
Cl5(105)	1.00 U
Cl5(118)	1.01 U
Cl6(128)	1.01 U
Cl6(138)	1.01 U
Cl6(153)	1.01 U
Cl7(170)	1.01 U
Cl7(180)	1.01 U
Cl7(183)	1.00 U
Cl7(184)	1.01 U
Cl7(187)	1.00 U
Cl8(195)	1.01 U
Cl9(206)	1.01 U
Cl10(209)	1.00 U
Surrogate Recoveries (%)	
Cl3(34)	82
Cl6(152)	86

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	Laboratory Control Sample				
Battelle ID	BG927LCS-P				
Sample Type	LCS				
Collection Date	08/15/05				
Extraction Date	08/15/05				
Analysis Date	08/20/05				
Analytical Instrument	ECD				
% Moisture	NA				
% Lipid	NA				
Matrix	LIQUID				
Sample Size	1.00				
Size Unit-Basis	L_LIQUID				
Units	NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	38.76		40.02	97	
aldrin	34.24		40.01	86	
a-chlordane	36.15		40.03	90	
g-chlordane	35.83		40.06	89	
Lindane	34.98		40.01	87	
Chlorpyrifos	40.19		40.10	100	
dieldrin	37.19		40.01	93	
endosulfan I	34.87		40.03	87	
endosulfan II	36.50		40.02	91	
endrin	35.94		40.01	90	
heptachlor	36.21		40.00	91	
heptachlor epoxide	39.06		40.01	98	
Toxaphene	100.00	U			
Cl2(8)	42.58		40.12	106	
Cl3(18)	31.64		40.12	79	
Cl3(28)	34.92		40.04	87	
Cl4(44)	33.23		40.08	83	
Cl4(49)	34.45		40.16	86	
Cl4(52)	33.47		40.00	84	
Cl4(66)	35.22		40.04	88	
Cl5(87)	33.16		40.00	83	
Cl5(101)	34.62		40.08	86	
Cl5(105)	34.37		40.04	86	
Cl5(118)	34.18		40.04	85	
Cl6(128)	34.80		40.24	86	
Cl6(138)	34.59		40.08	86	
Cl6(153)	34.10		40.04	85	
Cl7(170)	33.33		40.20	83	
Cl7(180)	33.92		40.16	84	
Cl7(183)	31.99		40.16	80	
Cl7(184)	31.91		40.16	79	
Cl7(187)	31.34		40.12	78	
Cl8(195)	32.03		40.12	80	
Cl9(206)	28.25		40.12	70	
Cl10(209)	28.62		40.04	71	

Surrogate Recoveries (%)

Cl3(34)	83
Cl6(152)	86

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

Client ID	COMP1 A,C,D,E BLANK	COMP1 A,C,D,E BLANK				
Battelle ID	S8993-P	S8993MS-P				
Sample Type	SA	MS				
Collection Date	08/11/05	08/11/05				
Extraction Date	08/15/05	08/15/05				
Analysis Date	08/20/05	08/20/05				
Analytical Instrument	ECD	ECD				
% Moisture	NA	NA				
% Lipid	NA	NA				
Matrix	ELUTRIATE BLANK	ELUTRIATE BLANK				
Sample Size	1.00	1.00				
Size Unit-Basis	L_LIQUID	L_LIQUID				
Units	NG/L_LIQUID	NG/L_LIQUID		Target	% Recovery	Qualifier
4,4'-DDT	1.01 U	42.18		40.02	105	
aldrin	1.01 U	36.99		40.01	92	
a-chlordane	1.01 U	38.51		40.03	96	
g-chlordane	1.01 U	38.36		40.06	96	
Lindane	1.01 U	38.33		40.01	96	
Chlorpyrifos	2.03 U	46.85		40.10	117	
dieldrin	1.01 U	39.10		40.01	98	
endosulfan I	1.01 U	35.07		40.03	88	
endosulfan II	1.01 U	37.77		40.02	94	
endrin	1.01 U	39.80		40.01	99	
heptachlor	1.01 U	41.41		40.00	104	
heptachlor epoxide	1.01 U	41.76		40.01	104	
Toxaphene	100.00 U	100.00	U			
Cl2(8)	1.01 U	103.96	ME	40.12	259	N
Cl3(18)	1.01 U	30.52		40.12	76	
Cl3(28)	1.00 U	33.31		40.04	83	
Cl4(44)	1.00 U	37.75		40.08	94	
Cl4(49)	1.00 U	34.37	ME	40.16	86	
Cl4(52)	1.01 U	35.95	ME	40.00	90	
Cl4(66)	1.01 U	36.71		40.04	92	
Cl5(87)	1.00 U	35.08		40.00	88	
Cl5(101)	1.01 U	35.87		40.08	89	
Cl5(105)	1.00 U	33.22		40.04	83	
Cl5(118)	1.01 U	34.03		40.04	85	
Cl6(128)	1.01 U	34.32		40.24	85	
Cl6(138)	1.01 U	35.88		40.08	90	
Cl6(153)	1.01 U	33.95		40.04	85	
Cl7(170)	1.01 U	32.10		40.20	80	
Cl7(180)	1.01 U	33.35		40.16	83	
Cl7(183)	1.00 U	31.91		40.16	79	
Cl7(184)	1.01 U	30.74		40.16	77	
Cl7(187)	1.00 U	31.65		40.12	79	
Cl8(195)	1.01 U	31.75		40.12	79	
Cl9(206)	1.01 U	28.07		40.12	70	
Cl10(209)	1.00 U	29.55		40.04	74	
Surrogate Recoveries (%)						
Cl3(34)	84	89				
Cl6(152)	88	90				

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: USACE/NAE - New Bedford Harbor
Project Number: G606416-DUX

	COMP1 A,C,D,E						
Client ID	BLANK						
Battelle ID	S8993MSD-P						
Sample Type	MSD						
Collection Date	08/11/05						
Extraction Date	08/15/05						
Analysis Date	08/20/05						
Analytical Instrument	ECD						
% Moisture	NA						
% Lipid	NA						
Matrix	ELUTRIATE BLANK						
Sample Size	1.00						
Size Unit-Basis	L_LIQUID						
Units	NG/L_LIQUID		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDT	42.15		40.02	105		0.0	
aldrin	37.69		40.01	94		2.2	
a-chlordane	38.55		40.03	96		0.0	
g-chlordane	38.51		40.06	96		0.0	
Lindane	37.60		40.01	94		2.1	
Chlorpyrifos	47.10		40.10	117		0.0	
dieldrin	38.77		40.01	97		1.0	
endosulfan I	35.70		40.03	89		1.1	
endosulfan II	37.21		40.02	93		1.1	
endrin	39.39		40.01	98		1.0	
heptachlor	41.49		40.00	104		0.0	
heptachlor epoxide	42.18		40.01	105		1.0	
Toxaphene	100.00	U					
Cl2(8)	92.48	ME	40.12	231	N	11.4	
Cl3(18)	32.09		40.12	80		5.1	
Cl3(28)	36.52		40.04	91		9.2	
Cl4(44)	38.46		40.08	96		2.1	
Cl4(49)	46.53	ME	40.16	116		29.7	
Cl4(52)	38.59	ME	40.00	96		6.5	
Cl4(66)	38.07		40.04	95		3.2	
Cl5(87)	35.49		40.00	89		1.1	
Cl5(101)	35.81		40.08	89		0.0	
Cl5(105)	33.62		40.04	84		1.2	
Cl5(118)	34.42		40.04	86		1.2	
Cl6(128)	35.10		40.24	87		2.3	
Cl6(138)	36.29		40.08	91		1.1	
Cl6(153)	33.03		40.04	82		3.6	
Cl7(170)	32.72		40.20	81		1.2	
Cl7(180)	33.44		40.16	83		0.0	
Cl7(183)	32.20		40.16	80		1.3	
Cl7(184)	32.57		40.16	81		5.1	
Cl7(187)	31.83		40.12	79		0.0	
Cl8(195)	31.87		40.12	79		0.0	
Cl9(206)	28.14		40.12	70		0.0	
Cl10(209)	29.38		40.04	73		1.4	

Surrogate Recoveries (%)

Cl3(34)	93
Cl6(152)	91

Table II-4: Quality Control Summary for Analyses of Polychorinated Biphenyls (PCB congeners) in Sediment, Tissue and Water Matrices

Method Reference Number: 8082A

Batch 05-0283 (Site Water and Rinsate Blanks)
Batch 05-0291 (Elutriate)
Batch 05-0292 (Elutriate and Elutriate Blanks)
Batch 05-0293 (Elutriate Blanks)

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration. (80 to 120% recovery of each compound)	Yes/No	PCB 206 was recoveried slightly over the method control limit in the calibration verification for Batch 05-0291.	Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	NA		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes/No	Some PCB congeners were recovered outside laboratory control limits in MS/MSD samples of Batches 05-0291, 05-0292, and 05-0293. See QC summaries and MS/MSD results for Batches 05-0291, 05-0292, and 05-0293.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes/No	RSDs for 8 PCB congeners exceeded the laboratory control limits (<30%RSD) among the triplicates for sample COMP8 F-K in Batch 05-0292.	In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes/No	In Batch 05-0292, PCB 152 in sample S8992MSD (background COMP8 F-K) and PCB 34 and PCB 152 in sample S8997 (COMP5 O-BB BLANK) were under-recovered at 29%, 28%, and 27%, respectively.	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-3: Quality Control Summary for Analyses of Pesticides in Sediment, Tissue and Water Matrices

Method Reference Number: 8081B

Batch 05-0283 (Site Water and Rinsate Blanks)
Batch 05-0291 (Elutriate)
Batch 05-0292 (Elutriate and Elutriate Blanks)
Batch 05-0293 (Elutriate Blanks)

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (< 20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	NA		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes/No	Aldrin, Lindane, and heptachlor were under-recovered at 45%, 49%, and 46% respectively in the MS sample of Batch 05-0291, and nearly all pesticides were under-recovered in the MSD samples of Batches 05-0291 and 05-0292. See QC summaries and MS/MSD results for Batches 05-0291 and 05-0292.	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes/No	In Batch 05-0292, PCB 152 in sample S8992MSD (background COMP8 F-K) and PCB 34 and PCB 152 in sample S8997 (COMP5 O-BB BLANK) were under-recovered at 29%, 28%, and 27%, respectively.	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Appendix F
Pentachlorophenol in Water

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Appendix F-1

Pentachlorophenol in Rinsate Blanks and Reference Waters

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Katahdin
ANALYTICAL SERVICES

Cert. No. E87604

August 26, 2005

Ms. Lisa Lefkovitz
Battelle
397 Washington St.
Duxbury,MA 02332

RE: Katahdin Lab Number: WV3838
Project ID: NEW BEDFORD
Project Manager: Mrs. Andrea Colby
Sample Receipt Date(s): August 02, 2005

Dear Ms. Lefkovitz:

Please find enclosed the following information:

* Report of Analysis (Analytical and/or Field)
* Quality Control Data Summary
* Chain of Custody (COC)
* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Sincerely,

KATAHDIN ANALYTICAL SERVICES

Jennifer Obrin
Authorized Signature

08·26·05
Date

SDG NARRATIVE
KATAHDIN ANALYTICAL SERVICES
BATTELLE
NEW BEDFORD
WV3838

Sample Receipt

The following samples were received on August 2, 2005 were logged in under Katahdin Analytical Services work order number WV3838 for a hardcopy due date of August 22, 2005.

KATAHDIN Sample No.	BATTELLE Sample Identification
WV3838-1	RISDS SITE WATER A
WV3838-2	RISDS SITE WATER B
WV3838-3	RISDS SITE WATER C
WV3838-4	GRAB RINSATE BLANK
WV3838-5	CORE RINSATE BLANK
WV3838-6	PUMP RINSATE BLANK
WV3838-7	BBDS SITE WATER A
WV3838-8	BBDS SITE WATER B
WV3838-9	BBDS SITE WATER C

The samples were logged in for the analyses specified on the chain of custody form. All non-conformances noted during sample receipt have been documented on the applicable chain of custody or laboratory cooler receipt form.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in this narrative or in the Report of Analysis.

Sample analyses have been performed by the methods as noted herein.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact your Katahdin Analytical Services Project Manager, **Andrea J. Colby**. This narrative is an integral part of the Report of Analysis.

Organics Laboratory

The samples of Work Order WV3838 were analyzed in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846, 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA, and III 1996, Office of Solid Waste and Emergency Response, U.S. EPA, for the specific methods listed below or on the Report of Analysis. Some manual integrations may have been performed due to split peaks and/or corrected baselines. All have been flagged with a "M" (software-generated) on the pertinent quantitation reports.

8270C SIM Analysis

The sample with the client ID RISDS SITE WATER A (laboratory ID WV3838-1) exceeds the 19-character limit of the Katahdin Analytical Services' organics forms processing system. Therefore, the first two characters ("RI") in the client ID for this sample and the associated MS/MSD were omitted on all forms.

Due to analyst oversight sample WV3838-9 was extracted three days out of hold time. Also, the associated laboratory method blank WG19410-1, the laboratory control sample WG19410-2 and the laboratory control sample duplicate WG19410-3 were not spiked with the surrogate mix solution. In addition, the laboratory control sample WG19410-2 and the laboratory control sample duplicate WG19410-3 were not spiked with the spiked target analyte solution. Consequently, there are no recoveries for the three surrogates or for the spiked target analyte pentachlorophenol. Sample WV3838-9 was reextracted eleven days out of hold time. The results from both extractions are reported.

The method blank WG19341-1, laboratory control sample WG19341-2, matrix spike and matrix spike duplicate WG19341-3 and 4, and samples WV3838-1 through 9 had low recoveries for one or two surrogates, which were outside the laboratory nominal acceptance limits. Samples WV3838-3 through 9 were reextracted eleven days out of hold time. The results from both extractions are reported. Due to no additional sample aliquots, samples WV3838-1 and 2 were not reextracted.

Sample WV3838-8RERA had a high recovery for one surrogate, which was outside the laboratory nominal acceptance limits. Since this was a reextraction, no further corrective action was taken.

There were no other protocol deviations or observations noted by the organics laboratory staff.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Operations Manager or the Quality Assurance Officer as verified by the following signature.

Leslie Dimond
8-26-05

Leslie Dimond
Quality Assurance Officer

DATA QUALIFIERS

U	Indicates the compound was analyzed for but not detected above the laboratory Practical Quantitation Limit.
*	Compound recovery outside of quality control limits.
D	Indicates the result was obtained from analysis of a diluted sample. Surrogate recoveries may not be calculable.
E	Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
J	Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Limit (PQL), but above the Method Detection Limit (MDL).
B	Organics- Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample. Metals- Indicates the analyte was detected in the sample at a concentration greater than the instrument detection limit, but less than the laboratory's Practical Quantitation Level.
N	Presumptive evidence of a compound based on a mass spectral library search.
A	Indicates that a tentatively identified compound is a suspected aldol-condensation product.
P	Used for Pesticide/Aroclor analyte when there is a greater than 25% difference for detected concentrations between the two GC columns.
MCL	Maximum Contaminant Level
NL	No limit

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 15-AUG-2005 21:10
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-1
Client ID: SDS SITE WATER A
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		34%			
Phenol-D6		* 19%			
2,4,6-Tribromophenol		72%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 15-AUG-2005 21:55
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-2
Client ID: RISDS SITE WATER B
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		39%			
Phenol-D6		* 22%			
2,4,6-Tribromophenol		58%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 15-AUG-2005 22:41
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-3
Client ID: RISDS SITE WATER C
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		33%			
Phenol-D6		* 23%			
2,4,6-Tribromophenol		83%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 18-AUG-2005 19:28
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-3RE
Client ID: RISDS SITE WATER C
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		62%			
Phenol-D6		52%			
2,4,6-Tribromophenol		71%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 15-AUG-2005 23:27
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-4
Client ID: GRAB RINSATE BLANK
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		* 29%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		71%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 11:55
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-4RERA
Client ID: GRAB RINSATE BLANK
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		73%			
Phenol-D6		64%			
2,4,6-Tribromophenol		91%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 16-AUG-2005 00:13
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-5
Client ID: CORE RINSATE BLANK
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		30%			
Phenol-D6		* 14%			
2,4,6-Tribromophenol		62%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 12:41
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-5RERA
Client ID: CORE RINSATE BLANK
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		72%			
Phenol-D6		60%			
2,4,6-Tribromophenol		70%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 16-AUG-2005 00:59
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-6
Client ID: PUMP RINSATE BLANK
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		* 29%			
Phenol-D6		* 21%			
2,4,6-Tribromophenol		118%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 13:26
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-6RERA
Client ID: PUMP RINSATE BLANK
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		76%			
Phenol-D6		63%			
2,4,6-Tribromophenol		71%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 17-AUG-2005 13:11
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-7
Client ID: BBDS SITE WATER A
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		32%			
Phenol-D6		* 17%			
2,4,6-Tribromophenol		70%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 14:12
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-7RERA
Client ID: BBDS SITE WATER A
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		73%			
Phenol-D6		61%			
2,4,6-Tribromophenol		78%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 17-AUG-2005 13:56
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-8
Client ID: BBDS SITE WATER B
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		34%			
Phenol-D6		* 17%			
2,4,6-Tribromophenol		68%			

Page 01 of 01 U1874.D

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 14:57
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-8RERA
Client ID: BBDS SITE WATER B
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		67%			
Phenol-D6		52%			
2,4,6-Tribromophenol		*178%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/08/05
Analysis Date: 17-AUG-2005 14:42
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-9
Client ID: BBDS SITE WATER C
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19410
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		34%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		94%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/16/05
Analysis Date: 19-AUG-2005 15:43
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WV3838-9RERA
Client ID: BBDS SITE WATER C
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol		2	1.0	1	1
2-Fluorophenol		75%			
Phenol-D6		61%			
2,4,6-Tribromophenol		85%			

Page 01 of 01 U1905.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19341-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NEW BEDFORD SDG No.: WV3838

Lab File ID: U1855 Lab Sample ID: WG19341-1

Instrument ID: GCMS-U Date Extracted: 08/05/05

Matrix: (soil/water) WATER Date Analyzed: 08/15/05

Level:(low/med) LOW Time Analyzed: 1807

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19341-LCS	WG19341-2	U1856	08/15/05	1853
02	SDS SITE WATER AMS	WG19341-3	U1857	08/15/05	1939
03	SDS SITE WATER AMSD	WG19341-4	U1858	08/15/05	2024
04	SDS SITE WATER A	WV3838-1	U1859	08/15/05	2110
05	RISDS SITE WATER B	WV3838-2	U1860	08/15/05	2155
06	RISDS SITE WATER C	WV3838-3	U1861	08/15/05	2241
07	GRAB RINSATE BLANK	WV3838-4	U1862	08/15/05	2327
08	CORE RINSATE BLANK	WV3838-5	U1863	08/16/05	0013
09	PUMP RINSATE BLANK	WV3838-6	U1864	08/16/05	0059
10	BBDS SITE WATER A	WV3838-7	U1873	08/17/05	1311
11	BBDS SITE WATER B	WV3838-8	U1874	08/17/05	1356
12					
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28					
29					
30					

COMMENTS:

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/05/05
Analysis Date: 15-AUG-2005 18:07
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19341-1
Client ID: WG19341-Blank
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		35%			
Phenol-D6		* 25%			
2,4,6-Tribromophenol		68%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/05/05
Analysis Date: 08/15/05
Report Date: 08/23/2005
Matrix: WATER

Lab ID: WG19341-2
Client ID: WG19341-LCS
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Pentachlorophenol	3.0	NA	1.8	62	30-150

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 07/29/05
Received Date: 08/02/05
Extraction Date: 08/05/05
Analysis Date: 08/15/05
Report Date: 08/23/2005
Matrix: WATER

Lab ID: WG19341-3 & WG19341-4
Client ID: SDS SITE WATER AMS & SDS SITE WATER AMSD
SDG: WV3838
Extracted by: KF
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19341
Units: ug/L

COMPOUND	MS SPIKE	MSD SPIKE	SAMPLE CONC.	MS CONC.	MSD CONC.	MS %REC.	MSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	2.9	2.9	0.00	2.0	1.9	68	67	2	30	30-150

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19410-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NEW BEDFORD SDG No.: WV3838

Lab File ID: U1870 Lab Sample ID: WG19410-1

Instrument ID: GCMS-U Date Extracted: 08/08/05

Matrix: (soil/water) WATER Date Analyzed: 08/17/05

Level:(low/med) LOW Time Analyzed: 1054

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19410-LCS	WG19410-2	U1871	08/17/05	1139
02	WG19410-LCSD	WG19410-3	U1872	08/17/05	1225
03	BBDS SITE WATER C	WV3838-9	U1875	08/17/05	1442
04					
05					
06					
07					
08					
09					
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11					
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30					

COMMENTS:

FORM IV SV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/08/05
Analysis Date: 17-AUG-2005 10:54
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19410-1
Client ID: WG19410-Blank
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19410
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		* 0%			
Phenol-D6		* 0%			
2,4,6-Tribromophenol		* 1%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/08/05
Analysis Date: 08/17/05
Report Date: 08/23/2005
Matrix: WATER

Lab ID: WG19410-2 & WG19410-3
Client ID: WG19410-LCS & WG19410-LCSD
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19410
Units: ug/L

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol			NA						30	30-150

FORM III SV-1

U1871.D & U1872.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19741-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NEW BEDFORD SDG No.: WV3838

Lab File ID: U1889 Lab Sample ID: WG19741-1

Instrument ID: GCMS-U Date Extracted: 08/16/05

Matrix: (soil/water) WATER Date Analyzed: 08/18/05

Level:(low/med) LOW Time Analyzed: 1713

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19741-LCS	WG19741-2	U1890	08/18/05	1758
02	WG19741-LCSD	WG19741-3	U1891	08/18/05	1843
03	RISDS SITE WATER C	WV3838-3RE	U1892	08/18/05	1928
04	GRAB RINSATE BLANK	WV3838-4RERA	U1900	08/19/05	1155
05	CORE RINSATE BLANK	WV3838-5RERA	U1901	08/19/05	1241
06	PUMP RINSATE BLANK	WV3838-6RERA	U1902	08/19/05	1326
07	BBDS SITE WATER A	WV3838-7RERA	U1903	08/19/05	1412
08	BBDS SITE WATER B	WV3838-8RERA	U1904	08/19/05	1457
09	BBDS SITE WATER C	WV3838-9RERA	U1905	08/19/05	1543
10					
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12					
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29					
30					

COMMENTS:

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 18-AUG-2005 17:13
Report Date: 08/23/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19741-1
Client ID: WG19741-Blank
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1	1.0	1	1
2-Fluorophenol		73%			
Phenol-D6		66%			
2,4,6-Tribromophenol		77%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 08/18/05
Report Date: 08/23/2005
Matrix: WATER

Lab ID: WG19741-2 & WG19741-3
Client ID: WG19741-LCS & WG19741-LCSD
SDG: WV3838
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	3.0	3.0	NA	1.9	2.1	64	71	11	30	30-150

FORM III SV-1

U1890.D & U1891.D

KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT
Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) # WV3838

PAGE: 1 OF 2

COOLER: 1 OF 2

CLIENT: Battelle

COC#
SDG#
DATE / TIME RECEIVED: 8/21/05 09:22
DELIVERED BY: Fed Ex
RECEIVED BY: AG
LIMS ENTRY BY: AG
LIMS REVIEW BY / PM: DC

PROJECT:

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	☒	☐	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☒	☐	☐		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☒	☐	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☒	☐	☐		
5. TEMPERATURE BLANKS PRESENT?	☐	☒	☐	TEMP BLANK TEMP (°C)=	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE/ICE PACKS PRESENT Y or N?	☒	☐	☐	COOLER TEMP (°C)= 2.4 NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	☐	☐	☒		
8. TRIP BLANK PRESENT IN THIS COOLER	☐	☐	☒		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☒	☐	☐		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☒	☐	☐		
11. SAMPLES PROPERLY PRESERVED[1]?	☒	☐	☐		
12. CORRECTIVE ACTION REPORT FILED?	☐	☐	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

[1] Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) # WV 3838

PAGE: 2 OF 2

COOLER: 2 OF 2

CLIENT: Battelle

PROJECT:

COC#
SDG#
DATE / TIME RECEIVED: 8/2/05 09:22
DELIVERED BY: Fed ex
RECEIVED BY: AG
LIMS ENTRY BY: AV
LIMS REVIEW BY / PM: PC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	☒	☐	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☒	☐	☐		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☒	☐	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☒	☐	☐		
5. TEMPERATURE BLANKS PRESENT?	☒	☐	☐	TEMP BLANK TEMP (°C)= 5.5	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT Y or N?	☒	☐	☐	COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	☐	☐	☒		
8. TRIP BLANK PRESENT IN THIS COOLER	☐	☐	☒		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☒	☐	☐		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☒	☐	☐		
11. SAMPLES PROPERLY PRESERVED[1]?	☒	☐	☐		
12. CORRECTIVE ACTION REPORT FILED?	☐	☐	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

Battelle
. . . Putting Technology To Work

Chain of Custody

WV3838

1L glass

Proj. No: 06416-0001b
Proj. Name: New Bedford Harbor
SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
29-05	1015	EAG-051-Pent		(*)RISDS site water for Pentachlorophenol											6
"	0800	EAG-052-Pent		Grab Dissolve blank " "											2
"	1400	" -053-Pent		Core " " " "											2
"	1400	" 054 "		Dump " " " "											2
30-05	0830	EAG-056-PENT		(*)BBDS site water for Pentachlorophenol											6

Relinquished by:	Date/Time	Received by:	Date/Time
	7/29/05 1800		8/1/05 6:30
	8/1/05 13:00	8/2/05 A. Yunney	8/2/05 09:20

Comments:
(*) perform analysis in triplicat on RISDS + BBDS Samples. an MS & MSD should be performed on ICE on one of these samples. TH.

ORIGINAL

Katahdin Analytical Services WV3838 page 0000003 of 0000035

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (Ino1)

Aug. 08, 2005
01:07 PM

Login Number: WV3838

Account: BATTEL002 NoWeb
Battelle

Project: BATTELPCP001

Primary Report Address:
Lisa Lefkovitz
Battelle
397 Washington St.

Duxbury,MA 02332

Primary Invoice Address:
Accounts Payable
Battelle
505 King Ave.

Columbus,OH 43201-2693

Report CC Addresses:
Invoice CC Addresses:

Login Information

ANALYSIS INSTRUCTIONS	:	Ext-need acid extraction for pentachlorophenol.
CHECK NO.	:	
CLIENT PO#	:	200251
COOLER TEMPERATURE	:	2.4,5.5
DELIVERY SERVICES	:	FED EX
EDD FORMAT	:	KAS079QC-XLS
MAIL DATE	:	
PM	:	AJC
PROJECT NAME	:	NEW BEDFORD
QC LEVEL	:	II+ WITH NARRATIVE
REGULATORY LIST	:	
REPORT INSTRUCTIONS	:	
SDG ID	:	
SDG STATUS	:	

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV3838-1	RISDS SITE WATER A	29-JUL-05 10:15	02-AUG-05			22-AUG-05	MS/MSD. EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	MS/MSD-SVOA			
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-2	RISDS SITE WATER B	29-JUL-05 10:15	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-3	RISDS SITE WATER C	29-JUL-05 10:15	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-4	GRAB RINSATE BLANK	29-JUL-05 08:00	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-5	CORE RINSATE BLANK	29-JUL-05 14:00	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-6	PUMP RINSATE BLANK	29-JUL-05 14:00	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-7	BBDS SITE WATER A	29-JUL-05 08:30	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

WV3838-8	BBDS SITE WATER B	29-JUL-05 08:30	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Aug. 08, 2005
01:07 PM

Login Number: WV3838

Account: BATTEL002 NoWeb
Battelle

Project: BATTELPCP001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV3838-9	BBDS SITE WATER C	29-JUL-05 08:30	02-AUG-05			22-AUG-05	EXT-need acid ext, ~~pentachlorophenol only~~

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	05-AUG-05	1L N-Amber Glass	2

Total Samples: *9* ***Total Analyses:*** *10*

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Appendix F-2

Pentachlorophenol in Elutriates

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Katahdin
ANALYTICAL SERVICES

Cert. No. E87604

September 7, 2005

Ms. Lisa Lefkovitz
Battelle
397 Washington St.
Duxbury,MA 02332

RE: Katahdin Lab Number: WV4102
Project ID: NEW BEDFORD
Project Manager: Mrs. Andrea Colby
Sample Receipt Date(s): August 12, 2005

Dear Ms. Lefkovitz:

Please find enclosed the following information:

* Report of Analysis (Analytical and/or Field)
* Quality Control Data Summary
* Chain of Custody (COC)
* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Sincerely,

KATAHDIN ANALYTICAL SERVICES

Jennifer Obrin
Authorized Signature

09.07.05
Date

SDG NARRATIVE
KATAHDIN ANALYTICAL SERVICES
BATTELLE
NEW BEDFORD
WV4102

Sample Receipt

The following samples were received on August 12, 2005 were logged in under Katahdin Analytical Services work order number WV4102 for a hardcopy due date of September 1, 2005.

KATAHDIN Sample No.	BATTELLE Sample Identification
WV4102-1	COMP1 A,C,D,E-A
WV4102-2	COMP1 A,C,D,E-B
WV4102-3	COMP1 A,C,D,E-C
WV4102-4	COMP2 1,2,3-A
WV4102-5	COMP2 1,2,3-B
WV4102-6	COMP2 1,2,3-C
WV4102-7	COMP3 H,J-A
WV4102-8	COMP3 H,J-B
WV4102-9	COMP3 H,J-C
WV4102-10	COMP4 L,M,N-A
WV4102-11	COMP4 L,M,N-B
WV4102-12	COMP4 L,M,N-C
WV4102-13	COMP5 O-BB-A
WV4102-14	COMP5 O-BB-B
WV4102-15	COMP5 O-BB-C
WV4102-16	COMP6 CC-KK-A
WV4102-17	COMP6 CC-KK-B
WV4102-18	COMP6 CC-KK-C
WV4102-19	COMP7 FF-JJ-A
WV4102-20	COMP7 FF-JJ-B
WV4102-21	COMP7 FF-JJ-C
WV4102-22	COMP8 F-K-A
WV4102-23	COMP8 F-K-B
WV4102-24	COMP8 F-K-C
WV4102-25	COMP1 BLANK-A
WV4102-26	COMP1 BLANK-B
WV4102-27	COMP1 BLANK-C
WV4102-28	COMP2 BLANK-A
WV4102-29	COMP2 BLANK-B
WV4102-30	COMP2 BLANK-C
WV4102-31	COMP3 BLANK-A
WV4102-32	COMP3 BLANK-B
WV4102-33	COMP3 BLANK-C
WV4102-34	COMP4 BLANK-A
WV4102-35	COMP4 BLANK-B

WV4102-36	COMP4 BLANK-C
WV4102-37	COMP5 BLANK-A
WV4102-38	COMP5 BLANK-B
WV4102-39	COMP5 BLANK-C
WV4102-40	COMP6 BLANK-A
WV4102-41	COMP6 BLANK-B
WV4102-42	COMP6 BLANK-C
WV4102-43	COMP7 BLANK-A
WV4102-44	COMP7 BLANK-B
WV4102-45	COMP7 BLANK-C
WV4102-46	COMP8 BLANK-A
WV4102-47	COMP8 BLANK-B
WV4102-48	COMP8 BLANK-C

The samples were logged in for the analyses specified on the chain of custody form. All non-conformances noted during sample receipt have been documented on the applicable chain of custody or laboratory cooler receipt form.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in this narrative or in the Report of Analysis.

Sample analyses have been performed by the methods as noted herein.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact your Katahdin Analytical Services Project Manager, **Andrea J. Colby**. This narrative is an integral part of the Report of Analysis.

Organics Laboratory

The samples of Work Order WV4102 were analyzed in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846. 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA, and III 1996, Office of Solid Waste and Emergency Response, U.S. EPA, for the specific methods listed below or on the Report of Analysis. Samples WV4102-22, 25, and 43 were used for the matrix spike (MS) and matrix spike duplicate (MSD), as per client request. Some manual integrations may have been performed due to split peaks and/or corrected baselines. All have been flagged with a "M" (software-generated) on the pertinent quantitation reports.

8270C SIM Analysis

The laboratory method blanks WG19612-1 and WG19747-1 had high recoveries for one surrogate, which were outside the laboratory nominal acceptance limits. Since a high recovery would indicate a high bias and there were no target analytes detected above the PQL, the samples were not reanalyzed.

The laboratory method blank WG19629-1 had a low recovery for one surrogate, which was outside the laboratory nominal acceptance limits. Since the associated LCS and MS/MSD were acceptable, the associated samples were not reextracted.

Samples WV4102-2, 17 and 18 had high recoveries for one surrogate, which were outside the laboratory nominal limits. Since a high recovery would indicate a high bias and there were no target analytes detected above the PQL, the samples were not reanalyzed.

Samples WV4102-6, 7, 19 through 23 had low recoveries for one or more surrogates, which were outside the laboratory nominal acceptance limits. These samples had been extracted in triplicate. The remaining sample aliquots (WV4102-4RE, 7RE, 19RE, and 22RE), which correspond to samples WV4102-6, 7, 19, and 22, respectively, were reextracted and analyzed. Samples WV4102-19RE and 22RE were reextracted one day out of hold time. The results for all of these analyses are included in the report.

Samples WV4102-24 through 31 had low recoveries for one or more surrogates, which were outside the laboratory nominal acceptance limits. These samples had been extracted in triplicate. The remaining sample aliquots (WV4102-24, 25, 28, and 31), which correspond to samples WV4102-24 through 31, were reextracted five or six days out of hold time and analyzed. The reextracted samples had similar results. The results from the first extraction are reported.

Due to a laboratory problem, the MSD for sample WV4102-43 (WG19747-4) was not able to be extracted to completion.

There were no other protocol deviations or observations noted by the organic laboratory staff.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Operations Manager or the Quality Assurance Officer as verified by the following signature.

Leslie Dimond
10-7-05

Leslie Dimond
Quality Assurance Officer

DATA QUALIFIERS

U	Indicates the compound was analyzed for but not detected above the laboratory Practical Quantitation Limit.
*	Compound recovery outside of quality control limits.
D	Indicates the result was obtained from analysis of a diluted sample. Surrogate recoveries may not be calculable.
E	Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
J	Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Limit (PQL), but above the Method Detection Limit (MDL).
B	Organics- Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample. Metals- Indicates the analyte was detected in the sample at a concentration greater than the instrument detection limit, but less than the laboratory's Practical Quantitation Level.
N	Presumptive evidence of a compound based on a mass spectral library search.
A	Indicates that a tentatively identified compound is a suspected aldol-condensation product.
P	Used for Pesticide/Aroclor analyte when there is a greater than 25% difference for detected concentrations between the two GC columns.
MCL	Maximum Contaminant Level
NL	No limit

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 08:35
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-1
Client ID: COMP1 A,C,D,E-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		88%			
Phenol-D6		91%			
2,4,6-Tribromophenol		109%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 09:20
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-2
Client ID: COMP1 A,C,D,E-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		137%			
Phenol-D6		74%			
2,4,6-Tribromophenol		*366%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 10:05
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-3
Client ID: COMP1 A,C,D,E-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		73%			
Phenol-D6		56%			
2,4,6-Tribromophenol		114%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 10:51
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-4
Client ID: COMP2 1,2,3-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		66%			
Phenol-D6		52%			
2,4,6-Tribromophenol		103%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 31-AUG-2005 00:26
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-4RE
Client ID: COMP2 1,2,3-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		32%			
Phenol-D6		49%			
2,4,6-Tribromophenol		87%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 11:36
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-5
Client ID: COMP2 1,2,3-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		68%			
Phenol-D6		57%			
2,4,6-Tribromophenol		127%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 12:22
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-6
Client ID: COMP2 1,2,3-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 12%			
Phenol-D6		* 11%			
2,4,6-Tribromophenol		31%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 13:07
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-7
Client ID: COMP3 H,J-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 25%			
Phenol-D6		* 15%			
2,4,6-Tribromophenol		41%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 31-AUG-2005 01:11
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-7RE
Client ID: COMP3 H,J-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		44%			
Phenol-D6		60%			
2,4,6-Tribromophenol		98%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 13:53
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-8
Client ID: COMP3 H,J-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		46%			
Phenol-D6		38%			
2,4,6-Tribromophenol		48%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 14:39
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-9
Client ID: COMP3 H,J-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		62%			
Phenol-D6		52%			
2,4,6-Tribromophenol		129%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 15:25
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-10
Client ID: COMP4 L,M,N-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		60%			
Phenol-D6		66%			
2,4,6-Tribromophenol		79%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 16:11
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-11
Client ID: COMP4 L,M,N-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		57%			
Phenol-D6		51%			
2,4,6-Tribromophenol		143%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/09/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 16:57
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-12
Client ID: COMP4 L,M,N-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		46%			
Phenol-D6		36%			
2,4,6-Tribromophenol		143%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 17:43
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-13
Client ID: COMP5 O-BB-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		45%			
Phenol-D6		36%			
2,4,6-Tribromophenol		133%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 18:28
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-14
Client ID: COMP5 O-BB-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.1	1.0	1.0	1.1
2-Fluorophenol		42%			
Phenol-D6		31%			
2,4,6-Tribromophenol		108%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 19:14
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-15
Client ID: COMP5 O-BB-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		42%			
Phenol-D6		32%			
2,4,6-Tribromophenol		117%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 31-AUG-2005 20:37
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-16RA3
Client ID: COMP6 CC-KK-A
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol		2.5	1.0	1.0	1.0
2-Fluorophenol		61%			
Phenol-D6		103%			
2,4,6-Tribromophenol		145%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 26-AUG-2005 09:28
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-17
Client ID: COMP6 CC-KK-B
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		42%			
Phenol-D6		40%			
2,4,6-Tribromophenol		*205%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 26-AUG-2005 10:13
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-18
Client ID: COMP6 CC-KK-C
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		47%			
Phenol-D6		32%			
2,4,6-Tribromophenol		*192%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 20:07
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-19
Client ID: COMP7 FF-JJ-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 17%			
Phenol-D6		* 13%			
2,4,6-Tribromophenol		144%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 31-AUG-2005 04:14
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-19RE
Client ID: COMP7 FF-JJ-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 28%			
Phenol-D6		34%			
2,4,6-Tribromophenol		77%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 20:51
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-20
Client ID: COMP7 FF-JJ-B
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 26%			
Phenol-D6		* 20%			
2,4,6-Tribromophenol		144%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 21:36
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-21
Client ID: COMP7 FF-JJ-C
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 15%			
Phenol-D6		* 13%			
2,4,6-Tribromophenol		114%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 22:21
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-22
Client ID: COMP8 F-K-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 17%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		114%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 31-AUG-2005 11:30
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-22RE
Client ID: COMP8 F-K-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		38%			
Phenol-D6		47%			
2,4,6-Tribromophenol		93%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 23:06
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-23
Client ID: COMP8 F-K-B
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 21%			
Phenol-D6		* 15%			
2,4,6-Tribromophenol		118%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 16:15
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-24
Client ID: COMP8 F-K-C
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 26%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		104%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 17:01
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-25
Client ID: COMP1 BLANK-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		31%			
Phenol-D6		* 17%			
2,4,6-Tribromophenol		81%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 17:47
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-26
Client ID: COMP1 BLANK-B
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		33%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		81%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 18:33
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-27
Client ID: COMP1 BLANK-C
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		47%			
Phenol-D6		* 23%			
2,4,6-Tribromophenol		90%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 19:19
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-28
Client ID: COMP2 BLANK-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		49%			
Phenol-D6		* 24%			
2,4,6-Tribromophenol		89%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 20:04
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-29
Client ID: COMP2 BLANK-B
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		32%			
Phenol-D6		* 18%			
2,4,6-Tribromophenol		78%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 20:50
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-30
Client ID: COMP2 BLANK-C
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		* 28%			
Phenol-D6		* 16%			
2,4,6-Tribromophenol		85%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 21:36
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-31
Client ID: COMP3 BLANK-A
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		30%			
Phenol-D6		* 18%			
2,4,6-Tribromophenol		79%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 10:58
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-32
Client ID: COMP3 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		41%			
Phenol-D6		31%			
2,4,6-Tribromophenol		133%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 11:45
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-33
Client ID: COMP3 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		48%			
Phenol-D6		32%			
2,4,6-Tribromophenol		148%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 12:31
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-34
Client ID: COMP4 BLANK-A
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		94%			
Phenol-D6		52%			
2,4,6-Tribromophenol		143%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 13:17
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-35
Client ID: COMP4 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		85%			
Phenol-D6		40%			
2,4,6-Tribromophenol		117%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 14:03
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-36
Client ID: COMP4 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		81%			
Phenol-D6		33%			
2,4,6-Tribromophenol		114%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 14:49
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-37
Client ID: COMP5 BLANK-A
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		85%			
Phenol-D6		47%			
2,4,6-Tribromophenol		115%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 15:35
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-38
Client ID: COMP5 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		108%			
Phenol-D6		35%			
2,4,6-Tribromophenol		120%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 16:20
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-39
Client ID: COMP5 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		90%			
Phenol-D6		46%			
2,4,6-Tribromophenol		128%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 29-AUG-2005 15:28
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-40RA
Client ID: COMP6 BLANK-A
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		67%			
Phenol-D6		52%			
2,4,6-Tribromophenol		106%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 18:24
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-41
Client ID: COMP6 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		42%			
Phenol-D6		60%			
2,4,6-Tribromophenol		80%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 19:09
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-42
Client ID: COMP6 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		44%			
Phenol-D6		63%			
2,4,6-Tribromophenol		84%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 19:55
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-43
Client ID: COMP7 BLANK-A
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		59%			
Phenol-D6		76%			
2,4,6-Tribromophenol		90%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 20:40
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-44
Client ID: COMP7 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		40%			
Phenol-D6		53%			
2,4,6-Tribromophenol		71%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 21:25
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-45
Client ID: COMP7 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		35%			
Phenol-D6		39%			
2,4,6-Tribromophenol		60%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 22:10
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-46
Client ID: COMP8 BLANK-A
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		34%			
Phenol-D6		42%			
2,4,6-Tribromophenol		55%			

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KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 31-AUG-2005 12:15
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-47
Client ID: COMP8 BLANK-B
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		30%			
Phenol-D6		38%			
2,4,6-Tribromophenol		64%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 30-AUG-2005 23:40
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WV4102-48
Client ID: COMP8 BLANK-C
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		34%			
Phenol-D6		41%			
2,4,6-Tribromophenol		51%			

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FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19610-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code:

Project: NEW BEDFORD SDG No.: WV4102

Lab File ID: U1942 Lab Sample ID: WG19610-1

Instrument ID: GCMS-U Date Extracted: 08/15/05

Matrix: (soil/water) WATER Date Analyzed: 08/24/05

Level:(low/med) LOW Time Analyzed: 1237

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19610-LCS	WG19610-2	U1943	08/24/05	1322
02	WG19610-LCSD	WG19610-3	U1944	08/24/05	1408
03	COMP1 A,C,D,E-A	WV4102-1	U1947	08/25/05	0835
04	COMP1 A,C,D,E-B	WV4102-2	U1948	08/25/05	0920
05	COMP1 A,C,D,E-C	WV4102-3	U1949	08/25/05	1005
06	COMP2 1,2,3-A	WV4102-4	U1950	08/25/05	1051
07	COMP2 1,2,3-B	WV4102-5	U1951	08/25/05	1136
08	COMP2 1,2,3-C	WV4102-6	U1952	08/25/05	1222
09	COMP3 H,J-A	WV4102-7	U1953	08/25/05	1307
10	COMP3 H,J-B	WV4102-8	U1954	08/25/05	1353
11	COMP3 H,J-C	WV4102-9	U1955	08/25/05	1439
12	COMP4 L,M,N-A	WV4102-10	U1956	08/25/05	1525
13	COMP4 L,M,N-B	WV4102-11	U1957	08/25/05	1611
14	COMP4 L,M,N-C	WV4102-12	U1958	08/25/05	1657
15	COMP5 O-BB-A	WV4102-13	U1959	08/25/05	1743
16	COMP5 O-BB-B	WV4102-14	U1960	08/25/05	1828
17	COMP5 O-BB-C	WV4102-15	U1961	08/25/05	1914
18	COMP6 CC-KK-B	WV4102-17	U1967	08/26/05	0928
19	COMP6 CC-KK-C	WV4102-18	U1968	08/26/05	1013
20	COMP6 CC-KK-A	WV4102-16RA3	U2037	08/31/05	2037
21					
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30					

COMMENTS:

FORM IV SV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/15/05
Analysis Date: 24-AUG-2005 12:37
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19610-1
Client ID: WG19610-Blank
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		67%			
Phenol-D6		76%			
2,4,6-Tribromophenol		37%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/15/05
Analysis Date: 08/24/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19610-2 & WG19610-3
Client ID: WG19610-LCS & WG19610-LCSD
SDG: WV4102
Extracted by: KF
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19610
Units: ug/L

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	3.0	3.0	NA	1.4	1.3	48	43	11	30	30-150

FORM III SV-1

U1943.D & U1944.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19612-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code:

Project: NEW BEDFORD SDG No.: WV4102

Lab File ID: K0039 Lab Sample ID: WG19612-1

Instrument ID: GCMS-K Date Extracted: 08/15/05

Matrix: (soil/water) WATER Date Analyzed: 08/25/05

Level:(low/med) LOW Time Analyzed: 1705

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19612-LCS	WG19612-2	K0040	08/25/05	1751
02	COMP8 F-K-AMS	WG19612-3	K0041	08/25/05	1836
03	COMP8 F-K-AMSD	WG19612-4	K0042	08/25/05	1921
04	COMP7 FF-JJ-A	WV4102-19	K0043	08/25/05	2007
05	COMP7 FF-JJ-B	WV4102-20	K0044	08/25/05	2051
06	COMP7 FF-JJ-C	WV4102-21	K0045	08/25/05	2136
07	COMP8 F-K-A	WV4102-22	K0046	08/25/05	2221
08	COMP8 F-K-B	WV4102-23	K0047	08/25/05	2306
09					
10					
11					
12					
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30					

COMMENTS:

FORM IV SV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/15/05
Analysis Date: 25-AUG-2005 17:05
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19612-1
Client ID: WG19612-Blank
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		39%			
Phenol-D6		32%			
2,4,6-Tribromophenol		*160%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/15/05
Analysis Date: 08/25/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19612-2
Client ID: WG19612-LCS
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Pentachlorophenol	3.0	NA	1.6	55	30-150

FORM III SV-1

K0040.D

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/10/05
Received Date: 08/12/05
Extraction Date: 08/15/05
Analysis Date: 08/25/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19612-3 & WG19612-4
Client ID: COMP8 F-K-AMS & COMP8 F-K-AMSD
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19612
Units: ug/L

COMPOUND	MS SPIKE	MSD SPIKE	SAMPLE CONC.	MS CONC.	MSD CONC.	MS %REC.	MSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	3.0	3.0	0.00	3.0	3.7	99	122	21	30	30-150

FORM III SV-1

K0041.D & K0042.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19629-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code:

Project: NEW BEDFORD SDG No.: WV4102

Lab File ID: U1980 Lab Sample ID: WG19629-1

Instrument ID: GCMS-U Date Extracted: 08/16/05

Matrix: (soil/water) WATER Date Analyzed: 08/29/05

Level:(low/med) LOW Time Analyzed: 1139

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19629-LCS	WG19629-2	U1981	08/29/05	1225
02	COMP1 BLANK-AMS	WG19629-3	U1982	08/29/05	1311
03	COMP1 BLANK-AMSD	WG19629-4	U1983	08/29/05	1357
04	COMP8 F-K-C	WV4102-24	U1986	08/29/05	1615
05	COMP1 BLANK-A	WV4102-25	U1987	08/29/05	1701
06	COMP1 BLANK-B	WV4102-26	U1988	08/29/05	1747
07	COMP1 BLANK-C	WV4102-27	U1989	08/29/05	1833
08	COMP2 BLANK-A	WV4102-28	U1990	08/29/05	1919
09	COMP2 BLANK-B	WV4102-29	U1991	08/29/05	2004
10	COMP2 BLANK-C	WV4102-30	U1992	08/29/05	2050
11	COMP3 BLANK-A	WV4102-31	U1993	08/29/05	2136
12					
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30					

COMMENTS:

FORM IV SV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 29-AUG-2005 11:39
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19629-1
Client ID: WG19629-Blank
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		32%			
Phenol-D6		* 19%			
2,4,6-Tribromophenol		68%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 08/29/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19629-2
Client ID: WG19629-LCS
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Pentachlorophenol	3.0	NA	1.8	59	30-150

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/16/05
Analysis Date: 08/29/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19629-3 & WG19629-4
Client ID: COMP1 BLANK-AMS & COMP1 BLANK-AMSD
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3510
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19629
Units: ug/L

COMPOUND	MS SPIKE	MSD SPIKE	SAMPLE CONC.	MS CONC.	MSD CONC.	MS %REC.	MSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	3.1	3.1	0.00	2.4	1.9	78	60	25	30	30-150

FORM III SV-1

U1982.D & U1983.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19741-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NEW BEDFORD SDG No.: WV4102

Lab File ID: U1889 Lab Sample ID: WG19741-1

Instrument ID: GCMS-U Date Extracted: 08/16/05

Matrix: (soil/water) WATER Date Analyzed: 08/18/05

Level: (low/med) LOW Time Analyzed: 1713

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19741-LCS	WG19741-2	U1890	08/18/05	1758
02	WG19741-LCSD	WG19741-3	U1891	08/18/05	1843
03	COMP2 1,2,3-A	WV4102-4RE	U2016	08/31/05	0026
04	COMP3 H,J-A	WV4102-7RE	U2017	08/31/05	0111
05	COMP7 FF-JJ-A	WV4102-19RE	U2021	08/31/05	0414
06	COMP8 F-K-A	WV4102-22RE	U2025	08/31/05	1130
07					
08					
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COMMENTS:

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 18-AUG-2005 17:13
Report Date: 09/01/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19741-1
Client ID: WG19741-Blank
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		73%			
Phenol-D6		66%			
2,4,6-Tribromophenol		77%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/16/05
Analysis Date: 08/18/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19741-2 & WG19741-3
Client ID: WG19741-LCS & WG19741-LCSD
SDG: WV4102
Extracted by: GN
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19741
Units: ug/L

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Pentachlorophenol	3.0	3.0	NA	1.9	2.1	64	71	11	30	30-150

FORM III SV-1

U1890.D & U1891.D

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG19747-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code:

Project: NEW BEDFORD SDG No.: WV4102

Lab File ID: U1964 Lab Sample ID: WG19747-1

Instrument ID: GCMS-U Date Extracted: 08/17/05

Matrix: (soil/water) WATER Date Analyzed: 08/26/05

Level:(low/med) LOW Time Analyzed: 0712

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG19747-LCS	WG19747-2	U1965	08/26/05	0757
02	COMP3 BLANK-B	WV4102-32	U1969	08/26/05	1058
03	COMP3 BLANK-C	WV4102-33	U1970	08/26/05	1145
04	COMP4 BLANK-A	WV4102-34	U1971	08/26/05	1231
05	COMP4 BLANK-B	WV4102-35	U1972	08/26/05	1317
06	COMP4 BLANK-C	WV4102-36	U1973	08/26/05	1403
07	COMP5 BLANK-A	WV4102-37	U1974	08/26/05	1449
08	COMP5 BLANK-B	WV4102-38	U1975	08/26/05	1535
09	COMP5 BLANK-C	WV4102-39	U1976	08/26/05	1620
10	COMP7 BLANK-AMS	WG19747-3	U1978	08/26/05	1751
11	COMP6 BLANK-A	WV4102-40RA	U1985	08/29/05	1528
12	COMP6 BLANK-B	WV4102-41	U2008	08/30/05	1824
13	COMP6 BLANK-C	WV4102-42	U2009	08/30/05	1909
14	COMP7 BLANK-A	WV4102-43	U2010	08/30/05	1955
15	COMP7 BLANK-B	WV4102-44	U2011	08/30/05	2040
16	COMP7 BLANK-C	WV4102-45	U2012	08/30/05	2125
17	COMP8 BLANK-A	WV4102-46	U2013	08/30/05	2210
18	COMP8 BLANK-C	WV4102-48	U2015	08/30/05	2340
19	COMP8 BLANK-B	WV4102-47	U2026	08/31/05	1215
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27					
28					
29					
30					

COMMENTS:

FORM IV SV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/17/05
Analysis Date: 26-AUG-2005 07:12
Report Date: 09/06/2005
Matrix: WATER
% Solids: NA

Lab ID: WG19747-1
Client ID: WG19747-Blank
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

Compound	Flags	Results	DF	PQL	Adj.PQL
Pentachlorophenol	U	1.0	1.0	1.0	1.0
2-Fluorophenol		47%			
Phenol-D6		40%			
2,4,6-Tribromophenol		*161%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NEW BEDFORD
PO No:
Sample Date:
Received Date:
Extraction Date: 08/17/05
Analysis Date: 08/26/05
Report Date: 09/06/2005
Matrix: WATER

Lab ID: WG19747-2
Client ID: WG19747-LCS
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3520
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Pentachlorophenol	3.0	NA	1.4	46	30-150

FORM III SV-1

U1965.D

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Battelle
Project: NEW BEDFORD
PO No:
Sample Date: 08/11/05
Received Date: 08/12/05
Extraction Date: 08/17/05
Analysis Date: 08/26/05
Report Date: 09/01/2005
Matrix: WATER

Lab ID: WG19747-3
Client ID: COMP7 BLANK-AMS
SDG: WV4102
Extracted by: TR
Extraction Method: SW846 3510
Analyst: LRS
Analysis Method: SW846 M8270C
Lab Prep Batch: WG19747
Units: ug/L

COMPOUND	MS SPIKE	SAMPLE CONC.	MS CONC.	%REC.	QC. LIMITS
Pentachlorophenol	2.9	0.0	2.1	73	30-150

KATAHDIN ANALYTICAL SERVICES, INC.

SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) #: [illegible]

PAGE: 1 OF 6

COOLER: 1 OF 6

COC#:

SDG#:

DATE / TIME RECEIVED: 8/12/05 0845

DELIVERED BY: FEDEX

RECEIVED BY: AG

LIMS ENTRY BY: AC

LIMS REVIEW BY / PM: A

CLIENT: Battelle

PROJECT:

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	☑	☐	☐		
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☑	☐	☐		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☑	☐	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☑	☐	☐		
5. TEMPERATURE BLANKS PRESENT?	☑	☐	☐	TEMP BLANK TEMP (°C)= 2.6	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?	☑	☐	☐	COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	☐	☐	☑		
8. TRIP BLANK PRESENT IN THIS COOLER	☐	☑	☐		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☑	☐	☐		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☑	☐	☐		
11. SAMPLES PROPERLY PRESERVED[1]?	☑	☐	☐		
12. CORRECTIVE ACTION REPORT FILED?	☐	☑	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) (COMMERCIAL) CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

[1] Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.

SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) #: _____

PAGE: 2 OF 6

COOLER: 2 OF 6

CLIENT: Battelle

PROJECT: _____

COC#: _____
SDG#: _____
DATE / TIME RECEIVED: 8/12/05 0845
DELIVERED BY: FEDEX
RECEIVED BY: AG
LIMS ENTRY BY: KJC
LIMS REVIEW BY / PM: KJC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	✓				
2.CHAIN OF CUSTODY PRESENT IN THIS COOLER?		✓			
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	✓				
4. CHAIN OF CUSTODY MATCHES SAMPLES?	✓				
5. TEMPERATURE BLANKS PRESENT?	✓			TEMP BLANK TEMP (°C)= 1.6	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?		✓		COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?			✓		
8. TRIP BLANK PRESENT IN THIS COOLER		✓			
9. PROPER SAMPLE CONTAINERS AND VOLUME?	✓				
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	✓				
11. SAMPLES PROPERLY PRESERVED[1]?	✓				
12. CORRECTIVE ACTION REPORT FILED?		✓	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN): _____

LOG - IN NOTES[1]:

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.

SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER): _____

PAGE: 3 OF 6

COOLER: 3 OF 6

COC#: _____
SDG#: _____
DATE / TIME RECEIVED: 8/12/03 0845
DELIVERED BY: FEDEX
RECEIVED BY: AG
LIMS ENTRY BY: MC
LIMS REVIEW BY / PM: MC

CLIENT: Battelle

PROJECT: _____

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	✓				
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?		✓			
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	✓				
4. CHAIN OF CUSTODY MATCHES SAMPLES?	✓				
5. TEMPERATURE BLANKS PRESENT?	✓			TEMP BLANK TEMP (°C)= -1.3	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?		✓		COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?			✓		
8. TRIP BLANK PRESENT IN THIS COOLER		✓			
9. PROPER SAMPLE CONTAINERS AND VOLUME?	✓				
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	✓				
11. SAMPLES PROPERLY PRESERVED[1]?	✓				
12. CORRECTIVE ACTION REPORT FILED?		✓	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) (COMMERCIAL) CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN): _____

LOG - IN NOTES[1]:

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) #: [illegible]

PAGE: 4 OF 6

COOLER: 4 OF 6

CLIENT: Battelle

PROJECT:

COC#:
SDG#:
DATE / TIME RECEIVED: 8/12/05 0845
DELIVERED BY: FEDEX
RECEIVED BY: KO
LIMS ENTRY BY: KC
LIMS REVIEW BY / PM: KC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	✓				
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?		✓			
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	✓				
4. CHAIN OF CUSTODY MATCHES SAMPLES?	✓				
5. TEMPERATURE BLANKS PRESENT?	✓			TEMP BLANK TEMP (°C)= 3.6	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?	✓	✓		COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?			✓		
8. TRIP BLANK PRESENT IN THIS COOLER		✓			
9. PROPER SAMPLE CONTAINERS AND VOLUME?	✓				
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	✓				
11. SAMPLES PROPERLY PRESERVED[1]?	✓				
12. CORRECTIVE ACTION REPORT FILED?		✓	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

[1] Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.

SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

PAGE: 5 OF 6

COOLER: 5 OF 6

CLIENT: Battelle

PROJECT:

COC#:
SDG#:
DATE / TIME RECEIVED: 8/12/05 0845
DELIVERED BY: FEDEX
RECEIVED BY: AO
LIMS ENTRY BY: AC
LIMS REVIEW BY / PM: AC

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	✓				
2. CHAIN OF CUSTODY PRESENT IN THIS COOLER?		✓			
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	✓				
4. CHAIN OF CUSTODY MATCHES SAMPLES?	✓				
5. TEMPERATURE BLANKS PRESENT?	✓			TEMP BLANK TEMP (°C)= 22	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?	✓			COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?			✓		
8. TRIP BLANK PRESENT IN THIS COOLER		✓			
9. PROPER SAMPLE CONTAINERS AND VOLUME?	✓				
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	✓				
11. SAMPLES PROPERLY PRESERVED[1]?	✓				
12. CORRECTIVE ACTION REPORT FILED?		✓	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) (COMMERCIAL) CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT

Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER): WV4102

PAGE: 6 OF 6

COOLER: 6 OF 6

COC#:
SDG#:
DATE / TIME RECEIVED: 8/12/05 08:30
DELIVERED BY: FedEx
RECEIVED BY: AC
LIMS ENTRY BY: KIC
LIMS REVIEW BY / PM: KC

CLIENT: Battelle

PROJECT:

	YES	NO	EXCEPTIONS	COMMENTS	RESOLUTION
1. CUSTODY SEALS PRESENT / INTACT?	☒	☐	☐		
2.CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☒	☐	☐		
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☒	☐	☐		
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☒	☐	☐		
5. TEMPERATURE BLANKS PRESENT?	☒	☐	☐	TEMP BLANK TEMP (°C)= 2.9	
6. SAMPLES RECEIVED AT 4°C +/-2? ICE / ICE PACKS PRESENT (Y) or N?	☒	☐	☐	COOLER TEMP (°C)= NA (RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)	
7. VOLATILES FREE OF HEADSPACE?	☐	☐	☒		
8. TRIP BLANK PRESENT IN THIS COOLER	☐	☒	☐		
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☒	☐	☐		
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☒	☐	☐		
11. SAMPLES PROPERLY PRESERVED[1]?	☒	☐	☐		
12. CORRECTIVE ACTION REPORT FILED?	☐	☒	N/A		

13. ANALYTICAL PROGRAMS (CIRCLE ONE) (COMMERCIAL) CLP HAZWRAP NFESC ACOE AFCEE OTHER (STATE OF ORIGIN):

LOG - IN NOTES[1]:

[1] Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Page ____ of ____

Client: BATTELLE
Contact: LISA LEFKOVITZ
Phone #: (781) 952-5270
Fax #: ( )
Address: 397 WASHINGTON ST.
City: DUXBURY
State: MA
Zip Code: 02332
Purchase Order #:
Proj. Name / No.: NEW BEDFORD
Katahdin Quote #:
Bill (if different than above):
Address:
Sampler (Print / Sign): EST, HAMPTON, NH
Copies To:

LAB USE ONLY
WORK ORDER #: WV4102
KATAHDIN PROJECT NUMBER ____

REMARKS: ____

SHIPPING INFO: ☒ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO: ____
TEMP°C ____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

#	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	COMP 1 A,C,D,E	8/9/05												
	COMP 2 1,2,3	8/9/05												
	COMP 3 H,J	8/9/05												
	COMP 4 L,M,N	8/9/05												
	COMP 5 O-BB	8/10/05												
	COMP 6 CC-KK	8/10/05												
	COMP 7 FF-JJ	8/10/05												
	COMP 8 F-K	8/10/05												
	COMP 1 A,C,D,E BLANK	8/11/05												
	COMP 2 1,2,3 "	8/11/05												
	COMP 3 H,J "	8/11/05												
	COMP 4 L,M,N "	8/11/05												
	COMP 5 O-BB "	8/11/05												
	COMP 6 CC-KK "	8/11/05												
	COMP 7 FF-JJ "	8/11/05												
	COMP 8 F-K "	8/10/05												

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
T. Kaebel	8/11/05 6:00 PM	A. Gurney 8/12/05 08:45			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Page ____ of ____

Client: BATTELLE
Contact: LISA LEFKOVITZ
Phone #: (781) 952-5370
Fax #: ( )
Address: 397 WASHINGTON ST.
City: DUXBURY
State: MA
Zip Code: 02332
Purchase Order #:
Proj. Name / No.: NEW BEDFORD
Katahdin Quote #:
Bill (if different than above):
Address:
Sampler (Print / Sign): EST. HAMPTON, NH
Copies To:

LAB USE ONLY WORK ORDER #: WV4102
KATAHDIN PROJECT NUMBER ____

REMARKS: ____

SHIPPING INFO: ☒ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO: ____
TEMP°C ____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	COMP 1 A, C, D, E	8/9/05		3										
	COMP 2 1, 2, 3	8/9/05		4										
	COMP 3 H, J	8/9/05		4										
	COMP 4 L, M, N	8/9/05		4										
	COMP 5 O-BB	8/10/05		4										
	COMP 6 CC-KK	8/10/05		4										
	COMP 7 FF-JJ	8/10/05		4										
	COMP 8 F-K	8/10/05		8	MS/MSD									
	COMP 1 A, C, D, E BLANK	8/11/05		6	MS/MSD									
	COMP 2 1, 2, 3 "	8/11/05		4										
	COMP 3 H, J "	8/11/05		4										
	COMP 4 L, M, N "	8/11/05		4										
	COMP 5 O-BB "	8/11/05		4										
	COMP 6 CC-KK "	8/11/05		4										
	COMP 7 FF-JJ "	8/11/05		7	MS/MSD									
	COMP 8 F-K "	8/10/05		4										

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
[signature]	8/11/05 1600	8/12/05 A. Hunter 08:45			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Aug. 12, 2005
10:53 AM

Login Number: WV4102

Account: BATTEL002
Battelle

NoWeb

Project: BATTELPCP001

Primary Report Address:
Lisa Lefkovitz
Battelle
397 Washington St.

Duxbury,MA 02332

Primary Invoice Address:
Accounts Payable
Battelle
505 King Ave.

Columbus,OH 43201-2693

Report CC Addresses:
Invoice CC Addresses:

Login Information

ANALYSIS INSTRUCTIONS	:	EXT-need acid extraction for SIM pentachlorophenol only.
CHECK NO.	:	
CLIENT PO#	:	200251
COOLER TEMPERATURE	:	
DELIVERY SERVICES	:	FEDEX
EDD FORMAT	:	KAS079QC-XLS
MAIL DATE	:	
PM	:	AJC
PROJECT NAME	:	NEW BEDFORD
QC LEVEL	:	II+
REGULATORY LIST	:	
REPORT INSTRUCTIONS	:	Include narrative.
SDG ID	:	
SDG STATUS	:	

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-1	COMP1 A,C,D,E-A	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		1		
WV4102-2	COMP1 A,C,D,E-B	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		1		
WV4102-3	COMP1 A,C,D,E-C	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		1		
WV4102-4	COMP2 1,2,3-A	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-5	COMP2 1,2,3-B	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-6	COMP2 1,2,3-C	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-7	COMP3 H,J-A	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-8	COMP3 H,J-B	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-9	COMP3 H,J-C	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-10	COMP4 L,M,N-A	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Aug. 12, 2005
10:53 AM

Login Number: WV4102

Account: BATTEL002 NoWeb
Battelle

Project: BATTELPCP001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-11	COMP4 L,M,N-B	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-12	COMP4 L,M,N-C	09-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	16-AUG-05	1L N-Amber Glass		2		
WV4102-13	COMP5 O-BB-A	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-14	COMP5 O-BB-B	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-15	COMP5 O-BB-C	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-16	COMP6 CC-KK-A	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-17	COMP6 CC-KK-B	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-18	COMP6 CC-KK-C	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-19	COMP7 FF-JJ-A	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-20	COMP7 FF-JJ-B	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-21	COMP7 FF-JJ-C	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-22	COMP8 F-K-A	10-AUG-05 00:00	12-AUG-05			01-SEP-05	MS/MSD
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	MS/MSD-SVOA						
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		6		
WV4102-23	COMP8 F-K-B	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		4		
WV4102-24	COMP8 F-K-C	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		4		

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Aug. 12, 2005
10:53 AM

Login Number: WV4102

Account: BATTEL002 NoWeb
Battelle

Project: BATTELPCP001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-25	COMP1 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	MS/MSD

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	MS/MSD-SVOA			
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	4

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-26	COMP1 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-27	COMP1 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-28	COMP2 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-29	COMP2 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-30	COMP2 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-31	COMP3 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-32	COMP3 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-33	COMP3 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-34	COMP4 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-35	COMP4 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-36	COMP4 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-37	COMP5 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-38	COMP5 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count
Aqueous	S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass	2

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Aug. 12, 2005
10:53 AM

Login Number: WV4102

Account: BATTEL002 NoWeb
Battelle

Project: BATTELPCP001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Comments
WV4102-39	COMP5 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-40	COMP6 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-41	COMP6 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-42	COMP6 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-43	COMP7 BLANK-A	11-AUG-05 00:00	12-AUG-05			01-SEP-05	MS/MSD
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	MS/MSD-SVOA						
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		5		
WV4102-44	COMP7 BLANK-B	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-45	COMP7 BLANK-C	11-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	18-AUG-05	1L N-Amber Glass		2		
WV4102-46	COMP8 BLANK-A	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-47	COMP8 BLANK-B	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		
WV4102-48	COMP8 BLANK-C	10-AUG-05 00:00	12-AUG-05			01-SEP-05	
Matrix	*Product*	*Hold Date (shortest)*	*Bottle Type*		*Bottle Count*		
Aqueous S	SW8270SIM-S	17-AUG-05	1L N-Amber Glass		2		

Total Samples: ***48*** ***Total Analyses:*** ***51***

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Appendix G

Acute Suspended Particulate Phase Assays

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US ARMY CORPS
OF ENGINEERS
New England District

Contract No. DACW33-01-D-0004
Delivery Order No. 16
October 2005

Report

Laboratory Testing in support of Environmental Assessment and Testing: New Bedford Harbor

Acute Suspended Particulate Phase Assays

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TOXICOLOGICAL EVALUATION
OF A PROPOSED DREDGE SEDIMENT:

New Bedford Harbor Tier III Sediment Evaluation
New Bedford, Massachusetts

Acute Suspended Particulate Phase Assays

Prepared For:

Battelle, Inc.
397 Washington Street
Duxbury, Massachusetts 02332-0601

By

EnviroSystems, Incorporated
One Lafayette Road
Hampton, New Hampshire 03842

October 2005
Reference 13569-05-08

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1.0 INTRODUCTION

As part of a comprehensive plan to reduce adverse environmental impacts of ocean dumping, Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, specifies that all sediments to be discharged into ocean waters must be evaluated to define their potential impact on existing benthic communities. The United States Environmental Protection Agency (U.S. EPA) has determined that the most effective means to make such an assessment is through the use of bioassay tests which provide a relatively direct estimate of potential impact.

Laboratory testing conducted for this project was designed to evaluate proposed dredged sediment for disposal at an approved offshore disposal site. Protocol for tests conducted as part of the evaluation followed procedures established by the U.S. EPA and the U.S. ACOE for testing of dredge material. Procedures are presented in "Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual" (U.S. EPA, Corps of Engineers 1991), “Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters” (U.S. EPA, Corps of Engineers 2004), and “Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Test Manual” (U.S. EPA, Corps of Engineers 1994). Acute Suspended Particulate Phase (SPP) testing was conducted using the mysid shrimp, *Americamysis bahia*, inland silverside, *Menidia beryllina*, and larvae of the sea urchin, *Arbacia punctulata*. Toxicity testing and supporting analytical chemistry were conducted at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

2.0 MATERIALS AND METHODS

2.1 Sample Collection

Sediment samples for toxicological analysis were collected from the dredge footprint proposed project by Battelle staff between July 28 and 30, 2005. The samples were received on August 01, 2005 in 2.5 gallon polyethylene buckets. Prior to toxicological analysis, the samples were composited at Battelle based on the compositing scheme provided by the U.S. Army Corps of Engineers. Reference water was collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) reference sites on July 29 and 30, 2005, respectively. Upon arrival at the laboratory, all samples received an internal sample control number and were logged into the project sample control system. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 2-4°C until test initiation. Sample identification, collection and receipt information is summarized in Table 1.

Water for the internal laboratory control was obtained from the Hampton Estuary, Hampton, New Hampshire. Water from this source has been used for culture and maintenance of test organisms at ESI since 1978. Seawater is obtained through a filter system located on the bottom of the estuary at a point approximately 1 mile from the open ocean. The estuary receives no direct industrial discharges and the water is classified as SA-1.

2.2 SPP/ Elutriate Sample Preparation

The SPP/ Elutriate sample was prepared by placing one volume of test sediment and four volumes of overlying site water into a 30 liter glass container and mixing with a mechanical stirring device for 30 minutes. Speed of the stirring motor was set so that the sample did not cavitate, entrain air, and/or oxidize. At the end of the 30 minute period, the sediment/water

mixture was allowed to settle for one hour and the elutriate was siphoned off for biological and /or chemical evaluation. If a sample was sufficiently turbid to prevent clear observations of the test organisms, the sample was centrifuged at 3000 rpm for 15 minutes to remove excess suspended sediment levels.

Test concentrations were mixed by diluting the SPP sample with the diluent water collected from the RISDS and BBDS disposal sites. Test concentrations for all assays were 100% undiluted, 50%, 10% and 1% SPP. Diluent controls were included to verify the relative toxicity of the reference sites and a Hampton Estuary control was included to verify the relative health of the test organisms

2.3 Test Species

A. bahia, 3-5 days old, were obtained from cultures maintained by ESI. Prior to use, test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. Organisms were transferred to test vessels using a large bore pipet to minimize the amount of water added to test solutions.

M. beryllina, 10 days old, were obtained from Aquatic Research Organisms, ARO, Hampton, New Hampshire. Prior to use, test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. Fish were transferred to the test beakers using a large bore pipet to minimize the amount of culture water added to the test solution. Twenty representative fish, measured at the start of the assay, were used to determine loading rates, data is provided in the data appendix. The loading rate was <0.40 g/L suggested for acute assays (EPA 2002).

Adult *A. punctulata* were from cultures maintained by ESI. Original stock was obtained from a commercial supply. Adult sea urchins are maintained in the laboratory for up to six months prior to use. Urchins may be spawned several times during this period. Male and female urchins are maintained in separate chambers. Adult sea urchins were maintained in culture at a temperature of approximately 20±3°C during culture.

2.4 Suspended Particulate Phase Assays

Due to the number of samples being evaluated, suspended particulate phase assays were conducted in two (2) series of assays. The first series of assays was started on August 3, 2005. The second series was started on August 4, 2005. Table 3 provides a summary of SPP preparation and assay start dates.

2.4.1 Acute SPP Evaluations - *A. bahia* and *M. beryllina*

The 96 hour static acute toxicity tests were conducted at 20±2°C with a photoperiod of 16:8 hours light:dark. Test chambers were 250 mL glass beakers each containing 200 mL of test solution in each of 5 replicates with 10 organisms/replicate. Survival in all test replicates was recorded after 4, 8, 24, 48, 72, and 96 hours of exposure. Dissolved oxygen, pH, temperature, and salinity were measured daily in one replicate of each treatment. *A. bahia* and *M. beryllina* were fed daily throughout testing.

2.4.2 Embryo Survival and Development SPP Evaluation - *A. punctulata*

The *A. punctulata* embryo survival and development test was conducted at 20±2°C with a photoperiod of 16:8 hours light:dark. Test chambers for the acute assay were 250 mL glass beakers containing 200 mL test solution in each of 5 replicates. Dissolved oxygen, pH, temperature, and salinity were measured in all replicates at the start and end of the test. Gametes were obtained by potassium chloride injection to induce spawning. Gametes were collected dry and diluted with filtered laboratory seawater to yield a desired concentration of approximately 5 x 10^7 sperm/mL and 8500 eggs/mL. Fertilization success was monitored 15 minutes later, and the density of embryos calculated. Based on embryo density counts, aliquots of the stock solution were added to each test vessel to achieve a final concentration of approximately 30 embryos/mL of SPP solution. Details of egg/sperm dilutions and spawning/fertilization times are provided in the data appendix. Prior to transferring embryos from the holding vessel to the individual test vessels, the embryo stock solution was thoroughly homogenized to ensure even distribution. Embryo counts in three surrogate vessels were conducted just after the addition of the embryos to determine the actual embryo concentration in the final SPP solutions.

Observations in surrogate vessels were also used to determine the endpoint of the test. The test is terminated when 70% of the fertilized embryos in the control vessels have reached the pluteus larval stage (between 48 and 96 hours). The tests were terminated after approximately 72 hours. At the end of the assay the test solution was gently homogenized to insure even distribution of the embryos and a 5 mL aliquot of each test replicate was removed and placed in a vial. The solution was preserved with 5µl of 10% buffered formalin solution and counted to determine survival and normal development. Survival percentages were calculated as surviving larvae in the 5 mL aliquot at 72 hours divided by the mean number of embryos counted in the laboratory control at the end of the assay.

2.5 Data Analysis

Statistical analysis of acute and chronic exposure data was completed using CETIS, Comprehensive Environmental Toxicity Testing System, software. The program computes acute exposure endpoints, LC and EC-50 values, plus Inhibition and No Effect Concentrations (NOEC) based on EPA decision tree guidelines specified in individual test methods. For No Effect Concentration endpoints statistical significance was accepted at % <0.05.

2.6 Quality Control

As part of the laboratory quality control program standard reference toxicant assays are conducted on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. A summary of acute exposure reference toxicant assays conducted in support of this study is provided in Table 2.

2.7 Protocol Deviations

Review of the data and procedures associated with these tests documented no deviations from established protocols.

3.0 RESULTS AND DISCUSSION

A summary of endpoints and adverse effects on each species is provided in Tables 4 and 5. Support data including bench sheets, statistical analysis reports and supplemental water quality data (total and unionized ammonia) are provided in Appendix A.

3.1 Acute SPP Evaluations - Laboratory and Site Diluent Controls

At the end of the 96 hour exposure period, *A. bahia* survival in the Hampton Estuary control treatment for the two series of assays was 98% and 94%. This meets the minimum test acceptability criteria of 90% survival and is an indication that the test organisms were healthy and not stressed by handling. At the end of the 96-hour exposure periods, mean mysid survival in the BBDS diluent control was 98% and 100%. At the end of the 96-hour exposure period, mean mysid survival in the RISDS diluent control was 100% for both assays. These results indicate that seawater from the disposal site used to dilute the suspended particulate phase solutions had no adverse impact on the outcome of the assays.

At the end of the 96 hour exposure period *M. beryllina* survival in the Hampton Estuary control treatment for the two series of assay was 92% for both assays. This meets the minimum test acceptability criteria of 90% survival and is an indication that the test organisms were healthy and not stressed by handling. At the end of the 96-hour exposure period, mean minnow survival in the BBDS diluent control was 94% and 92%. At the end of the 96-hour exposure period, mean minnow survival in the RISDS diluent control was 98% and 80%.

Counts made in the Hampton Estuary laboratory surrogate test vessels at the initiation of the *A. punctulata* assays indicate an average initial embryo concentration of 33.2 and 30.2 embryos/mL for the assays. The majority of the larvae (>70%) reached the pluteus larval stage approximately 72 hours after the start of the assays.

For the initial series of assays, counts in the Hampton Estuary control treatment showed 90.1% of the embryos survived after 72 hours with 88.7% of the surviving embryos showing normally developed pluteus larvae. For the second series of assays, counts in the Hampton Estuary control treatment showed that 76.2% of the embryos survived after 72 hours with 75.6% of the original embryos being normally developed pluteus larvae. In both series of assays survival and development results meet minimum acceptability criteria of 70% embryo survival and 70% normal development.

Counts of the BBDS diluent controls show that an average of 64.9% and 97.0% of the embryos survived and that 64.8% and 97.0% of the original embryos developed into normal pluteus larvae for the two sets of assays. Counts of embryos in the RISDS diluent control for the single set of assays showed that an average of 82.1% of the embryos survived and that 81.5% of the original embryos developed into normal pluteus larvae. These results indicate that the water from the disposal site used to dilute the suspended particulate phase solutions had no adverse impact on the outcome of the assay.

3.2 Summary

The SPP solutions prepared from the 8 New Bedford Harbor project site composite sediments and diluted with water from either the BBDS or RISDS reference sites did not have an adverse impact on the survival of the mysid shrimp, *Americamysis bahia*. Survival of *Menidia beryllina* was significantly impacted after 96-hours exposure to SPP solutions prepared from 4

of the project site composites, composites 1, 2, 4 and 5. Survival and normal development of the sea urchin larvae, *Arbacia punctulata* larvae were both significantly impacted by exposure to all 8 of the composite sediment SPP solutions.

4.0 REFERENCES

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater*, 20th edition. Washington D.C.

U.S. EPA Region I, U.S. Army Corps of Engineers, New England Division. 2002. Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters. Draft Document Dated September 2002, 139 Pages.

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U.S. EPA, U.S. Army Corps of Engineers. 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual.* EPA-503/8-91/001, February 1991, 204 pages.

U.S. EPA, U.S. Army Corps of Engineers. 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual*. EPA-823-B-98-004, February 1998.

U.S. EPA. 2002. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*. Fifth Edition. EPA-821-R-02-012.

TABLE 1. Summary of Sample Collection Information. Suspended Particulate Phase Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Field ID	Matrix	Collection	Receipt	ESI Reference
EAG-1001-I (Comp 1)	Sediment	07/29/05	08/01/05	13569-001
EAG-1002-I (Comp 8)	Sediment	07/29/05	07/29/05	13569-008
EAG-1003-I (Comp 3)	Sediment	07/27/05	08/01/05	13569-003
EAG-1004-I (Comp 4)	Sediment	07/28/05	07/29/05	13569-004
EAG-1005-I (Comp 5)	Sediment	07/27/05	08/01/05	13569-005
EAG-1006-I (Comp 6)	Sediment	07/27/05	08/01/05	13569-006
EAG-1007-I (Comp 7)	Sediment	07/28/05	07/29/05	13569-007
EAG-1008-I (Comp BBDS)	Sediment	07/30/05	08/01/05	13569-010
EAG-1009-I (Comp RISDS)	Sediment	07/29/05	08/01/05	13569-009
EAG-1010-I (Comp 2)	Sediment	07/28/05	07/29/05	13569-002
Site A,C,D,E Comp	Water	07/28/05	07/29/05	13569-011
Site F,G,I,K Comp	Water	07/28/05	07/29/05	13569-012
Site H,J Comp	Water	07/28/05	07/29/05	13569-013
Site O,P,Q,R,S,T,U,V,W,X,Y,AA,BB Comp	Water	07/28/05	07/29/05	13569-014
Site CC,DD,GG,HH,LL,MM,KK Comp	Water	07/28/05	07/29/05	13569-015
Site EE,FF,II,JJ Comp	Water	07/28/05	07/29/05	13569-016
Site 1,2,3 Comp	Water	07/28/05	07/29/05	13569-017
Site L,M,N Comp	Water	07/28/05	07/29/05	13569-018
EAG-051; RISDS Comp Water	Water	07/29/05	08/01/05	13569-019
EAG-056; BBDS Comp Water	Water	07/30/05	08/01/05	13569-020

TABLE 2. Reference Toxicant Data Summary. Suspended Particulate Phase Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Reference Toxicant: Copper (mg/L)							
Species	Endpoint	Date	Value	Historic Mean	Number of Tests	±1 Std Deviation	± 2 Std Deviations
A. bahia	LC-50	08/04/05	23.44	4.14	20	1.77	3.55
M. beryllina	LC-50	08/04/05	7.07	3.15	20	4.27	8.54
A. punctulata	EC-50	08/04/05	0.30	0.44	24	0.33	0.65

TABLE 3. Elutriate Solution Preparation. Suspended Particulate Phase Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Composite Sample ID	Elutriate Preparation Date	Test Species	Assay Start	Assay End
Composite 1	08/02/05	A. bahia	08/03/05	08/07/05
		M. beryllina	08/03/05	08/07/05
	08/03/05	A. punctulata	08/04/05	08/07/05
Composite 2	08/02/05	A. bahia	08/03/05	08/07/05
		M. beryllina	08/03/05	08/07/05
	08/03/05	A. punctulata	08/04/05	08/07/05
Composite 3	08/02/05	A. bahia	08/03/05	08/07/05
		M. beryllina	08/03/05	08/07/05
	08/03/05	A. punctulata	08/04/05	08/07/05
Composite 4	08/02/05	A. bahia	08/03/05	08/07/05
		M. beryllina	08/03/05	08/07/05
	08/03/05	A. punctulata	08/04/05	08/07/05
Composite 5	08/03/05	A. bahia	08/05/05	08/08/05
		M. beryllina	08/04/05	08/08/05
		A. punctulata	08/04/05	08/07/05
Composite 6	08/03/05	A. bahia	08/05/05	08/08/05
		M. beryllina	08/04/05	08/08/05
		A. punctulata	08/04/05	08/07/05
Composite 7	08/03/05	A. bahia	08/05/05	08/08/05
		M. beryllina	08/04/05	08/08/05
		A. punctulata	08/04/05	08/07/05
Composite 8	08/03/05	A. bahia	08/05/05	08/08/05
		M. beryllina	08/04/05	08/08/05
		A. punctulata	08/04/05	08/07/05

TABLE 4. Summary of Endpoints and Adverse Effects. Suspended Particulate Phase Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Sample ID	*Americamysis*	*Menidia beryllina*	*Arbacia punctulata*	
RISDS Diluent	**LC-50 Endpoint**	**LC-50 Endpoint**	**LC-50 Endpoint**	**EC-50 Endpoint**
Composite 1 (-001)	>100%	>100%	23.0%	13.7%
Composite 2 (-002)	>100%	>100%	24.7%	17.9%
Composite 3 (-003)	>100%	>100%	>100%	52.6%
Composite 4 (-004)	>100%	82.3%	11.6%	10.0%
Composite 5 (-005)	>100%	>100%	20.7%	16.2%
Composite 6 (-006)	>100%	>100%	20.6%	16.4%
Composite 7 (-007)	>100%	>100%	19.7%	15.3%
Composite 8 (-008)	>100%	>100%	23.1%	14.2%
RISDS Diluent	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	
Composite 1 (-001)	100%	10%	10%	
Composite 2 (-002)	100%	<1%	1%	
Composite 3 (-003)	100%	100%	1%	
Composite 4 (-004)	100%	10%	1%	
Composite 5 (-005)	100%	<1%	<1%	
Composite 6 (-006)	100%	100%	<1%	
Composite 7 (-007)	100%	100%	1%	
Composite 8 (-008)	100%	100%	1%	

Notes:

An “Adverse Effect” was considered to have occurred when there was a significant (p=<0.05) difference in survival between the SPP elutriate and the reference site diluent. The NOEC values identifies the lowest concentration not exhibiting a significant negative impact. NOEC of 100% signifies no significant adverse effect.

TABLE 5. Summary of Endpoints and Adverse Effects. Suspended Particulate Phase Evaluation. New Bedford Harbor Tier III Sediment Evaluation. August 2005.

Sample ID	*Americamysis bahia*	*Menidia beryllina*	*Arbacia punctulata*	
BBDS Diluent	**LC-50 Endpoint**	**LC-50 Endpoint**	**LC-50 Endpoint**	**EC-50 Endpoint**
Composite 1 (-001)	>100%	>100%	30.3%	18.7%
Composite 2 (-002)	>100%	>100%	35.6%	22.6%
Composite 3 (-003)	>100%	>100%	>100%	58.4%
Composite 4 (-004)	>100%	89.3%	27.6%	22.4%
Composite 5 (-005)	>100%	>100%	21.8%	14.5%
Composite 6 (-006)	>100%	>100%	8.0%	5.2%
Composite 7 (-007)	>100%	>100%	32.7%	11.1%
Composite 8 (-008)	>100%	>100%	15.9%	9.2%
BBDS Diluent	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	**Adverse Effect (NOEC)**	
Composite 1 (-001)	100%	10%	10%	
Composite 2 (-002)	100%	50%	10%	
Composite 3 (-003)	100%	100%	50%	
Composite 4 (-004)	100%	50%	10%	
Composite 5 (-005)	100%	100%	<1%	
Composite 6 (-006)	100%	100%	<1%	
Composite 7 (-007)	100%	100%	<1%	
Composite 8 (-008)	100%	100%	<1%	

Notes:

An “Adverse Effect” was considered to have occurred when there was a significant (p=<0.05) difference in survival between the SPP elutriate and the reference site diluent. The NOEC values identifies the lowest concentration not exhibiting a significant negative impact. NOEC of 100% signifies no significant adverse effect.

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APPENDIX A

RAW DATA & SUPPORT

(Data available on CD only)

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APPENDIX A

RAW DATA & SUPPORT

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Appendix H

10-Day Toxicity Test

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Appendix H - 1

Solid Phase Assay Report

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US ARMY CORPS
OF ENGINEERS
New England District

Contract No. DACW33-01-D-0004
Delivery Order No. 16
October 2005

10 Day Solid Phase Assays

New Bedford Harbor Tier III Sediment Evaluation New Bedford, Massachusetts

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10 Day Solid Phase Assays

New Bedford Harbor Tier III Sediment Evaluation
New Bedford, Massachusetts

Prepared For:

Battelle, Inc.
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Prepared By:

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October 2005
Reference 13569-05-08

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APPENDIX A: Raw Data

LABORATORY STANDARDS STATEMENT

This study was performed by EnviroSystems, Incorporated at its facility in Hampton, New Hampshire. EnviroSystems' laboratory is accredited by the State of New Hampshire under the National Environmental Laboratory Accreditation (NELAC) program. All testing conducted by EnviroSystems as part of this program was compliant with NELAC guidelines and standards. Additionally, this study was conducted in accordance with guidelines presented in the 2004 version of the New England District's Regional Implementation Manual (RIM) for Evaluation of Dredged Material Proposed for Disposal In New England Waters. Any deviations from specific elements of the RIM are detailed in the Protocol Deviation Section of this Report.

For EnviroSystems, Inc._____ October 1, 2005

Kenneth A. Simon — Date

Technical Director

1.0 INTRODUCTION

As part of a comprehensive plan to reduce adverse environmental impacts of ocean dumping, Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 specifies that all sediments to be discharged into ocean waters must be evaluated to define their potential impact on existing benthic communities. The United States Environmental Protection Agency (U.S. EPA) has determined that the most effective means to make such an assessment is through the use of bioassay tests which provide a relatively direct estimate of potential impact.

This project was designed to evaluate the potential toxicity of sediments from the area of dredging proposed by the Corps of Engineers New England District as part of the New Bedford Harbor Maintenance Dredging Program, New Bedford, Massachusetts. Testing involved conduct of acute exposure 10 day mysid shrimp, *Americamysis bahia*, and 10 day amphipod, *Ampelisca abdita*, assays. Testing followed procedures established by the U.S. EPA and the U.S. Army Corps of Engineers (USACE) for testing of dredged material. Procedures are presented in "Guidance for Performing Tests on Dredged Material to be Disposed of in Open Waters" (U.S. EPA, USACE 2004), "Evaluation of Dredged Material Proposed for Ocean Disposal" (U.S. EPA, USACE 1991) and "Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual" (U.S. EPA, USACE 1994).

2.0 MATERIALS AND METHODS

2.1 Sample Collection, Preservation and Storage

Sediment samples for toxicological analysis were collected from the proposed dredge footprint by Battelle staff between July 28 and 30, 2005. The samples were received on August 01, 2005 in 2.5 gallon polyethylene buckets. Prior to toxicological analysis, the samples were composited at Battelle based on the compositing scheme provided by the U.S. Army Corps of Engineers. Reference sediment was collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) reference sites on July 29 and 30, 2005, respectively. Upon arrival at the laboratory, all samples received an internal sample control number and were logged into the project sample control system. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 2-4deg C until test initiation. Sample identification, collection and receipt information is summarized in Table 1.

Control sediment used in the *A. abdita* assay was provided by Aquatic Research Organisms Inc. (ARO) of Hampton, New Hampshire. The control sediment used in the *A. bahia* assays was an artificial sediment consisting primarily of silica sand prepared at ESI. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 24EC until test initiation.

2.2 Bioassay Procedures

2.2.1 Acute Exposure Solid Phase *A. bahia* Evaluation

Project, reference and control sediments were all sieved through a two mm screen to remove macroinvertebrates, large shell hash, and rocks prior to use in the assays.

Before mysids were added to the test vessels, ammonia levels in the overlying water were determined. If the level of ammonia in the overlying water was >20 mg/L, the sediments were "washed" to reduce ammonia levels. Sediment washing involved removing the overlying water in the test chamber and replacing it with fresh overlying water. In cases where the level of ammonia was <20 mg/L, the sample was not "washed" prior to testing.

The acute exposure toxicity tests were conducted using *A. bahia* obtained from ESI. Prior to use, test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. *A. bahia* used in the assay were 4 days old at the start of the test.

The assay was conducted in a static renewal mode. Test chambers were 1 liter beakers modified for static renewal testing. Each beaker contained approximately 4 cm of sediment and was filled to the 1 liter mark with seawater. The test chambers were allowed to stabilize for a minimum of 24 hours, or until unionized ammonia levels were within acceptable limits, prior to the addition of the test organisms. A total of 20 mysids were randomly selected from the pool of organisms and added to each treatment, reference, and control beaker. Five replicates were used for each treatment.

Each day during the test, chambers received approximately 50% renewal of seawater having similar salinity and temperature as the overlying water in the vessels. Water temperature was 20±2 deg C, and the salinity regimen was established at 30±2‰. The photoperiod was set at 16:8 hours light:dark. Dissolved oxygen, pH, salinity and temperature were measured in one replicate of each treatment daily and in all replicates on days 0 and 10. Ammonia levels were measured in the overlying water of a surrogate test chamber on days 0, 3 and 10. Dissolved oxygen levels were maintained at 4.0 mg/L or greater, and aeration was initiated if values fell below this threshold. If aeration was required, it was applied to all test vessels. Water quality measurements were completed prior to water renewals. Test chambers were observed daily and any organisms found floating on the surface were noted on the data sheets. After 10 days of exposure, the organisms were recovered from the sediments.

The *A. bahia* assay was conducted from August 05-14, 2005.

2.2.2 Acute Exposure Solid Phase *A. abdita* Evaluation

Project, reference and control sediments were all sieved through a two mm screen to remove macroinvertebrates, large shell hash, and rocks prior to use in the assays.

Before amphipods were added to the test vessels, ammonia levels in the sediment pore water were determined. If the level of ammonia in the pore water was >20 mg/L, or 0.4 mg/L as unionized ammonia, the sediments were "washed" to reduce ammonia levels. Sediment washing involved removing the overlying water in the test chamber and replacing it with fresh

overlying water. In cases where the level of total ammonia in the sediment pore water was <20 mg/L, or 0.4 mg/L as unionized ammonia, the sample was not “washed” prior to testing.

The acute exposure assay was conducted using *A.abdita* provided by ARO. Prior to use, test organisms were held for a minimum of 2 hours under temperature, salinity, and photoperiod conditions similar to those used in the assay. *A. abdita* received from ARO on August 20, 2005 were non-reproductive adults, between 0.71 and 1.18 mm in length.

The assay was conducted in static renewal mode. Test chambers were 1 liter beakers modified for static renewal testing. Each beaker contained approximately 4 cm of sediment and was filled to the 1 liter mark with seawater. The test chambers were allowed to stabilize for a minimum of 24 hours, or until ammonia levels were within acceptable limits, prior to the addition of the test organisms. A total of 20 amphipods were randomly selected from the pool of organisms and added to each treatment, reference, and control beaker. Five replicates were used for each treatment.

Each day during the test, chambers received approximately 50% renewal of seawater having similar salinity and temperature as the overlying water in the vessels. Water temperature was 20±2degC, and the salinity regimen was established at 30±2‰. The photoperiod was set at 24:0 hours light:dark. Dissolved oxygen, pH, salinity and temperature were measured in one replicate of each treatment daily and in all replicates on days 0 and 10. Ammonia levels were measured in pore water and overlying water in a surrogate test chamber on days 0, 5 and 10. Dissolved oxygen levels were maintained at 4.0 mg/L or greater, and aeration was initiated if values fell below this threshold. If aeration was required, it was applied to all test vessels. Water quality measurements were completed prior to water renewals. Test chambers were observed daily and any organisms found floating on the surface were noted on the data sheets. Dead animals were removed from the test chambers and live animals were counter sunk. After 10 days of exposure, the organisms were recovered from the sediments.

The *A. abdita* assay was conducted from August 05-14, 2005.

2.3 Statistical Analysis

Survival data were analyzed using CETIS® software to determine significant differences between the project sediments and reference sites. Statistical comparisons for each sample were made against each reference site. Survival data were evaluated to determine homogeneity of sample variances and normality of distribution using appropriate statistics. Data sets were subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Pair-wise comparisons were based on the appropriate statistical analysis. Statistical difference was evaluated at ∀=0.05.

2.4 Quality Control

As part of the laboratory quality control program, standard reference toxicant assays were conducted for each test species. These results, Table 2, provided relative health and response data while allowing for comparison with historic data sets. Additionally, survival of the test organisms in the laboratory control treatment is summarized in the data appendix.

2.5 Protocol Deviations

Review of the data collected for these assays documented no protocol deviations.

3.0 RESULTS AND DISCUSSION

Survival data and subsequent statistical evaluations from the *A. bahia* and *A. abdita* assays are included in Tables 3 and 4, respectively. Tables 5 and 6 summarize water quality data collected during the *A. bahia* and *A. abdita* assays, respectively. Support data, including copies of bench sheets and statistical analyses, are included in Appendix A.

3.1 *A. bahia* 10 Day Solid Phase Assay

Mean mysid survival in the laboratory control sediment was 90% with a minimum survival level of 75%. Protocol mandates that mean control survival must be ≥90% and survival cannot be <70% in any replicate. Based on these data, the mysids were considered healthy and were determined to have had no adverse impact on the outcome of the assay. Mean survival in the RISDS and BBDS Reference site sediments was 91 and 93%, respectively.

Table 3 provides a summary of mysid survival data.

3.2 *A. abdita* 10 Day Solid Phase Assay

Mean amphipod survival in the laboratory control sediment was 91% with a minimum survival level of 80%. Protocol mandates that mean control survival must be ≥90% and survival cannot be <70% in any replicate. Based on the laboratory control sediment data, the amphipods were considered healthy and were determined to have had no adverse impact on the outcome of the assay. Mean survival in the RISDS and BBDS Reference site sediments was 85 and 78%, respectively.

Table 4 provides a summary of amphipod survival data.

4.0 SUMMARY

Review of data presented in Tables 3 and 4 documents statistically significant reduction in survival of the after 10 days exposure to a portion of the project site composites for either the amphipod or mysid shrimp for statistical comparisons made against the project's disposal site reference sediments. Of the two species, the amphipod, *Ampelisca abdita*, showed the greatest negative response to the sediments.

5.0 REFERENCES

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater*, 20th Edition. Washington D.C.

U.S. EPA, U.S. Army Corps of Engineers. 1991. *Evaluation of Dredged Material Proposed For Ocean Disposal - Testing Manual*. EPA-503/8-91/001. 204 pages.

U.S. EPA, U.S., Army Corps of Engineers. 1994. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual (Draft)*. EPA-823-B-94-002, August 1994, 172 pages, plus appendices.

U.S. EPA, U.S., Army Corps of Engineers. 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual*. EPA-823-B-98-004, February 1998.

U.S. EPA Region I, U.S. Army Corps of Engineers, New England District. 2004. *Regional Implementation Manual for Evaluation of Dredged Material Proposed for Disposal in New England Waters*. October, 2004.

TABLE 1. Summary of Sample Collection Information. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Field ID	Matrix	Collection	Receipt	ESI Reference
EAG-1001-I (Comp 1) – [sites A, C, D,E]	Sediment	07/29/05	08/01/05	13569-001
EAG-1002-I (Comp 8) – [sites F, G, I, K]	Sediment	07/29/05	07/29/05	13569-008
EAG-1003-I (Comp 3) – [sites H, J]	Sediment	07/27/05	08/01/05	13569-003
EAG-1004-I (Comp 4) – [sites L, M, N]	Sediment	07/28/05	07/29/05	13569-004
EAG-1005-I (Comp 5) – [sites O,P, Q,R,S,T, U,V,W,X,Y, AA,BB]	Sediment	07/27/05	08/01/05	13569-005
EAG-1006-I (Comp 6) – [sites CC, DD,GG, HH,LL,MM,KK]	Sediment	07/27/05	08/01/05	13569-006
EAG-1007-I (Comp 7) – [sites EE,FF,II,JJ]	Sediment	07/28/05	07/29/05	13569-007
EAG-1008-I (Comp BBDS)	Sediment	07/30/05	08/01/05	13569-010
EAG-1009-I (Comp RISDS)	Sediment	07/29/05	08/01/05	13569-009
EAG-1010-I (Comp 2) – [sites 1,2,3]	Sediment	07/28/05	07/29/05	13569-002
Site A,C,D,E Comp	Water	07/28/05	07/29/05	13569-011
Site F,G,I,K Comp	Water	07/28/05	07/29/05	13569-012
Site H,J Comp	Water	07/28/05	07/29/05	13569-013
Site O,P,Q,R,S,T,U,V,W,X,Y,AA,BB Comp	Water	07/28/05	07/29/05	13569-014
Site CC,DD,GG,HH,LL,MM,KK Comp	Water	07/28/05	07/29/05	13569-015
Site EE,FF,II,JJ Comp	Water	07/28/05	07/29/05	13569-016
Site 1,2,3 Comp	Water	07/28/05	07/29/05	13569-017
Site L,M,N Comp	Water	07/28/05	07/29/05	13569-018
EAG-051; RISDS Comp Water	Water	07/29/05	08/01/05	13569-019
EAG-056; BBDS Comp Water	Water	07/30/05	08/01/05	13569-020

TABLE 2. Summary of Reference Toxicant Data. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
A. bahia						
08/05/05	Survival	LC-50	23.4	4.14	0 - 13.9	µg/L Copper
A. abdita						
08/05/05	Survival	LC-50	0.77	0.75	0.09 - 1.41	µg/L Cadmium

TABLE 3. Summary of Survival Data: *A. bahia*. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site	Mean Survival	Distribution	Variance	Statistic	Critical Value	p Value	Significantly "<"	
LAB CONTROL	90%							
RISDS (-009)	91%	Normal	Equal	0.1189	1.8596	0.4542	NO	LAB
BBDS (-010)	93%	Normal	Equal	-0.2585	1.8596	0.5987	NO	LAB
Composite 1 (-001)	89%	Normal	Equal	0.4903	1.8596	0.3185	NO	LAB
		Normal	Equal	0.7537	1.8596	0.2363	NO	RISDS
		Normal	Equal	1.7412	1.8596	0.0599	NO	BBDS
Composite 2 (-002)	82%	Normal	Equal	1.3492	1.8596	0.1071	NO	LAB
		Normal	Equal	1.9922	1.8596	0.0407	YES	RISDS
		Normal	Equal	2.7026	1.8596	0.0135	YES	BBDS
Composite 3 (-003)	94%	Normal	Equal	-0.1823	1.8596	0.6788	NO	LAB
		Normal	Equal	-1.1234	1.8596	0.8531	NO	RISDS
		Normal	Equal	-0.4996	1.8596	0.6846	NO	BBDS
Composite 4 (-004)	90%	Normal	Equal	0.0169	1.8596	0.4935	NO	LAB
		Normal	Equal	-0.0974	1.8596	0.5396	NO	RISDS
		Normal	Equal	0.2841	1.8596	0.3918	NO	BBDS
Composite 5 (-005)	83%	Normal	Equal	1.2174	1.8596	0.1291	NO	LAB
		Normal	Equal	1.7568	1.8596	0.0585	NO	RISDS
		Normal	Equal	2.4292	1.8596	0.0206	YES	BBDS
Composite 6 (-006)	87%	Normal	Equal	0.6322	1.8596	0.2725	NO	LAB
		Normal	Equal	0.8198	1.8596	0.2180	NO	RISDS
		Normal	Equal	1.4097	1.8596	0.0982	NO	BBDS
Composite 7 (-007)	93%	Normal	Equal	-0.2774	1.8596	0.6058	NO	LAB
		Normal	Equal	-0.7153	1.8596	0.7526	NO	RISDS
		Normal	Equal	-0.0722	1.8596	0.5279	NO	BBDS
Composite 8 (-008)	96%	Normal	Equal	-0.9380	1.8596	0.8122	NO	LAB
		Normal	Equal	-2.3953	1.8596	0.9783	NO	RISDS
		Normal	Equal	-1.8700	1.8596	0.9508	NO	BBDS

TABLE 4. Summary of Survival Data: *A. abdita*. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site	Mean Survival	Distribution	Variance	Statistic	Critical Value	p Value	Significantly "<"	
LAB CONTROL	91%							
RISDS (-009)	85%	Normal	Equal	0.7447	1.8596	0.2389	NO	LAB
BBDS (-010)	78%	Normal	Equal	1.7744	1.8596	0.0570	NO	LAB
Composite 1 (-001)	85%	Normal	Equal	1.2434	1.8596	0.1245	NO	LAB
		Normal	Equal	0.1826	1.8596	0.4298	NO	RISDS
		Normal	Equal	-0.8414	1.8596	0.7877	NO	BBDS
Composite 2 (-002)	8%	Normal	Equal	14.7440	1.8596	0.0000	YES	LAB
		Normal	Equal	9.7333	1.8596	0.0000	YES	RISDS
		Normal	Equal	9.1157	1.8596	0.0000	YES	BBDS
Composite 3 (-003)	93%	Normal	Equal	-0.4278	1.8596	0.6600	NO	LAB
		Normal	Equal	-1.1046	1.8596	0.8493	NO	RISDS
		Normal	Equal	-2.2093	1.8596	0.9709	NO	BBDS
Composite 4 (-004)	14%	Normal	Equal	12.8215	1.8596	0.0000	YES	LAB
		Normal	Equal	8.5389	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.8548	1.8596	0.0000	YES	BBDS
Composite 5 (-005)	20%	Normal	Equal	12.6735	1.8596	0.0000	YES	LAB
		Normal	Equal	8.0098	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.2942	1.8596	0.0000	YES	BBDS
Composite 6 (-006)	14%	Normal	Equal	10.8232	1.8596	0.0000	YES	LAB
		Normal	Equal	7.7856	1.8596	0.0000	YES	RISDS
		Normal	Equal	7.1144	1.8596	0.0001	YES	BBDS
Composite 7 (-007)	11%	Normal	Equal	12.7456	1.8596	0.0000	YES	LAB
		Normal	Equal	8.7627	1.8596	0.0000	YES	RISDS
		Normal	Equal	8.1089	1.8596	0.0000	YES	BBDS
Composite 8 (-008)	88%	Normal	Equal	0.3904	1.8596	0.3532	NO	LAB
		Normal	Equal	-0.3405	1.8596	0.6289	NO	RISDS
		Normal	Equal	-1.2352	1.8596	0.8741	NO	BBDS

Table 5. Summary of Water Quality Data: *A. bahia*. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site		Dissolved Oxygen (mg/L)	pH (SU)	Salinity (‰)	Total Ammonia (mg/L)	Unionized Ammonia (mg/L)
DAY 0	**08/05/05**			**Overlying Water**		
Lab Control		7.1	7.68	29	<0.1	<0.002
RISDS		7.1	7.89	29	0.88	0.026
BBDS		7.3	7.90	29	1.2	0.037
Composite 1		7.2	8.06	29	0.28	0.012
Composite 2		7.1	7.90	29	1.1	0.034
Composite 3		7.2	7.92	29	3.4	0.108
Composite 4		7.1	7.93	29	1.9	0.062
Composite 5		7.1	7.91	29	1.9	0.059
Composite 6		7.2	7.97	29	2.2	0.078
Composite 7		7.1	7.92	29	0.3	0.010
Composite 8		7.1	7.90	29	0.21	0.006
DAY 3	**08/08/05**					
Lab Control		7.4	8.06	29	<0.1	<0.004
RISDS		7.4	8.06	29	1.3	0.053
BBDS		7.4	8.07	29	1.9	0.079
Composite 1		7.4	8.08	29	0.53	0.022
Composite 2		7.4	8.11	29	1.5	0.068
Composite 3		7.4	8.10	29	5.5	0.000
Composite 4		7.3	8.04	29	3.6	0.140
Composite 5		7.3	8.10	29	4.4	0.195
Composite 6		7.3	8.13	29	4	0.189
Composite 7		7.4	8.13	29	0.84	0.040
Composite 8		7.3	8.12	29	0.16	0.007
DAY 10	**08/15/05**					
Lab Control		7.3	7.95	30	0.53	0.017
RISDS		7.3	8.01	30	0.51	0.018
BBDS		7.4	8.07	30	1.6	0.066
Composite 1		7.4	8.19	30	0.19	0.010
Composite 2		7.2	8.26	30	1.3	0.082
Composite 3		7.4	8.18	30	2.2	0.116
Composite 4		7.3	8.15	30	1.7	0.084
Composite 5		7.3	8.23	30	1.6	0.094
Composite 6		7.4	8.16	30	1.8	0.091
Composite 7		7.3	8.31	30	<0.1	<0.007
Composite 8		7.2	8.25	30	<0.1	<0.006

Table 6. Summary of Water Quality Data: *A. abdita*. Acute Solid Phase Sediment Evaluation. New Bedford Harbor Tier III sediment Evaluation. August 2005.

Site		Dissolved Oxygen (mg/L)	pH (SU)	Salinity (‰)	Total Ammonia (mg/L)	Unionized Ammonia (mg/L)
DAY 0	**08/05/05**			**Overlying Water**		
Lab Control		7.2	7.88	29	2	0.058
RISDS		7.2	7.92	29	3.7	0.118
BBDS		7.3	7.91	29	11	0.343
Composite 1		7.2	7.93	29	3.4	0.111
Composite 2		7.1	7.93	29	1.5	0.049
Composite 3		7.2	7.93	29	3.7	0.121
Composite 4		7.1	7.93	29	3.2	0.104
Composite 5		7.2	7.93	29	12	0.391
Composite 6		7.2	7.95	29	3.3	0.112
Composite 7		7.1	7.92	29	0.6	0.019
Composite 8		7.2	7.94	29	0.58	0.019
DAY 3	**08/08/05**					
Lab Control		7.4	8.01	29	0.51	0.018
RISDS		7.5	8.11	29	2.3	0.104
BBDS		7.4	8.10	29	5.2	0.230
Composite 1		7.4	8.03	29	0.69	0.026
Composite 2		7.3	8.02	29	2.9	0.108
Composite 3		7.4	8.09	29	4.6	0.199
Composite 4		7.3	8.08	29	4.4	0.186
Composite 5		7.4	8.09	29	5	0.216
Composite 6		7.4	8.12	29	5.9	0.273
Composite 7		7.4	8.12	29	1	0.046
Composite 8		7.3	8.18	29	0.53	0.028
DAY 10	**08/15/05**					
Lab Control		7.4	8.05	30	0.93	0.037
RISDS		7.4	8.12	30	0.35	0.016
BBDS		7.5	8.13	30	2.2	0.104
Composite 1		7.3	8.28	30	0.48	0.031
Composite 2		7.3	8.24	30	0.96	0.058
Composite 3		7.4	8.29	30	1.3	0.087
Composite 4		7.4	8.23	30	1.6	0.094
Composite 5		7.3	8.41	30	2.6	0.225
Composite 6		7.2	8.25	30	1.8	0.110
Composite 7		7.2	8.45	30	0.21	0.020
Composite 8		7.3	8.32	30	0.16	0.011

APPENDIX A

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Appendix H - 2

Solid Phase Assay Data

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A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID: Lab	OVERLYING:	START DATE:
CLIENT: Battelle		Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	21	7.1	7.68	29	21	7.2	7.69	29	21	7.1	7.70	29
1	20	7.2	8.01	29								
2	20	7.1	7.95	29								
3	19	7.4	8.06	29								
4	20	7.0	8.01	29								
5	20	7.2	8.01	29								
6	19	7.1	8.04	29								
7	20	7.4	8.05	30								
8	20	7.3	8.09	30								
9	20	7.3	8.19	30								
10	19	7.3	7.95	30	19	7.3	8.01	30	19	7.3	8.00	30

DAY	REP D				REP E			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	21	7.1	7.69	29	21	7.2	7.68	29
1								
2								
3								
4								
5								
6								
7								
8								
9								
10	19	7.4	8.00	30	19	7.4	8.02	30

Water Quality Station #	Date	Renew	Initials	
1	8/5/05	✓	DHB3	
2	8/6/05	✓	DHB3	
1	8/07/05	✓	KLP	
2	8/8/05	✓	BB	
2	8/9/05	✓	DHB3	
1	8/10/05	✓	BB	
2	8/11/05	✓	DHB3	
2	8/12/05	✓	BB	
2	8/13/05	✓	PS	
2	8/14/05	✓	PS	

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-D01	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.2	7.88	29	20	7.1	7.88	29	20	7.1	7.88	29
1	20	7.2	8.06	29								
2	20	7.1	8.01	29								
3	19	7.4	8.08	29								
4	19	7.1	8.03	29								
5	20	7.2	7.98	29								
6	19	7.0	8.08	29								
7	20	7.4	8.11	30								
8	20	7.2	8.22	30								
9	20	7.3	8.32	30								
10	19	7.4	8.19	30	19	7.3	8.21	30	19	7.3	8.24	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.89	29	20	7.2	7.92	29	1	8/5/05	✓	DHS	
1									2	8/6/05	✓	DHS	
2									1	8/07/05	✓	DHS	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHS	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DHS	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.25	30	19	7.3	8.23	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-002	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.90	29	20	7.2	7.92	29	20	7.2	7.92	29
1	20	7.2	8.05	29								
2	20	7.1	8.04	29								
3	19	7.4	8.11	29								
4	19	7.1	8.04	29								
5	20	7.2	8.00	29								
6	20	7.1	8.15	29								
7	20	7.2	8.19	30								
8	20	7.2	8.31	30								
9	20	7.3	8.44	30								
10	19	7.2	8.26	30	19	7.2	8.27	30	19	7.3	8.29	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.90	29	20	7.3	7.90	29	1	8/5/05	✓	DABS	
1									2	8/6/05	✓	DABS	
2									1	8/7/05	✓	AGF	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DABS	
5									1	8/10/05	✓	BA	
6									2	8/11/05	✓	DABS	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.24	30	19	7.4	8.23	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day 0 ,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569 CLIENT: Battelle	SAMPLE ID: -003	OVERLYING: Lab Salt 30ppt	START DATE: 08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.2	7.92	29	20	7.2	7.90	29	20	7.2	7.93	29
1	20	7.2	8.03	29								
2	20	7.0	8.04	29								
3	19	7.4	8.10	29								
4	19	7.1	8.04	29								
5	20	7.2	8.03	30								
6	20	7.0	8.15	30								
7	20	7.2	8.20	30								
8	20	7.3	8.27	30								
9	20	7.3	8.27	30								
10	19	7.4	8.18	30	19	7.4	8.17	30	19	7.3	8.17	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.92	29	20	7.3	7.93	29	1	8/5/05	✓	DAB	
1									2	8/6/05	✓	DAB	
2									1	8/7/05	✓	BB	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DAB	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DAB	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.16	30	19	7.3	8.14	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569 CLIENT: Battelle	SAMPLE ID: -004	OVERLYING: Lab Salt 30ppt	START DATE: 08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.93	29	20	7.1	7.91	29	20	7.2	7.91	29
1	20	7.2	8.04	29								
2	20	7.0	8.03	29								
3	19	7.3	8.04	29								
4	19	7.0	8.01	29								
5	20	7.1	7.94	29								
6	20	7.0	8.08	29								
7	20	7.2	8.14	30								
8	20	7.3	8.22	30								
9	20	7.3	8.33	30								
10	19	7.3	8.15	30	19	7.3	8.17	30	19	7.3	8.17	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.93	29	20	7.2	7.94	29	1	8/5/05	✓	DHB	
1									2	8/6/05	✓	DHB	
2									1	8/7/05	✓	DHB	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHB	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DHB	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.4	8.17	30	19	7.3	8.18	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-005	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.91	29	20	7.2	7.90	29	20	7.3	7.95	29
1	20	7.2	8.06	29								
2	20	7.0	8.04	29								
3	19	7.3	8.10	29								
4	19	7.3	8.09	29								
5	20	7.1	8.09	30								
6	19	7.0	8.30	30								
7	20	7.2	8.34	30								
8	20	7.2	8.39	30								
9	20	7.2	8.43	30								
10	19	7.3	8.23	30	19	7.3	8.31	30	19	7.4	8.31	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.92	29	20	7.2	7.91	29	1	8/5/05	✓	DHB	
1									2	8/6/05	✓	DHB	
2									1	8/7/05	✓	TMS	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHB	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DHB	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.32	30	19	7.4	8.32	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~ ,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569 CLIENT: Battelle	SAMPLE ID: -006	OVERLYING: Lab Salt 30ppt	START DATE: 08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.2	7.97	29	20	7.3	7.95	29	20	7.2	7.94	29
1	20	7.2	8.12	29								
2	20	7.0	8.09	29								
3	19	7.3	8.13	29								
4	19	7.1	8.07	29								
5	20	7.2	8.02	30								
6	19	7.1	8.13	30								
7	20	7.3	8.14	30								
8	20	7.2	8.19	30								
9	20	7.3	8.31	30								
10	19	7.4	8.16	30	19	7.4	8.11	30	19	7.3	8.10	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)				
0	20	7.2	7.95	29	20	7.3	7.94	29	1	8/5/05	✓	DAB
1									2	8/6/05	✓	DAB
2									1	8/7/05	✓	~~DAB~~
3									2	8/8/05	✓	BB
4									2	8/9/05	✓	~~DAB~~
5									1	8/10/05	✓	BB
6									2	8/11/05	✓	~~DAB~~
7									2	8/12/05	✓	BB
8									2	8/13/05	✓	PS
9									2	8/14/05	✓	PS
10	19	7.3	8.10	30	19	7.3	8.07	30				

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-007	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.92	29	20	7.1	7.92	29	20	7.1	7.93	29
1	20	7.1	8.08	29								
2	20	7.1	8.06	29								
3	19	7.4	8.13	29								
4	19	7.1	8.10	29								
5	20	7.2	8.15	29								
6	19	6.9	8.38	29								
7	20	7.2	8.37	30								
8	20	7.2	8.48	30								
9	20	7.3	8.56	30								
10	19	7.3	8.31	30	19	7.3	8.22	30	19	7.3	8.29	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.92	29	20	7.2	7.93	29	1	8/5/05	✓	DHB	
1									2	8/6/05	✓	DHB	
2									1	8/7/05	✓	KHS	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHB	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DHB	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.40	30	19	7.3	8.33	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day Ø,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-008	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.90	29	20	7.3	7.93	29	20	7.1	7.97	29
1	20	7.3	8.06	29								
2	20	7.2	8.07	29								
3	19	7.3	8.12	29								
4	19	7.1	8.06	29								
5	20	7.0	8.00	29								
6	19	7.1	8.12	29								
7	20	7.2	8.19	30								
8	20	7.2	8.29	30								
9	20	7.2	8.43	30								
10	19	7.2	8.25	30	19	7.4	8.31	30	19	7.3	8.31	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.2	7.93	29	20	7.2	7.93	29	1	8/5/05	✓	DABS	
1									2	8/6/05	✓	DABS	
2									1	8/7/05	✓	DABS	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DABS	
5									1	8/10/05	✓	BB	
6									2	8/11/05	✓	DABS	
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.3	8.40	30	19	7.3	8.39	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569	SAMPLE ID:	OVERLYING:	START DATE:
CLIENT: Battelle	-009	Lab Salt 30ppt	08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.1	7.89	29	20	7.2	7.91	29	20	7.4	7.90	29
1	20	7.2	8.02	29								
2	20	7.2	8.05	29								
3	19	7.4	8.06	29								
4	19	7.0	8.02	29								
5	20	7.1	7.96	29								
6	19	7.1	8.05	29								
7	20	7.2	8.07	30								
8	20	7.3	8.09	30								
9	20	7.3	8.23	30								
10	19	7.3	8.01	30	19	7.3	8.02	30	19	7.4	8.01	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.3	7.92	29	20	7.3	7.90	29	1	8/5/05	✓	DHB	
1									2	8/6/05	✓	DHB	
2									1	8/7/05	✓	DHB	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHB	
5									1	8/10/05	✓	BB	
6									2	8/11/05			
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.4	8.02	30	19	7.4	8.01	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~ ,3,10

A. bahia ACUTE EXPOSURE SEDIMENT ASSAY

STUDY # 13569 CLIENT: Battelle	SAMPLE ID: -010	OVERLYING: Lab Salt 30ppt	START DATE: 08/05/05

DAY	REP A				REP B				REP C			
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)
0	20	7.3	7.90	29	20	7.2	7.90	29	20	7.3	7.91	29
1	20	7.1	8.03	29								
2	20	7.1	8.02	29								
3	19	7.4	8.07	29								
4	19	7.1	8.03	29								
5	20	7.2	7.95	29								
6	20	7.0	8.07	29								
7	20	7.2	8.07	30								
8	20	7.3	8.11	30								
9	20	7.3	8.25	30								
10	19	7.4	8.07	30	19	7.3	8.08	30	19	7.3	8.07	30

DAY	REP D				REP E				Water Quality Station #	Date	Renew	Initials	
	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)	TEMP (°C)	D.O. (mg/L)	pH (SU)	SAL. (ppt)					
0	20	7.3	7.90	29	20	7.4	7.92	29	1	8/5/05	✓	DHB	
1									2	8/6/05	✓	DHB	
2									1	8/7/05	✓	BB	
3									2	8/8/05	✓	BB	
4									2	8/9/05	✓	DHB	
5									1	8/10/05	✓	BB	
6									2	8/11			
7									2	8/12/05	✓	BB	
8									2	8/13/05	✓	PS	
9									2	8/14/05	✓	PS	
10	19	7.4	8.06	30	19	7.3	8.06	30					

Notes: 20 °C 30ppt Feed Brine Shrimp Daily Overlying Amm Day ~~0~~, ~~8~~, 10

ESI STUDY# 13569 Battelle
A. bahia SEDIMENT ASSAY

DAY 10:

SAMPLE ID	TIME	#LIVE	COMMENTS
LAB A	1323	16	
LAB B	1326	19	
LAB C	1329	20	
LAB D	1331	20	
LAB E	1335	15	
-1 A	1344	18	
-1 B	1348	17	
-1 C	1352	18	
-1 D	1354	19	
-1 E	1358	17	
-2 A	1405	17	
-2 B	1408	15	
-2 C	1410	19	
-2 D	1414	15	
-2 E	1417	16	

ANALYST: [signature]
DATE: 8/15/05

ESI STUDY# 13569 Battelle
A. bahia SEDIMENT ASSAY

DAY 10:

SAMPLE ID	TIME	#LIVE	COMMENTS
-3A	1426	20	
-3B	1428	17	
-3C	1430	19	
-3D	1433	18	
-3E	1437	18	
-4A	1443	20	
-4B	1445	18	
-4C	1448	20	
-4D	1450	18	
-4E	1452	14	
6A	1458	18	
6B	1500	18	
6C	1502	14	
6D	1504	19	
6E	1507	18	

ANALYST: [illegible]
DATE: 8/15/05

ESI STUDY# 13569 Battelle
***A. bahia* SEDIMENT ASSAY**

DAY 10:

SAMPLE ID	TIME	#LIVE	COMMENTS
-5A	1450	17	
-5B	1452	17	
-5C	1454	18	
-5D	1455	18	
-5E	1457	13	
-7A	1504	20	
-7B	1505	18	
-7C	1508	19	
-7D	1510	18	
-7E	1511	18	
-10A	1516	18	
-10B	1517	19	
-10C	1518	19	
-10D	1520	19	
-10E	1521	18	

ANALYST: BB
DATE: 8/15/05

ESI STUDY# 13569 Battelle
A. bahia SEDIMENT ASSAY

DAY 10:

SAMPLE ID	TIME	#LIVE	COMMENTS
-9A	1512	19	
-9B	1514	18	
-9C	1516	19	
-9D	1518	18	
-9E	1519	17	
-8A	1522	19	
-8B	1524	20	
-8C	1526	19	
-8D	1527	19	
-8E	1528	19	

ANALYST: _____
DATE: 8/15/05

CETIS Test Summary

Report Date: 15 Aug-05 3:49 PM
Link: 07-2450-9849

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Test No:	10-1764-6971	**Test Type:**	Survival	**Duration:**	10d 2h
Start Date:	05 Aug-05 01:00 PM	**Protocol:**	EPA/600/R-94/025 (1994)	**Species:**	Americamysis bahia
Ending Date:	15 Aug-05 03:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	In-House Culture
Setup Date:	05 Aug-05 01:00 PM	**Brine:**	Not Applicable		

Sample No:	06-4796-5238	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	04 Aug-05 10:00 AM	**Code:**	13569-0	**Project:**	Dredged Sediment Evaluation
Receive Date:	04 Aug-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	27h	**Station:**	Lab Control		
Sample No:	04-7399-9752	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-1	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 13h	**Station:**	Composite 1		
Sample No:	07-1195-7239	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-10	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 1h	**Station:**	BBDS - Reference Site		
Sample No:	17-6029-9398	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-2	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 13h	**Station:**	Composite 2		
Sample No:	02-4724-2483	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-3	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 13h	**Station:**	Composite 3		
Sample No:	05-9168-4368	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-4	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 13h	**Station:**	Composite 4		
Sample No:	13-9540-8488	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-5	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 13h	**Station:**	Composite 5		
Sample No:	04-4271-8242	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-6	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 1h	**Station:**	Composite 6		
Sample No:	14-6208-4339	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-7	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 1h	**Station:**	Composite 7		
Sample No:	02-7684-9294	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-8	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 1h	**Station:**	Composite 8		
Sample No:	05-3183-7796	**Material:**	Dredged Sediment Suspended Particu	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-9	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	9d 1h	**Station:**	RISDS - Reference Site		

CETIS Test Summary

Report Date: 15 Aug-05 3:49 PM
Link: 07-2450-9849

Proportion Survived Summary

Sample Code	Reps	Mean	Minimum	Maximum	SE	SD	CV
13569-0	5	0.90000	0.75000	1.00000	0.05244	0.11726	13.03%
13569-9	5	0.91000	0.85000	0.95000	0.01871	0.04183	4.60%
13569-10	5	0.93000	0.90000	0.95000	0.01225	0.02739	2.94%
13569-1	5	0.89000	0.85000	0.95000	0.01871	0.04183	4.70%
13569-2	5	0.82000	0.75000	0.95000	0.03742	0.08367	10.20%
13569-3	5	0.94000	0.90000	1.00000	0.01871	0.04183	4.45%
13569-4	5	0.90000	0.70000	1.00000	0.05477	0.12247	13.61%
13569-5	5	0.83000	0.65000	0.90000	0.04637	0.10368	12.49%
13569-6	5	0.87000	0.70000	0.95000	0.04359	0.09747	11.20%
13569-7	5	0.93000	0.90000	1.00000	0.02000	0.04472	4.81%
13569-8	5	0.96000	0.95000	1.00000	0.01000	0.02236	2.33%

Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000
13569-1	0.90000	0.85000	0.90000	0.95000	0.85000
13569-2	0.85000	0.75000	0.95000	0.75000	0.80000
13569-3	1.00000	0.95000	0.95000	0.90000	0.90000
13569-4	1.00000	0.90000	1.00000	0.90000	0.70000
13569-5	0.85000	0.85000	0.90000	0.90000	0.65000
13569-6	0.90000	0.90000	0.70000	0.95000	0.90000
13569-7	1.00000	0.90000	0.95000	0.90000	0.90000
13569-8	0.95000	1.00000	0.95000	0.95000	0.95000

CETIS Data Worksheet

Report Date: 15 Aug-05 3:47 PM
Link: 07-2450-9849

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Start Date:	05 Aug-05 01:00 PM	**Species:**	Americamysis bahia	**Sample Code:**	13569-0
Ending Date:	15 Aug-05 03:00 PM	**Protocol:**	EPA/600/R-94/025 (1994)	**Sample Source:**	New Bedford Harbor, MA
Sample Date:	04 Aug-05 10:00 AM	**Material:**	Dredged Sediment Suspended Particul	**Sample Station:**	Lab Control

Sample Code	Rep	Pos	# Exposed	# Survived	Notes
13569-0	1	25	20	16	
13569-0	2	53	20	19	
13569-0	3	27	20	20	
13569-0	4	50	20	20	
13569-0	5	41	20	15	
13569-9	1	21	20	19	
13569-9	2	2	20	18	
13569-9	3	23	20	19	
13569-9	4	37	20	18	
13569-9	5	51	20	17	
13569-10	1	52	20	18	
13569-10	2	48	20	19	
13569-10	3	26	20	19	
13569-10	4	4	20	19	
13569-10	5	18	20	18	
13569-1	1	33	20	18	
13569-1	2	22	20	17	
13569-1	3	31	20	18	
13569-1	4	8	20	19	
13569-1	5	16	20	17	
13569-2	1	54	20	17	
13569-2	2	34	20	15	
13569-2	3	7	20	19	
13569-2	4	5	20	15	
13569-2	5	14	20	16	
13569-3	1	24	20	20	
13569-3	2	3	20	19	
13569-3	3	49	20	19	
13569-3	4	43	20	18	
13569-3	5	42	20	18	
13569-4	1	32	20	20	
13569-4	2	17	20	18	
13569-4	3	39	20	20	
13569-4	4	12	20	18	
13569-4	5	47	20	14	
13569-5	1	9	20	17	
13569-5	2	46	20	17	
13569-5	3	44	20	18	
13569-5	4	28	20	18	
13569-5	5	45	20	13	
13569-6	1	6	20	18	
13569-6	2	13	20	18	
13569-6	3	19	20	14	
13569-6	4	1	20	19	
13569-6	5	30	20	18	
13569-7	1	40	20	20	
13569-7	2	11	20	18	
13569-7	3	38	20	19	
13569-7	4	15	20	18	
13569-7	5	55	20	18	
13569-8	1	20	20	19	
13569-8	2	36	20	20	
13569-8	3	29	20	19	

CETIS Data Worksheet

Report Date: 15 Aug-05 3:47 PM
Link: 07-2450-9849

Sample Code	Rep	Pos	# Exposed	# Survived	Notes
13569-8	4	10	20	19	
13569-8	5	35	20	19	

CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	7.05360	23.15450	0.08485	Equal Variances
Distribution	Shapiro-Wilk W	0.93908	0.78055	0.51405	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0003068	0.0003068	1	0.01	0.90832	Non-Significant Effect
Error	0.1737627	0.0217203	8			
Total	0.17406954	0.0220272	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-9	0.11885	1.85955	0.4542	0.17333	Non-Significant Effect

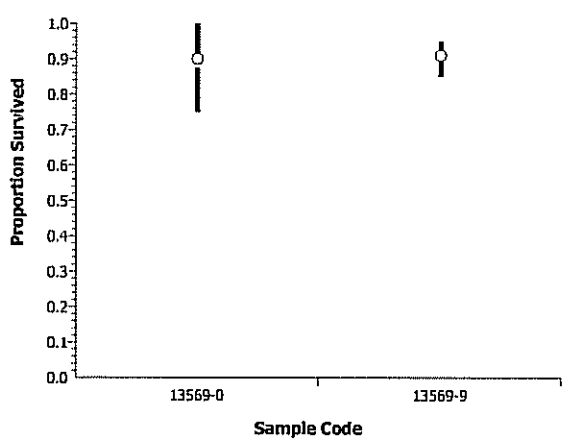
Data Summary

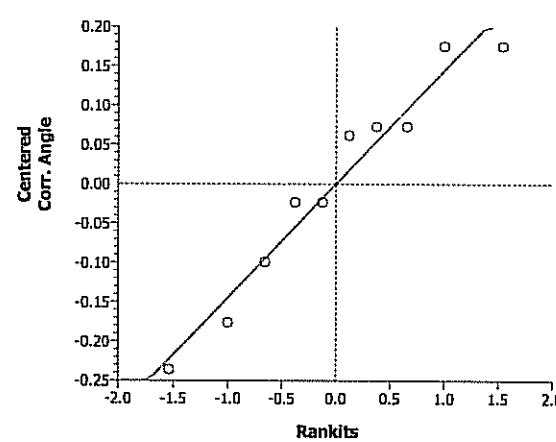
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	13.69338	23.15450	0.02653	Equal Variances
Distribution	Shapiro-Wilk W	0.92804	0.78055	0.40581	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0013641	0.0013641	1	0.07	0.80254	Non-Significant Effect
Error	0.1633008	0.0204126	8			
Total	0.16466492	0.0217767	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-10	-0.2585	1.85955	0.5987	0.16803	Non-Significant Effect

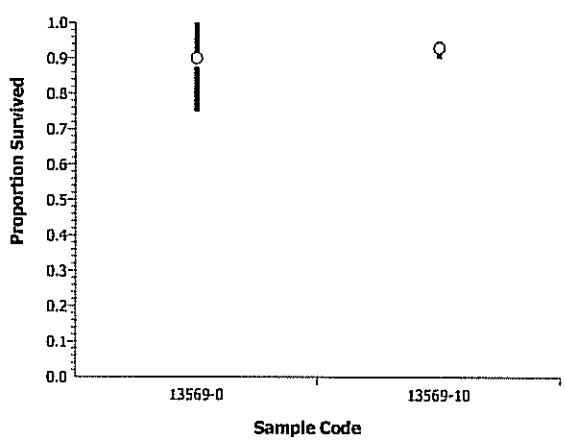
Data Summary

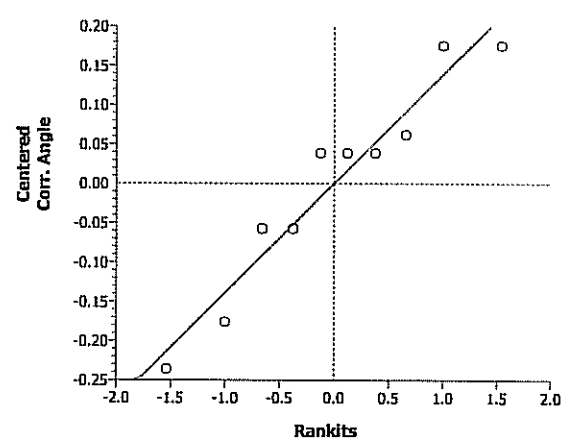
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	7.54206	23.15450	0.07581	Equal Variances
Distribution	Shapiro-Wilk W	0.94823	0.78055	0.61709	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0051792	0.0051792	1	0.24	0.63709	Non-Significant Effect
Error	0.1723654	0.0215457	8			
Total	0.17754455	0.0267249	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-1	0.49029	1.85955	0.3185	0.17263	Non-Significant Effect

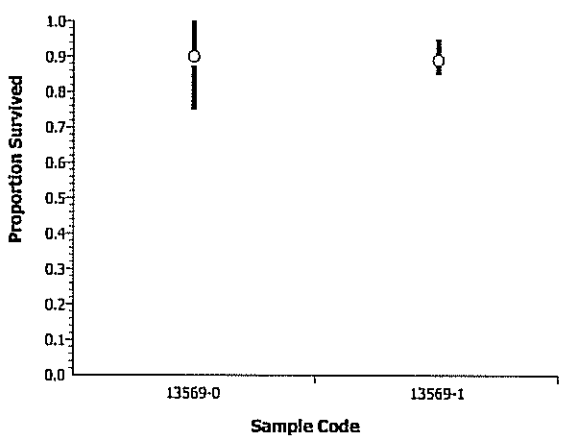
Data Summary

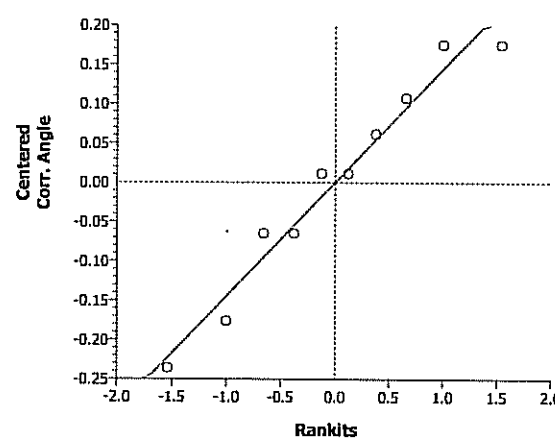
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-1	5	0.89000	0.85000	0.95000	0.04183	1.23791	1.17310	1.34528	0.07103

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-1	0.90000	0.85000	0.90000	0.95000	0.85000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.06925	23.15450	0.94982	Equal Variances
Distribution	Shapiro-Wilk W	0.94839	0.78055	0.61897	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0029648	0.0029648	1	0.57	0.47263	Non-Significant Effect
Error	0.0417542	0.0052193	8			
Total	0.04471900	0.0081841	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-1	0.75369	1.85955	0.2363	0.08497	Non-Significant Effect

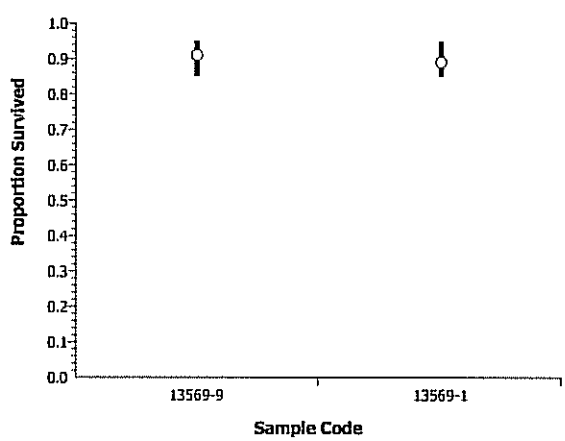
Data Summary

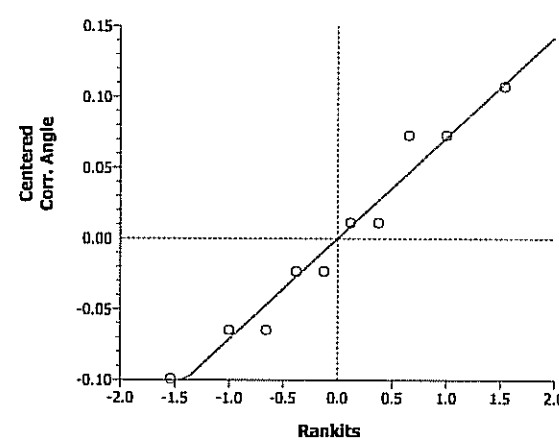
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-1	5	0.89000	0.85000	0.95000	0.04183	1.23791	1.17310	1.34528	0.07103

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-1	0.90000	0.85000	0.90000	0.95000	0.85000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.81560	23.15450	0.57764	Equal Variances
Distribution	Shapiro-Wilk W	0.87214	0.78055	0.10785	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0118592	0.0118592	1	3.03	0.11982	Non-Significant Effect
Error	0.0312923	0.0039115	8			
Total	0.04315154	0.0157708	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-1	1.74122	1.85955	0.0599	0.07355	Non-Significant Effect

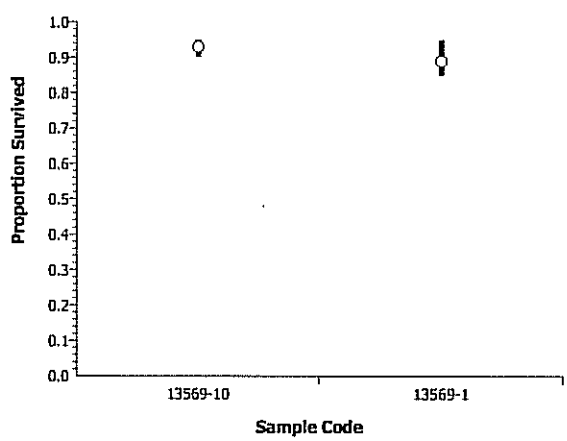
Data Summary

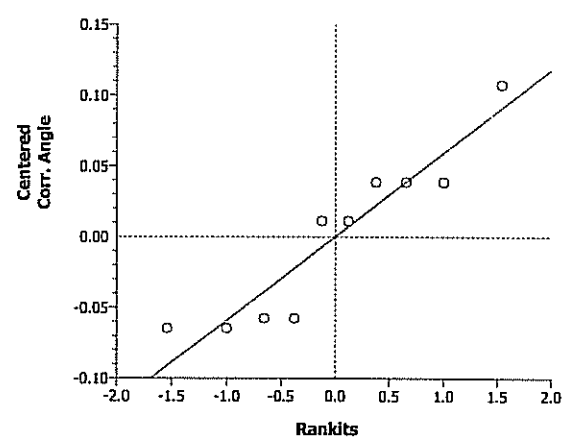
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-1	5	0.89000	0.85000	0.95000	0.04183	1.23791	1.17310	1.34528	0.07103

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-1	0.90000	0.85000	0.90000	0.95000	0.85000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.47616	23.15450	0.40131	Equal Variances
Distribution	Shapiro-Wilk W	0.93574	0.78055	0.47928	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.048612	0.048612	1	1.82	0.21422	Non-Significant Effect
Error	0.2136478	0.026706	8			
Total	0.26225980	0.075318	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-2	1.34917	1.85955	0.1071	0.19219	Non-Significant Effect

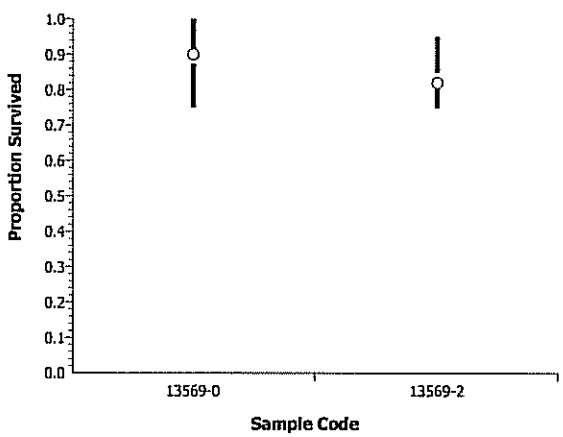
Data Summary

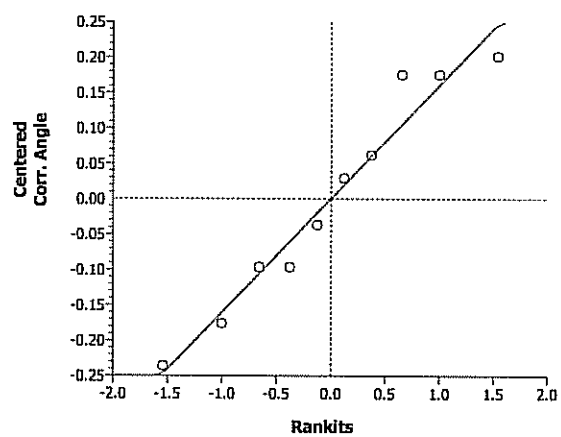
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-2	5	0.82000	0.75000	0.95000	0.08367	1.14398	1.04720	1.34528	0.12396

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-2	0.85000	0.75000	0.95000	0.75000	0.80000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.84861	23.15450	0.33491	Equal Variances
Distribution	Shapiro-Wilk W	0.89590	0.78055	0.19266	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0411947	0.0411947	1	3.97	0.08150	Non-Significant Effect
Error	0.0830367	0.0103796	8			
Total	0.12423132	0.0515742	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-2	1.99219	1.85955	0.0407	0.11982	Significant Effect

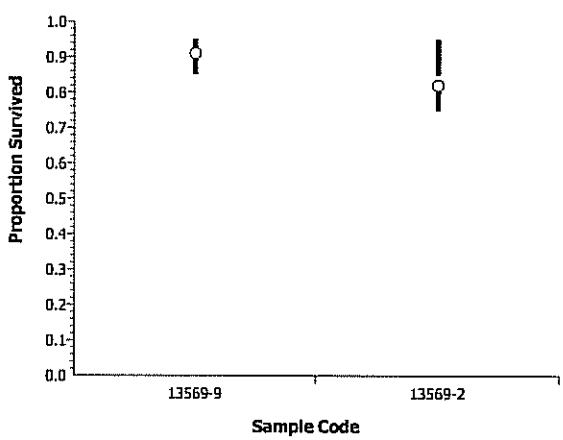
Data Summary

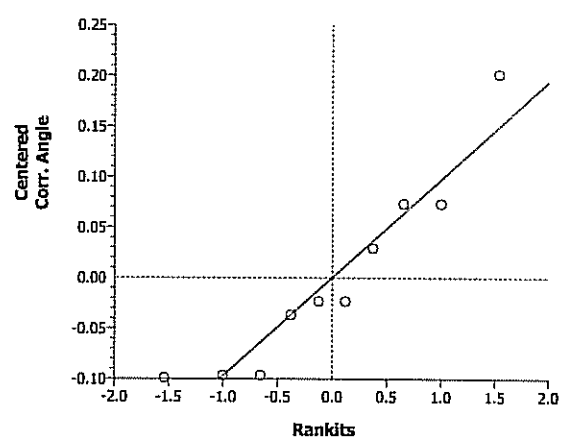
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-2	5	0.82000	0.75000	0.95000	0.08367	1.14398	1.04720	1.34528	0.12396

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-2	0.85000	0.75000	0.95000	0.75000	0.80000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	5.53009	23.15450	0.12634	Equal Variances
Distribution	Shapiro-Wilk W	0.86537	0.78055	0.09114	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0662623	0.0662623	1	7.30	0.02696	Significant Effect
Error	0.0725748	0.0090718	8			
Total	0.13883711	0.0753342	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-2	2.70262	1.85955	0.0135	0.11202	Significant Effect

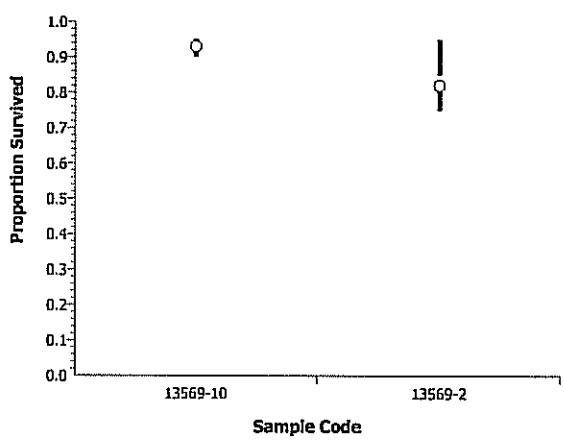
Data Summary

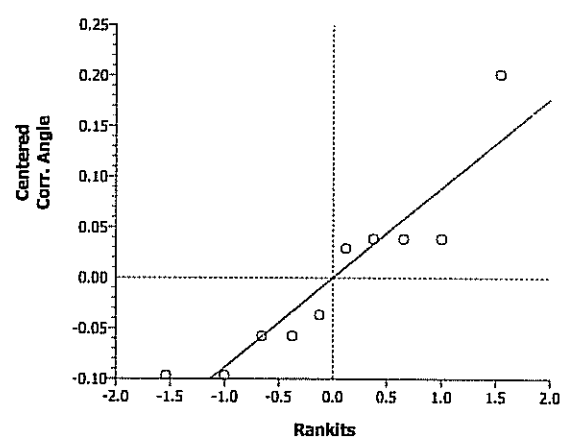
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-2	5	0.82000	0.75000	0.95000	0.08367	1.14398	1.04720	1.34528	0.12396

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-2	0.85000	0.75000	0.95000	0.75000	0.80000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	5.04736	23.15450	0.14598	Equal Variances
Distribution	Shapiro-Wilk W	0.94101	0.78055	0.53489	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0053024	0.0053024	1	0.23	0.64249	Non-Significant Effect
Error	0.1823387	0.0227923	8			
Total	0.18764112	0.0280947	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-3	-0.4823	1.85955	0.6788	0.17755	Non-Significant Effect

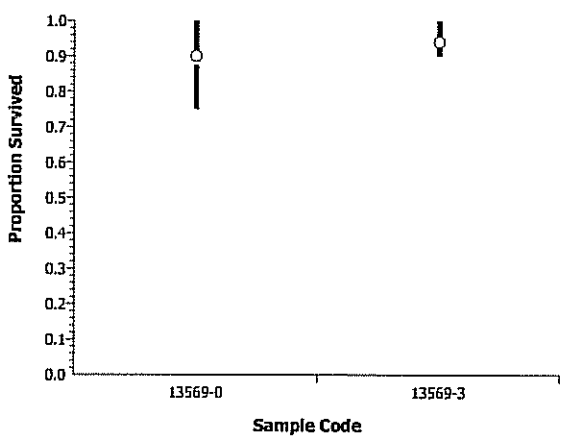
Data Summary

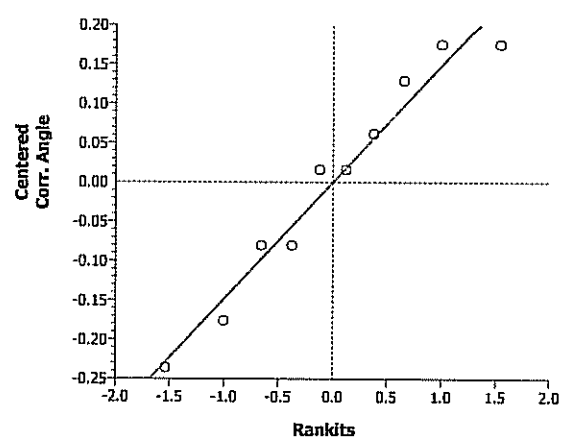
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-3	5	0.94000	0.90000	1.00000	0.04183	1.32948	1.24905	1.45876	0.08682

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-3	1.00000	0.95000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.39748	23.15450	0.75359	Equal Variances
Distribution	Shapiro-Wilk W	0.94257	0.78055	0.55213	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0081603	0.0081603	1	1.26	0.29384	Non-Significant Effect
Error	0.0517275	0.0064659	8			
Total	0.05988781	0.0146262	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-3	-1.1234	1.85955	0.8531	0.09457	Non-Significant Effect

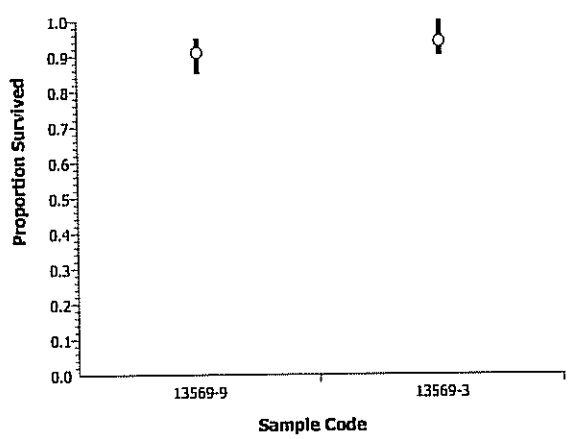
Data Summary

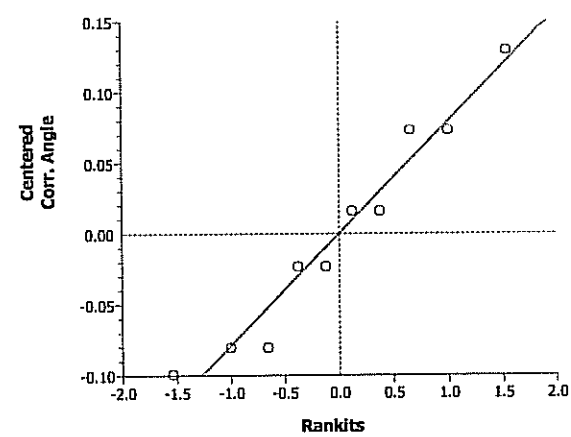
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-3	5	0.94000	0.90000	1.00000	0.04183	1.32948	1.24905	1.45876	0.08682

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-3	1.00000	0.95000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.71298	23.15450	0.35707	Equal Variances
Distribution	Shapiro-Wilk W	0.89220	0.78055	0.17624	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0012877	0.0012877	1	0.25	0.63078	Non-Significant Effect
Error	0.0412657	0.0051582	8			
Total	0.04255335	0.0064459	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-3	-0.4996	1.85955	0.6846	0.08447	Non-Significant Effect

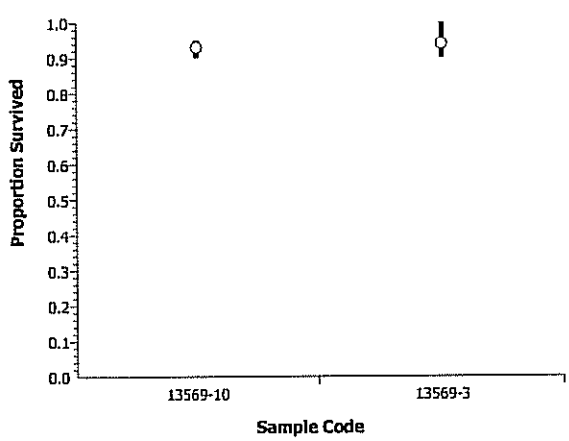
Data Summary

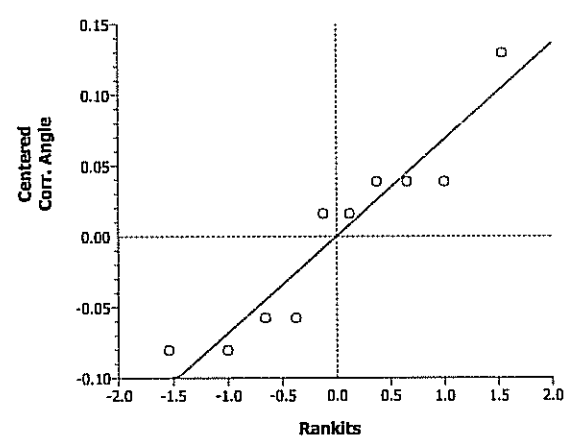
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-3	5	0.94000	0.90000	1.00000	0.04183	1.32948	1.24905	1.45876	0.08682

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-3	1.00000	0.95000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.01970	23.15450	0.98537	Equal Variances
Distribution	Shapiro-Wilk W	0.85928	0.78055	0.07825	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	1.078E-05	1.078E-05	1	0.00	0.98692	Non-Significant Effect
Error	0.301434	0.0376792	8			
Total	0.30144473	0.0376900	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-4	0.01691	1.85955	0.4935	0.22829	Non-Significant Effect

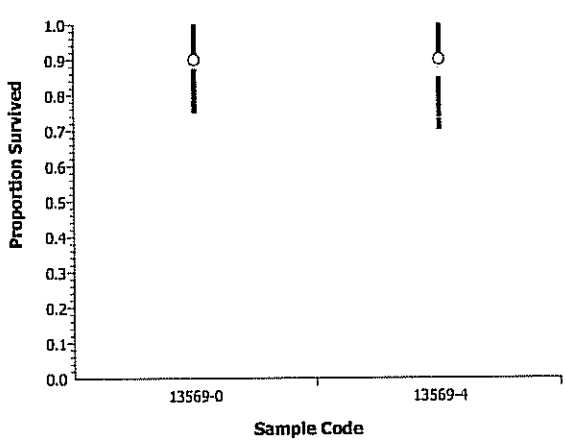
Data Summary

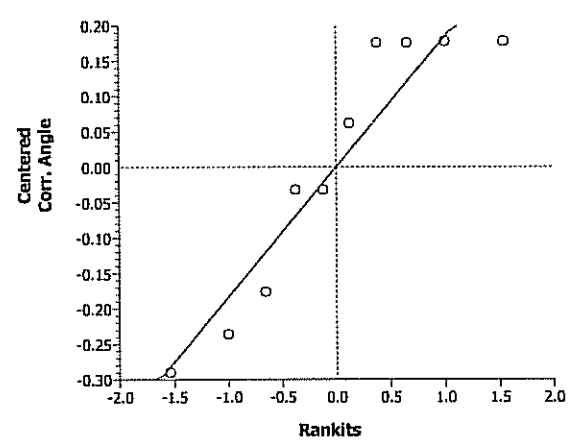
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-4	5	0.90000	0.70000	1.00000	0.12247	1.28135	0.99116	1.45876	0.19316

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-4	1.00000	0.90000	1.00000	0.90000	0.70000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	6.91734	23.15450	0.08766	Equal Variances
Distribution	Shapiro-Wilk W	0.91253	0.78055	0.28549	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0002026	0.0002026	1	0.01	0.92480	Non-Significant Effect
Error	0.1708228	0.0213529	8			
Total	0.17102540	0.0215555	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-4	-0.0974	1.85955	0.5376	0.17186	Non-Significant Effect

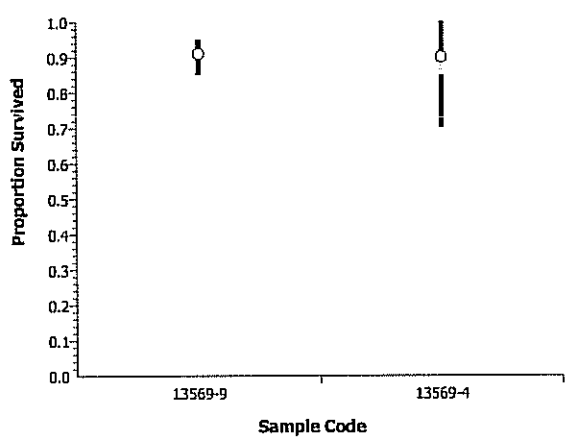
Data Summary

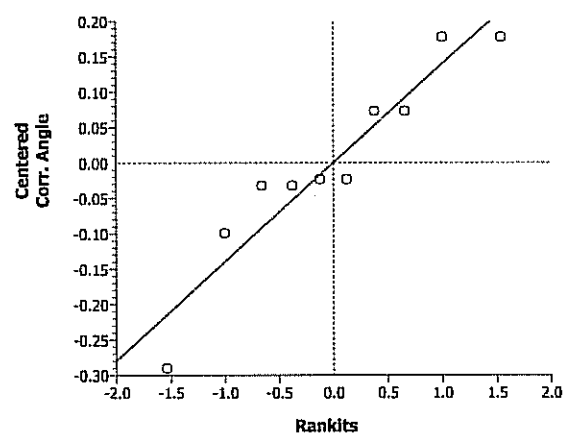
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-4	5	0.90000	0.70000	1.00000	0.12247	1.28135	0.99116	1.45876	0.19316

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-4	1.00000	0.90000	1.00000	0.90000	0.70000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	13.42885	23.15450	0.02749	Equal Variances
Distribution	Shapiro-Wilk W	0.89026	0.78055	0.16814	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0016173	0.0016173	1	0.08	0.78358	Non-Significant Effect
Error	0.1603609	0.0200451	8			
Total	0.16197828	0.0216625	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-4	0.28405	1.85955	0.3918	0.16651	Non-Significant Effect

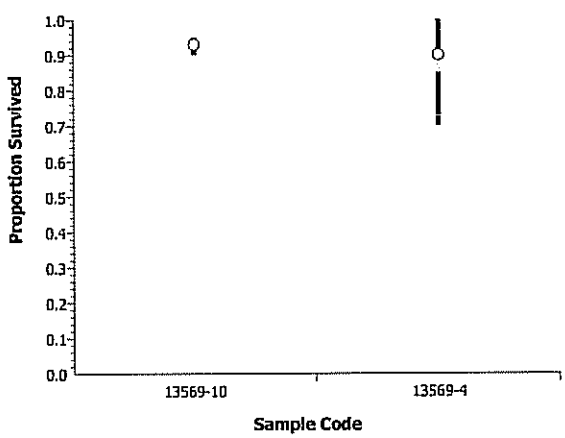
Data Summary

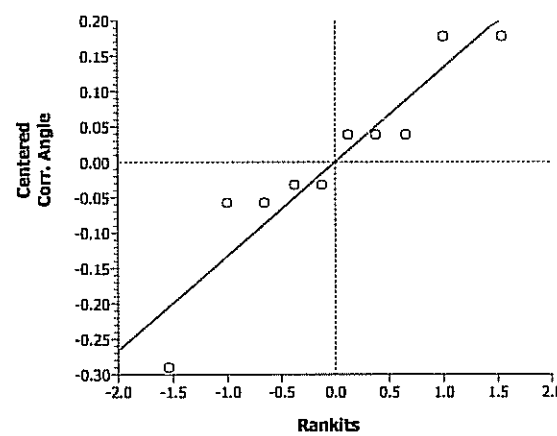
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-4	5	0.90000	0.70000	1.00000	0.12247	1.28135	0.99116	1.45876	0.19316

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-4	1.00000	0.90000	1.00000	0.90000	0.70000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.32225	23.15450	0.43452	Equal Variances
Distribution	Shapiro-Wilk W	0.86724	0.78055	0.09549	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0403373	0.0403373	1	1.48	0.25813	Non-Significant Effect
Error	0.2177212	0.0272152	8			
Total	0.25805854	0.0675525	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-5	1.21744	1.85955	0.1291	0.19402	Non-Significant Effect

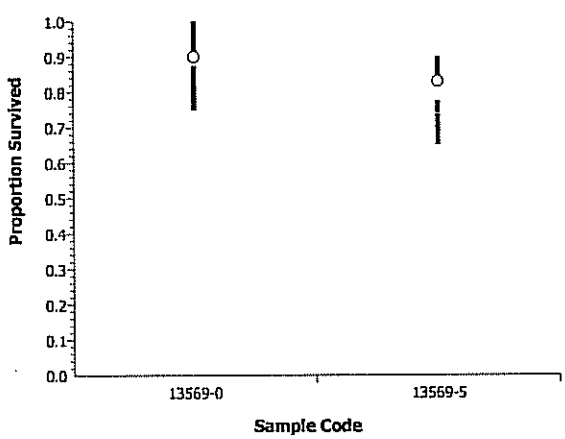
Data Summary

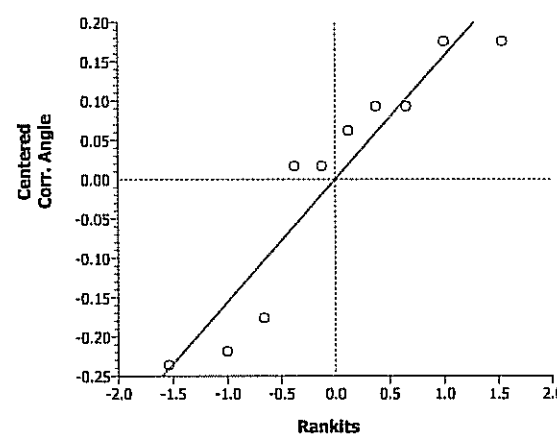
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-5	5	0.83000	0.65000	0.90000	0.10368	1.15641	0.93774	1.24905	0.12800

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-5	0.85000	0.85000	0.90000	0.90000	0.65000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.03740	23.15450	0.30731	Equal Variances
Distribution	Shapiro-Wilk W	0.86306	0.78055	0.08603	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0336080	0.0336080	1	3.09	0.11701	Non-Significant Effect
Error	0.0871101	0.0108888	8			
Total	0.1207181	0.0444968	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-5	1.75684	1.85955	0.0585	0.12272	Non-Significant Effect

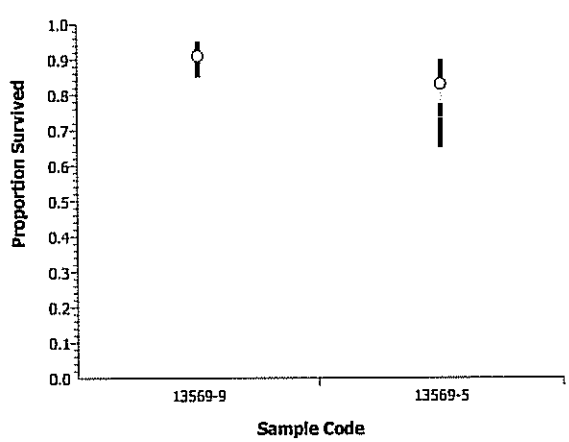
Data Summary

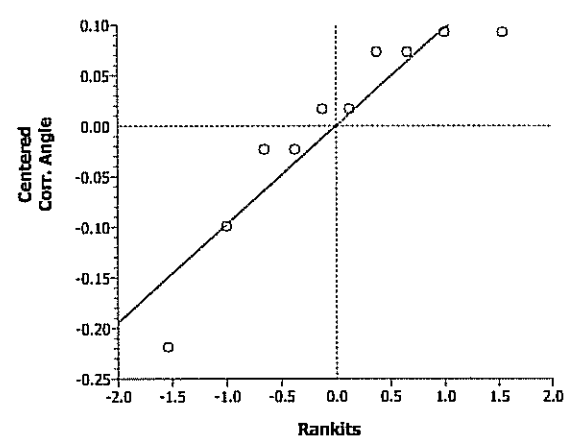
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-5	5	0.83000	0.65000	0.90000	0.10368	1.15641	0.93774	1.24905	0.12800

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-5	0.85000	0.85000	0.90000	0.90000	0.65000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	5.89660	23.15450	0.11395	Equal Variances
Distribution	Shapiro-Wilk W	0.83042	0.78055	0.03754	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0565369	0.0565369	1	5.90	0.04125	Significant Effect
Error	0.0766482	0.0095810	8			
Total	0.13318512	0.066118	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-5	2.42918	1.85955	0.0206	0.11512	Significant Effect

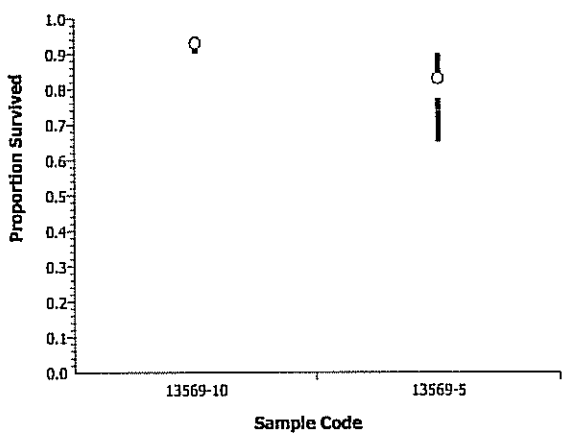
Data Summary

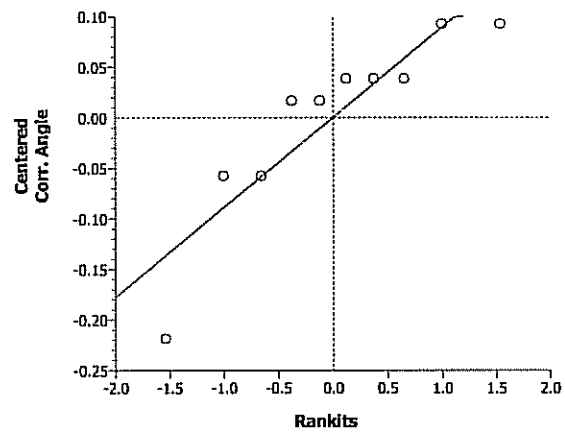
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-5	5	0.83000	0.65000	0.90000	0.10368	1.15641	0.93774	1.24905	0.12800

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-5	0.85000	0.85000	0.90000	0.90000	0.65000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.15739	23.15450	0.47478	Equal Variances
Distribution	Shapiro-Wilk W	0.85744	0.78055	0.07472	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0111269	0.0111269	1	0.40	0.54491	Non-Significant Effect
Error	0.2227291	0.0278411	8			
Total	0.23385596	0.0389680	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-6	0.63218	1.85955	0.2725	0.19624	Non-Significant Effect

Data Summary

		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-6	5	0.87000	0.70000	0.95000	0.09747	1.21672	0.99116	1.34528	0.13280

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-6	0.90000	0.90000	0.70000	0.95000	0.90000					

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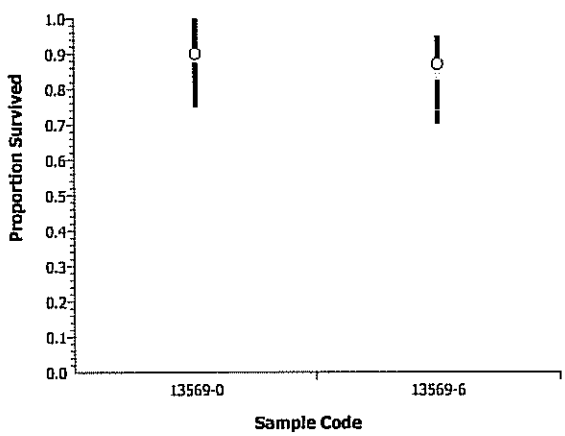
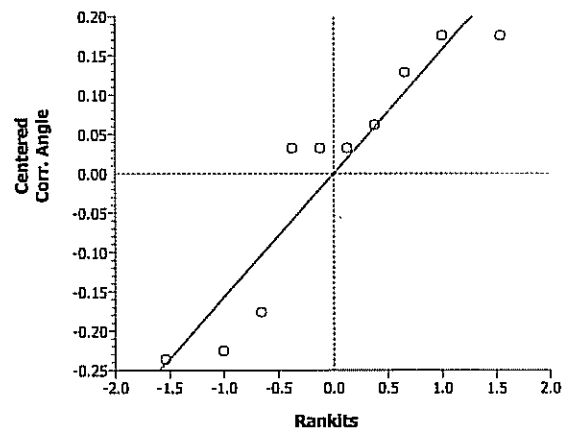




CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.26951	23.15450	0.27776	Equal Variances
Distribution	Shapiro-Wilk W	0.89612	0.78055	0.19369	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0077383	0.0077383	1	0.67	0.43609	Non-Significant Effect
Error	0.0921179	0.0115147	8			
Total	0.09985618	0.0192530	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-6	0.81978	1.85955	0.2180	0.12620	Non-Significant Effect

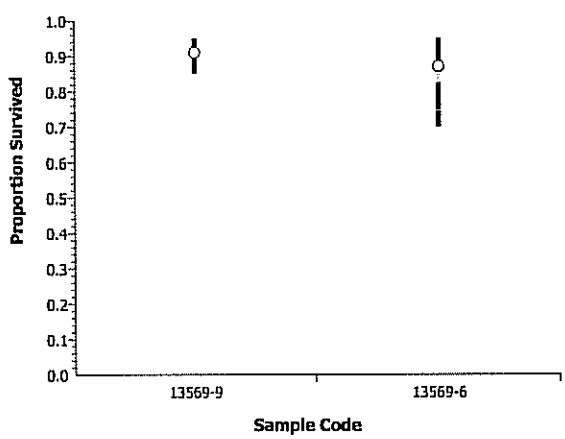
Data Summary

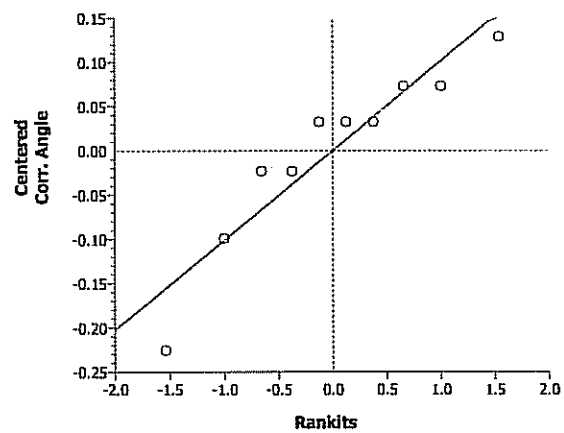
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-6	5	0.87000	0.70000	0.95000	0.09747	1.21672	0.99116	1.34528	0.13280

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-6	0.90000	0.90000	0.70000	0.95000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	6.34720	23.15450	0.10106	Equal Variances
Distribution	Shapiro-Wilk W	0.80424	0.78055	0.01892	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0202827	0.0202827	1	1.99	0.19631	Non-Significant Effect
Error	0.0816561	0.0102070	8			
Total	0.10193878	0.0304897	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-6	1.40966	1.85955	0.0982	0.11882	Non-Significant Effect

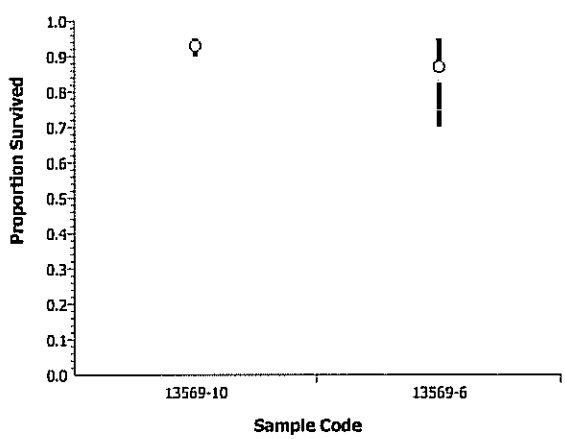
Data Summary

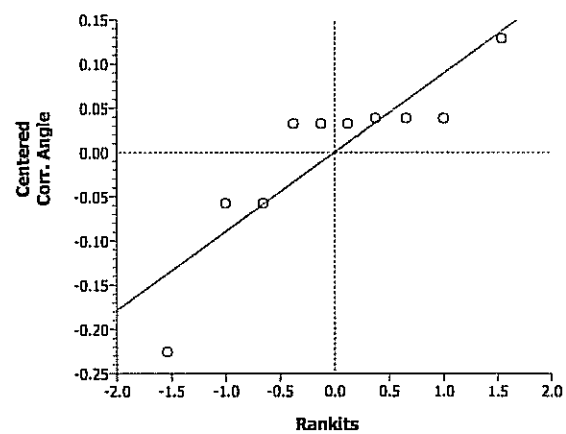
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-6	5	0.87000	0.70000	0.95000	0.09747	1.21672	0.99116	1.34528	0.13280

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-6	0.90000	0.90000	0.70000	0.95000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.40866	23.15450	0.17982	Equal Variances
Distribution	Shapiro-Wilk W	0.92559	0.78055	0.38437	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0017965	0.0017965	1	0.08	0.78847	Non-Significant Effect
Error	0.1867069	0.0233384	8			
Total	0.18850341	0.0251348	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-7	-0.2774	1.85955	0.6058	0.17967	Non-Significant Effect

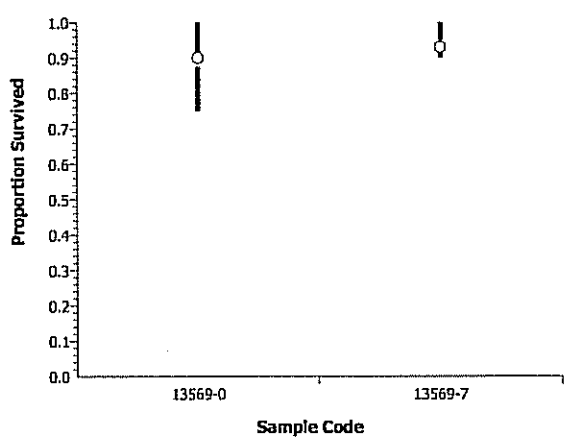
Data Summary

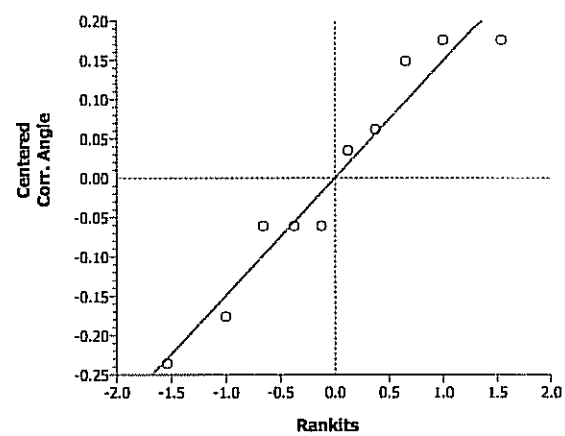
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-7	5	0.93000	0.90000	1.00000	0.04472	1.31024	1.24905	1.45876	0.09290

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-7	1.00000	0.90000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.59994	23.15450	0.66001	Equal Variances
Distribution	Shapiro-Wilk W	0.91724	0.78055	0.31826	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0035882	0.0035882	1	0.51	0.49474	Non-Significant Effect
Error	0.0560958	0.007012	8			
Total	0.05968395	0.0106001	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-7	-0.7153	1.85955	0.7526	0.09848	Non-Significant Effect

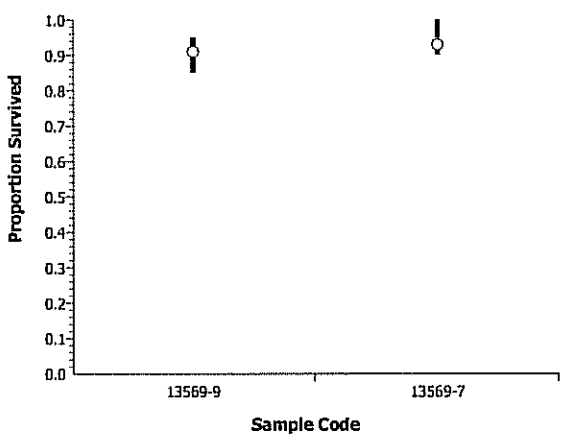
Data Summary

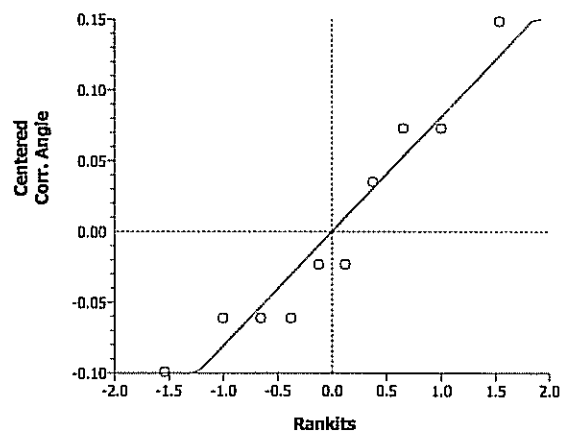
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-7	5	0.93000	0.90000	1.00000	0.04472	1.31024	1.24905	1.45876	0.09290

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-7	1.00000	0.90000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	3.10602	23.15450	0.29810	Equal Variances
Distribution	Shapiro-Wilk W	0.79095	0.78055	0.01326	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	2.972E-05	2.972E-05	1	0.01	0.94423	Non-Significant Effect
Error	0.0456339	0.0057042	8			
Total	0.04566363	0.005734	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-7	-0.0722	1.85955	0.5279	0.08883	Non-Significant Effect

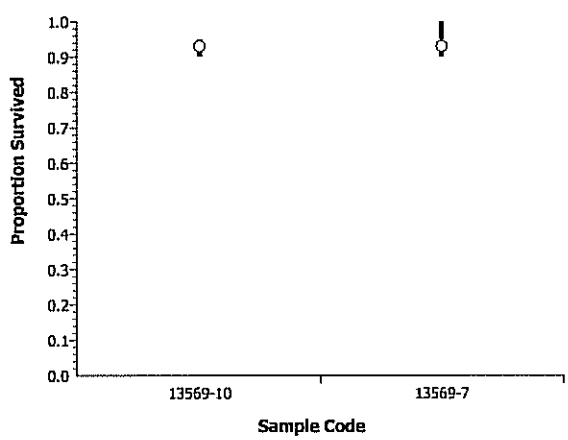
Data Summary

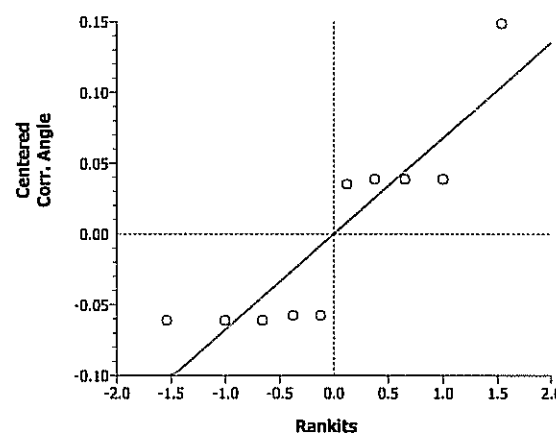
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-7	5	0.93000	0.90000	1.00000	0.04472	1.31024	1.24905	1.45876	0.09290

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-7	1.00000	0.90000	0.95000	0.90000	0.90000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	14.77342	23.15450	0.02310	Equal Variances
Distribution	Shapiro-Wilk W	0.91960	0.78055	0.33583	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0178712	0.0178712	1	0.88	0.37569	Non-Significant Effect
Error	0.1624883	0.0203110	8			
Total	0.18035957	0.0381823	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-8	-0.9380	1.85955	0.8122	0.16761	Non-Significant Effect

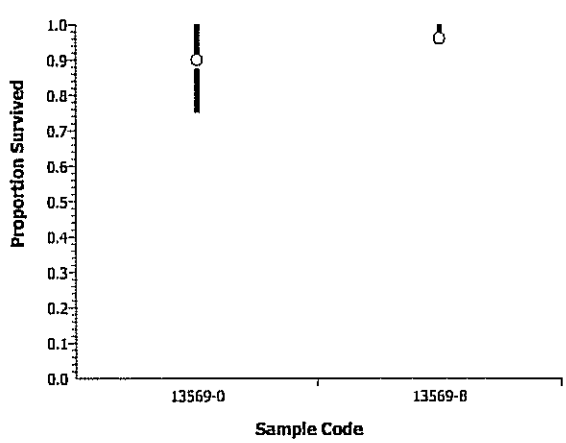
Data Summary

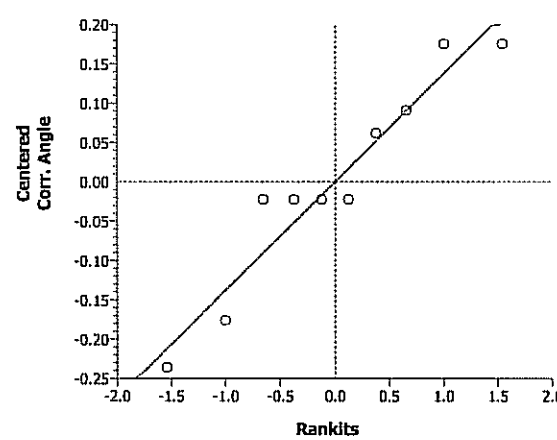
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.90000	0.75000	1.00000	0.11726	1.28343	1.04720	1.45876	0.19506
13569-8	5	0.96000	0.95000	1.00000	0.02236	1.36798	1.34528	1.45876	0.05075

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	0.80000	0.95000	1.00000	1.00000	0.75000					
13569-8	0.95000	1.00000	0.95000	0.95000	0.95000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.09445	23.15450	0.49160	Equal Variances
Distribution	Shapiro-Wilk W	0.81656	0.78055	0.02618	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0228614	0.0228614	1	5.74	0.04350	Significant Effect
Error	0.0318772	0.0039846	8			
Total	0.05473858	0.0268461	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-8	-2.3953	1.85955	0.9783	0.07424	Non-Significant Effect

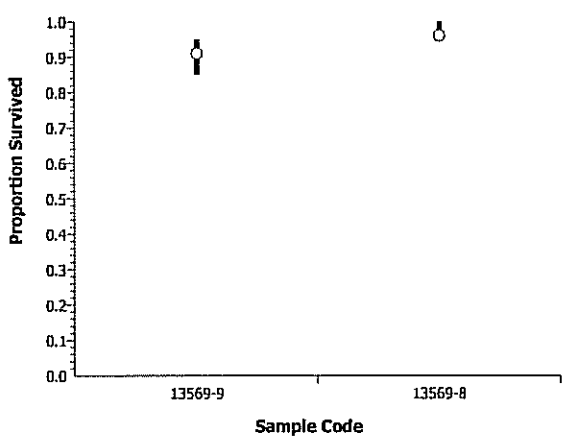
Data Summary

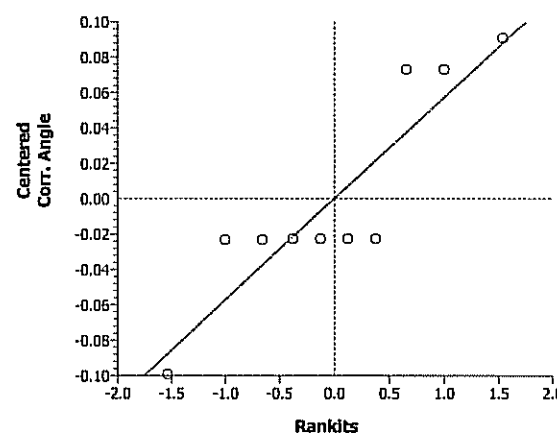
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.91000	0.85000	0.95000	0.04183	1.27235	1.17310	1.34528	0.07344
13569-8	5	0.96000	0.95000	1.00000	0.02236	1.36798	1.34528	1.45876	0.05075

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.95000	0.90000	0.95000	0.90000	0.85000					
13569-8	0.95000	1.00000	0.95000	0.95000	0.95000					

Graphics





CETIS Analysis Detail

Americamysis bahia 10-Day Survival Sediment Test — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	07-2450-9849	07-2450-9849	15 Aug-05 3:49 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.07887	23.15450	0.94312	Equal Variances
Distribution	Shapiro-Wilk W	0.88283	0.78055	0.14032	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0093605	0.0093605	1	3.50	0.09841	Non-Significant Effect
Error	0.0214153	0.0026769	8			
Total	0.03077585	0.0120375	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-8	-1.87	1.85955	0.9508	0.06085	Non-Significant Effect

Data Summary

		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.93000	0.90000	0.95000	0.02739	1.30679	1.24905	1.34528	0.05271
13569-8	5	0.96000	0.95000	1.00000	0.02236	1.36798	1.34528	1.45876	0.05075

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	0.90000	0.95000	0.95000	0.95000	0.90000					
13569-8	0.95000	1.00000	0.95000	0.95000	0.95000					

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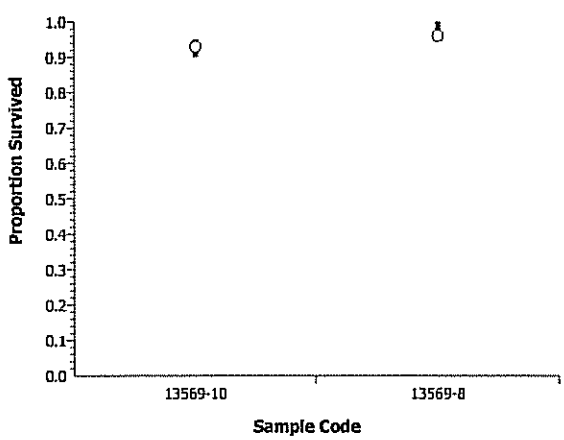

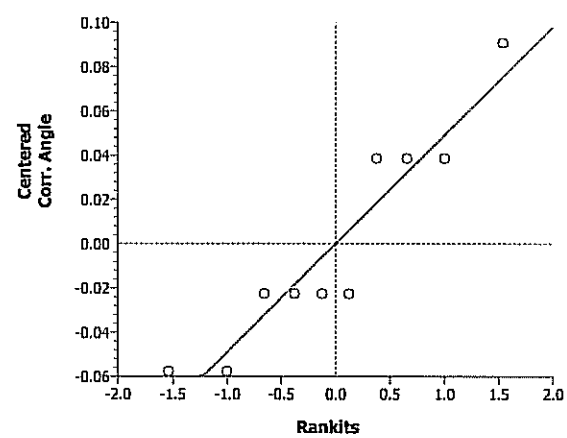

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species: AMERICAMYSIS bahia

Source: Lab reared ✓ Hatchery reared ____ Field collected ____

Hatch date 8-2-05 Receipt date ____

Lot number 080205 MS Strain ____

Brood Origination FLORIDA

II. Water Quality

Temperature 25 °C Salinity ≈30 ppt DO —

pH 7.8 Hardness — ppm

III. Culture Conditions

System: RECIRC

Diet: Flake Food ✓ Phytoplankton ____ Trout Chow ✓

Brine Shrimp ✓ Rotifers ____ Other ENCAP. SHRIMP DIET

Prophylactic Treatments: ____

Comments: ____

IV. Shipping Information

Client: ESI # of Organisms: 1300+

Carrier: ____ Date Shipped: 8-5-05

Biologist: Mark Rosengrad

1 - 800 - 927 - 1650

PO Box 1271 • One Lafayette Road • Hampton, NH 03842 • (603) 926-1650

Appendix I

Bioaccumulation Test Progress Report – Survival

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Appendix I – 1

Survival Report

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US ARMY CORPS
OF ENGINEERS
New England District

Contract No. DACW33-01-D-0004
Delivery Order No. 16
November 2005

Report

Laboratory Testing in Support of Environmental Assessment and Testing: New Bedford Harbor

28-Day Bioaccumulation Test Progress Report

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TOXICOLOGICAL EVALUATION
OF A PROPOSED DREDGE SEDIMENT:

New Bedford Harbor Tier III Sediment Evaluation
New Bedford, Massachusetts

28 Day Bioaccumulation Sediment Toxicity Tests

Prepared For:

Battelle
397 Washington Street
Duxbury, MA 02332-0601

By

EnviroSystems, Incorporated
One Lafayette Road
Hampton, New Hampshire 03842

Reference 13569-05-08

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APPENDIX A - Raw Data and Support

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1.0 INTRODUCTION

As part of a comprehensive plan to reduce adverse environmental impacts of ocean dumping, Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972, specifies that all sediments to be discharged into ocean waters must be evaluated to define their potential impact on existing benthic communities. The United States Environmental Protection Agency (U.S. EPA) has determined that the most effective means to make such an assessment is through the use of bioassay tests which provide a relatively direct estimate of potential impact.

Laboratory testing conducted for this project was designed to evaluate proposed dredge spoil for disposal at an approved offshore disposal site. Protocol for tests conducted as part of the evaluation followed procedures established by the U.S. EPA and the US Army Corps of Engineers for testing of dredged material. Procedures are presented in “Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters” (U.S. EPA, Corps of Engineers 2004) and “Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Test Manual” (U.S. EPA, Corps of Engineers 1998). Specific tests conducted for this project were bioaccumulation evaluations investigating impacts of the solid phase of the proposed dredge material. Species utilized were the polychaete worm, *Nereis virens*, and the bivalve clam, *Macoma nasuta.* Biological and chemical testing was performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

2.0 METHODS AND MATERIALS

2.1 Sample Collection

Sediment samples for toxicological analysis were collected from the dredge footprint proposed project by Battelle staff on July 27 - 29, 2005. Prior to toxicological analyses, the samples were composited based on the composting scheme developed by the US Army Corps of Engineers and approved by the U.S. EPA. The samples were received on July 29 and August 1, 2005 in 2.5-gallon polyethylene buckets. Sediment samples were collected from the Rhode Island Sound Disposal Site (RISDS) and Buzzards Bay Disposal Site (BBDS) on July 29 and 30, 2005. Upon arrival at the laboratory, all samples received an internal sample control number and were logged into the project sample control system. Prior to testing, samples were placed in a secure refrigerator and stored at a temperature of 2-4°C until test initiation. Sample identification, collection and receipt information is summarized in Table 1.

Sediment for the laboratory control treatment was collected from the Hampton Estuary, Hampton, New Hampshire. The area is not known to receive any direct industrial inputs and has been used as a laboratory reference sediment in the testing of marine sediments for nearly 25 years. Overlying seawater was obtained from the Hampton Estuary. Water from the estuary has been used for the culture and maintenance of test organisms at ESI since 1978. Seawater is obtained through a filter system located on the bottom of the estuary at a point approximately 1 mile from the open ocean. The water is classified as SA-1.

2.2 Test Organisms

M. nasuta, 15-40 mm in total length, were obtained from Aquatic Research Organisms, Hampton, New Hampshire. Organisms were field collected along the California coast and shipped to ARO via overnight delivery. At ESI, the clams were placed in Hampton Estuary sediment with flowing seawater and monitored for at least 24 hours prior to use. Damaged bivalves and those that would not close when prodded were discarded.

Adult *N. virens* were obtained from the Maine Bait Company, Newcastle, Maine. Worms were collected in the field and shipped to ESI via overnight delivery. Worms were placed in control sediment and flowing seawater and monitored for at least 24 hours prior to use. Damaged and inactive worms were not used in the assay.

2.3 Bioaccumulation Evaluation

The assay was started by placing a 5-7 cm layer of sediment (control, reference, or project site composite) into 10-gallon aquaria designed for flow-through testing. Overlying water was added to each aquarium. The volume of the overlying water in these chambers was approximately 6 gallons. Water flow was adjusted to provide approximately 5 volume additions of water/day to each aquarium. Each aquarium was set so that incoming water mixed throughout the tank and did not stratify as a surface layer.

M. nasuta and *N. virens* were indiscriminately selected from the pool of organisms and randomly added to the aquaria. A total of 20 worms and 30 clams were added to each replicate; species were tested in separate test chambers. Temperature was maintained at 15±2°C. Salinity was maintained at 28 ±2‰. The photoperiod was set at 16:8 hours light:dark. Dissolved oxygen, pH, temperature, and salinity were measured daily in one replicate of each treatment. Dissolved oxygen levels were maintained at a minimum level of 5.0 mg/L by providing aeration to all tanks from the start of the assay. Organisms were not fed during the exposure period. The bioaccumulation assays were initiated on 8/24/05 for *N. virens* and on 9/14/05 for *M. nasuta*. Each assay was terminated 28 days later.

After 28 days exposure, *M. nasuta* and *N. virens* were recovered from the test sediments and counted. Survival counts were used for statistical survival analysis. All living organisms were transferred to clean test vessels and maintained in flowing water for 24 hours to allow for removal of sediment from the animals' digestive tract. After the depuration period, organisms were transferred to plastic bags and frozen. Frozen tissue samples were transferred to ESI's analytical group for subsequent analysis.

2.4 Data Analysis

Survival data were analyzed using CETIS® software to determine significant differences between the laboratory sediment and the reference site sediment. Survival data were evaluated to determine homogeneity of sample variances and normality of distribution using appropriate statistics. Data sets were subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Statistical difference was evaluated at α=0.05.

2.5 Protocol Deviations

Review of the toxicity testing procedures and associated data indicate no protocol deviations occurred during the assay. However, the initial *M.nasuta* assay was terminated after approximately 10 days due to excessive mortality. No cause was determined for this mortality and a new batch of clams was ordered. The assay was re-initiated on 9/14/05 without incident.

3.0 RESULTS

Table 1 provides a summary of sample collection and compositing data. Tables 2 and 3 provide a summary *M. nasuta* and *N. virens* survival data and statistical analyses. Water quality parameters from the 28 day assays are summarized in Tables 4 and 5. Laboratory bench sheets and associated statistical support data are included in Appendix A.

3.1 *Macoma Nasuta* Survival

Mean *M. nasuta* survival was 96.0% in the laboratory control. Survival in the RISDS and BBDS reference sites was 96.7% and 98.0%, respectively. Surviving organisms from the control and reference site provided sufficient tissue for preparation and analysis of body burdens. The endpoints were met and or exceeded requirements specified in the current version of the RIM.

Survival of the bivalve in project site sediments ranged from 94.0 to 96.7%. Results of statistical evaluation of the data showed no significant reduction in survival for bivalves maintained in project site sediments when compared to the laboratory sediment or sediments from either of the two reference sites

3.2 *Nereis virens* Survival

Mean *N. virens* survival was 94% in the laboratory control. Nereis survival in the two reference site sediments was 96% and 97% in the RISDS and BBDS reference sites, respectively. Surviving organisms from the control and reference site provided sufficient tissue for preparation and analysis of body burdens. The endpoints were met and or exceeded requirements specified in the current version of the RIM.

Nereis survival in the survival in the project sites after 28 days exposure ranged from 93 to 97%, Table 4. Results of statistical evaluation of the data showed no significant reduction in survival for worms maintained in any of the project site sediments when compared to the laboratory sediment or sediments from either of the two reference sites.

3.3 Summary

This program utilized protocols developed by the U.S. EPA and the U.S. Army Corps of Engineers to assess the potential impact of the proposed dredge material on the marine environment. Results of the 28 day bioaccumulation evaluation indicate that long term exposure to the composite sediment samples from the New Bedford Harbor project site had no impact on the survival of either *Macoma nasuta* or *Nereis virens* when compared against either of the two alternative disposal site reference sediments.

4.0 REFERENCES

U.S. EPA, U.S., Army Corps of Engineers. 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal. - Testing Manual*. EPA-503/8-91/001, February, 1991.

U.S. EPA, U.S., Army Corps of Engineers. 1998. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. - Testing Manual*. EPA-823-B-98-004, February1998.

U.S. EPA Region I, U.S. Army Corps of Engineers, New England Division. 2004. *Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters*. April 2004.

U.S. EPA 1994.Test Methods for Evaluating Solid Waste Physical/Chemical Methods, US EPA SW 846, Final Update: Method 8081A and 8082.

TABLE 1. Summary of Sample Collection Information. Bioaccumulation Evaluation. New Bedford Harbor Tier III Sediment Evaluation. September 2005.

Field ID	Matrix	Collection	Receipt	ESI Reference
EAG-1001-I (Comp 1)	Sediment	07/29/05	08/01/05	13569-001
EAG-1002-I (Comp 8)	Sediment	07/29/05	07/29/05	13569-008
EAG-1003-I (Comp 3)	Sediment	07/27/05	08/01/05	13569-003
EAG-1004-I (Comp 4)	Sediment	07/28/05	07/29/05	13569-004
EAG-1005-I (Comp 5)	Sediment	07/27/05	08/01/05	13569-005
EAG-1006-I (Comp 6)	Sediment	07/27/05	08/01/05	13569-006
EAG-1007-I (Comp 7)	Sediment	07/28/05	07/29/05	13569-007
EAG-1008-I (Comp BBDS)	Sediment	07/30/05	08/01/05	13569-010
EAG-1009-I (Comp RISDS)	Sediment	07/29/05	08/01/05	13569-009
EAG-1010-I (Comp 2)	Sediment	07/28/05	07/29/05	13569-002
Site A,C,D,E Comp	Water	07/28/05	07/29/05	13569-011
Site F,G,I,K Comp	Water	07/28/05	07/29/05	13569-012
Site H,J Comp	Water	07/28/05	07/29/05	13569-013
Site O,P,Q,R,S,T,U,V,W,X,Y,AA,BB Comp	Water	07/28/05	07/29/05	13569-014
Site CC,DD,GG,HH,LL,MM,KK Comp	Water	07/28/05	07/29/05	13569-015
Site EE,FF,II,JJ Comp	Water	07/28/05	07/29/05	13569-016
Site 1,2,3 Comp	Water	07/28/05	07/29/05	13569-017
Site L,M,N Comp	Water	07/28/05	07/29/05	13569-018
EAG-051; RISDS Comp Water	Water	07/29/05	08/01/05	13569-019
EAG-056; BBDS Comp Water	Water	07/30/05	08/01/05	13569-020

Table 2. Summary of *Macoma nasuta* Day 28 Survival Data. Bioaccumulation Evaluation. New Bedford Harbor Tier III Sediment Evaluation. September 2005.

Sample	ESI ID	Reps	Mean Survival	Minimum Survival	Maximum Survival	SD	CV
LAB CONTROL	13569-000	5	96.0%	93.3%	96.7%	0.01491	1.55%
EAG-1009-I (Comp RISDS)	13569-009	5	96.7%	90.0%	100.0%	0.04714	4.88%
EAG-1008-I (Comp BBDS)	13569-010	5	98.0%	93.3%	100.0%	0.02981	3.04%
EAG-1001-I (Comp 1)	13569-001	5	94.0%	90.0%	100.0%	0.04346	4.62%
EAG-1003-I (Comp 3)	13569-003	5	94.0%	86.7%	96.7%	0.04346	4.62%
EAG-1002-I (Comp 8)	13569-008	5	96.7%	90.0%	100.0%	0.04082	4.22%

Sample ID	Site Mean Survival	Statistic	Critical Value	p Value	Significantly "<"	
LAB CONTROL	96.0%	-	-	-	-	
EAG-1009-I (Comp RISDS)	96.7%	-0.5295	1.8596	0.6946	NO	LAB CONTROL
EAG-1008-I (Comp BBDS)	98.0%	-1.4678	1.8596	0.9098	NO	LAB CONTROL
EAG-1001-I (Comp 1)	94.0%	0.7868	1.8596	0.2270	NO	LAB CONTROL
		0.9678	1.8596	0.1807	NO	RISDS
		1.6471	1.8596	0.0691	NO	BBDS
EAG-1003-I (Comp 3)	94.0%	0.9413	1.8596	0.1871	NO	LAB CONTROL
		1.0544	1.8596	0.1613	NO	RISDS
		20.0000	-	0.0754	NO	BBDS
EAG-1002-I (Comp 8)	96.7%	-0.0554	1.8596	0.7015	NO	LAB CONTROL
		0.0448	1.8596	0.4827	NO	RISDS
		0.5614	1.8596	0.2949	NO	BBDS

Table 3. Summary of *Nereis virens* Day 28 Survival Data. Bioaccumulation Evaluation. New Bedford Harbor Tier III Sediment Evaluation. September 2005.

Sample	ESI ID	Reps	Mean Survival	Minimum Survival	Maximum Survival	SD	CV
LAB CONTROL	13569-000	5	94.0%	85.0%	100.0%	0.06519	6.94%
EAG-1009-I (Comp RISDS)	13569-009	5	96.0%	90.0%	100.0%	0.04183	4.36%
EAG-1008-I (Comp BBDS)	13569-010	5	97.0%	90.0%	100.0%	0.04472	4.61%
EAG-1001-I (Comp 1)	13569-001	5	94.0%	85.0%	100.0%	0.06519	6.94%
EAG-1003-I (Comp 3)	13569-003	5	93.0%	80.0%	100.0%	0.07583	8.15%
EAG-1002-I (Comp 8)	13569-008	5	97.0%	95.0%	100.0%	0.02739	2.82%

Sample ID	Site Mean Survival	Statistic	Critical Value	p Value	Significantly "<"	
LAB CONTROL	94.0%	-	-	-	-	
EAG-1009-I (Comp RISDS)	96.0%	-0.4973	1.8596	0.6836	NO	LAB CONTROL
EAG-1008-I (Comp BBDS)	97.0%	-0.8068	1.8596	0.7785	NO	LAB CONTROL
EAG-1001-I (Comp 1)	94.0%	0.0000	1.8596	0.5000	NO	LAB CONTROL
		0.4973	1.8596	0.3162	NO	RISDS
		0.8068	1.8596	0.2215	NO	BBDS
EAG-1003-I (Comp 3)	93.0%	0.5057	1.8596	0.4211	NO	LAB CONTROL
		0.7294	1.8596	0.2433	NO	RISDS
		1.0308	1.8596	0.1664	NO	BBDS
EAG-1002-I (Comp 8)	97.0%	-0.8500	1.8596	0.7900	NO	LAB CONTROL
		-0.3968	1.8596	0.6491	NO	RISDS
		0.0680	1.8596	0.4737	NO	BBDS

TABLE 4. Summary of Overlying Water Qualities. Bioaccumulation Evaluation. New Bedford Harbor Tier III Sediment Evaluation. September 2005.

Treatment		Temp. (EC)	DO_2 (mg/L)	pH (SU)	Salinity (ppt)	Ammonia (mg/L)*	Unionized Ammonia (mg/L)*
***Macoma nasuta*:**							
LAB CONTROL	Max	17	7.9	7.92	31	0.87	0.008
	Mean	14.3	7.4		30.3		
	Min	13	6.6	7.50	29	0.23	0.003
EAG-1009-I (Comp RISDS)	Max	17	8.0	8.00	31	0.68	0.010
	Mean	14.3	7.4		30.6		
	Min	13	6.7	7.66	28	<0.1	<0.002
EAG-1008-I (Comp BBDS)	Max	17	8.0	8.00	31	0.38	0.006
	Mean	14.3	7.5		30.6		
	Min	13	6.6	7.66	28	<0.1	<0.002
EAG-1001-I (Comp 1)	Max	17	7.9	7.92	31	0.57	0.007
	Mean	14.3	7.4		30.4		
	Min	13	6.5	7.68	28	<0.1	<0.002
EAG-1003-I (Comp 3)	Max	17	8.0	7.97	31	0.54	0.008
	Mean	14.3	7.3		30.4		
	Min	13	6.4	7.68	27	<0.1	<0.002
EAG-1002-I (Comp 8)	Max	17	8.0	8.00	31	0.69	0.010
	Mean	14.3	7.4		30.6		
	Min	13	6.6	7.71	27	<0.1	<0.002

NOTE:

* Ammonia values are presented for data at the Start (Max) and End (Min) of the Assay

TABLE 5. Summary of Overlying Water Qualities. Bioaccumulation Evaluation. New Bedford Harbor Tier III Sediment Evaluation. September 2005.

Treatment		Temp. (EC)	DO_2 (mg/L)	pH (SU)	Salinity (ppt)	Ammonia (mg/L)*	Unionized Ammonia (mg/L)*
***Nereis virens*:**							
LAB CONTROL	Max	16	7.8	7.96	31	0.83	0.012
	Mean	14.4	7.4		30.6		
	Min	13	6.4	7.58	30	<0.1	<0.001
EAG-1009-I (Comp RISDS)	Max	16	7.8	8.02	31	1.10	0.018
	Mean	14.4	7.5		30.6		
	Min	13	7.0	7.72	30	<0.1	<0.001
EAG-1008-I (Comp BBDS)	Max	16	7.9	8.04	31	0.70	0.012
	Mean	14.4	7.5		30.6		
	Min	13	7.1	7.70	30	<0.1	<0.001
EAG-1001-I (Comp 1)	Max	16	7.9	8.00	31	3.0	0.051
	Mean	14.4	7.4		30.6		
	Min	13	6.7	7.71	30	<0.1	<0.001
EAG-1003-I (Comp 3)	Max	16	7.8	7.99	31	1.2	0.022
	Mean	14.4	7.4		30.6		
	Min	13	6.8	7.68	30	<0.1	<0.001
EAG-1002-I (Comp 8)	Max	16	8.0	8.01	31	3.7	0.060
	Mean	14.4	7.5		30.6		
	Min	13	6.9	7.69	30	<0.1	<0.001

NOTE:

* Ammonia values are presented for data at the Start (Max) and End (Min) of the Assay

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APPENDIX A
RAW DATA
STATISTICAL SUPPORT

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Appendix I – 2

Survival Data

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SEDIMENT BIOACCUMULATION ASSAY

Nereis virens worms

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE: 8/24/05

DAY	Lab TEMP (°C)	Lab DO (mg/L)	Lab pH (SU)	Lab SAL (ppt)	-001 TEMP (°C)	-001 DO (mg/L)	-001 pH (SU)	-001 SAL (ppt)	CHECK FLOW RATE	WQ STATION #	DATE	INIT.
0	15.9	7.3	7.69	30.2	15.6	6.8	7.77	30.3	✓	1	8/24	DH
1	15	7.6	7.73	31	15	7.55	7.91	31	✓	2	8/25	DH
2	15	7.4	7.69	31	15	7.4	7.94	31	✓	2	8/26	DH
3	14	6.8	7.74	31	14	7.4	7.82	31	✓	1	8/27/05	FS
4	14	6.4	7.95	31	14	6.7	~~7.87~~ 8.00	31	✓	2	8/28/05	SB
5	15	~~7.92~~ 7.8	7.76	31	15	7.9	7.82	31	✓	1	8/29	DH
6	15	7.5	7.77	31	15	7.6	7.79	31	✓	1	8/30	DH
7	15	7.5	7.69	31	15	7.55	7.74	31	✓	1	8/31	DH
8	15	7.4	7.79	31	15	7.30	7.78	31	✓	1	9/1/05	DH
9	15	7.55	7.72	30	15	7.6	7.75	30	✓	1	9/2/05	DH
10	15	7.4	7.70	30	15	7.4	7.73	30	✓	1	9/3/05	CAB
11	15	7.2	7.92	30	15	7.3	7.93	30	✓	1	9-4	m
12	14	7.1	7.85	30	15	7.3	7.89	30	✓	1	9/5/05	—
13	15	7.7	7.87	30	15	7.75	7.95	30	✓	2	9/6/05	DH
14	14	7.65	7.73	30	14	7.6	7.79	31	✓	1	9/7/05	DH
15	14	7.6	7.73	31	14	7.7	7.82	31	✓	1	9/8/05	DH
16	15	7.55	7.68	30	15	7.5	7.71	30	✓	1	9/9/05	DH
17	13	7.2	7.63	30	13	7.2	7.78	31	✓	1	9/10/05	—
18	14	7.2	7.96	30	14	6.9	7.97	30	✓	2	9/11/05	TY
19	14	7.5	7.82	31	14	7.6	7.99	31	✓	2	9/12/05	DH
20	15	7.4	7.73	30	15	7.4	7.86	31	✓	1	9/13/05	DH
21	14	7.15	7.62	31	14	7.2	7.78	31	✓	1	9/14/05	DH
22	15	7.25	7.82	31	15	7.4	7.92	31	✓	2	9/15/05	DH
23	14	7.5	7.72	31	15	7.55	7.80	31	✓	1	9/16/05	DH
24	14	7.4	7.92	31	14	7.6	7.95	31	✓	2	9/17/05	—
25	13	7.6	7.87	30	13	7.6	7.88	30	✓	1	9/18/05	BB
26	14	7.5	7.90	31	14	7.4	7.91	31	✓	2	9/19/05	DH
27	14	7.4	7.73	31	14	7.35	7.77	31	✓	1	9/20/05	DH
28	14	7.5	7.58	31	14	7.35	7.75	31	✓	1	9/21/05	DH

SEDIMENT BIOACCUMULATION ASSAY

Nereis virens

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE: 8/24/05

DAY	-003 TEMP (°C)	-003 DO (mg/L)	-003 pH (SU)	-003 SAL (ppt)	-008 TEMP (°C)	-008 DO (mg/L)	-008 pH (SU)	-008 SAL (ppt)	CHECK FLOW RATE	WQ STATION #	DATE	INIT.
0	15.8	7.25	7.80	30.3	15.7	7.25	7.75	30.3	✓	1	8/24	DH
1	15	7.4	7.77	30	15	7.4	7.84	31	✓	2	8/25	DH
2	15	7.05	7.84	31	16	7.2	7.82	31	✓	2	8/26	DH
3	14	7.4	7.77	31	15	7.3	7.77	31	✓	1	8/27/05	PS
4	14	7.2	7.96	31	14	7.4	7.98	31	✓	2	8/28/05	BB
5	15	7.8	7.78	31	15	8.0	7.77	31	✓	1	8/29	DH
6	15	7.5	7.70	31	15	7.5	7.75	31	✓	1	8/30	DH
7	14	7.4	7.68	31	15	7.5	7.69	31	✓	1	8/31	DH
8	15	7.2	7.73	31	15	7.3	7.74	31	✓	1	9/1/05	DH
9	15	7.55	7.71	30	15	7.55	7.72	30	✓	1	9/2/05	DH
10	15	7.6	7.70	30	15	7.4	7.69	30	✓	1	9/3	KJB
11	15	7.4	7.95	30	15	7.4	7.95	30	✓	2	9/4	[illegible]
12	15	7.1	7.91	30	15	7.4	7.90	30	✓	1	9/5/05	[illegible]
13	14	7.55	7.95	30	15	7.65	7.90	30	✓	2	9/6/05	DH
14	14	7.65	7.77	30	14	7.7	7.78	31	✓	1	9/7/05	DH
15	14	7.65	7.74	30	14	7.65	7.76	31	✓	1	9/8/05	DH
16	14	7.55	7.78	30	14	7.5	7.79	31	✓	1	9/9/05	DH
17	14	7.2	7.83	31	14	7.2	7.84	31	✓	1	9/10/05	[illegible]
18	14	6.8	7.99	31	14	6.9	8.01	31	✓	2	9/11	TT
19	14	7.6	7.97	31	14	7.6	7.97	31	✓	2	9/12/05	DH
20	15	7.35	7.87	31	15	7.45	7.81	31	✓	1	9/13/05	DH
21	14	7.2	7.84	31	14	7.2	7.82	31	✓	1	9/14/05	DH
22	15	7.25	7.94	31	15	7.4	7.94	31	✓	2	9/15/05	DH
23	14	7.6	7.78	31	15	7.5	7.82	31	✓	1	9/16/05	DH
24	14	7.7	7.97	31	14	7.7	7.98	31	✓	2	9/17/05	[illegible]
25	13	7.6	7.90	30	13	7.6	7.91	30	✓	1	9/18/05	BB
26	13	7.4	7.91	31	14	7.5	7.92	31	✓	2	9/19/05	DH
27	14	7.5	7.78	31	14	7.4	7.78	31	✓	1	9/20/05	DH
28	14	7.4	7.73	31	14	7.4	7.76	31	✓	1	9/21/05	DH

SEDIMENT BIOACCUMULATION ASSAY

Nereis virens

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE: 8/24/05

DAY	RISDS TEMP (°C)	RISDS DO (mg/L)	RISDS pH (SU)	RISDS SAL (ppt)	BBDS TEMP (°C)	BBDS DO (mg/L)	BBDS pH (SU)	BBDS SAL (ppt)	CHECK FLOW RATE	WQ STATION #	DATE	INIT.
0	15.9	7.45	7.75	30.3	15.8	7.40	7.79	30.3	✓	1	8/24	DH
1	15	7.55	7.83	30	15	7.6	7.80	30	✓	2	8/25	DH
2	15	7.4	7.78	30	15	7.25	7.72	30	✓	2	8/26	DH
3	15	7.3	7.76	31	14	7.3	7.75	30	✓	1	8/27/05	PS
4	14	7.4	7.97	31	14	7.3	8.00	31	✓	2	8/28/05	[illegible]
5	15	7.8	7.79	31	15	7.9	7.76	31	✓	1	8/29	DH
6	15	7.6	7.76	31	15	7.6	7.74	31	✓	1	8/30	DH
7	15	7.6	7.72	31	14	7.65	7.70	31	✓	1	8/31	DH
8	15	7.4	7.77	31	15	7.3	7.73	31	✓	1	9/1/05	DH
9	15	7.6	7.75	30	15	7.6	7.71	30	✓	1	9/2/05	DH
10	15	7.4	7.98	30	15	7.4	7.72		✓	1	9/3	[illegible]
11	15	7.4	7.96	30	15	7.4	7.96	30	~	1	9/4	[illegible]
12	15	7.4	7.92	30	15	7.5	7.91	30	✓	1	9/5/05	[illegible]
13	14	7.8	7.91	30	15	7.55	7.89	30	✓	2	9/6/05	DH
14	14	7.8	7.76	30	14	7.9	7.79	30	✓	1	9/7/05	DH
15	14	7.7	7.76	31	14	7.8	7.79	31	✓	1	9/8/05	DH
16	14	7.6	7.78	31	14	7.75	7.78	31	✓	1	9/9/05	DH
17	14	7.2	7.86	30	14	7.4	7.87	30	✓	1	9/10/05	[illegible]
18	14	7.0	8.02	31	14	7.1	8.04	31	✓	2	9/11	[illegible]
19	14	7.7	7.94	31	14	7.65	7.96	31	✓	2	9/12/05	DH
20	14	7.4	7.82	31	14	7.5	7.84	31	✓	1	9/13/05	DH
21	14	7.2	7.79	31	14	7.25	7.82	31	✓	1	9/14/05	DH
22	15	7.4	7.93	31	15	7.5	7.94	31	✓	2	9/15/05	DH
23	15	7.6	7.82	31	15	7.6	7.74	31	✓	1	9/16/05	DH
24	14	7.7	7.99	31	14	7.7	7.99	31	✓	2	9/17/05	[illegible]
25	13	7.6	7.90	30	13	7.6	7.92	30	✓	1	9/18/05	BB
26	14	7.55	7.86	31	14	7.6	7.91	31	✓	2	9/19/05	DH
27	14	7.5	7.74	31	14	7.5	7.76	31	✓	1	9/20/05	DH
28	14	7.35	7.72	31	14	7.4	7.76	31	✓	1	9/21/05	DH

Nereis virens SEDIMENT BIOACCUMULATION ASSAY
28 Day Survival Data

STUDY # 13569	CLIENT: Battelle	Overlying Water: Hampton Estuary	START DATE:

Replicate	Organisms Added at Test Initiation	Organisms Recovered at Day 28
LAB E		17
LAB D		18
LAB C		20
LAB B		19
LAB A		20
-008 A		19
-008 B		19
-008 C		20
-008 D		19
-008 E		20
-001 E		18
-001 D		17
-001 C		20
-001 B		19
-001 A		20
RISDS A		18
RISDS B		19
RISDS C		19
RISDS D		20
RISDS E		20
-003 A		19
-003 B		19
-003 C		16
-003 D		19
-003 E		19

Initials _____
Date 9/21/05

Nereis virens SEDIMENT BIOACCUMULATION ASSAY
28 Day Survival Data

STUDY # 13569	CLIENT: Battelle	Overlying Water: Hampton Estuary	START DATE:

Replicate	Organisms Added at Test Initiation	Organisms Recovered at Day 28
BBDS A		20
BBDS B		20
BBDS C		19
BBDS D		18
BBDS E		20

Initials M
Date 9/21/05

CETIS Test Summary

Report Date: 25 Sep-05 8:52 PM
Link: 17-2479-2112

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5949-3929	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	24 Aug-05 12:00 PM	**Protocol:**		**Species:**	Nereis virens
Ending Date:	21 Sep-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	24 Aug-05 12:00 PM	**Brine:**	Not Applicable		

Sample No:	06-4796-5238	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	04 Aug-05 10:00 AM	**Code:**	13569-0	**Project:**	Dredged Sediment Evaluation
Receive Date:	04 Aug-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	20d 2h	**Station:**	Lab Control		
Sample No:	04-7399-9752	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-1	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	28d 12h	**Station:**	Composite 1		
Sample No:	07-1195-7239	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-10	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	28d 0h	**Station:**	BBDS - Reference Site		
Sample No:	02-4724-2483	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-3	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	28d 12h	**Station:**	Composite 3		
Sample No:	02-7684-9294	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-8	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	28d 0h	**Station:**	Composite 8		
Sample No:	05-3183-7796	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-9	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	28d 0h	**Station:**	RISDS - Reference Site		

Proportion Survived Summary

Sample Code	Reps	Mean	Minimum	Maximum	SE	SD	CV
13569-0	5	0.94000	0.85000	1.00000	0.02915	0.06519	6.94%
13569-9	5	0.96000	0.90000	1.00000	0.01871	0.04183	4.36%
13569-10	5	0.97000	0.90000	1.00000	0.02000	0.04472	4.61%
13569-1	5	0.94000	0.85000	1.00000	0.02915	0.06519	6.94%
13569-3	5	0.93000	0.80000	1.00000	0.03391	0.07583	8.15%
13569-8	5	0.97000	0.95000	1.00000	0.01225	0.02739	2.82%

Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000
13569-1	1.00000	0.95000	1.00000	0.85000	0.90000
13569-3	1.00000	0.95000	0.95000	0.80000	0.95000
13569-8	0.95000	0.95000	1.00000	0.95000	1.00000

CETIS Data Worksheet

Report Date: 25 Sep-05 8:47 PM
Link: 17-2479-2112

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Start Date:	24 Aug-05 12:00 PM	**Species:**	Nereis virens	**Sample Code:**	13569-0
Ending Date:	21 Sep-05 12:00 PM	**Protocol:**		**Sample Source:**	New Bedford Harbor, MA
Sample Date:	04 Aug-05 10:00 AM	**Material:**	Dredged Sediment Suspended Particul	**Sample Station:**	Lab Control

Conc-%	Rep	Pos	# Exposed	# Survived	Notes
13569-0	1	9	20	20	
13569-0	2	24	20	19	
13569-0	3	22	20	20	
13569-0	4	2	20	18	
13569-0	5	7	20	17	
13569-9	1	1	20	18	
13569-9	2	13	20	19	
13569-9	3	12	20	19	
13569-9	4	11	20	20	
13569-9	5	26	20	20	
13569-10	1	20	20	20	
13569-10	2	8	20	20	
13569-10	3	29	20	19	
13569-10	4	18	20	18	
13569-10	5	27	20	20	
13569-1	1	28	20	20	
13569-1	2	23	20	19	
13569-1	3	16	20	20	
13569-1	4	19	20	17	
13569-1	5	30	20	18	
13569-3	1	25	20	20	
13569-3	2	6	20	19	
13569-3	3	5	20	19	
13569-3	4	10	20	16	
13569-3	5	14	20	19	
13569-8	1	15	20	19	
13569-8	2	4	20	19	
13569-8	3	3	20	20	
13569-8	4	21	20	19	
13569-8	5	17	20	20	

CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.03555	23.15450	0.50814	Equal Variances
Distribution	Shapiro-Wilk W	0.92014	0.78055	0.34001	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0029648	0.0029648	1	0.25	0.63237	Non-Significant Effect
Error	0.095917	0.0119896	8			
Total	0.09888177	0.0149544	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-9	-0.4973	1.85955	0.6838	0.12878	Non-Significant Effect

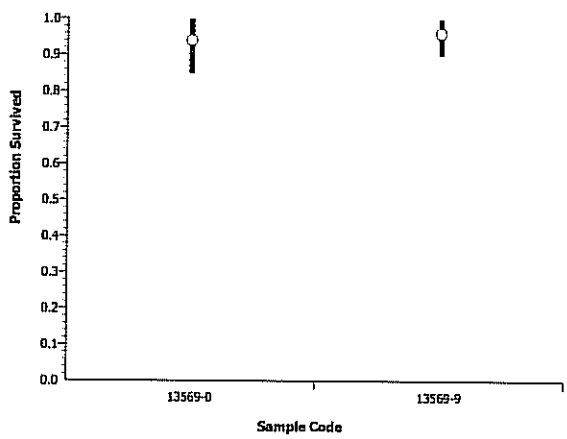
Data Summary

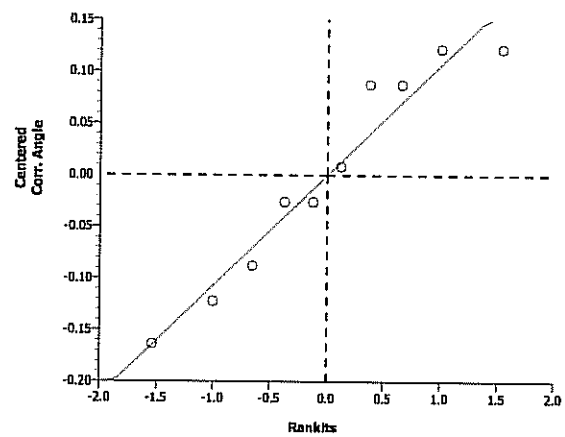
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681
13569-9	5	0.96000	0.90000	1.00000	0.04183	1.37143	1.24905	1.45876	0.08888

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000					
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.78833	23.15450	0.58721	Equal Variances
Distribution	Shapiro-Wilk W	0.90082	0.78055	0.21673	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0081603	0.0081603	1	0.65	0.44309	Non-Significant Effect
Error	0.1002852	0.0125357	8			
Total	0.10844547	0.0206959	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-10	-0.8068	1.85955	0.7785	0.13168	Non-Significant Effect

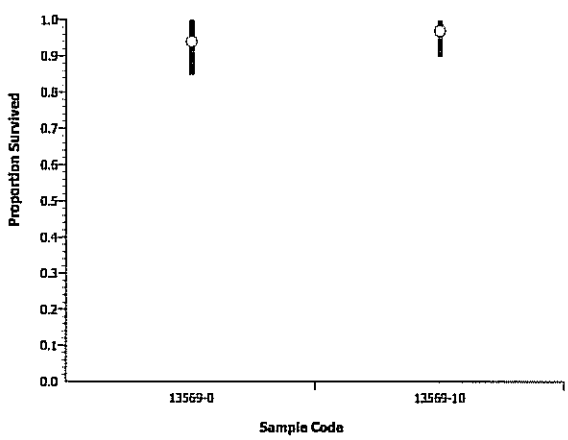
Data Summary

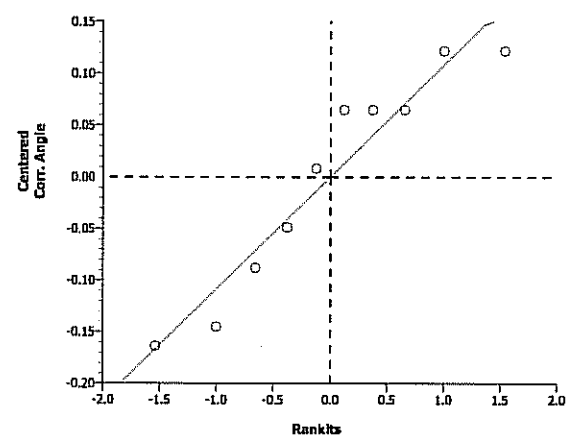
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681
13569-10	5	0.97000	0.90000	1.00000	0.04472	1.39412	1.24905	1.45876	0.09482

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000					
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.13824	23.15450	0.90316	Equal Variances
Distribution	Shapiro-Wilk W	0.86268	0.78055	0.08520	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0012877	0.0012877	1	0.15	0.70638	Non-Significant Effect
Error	0.0675639	0.0084455	8			
Total	0.06885158	0.0097332	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-10	-0.3905	1.85955	0.6468	0.10808	Non-Significant Effect

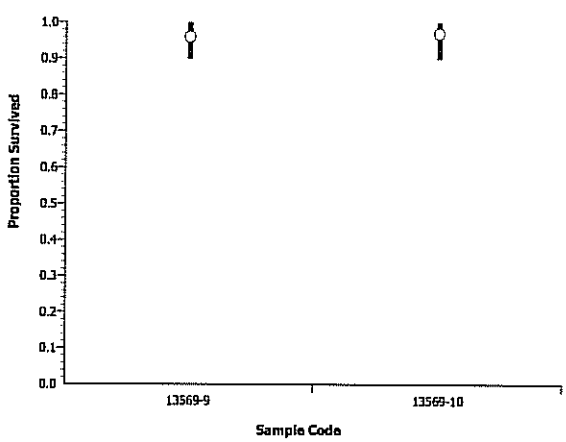
Data Summary

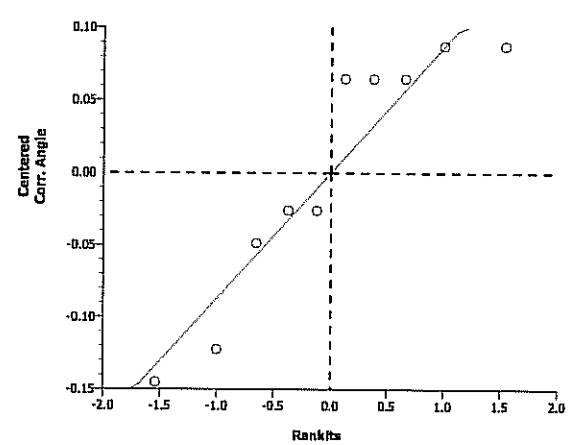
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96000	0.90000	1.00000	0.04183	1.37143	1.24905	1.45876	0.08888
13569-10	5	0.97000	0.90000	1.00000	0.04472	1.39412	1.24905	1.45876	0.09482

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000					
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.00000	23.15450	1.00000	Equal Variances
Distribution	Shapiro-Wilk W	0.83899	0.78055	0.04679	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0	0	1	0.00	1.00000	Non-Significant Effect
Error	0.1286383	0.0160798	8			
Total	0.12863825	0.0160798	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-1	0	1.85955	0.5000	0.14913	Non-Significant Effect

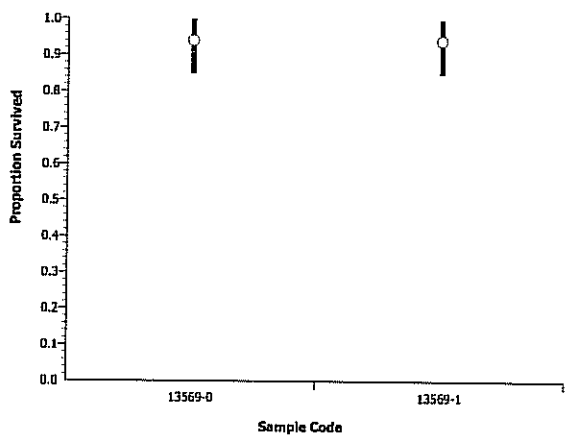
Data Summary

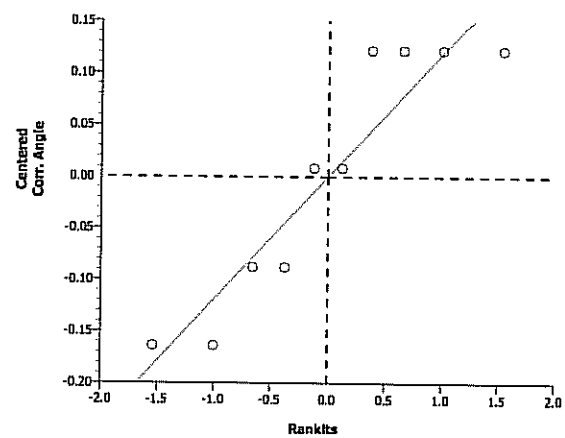
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681
13569-1	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000					
13569-1	1.00000	0.95000	1.00000	0.85000	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.03555	23.15450	0.50814	Equal Variances
Distribution	Shapiro-Wilk W	0.92014	0.78055	0.34001	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0029648	0.0029648	1	0.25	0.63237	Non-Significant Effect
Error	0.095917	0.0119896	8			
Total	0.09888177	0.0149544	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-1	0.49727	1.85955	0.3162	0.12878	Non-Significant Effect

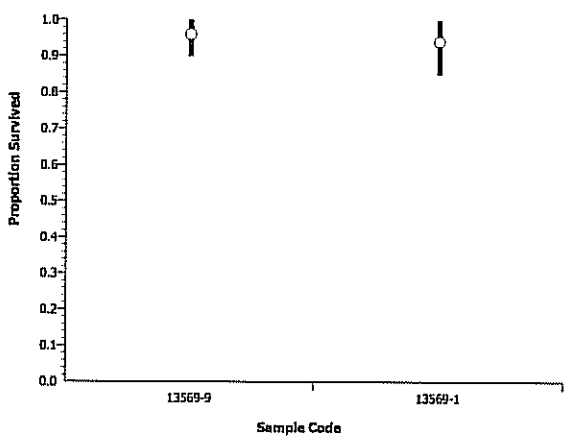
Data Summary

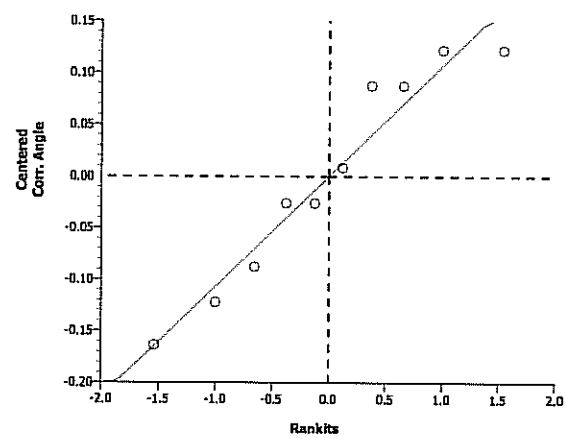
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96000	0.90000	1.00000	0.04183	1.37143	1.24905	1.45876	0.08888
13569-1	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000					
13569-1	1.00000	0.95000	1.00000	0.85000	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.78833	23.15450	0.58721	Equal Variances
Distribution	Shapiro-Wilk W	0.90082	0.78055	0.21673	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0081603	0.0081603	1	0.65	0.44309	Non-Significant Effect
Error	0.1002852	0.0125357	8			
Total	0.10844547	0.0206959	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-1	0.80682	1.85955	0.2215	0.13168	Non-Significant Effect

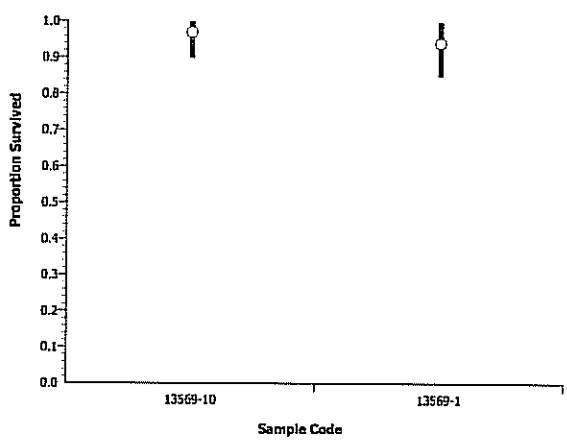
Data Summary

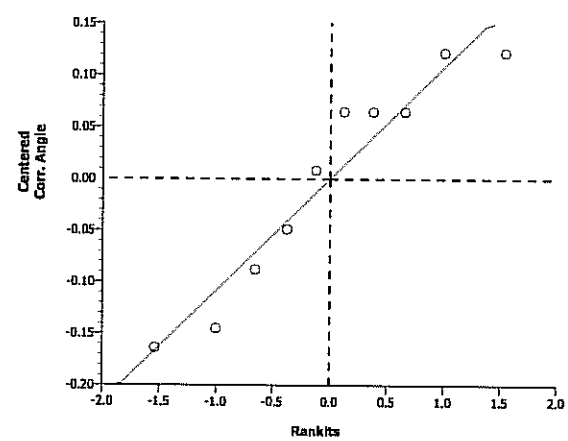
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.97000	0.90000	1.00000	0.04472	1.39412	1.24905	1.45876	0.09482
13569-1	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000					
13569-1	1.00000	0.95000	1.00000	0.85000	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.03354	23.15450	0.97526	Equal Variances
Distribution	Shapiro-Wilk W	0.89810	0.78055	0.20309	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0006920	0.0006920	1	0.04	0.84214	Non-Significant Effect
Error	0.1307958	0.0163495	8			
Total	0.13148784	0.0170415	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-3	0.20573	1.85955	0.4211	0.15038	Non-Significant Effect

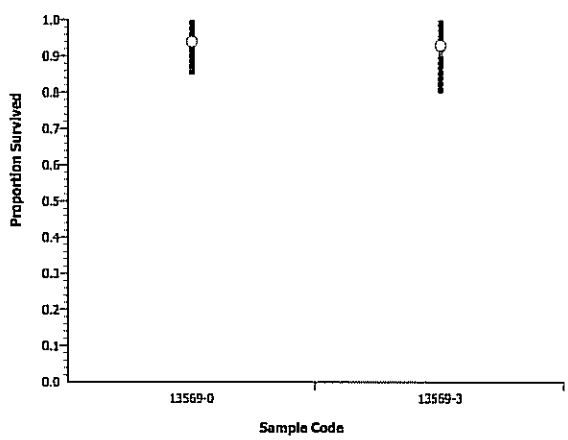
Data Summary

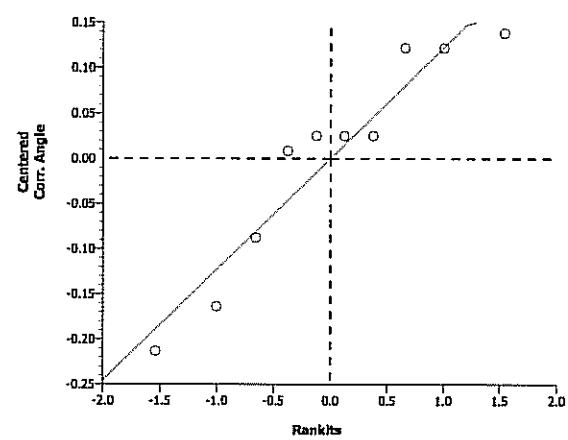
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681
13569-3	5	0.93000	0.80000	1.00000	0.07583	1.32035	1.10715	1.45876	0.12892

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000					
13569-3	1.00000	0.95000	0.95000	0.80000	0.95000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.10384	23.15450	0.48904	Equal Variances
Distribution	Shapiro-Wilk W	0.92596	0.78055	0.38752	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0065215	0.0065215	1	0.53	0.48658	Non-Significant Effect
Error	0.0980745	0.0122593	8			
Total	0.10459607	0.0187808	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-3	0.72936	1.85955	0.2433	0.13022	Non-Significant Effect

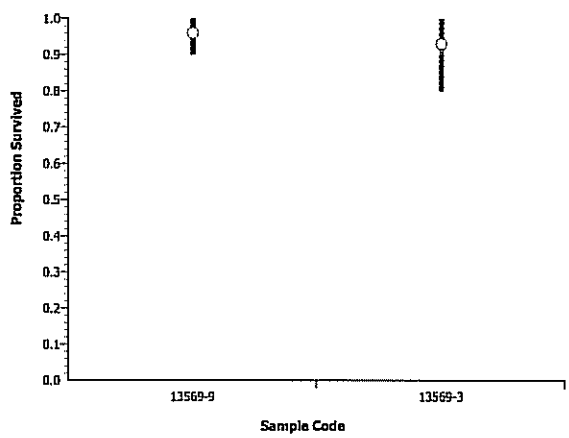
Data Summary

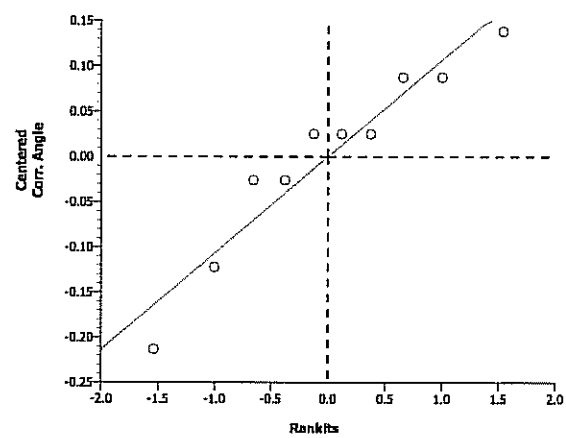
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96000	0.90000	1.00000	0.04183	1.37143	1.24905	1.45876	0.08888
13569-3	5	0.93000	0.80000	1.00000	0.07583	1.32035	1.10715	1.45876	0.12892

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000					
13569-3	1.00000	0.95000	0.95000	0.80000	0.95000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.84832	23.15450	0.56646	Equal Variances
Distribution	Shapiro-Wilk W	0.87831	0.78055	0.12558	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0136049	0.0136049	1	1.06	0.33281	Non-Significant Effect
Error	0.1024428	0.0128054	8			
Total	0.1160477	0.0264103	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-3	1.03075	1.85955	0.1664	0.13309	Non-Significant Effect

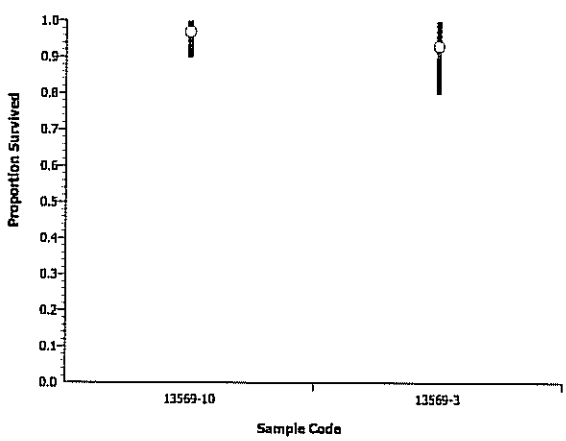
Data Summary

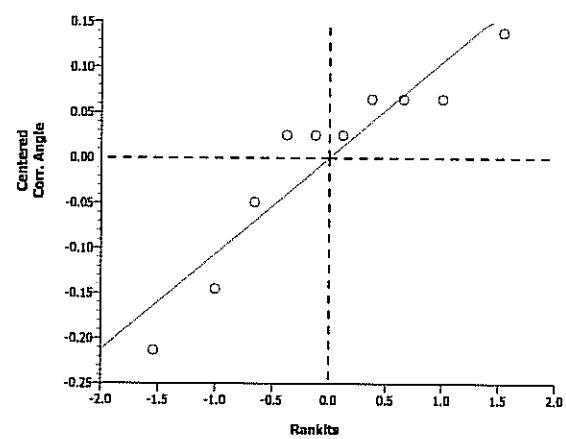
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.97000	0.90000	1.00000	0.04472	1.39412	1.24905	1.45876	0.09482
13569-3	5	0.93000	0.80000	1.00000	0.07583	1.32035	1.10715	1.45876	0.12892

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000					
13569-3	1.00000	0.95000	0.95000	0.80000	0.95000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.16249	23.15450	0.19606	Equal Variances
Distribution	Shapiro-Wilk W	0.93623	0.78055	0.48431	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0072051	0.0072051	1	0.72	0.42001	Non-Significant Effect
Error	0.0797712	0.0099714	8			
Total	0.08697633	0.0171765	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-0		13569-8	-0.8500	1.85955	0.7900	0.11744	Non-Significant Effect

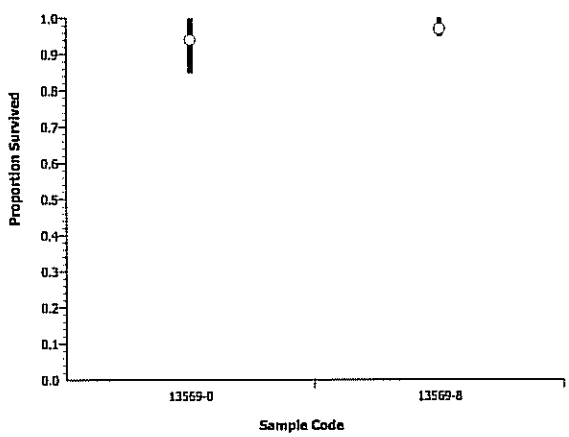
Data Summary

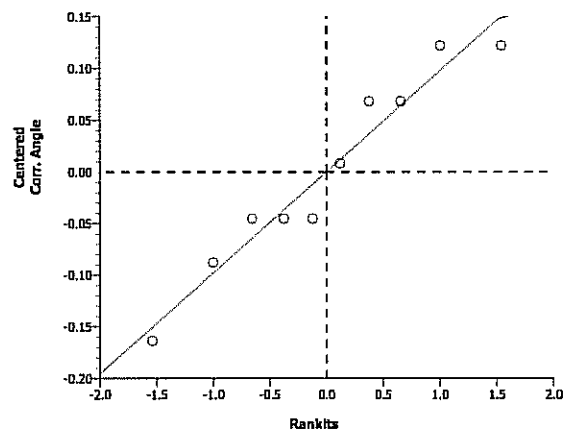
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-0	5	0.94000	0.85000	1.00000	0.06519	1.33699	1.17310	1.45876	0.12681
13569-8	5	0.97000	0.95000	1.00000	0.02739	1.39067	1.34528	1.45876	0.06215

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-0	1.00000	0.95000	1.00000	0.90000	0.85000					
13569-8	0.95000	0.95000	1.00000	0.95000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:47 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.04489	23.15450	0.50546	Equal Variances
Distribution	Shapiro-Wilk W	0.86912	0.78055	0.10006	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0009262	0.0009262	1	0.16	0.70187	Non-Significant Effect
Error	0.0470499	0.0058812	8			
Total	0.04797609	0.0068074	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-8	-0.3968	1.85955	0.6491	0.09019	Non-Significant Effect

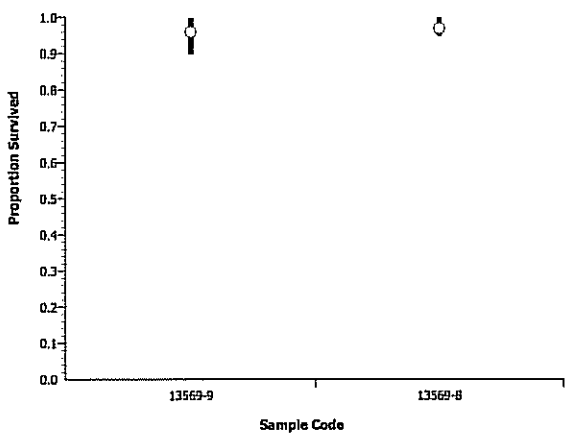
Data Summary

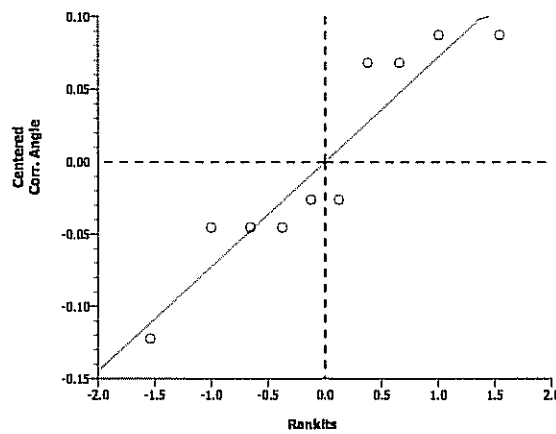
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96000	0.90000	1.00000	0.04183	1.37143	1.24905	1.45876	0.08888
13569-8	5	0.97000	0.95000	1.00000	0.02739	1.39067	1.34528	1.45876	0.06215

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.90000	0.95000	0.95000	1.00000	1.00000					
13569-8	0.95000	0.95000	1.00000	0.95000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	17-2479-2112	17-2479-2112	25 Sep-05 8:48 PM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.32758	23.15450	0.43331	Equal Variances
Distribution	Shapiro-Wilk W	0.79536	0.78055	0.01493	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	2.972E-05	2.972E-05	1	0.00	0.94746	Non-Significant Effect
Error	0.0514182	0.0064273	8			
Total	0.05144789	0.006457	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-8	0.068	1.85955	0.4737	0.09429	Non-Significant Effect

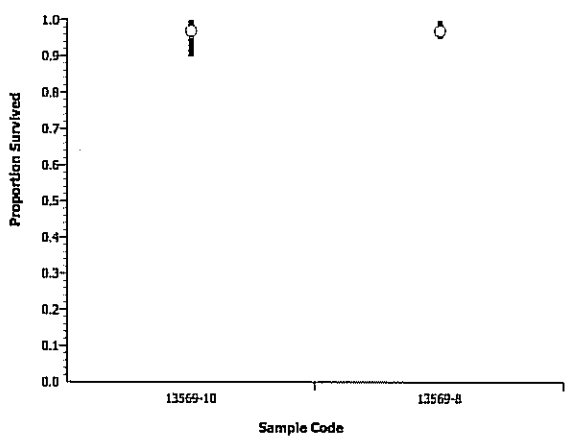
Data Summary

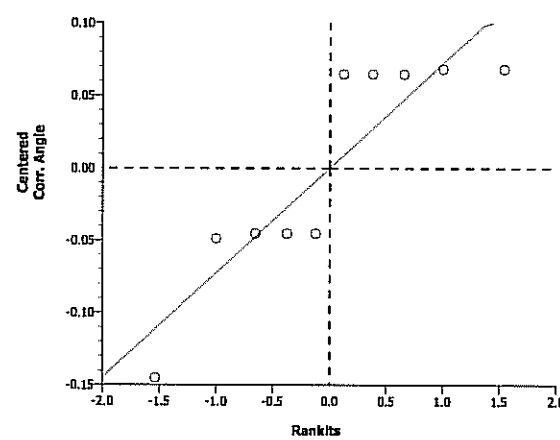
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.97000	0.90000	1.00000	0.04472	1.39412	1.24905	1.45876	0.09482
13569-8	5	0.97000	0.95000	1.00000	0.02739	1.39067	1.34528	1.45876	0.06215

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	1.00000	0.95000	0.90000	1.00000					
13569-8	0.95000	0.95000	1.00000	0.95000	1.00000					

Graphics





SEDIMENT BIOACCUMULATION ASSAY

Macoma nasusta CLAMS

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE: 9/14/05

DAY	LAB TEMP (°C)	LAB DO (mg/L)	LAB pH (SU)	LAB SAL (ppt)	-001 TEMP (°C)	-001 DO (mg/L)	-001 pH (SU)	-001 SAL (ppt)	CHECK FLOW RATE	WQ STATION #	DATE	INIT.
0	15	6.85	7.54	30	14	6.95	7.71	31	✓	1	9/14/05	DH
1	15	7.25	7.61	31	15	7.3	7.81	31	✓	2	9/15/05	DH
2	14	7.5	7.50	31	14	7.55	7.68	31	✓	1	9/16/05	DH
3	14	7.4	7.84	31	14	7.4	7.89	31	✓	2	9/17/05	✓
4	13	7.5	7.78	30	13	7.6	7.82	30	✓	1	9/18/05	BB
5	14	7.55	7.71	31	13	7.6	7.79	31	✓	2	9/19/05	DH
6	15	7.5	7.51	30	14	7.4	7.69	30	✓	1	9/20/05	DH
7	14	7.2	7.69	30	14	7.2	7.69	31	✓	1	9/21/05	DH
8	15	7.4	7.74	30	14	7.6	7.72	30	✓	2	9/22/05	DH
9	15	7.25	7.73	30	14	7.2	7.82	30	✓	2	9/23/05	DH
10	15	6.8	7.86	~~30~~ 31	15	6.7	7.90	~~30~~ 31	✓	2	9/24/05	✓
11	16	6.5	7.77	31	15	6.5	7.80	31	✓	1	9/25	m
12	17	7.4	7.53	31	17	7.1	7.77	31	✓	1	9/26	DH
13	15	7.0	7.69	30	15	7.05	7.75	31	✓	1	9/27	DH
14	14	7.5	7.66	31	13	7.4	7.77	31	✓	1	9/28	DH
15	14	7.3	7.71	30	14	7.05	7.80	31	✓	2	9/29	DH
16	14	7.55	7.73	30	13	7.45	7.84	30	✓	2	9/30	DH
17	13	6.6	7.85	30	13	6.6	7.91	30	✓	2	10/1/05	✓
18	13	7.7	7.92	30	13	7.7	7.92	30	✓	1	10/2	m
19	14	7.1	7.65	30	13	7.1	7.71	30	✓	2	10/3	DH
20	14	7.6	7.59	30	13	7.55	7.72	30	✓	1	10/4	DH
21	14	~~6.6~~ DH 7.5 EB 7.2	7.63	30	13	~~6.4~~ DH 7.1 EB 7.2	7.79	30	✓	1	10/5/05	DH
22	14	7.7	7.72	30	14	7.75	7.83	30	✓	2	10/6/05	DH
23	14	7.4	7.84	30	14	7.4	7.91	30	✓	2	10/7/05	BB
24	14	7.3	7.82	31	14	7.3	7.87	31	✓	2	10/8/05	BB
25	13	7.9	7.75	30	13	7.9	7.83	31	✓	1	10/9	m
26	14	7.6	7.69	30	13	7.7	7.76	30	✓	1	10/10	DH
27	13	7.8	7.83	31	13	7.7	7.87	30	✓	1	10/11/05	BB
28	15	7.7	7.61	29	14	7.7	7.87	28	✓	1	10/12/05	DH

SEDIMENT BIOACCUMULATION ASSAY

Macoma nasusta

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE: 9/14/05

DAY	-003				-008				CHECK FLOW RATE	WQ STATION #	DATE	INIT.
	TEMP (°C)	DO (mg/L)	pH (SU)	SAL (ppt)	TEMP (°C)	DO (mg/L)	pH (SU)	SAL (ppt)				
0	14	7.0	7.75	31	14	7.0	7.78	31	✓	1	9/14/05	DH
1	15	7.2	7.82	31	15	7.35	7.86	31	✓	2	9/15/05	DH
2	14	7.55	7.69	31	14	7.6	7.72	31	✓	1	9/16/05	DH
3	14	7.5	7.89	30	14	7.6	7.92	31	✓	2	9/17/05	✓
4	13	7.6	7.79	30	13	7.6	7.86	30	✓	1	9/18/05	BB
5	13	7.55	7.80	31	13	7.65	7.83	31	✓	2	9/19/05	DH
6	13	7.3	7.69	30	14	7.4	7.74	31	✓	1	9/20/05	DH
7	13	7.3	7.68	30	14	7.25	7.71	31	✓	1	9/21/05	DH
8	14	7.6	7.78	31	14	7.4	7.83	31	✓	2	9/22/05	DH
9	14	7.3	7.80	31	14	7.3	7.88	31	✓	2	9/23/05	DH
10	15	6.8	7.95	31	15	6.9	7.97	31	✓	2	9/24/05	✓
11	15	6.5	7.83	31	16	6.6	7.87	31	✓	1	9/25	m
12	16	7.1	7.78	31	16	7.25	7.81	31	✓	1	9/26	DH
13	14	7.0	7.72	31	14	7.05	7.80	31	✓	1	9/27	DH
14	13	7.4	7.76	31	13	7.55	7.79	31	✓	1	9/28	DH
15	13	7.2	7.83	31	13	7.4	7.84	31	✓	2	9/29	DH
16	13	7.4	7.83	31	13	7.6	7.87	31	✓	2	9/30	DH
17	13	6.4	7.94	30	13	6.6	7.96	30	✓	2	10/1/05	✓
18	13	7.6	7.97	30	13	7.7	8.00	30	✓	1	10/2	m
19	13	7.2	7.74	30	13	7.2	7.78	30	✓	2	10/3	DH
20	13	7.4	7.71	30	13	7.3	7.75	30	✓	1	10/4	DH
21	13	7.4	7.80	30	13	7.5	7.84	30	✓	1	10/5/05	DH
22	14	7.8	7.85	30	14	8.0	7.91	30	✓	2	10/6/05	DH
23	14	7.5	7.93	30	14	7.5	7.94	30	✓	2	10/7/05	BB
24	14	7.4	7.88	31	14	7.4	7.88	31	✓	2	10/8/05	BB
25	13	8.0	7.82	30	13	8.0	7.86	31	✓	1	10/9	m
26	13	7.5	7.73	31	13	7.7	7.81	31	✓	1	10/10	DH
27	13	7.7	7.89	30	13	7.8	7.92	30	✓	1	10/11/05	BB
28	14	7.7	7.88	27	14	7.8	7.87	27	✓	1	10/12/05	DH

SEDIMENT BIOACCUMULATION ASSAY

Macoma nasusta

STUDY # 13569	CLIENT: Battelle	Overlying Water: Lab Salt	START DATE 9/14/05

DAY	RISDS TEMP (°C)	RISDS DO (mg/L)	RISDS pH (SU)	RISDS SAL (ppt)	BBDS TEMP (°C)	BBDS DO (mg/L)	BBDS pH (SU)	BBDS SAL (ppt)	CHECK FLOW RATE	WQ STATION #	DATE	INIT.
0	14	7.1	7.78	31	14	7.2	7.77	31	✓	1	9/14/05	DH
1	15	7.4	7.85	31	15	7.05	7.86	31	✓	2	9/15/05	DH
2	14	7.65	7.72	31	14	7.65	7.66	31	✓	1	9/16/05	DH
3	14	7.7	7.92	31	14	7.7	7.94	31	✓	2	9/17/05	✓
4	13	7.6	7.84	30	13	7.6	7.87	30	✓	1	9/18/05	BB
5	14	7.6	7.82	31	14	7.6	7.87	31	✓	2	9/19/05	DH
6	14	7.45	7.68	31	14	7.5	7.72	31	✓	1	9/20/05	DH
7	14	7.4	7.66	31	14	7.4	7.69	31	✓	1	9/21/05	DH
8	14	7.7	7.79	31	14	7.7	7.82	31	✓	2	9/22/05	DH
9	15	7.0	7.86	31	15	~~6.9~~ 7.3 DH	7.88	31	✓	2	9/23/05	DH
10	15	6.9	7.95	31	15	6.9	7.98	31	✓	2	9/24/05	✓
11	15	6.9	7.84	31	15	6.6	7.86	31	✓	1	9/25	m
12	16	7.2	7.81	31	16	7.2	7.78	31	✓	1	9/26	DH
13	14	7.0	7.78	31	14	7.1	7.80	31	✓	1	9/27	DH
14	13	7.5	7.78	31	13	7.55	7.77	31	✓	1	9/28	DH
15	13	7.3	7.84	31	13	7.2	7.86	31	✓	2	9/29	DH
16	13	7.7	7.90	31	13	7.8	7.91	31	✓	2	9/30	DH
17	13	6.7	7.95	30	12	6.7	7.96	30	✓	2	10/1/05	✓
18	13	7.7	8.00	30	13	7.6	8.00	30	✓	1	10/2	m
19	13	7.2	7.76	30	13	7.3	7.78	30	✓	2	10/3	DH
20	13	7.3	7.77	30	13	7.4	7.76	30	✓	1	10/4	DH
21	13	7.5	7.84	30	13	7.6	7.84	30	✓	1	10/5/05	DH
22	13	7.7	7.86	30	13	7.75	7.91	30	✓	2	10/6/05	DH
23	14	7.7	7.95	30	14	7.7	7.96	30	✓	2	10/7/05	BB
24	14	7.5	7.91	31	14	7.6	7.92	31	✓	2	10/8/05	BB
25	13	8.0	7.89	31	13	8.0	7.91	31	✓	1	10/9	m
26	13	7.6	7.76	31	13	7.5	7.82	31	✓	1	10/10	DH
27	13	7.9	7.92	30	13	7.9	7.91	30	✓	1	10/11/05	BB
28	14	7.8	7.85	28	14	7.8	7.84	28	✓	1	10/12/05	DH

MISCELLANEOUS DOCUMENTATION FORM

STUDY No.: 13569 STUDY DIRECTOR:

PROJECT TITLE: BATTELLE

GENERATED BY: DATE: 9/14/05

The following information is provided as miscellaneous documentation for the above referenced project.

DEAD	CLAMS	IN	LAB	CONTROL	TANKS	
9/19/05	A=1	B=1	C=0	D=0	E=0	DH
9/29/05	A=0	B=0	C=0	D=1	E=0	DH
10/3/05	A=0	B=0	C=1	D=0	E=0	DH
10/10/05	A=0	B=0	C=0	D=0	E=1	DH

Signed: Date:

Macoma nasuta SEDIMENT BIOACCUMULATION ASSAY
28 Day Survival Data

STUDY # 13569	CLIENT: Battelle	Overlying Water: Hampton Estuary	START DATE:

Replicate	Organisms Added at Test Initiation	Organisms Recovered at Day 28
Lab A	30	29
Lab B		28
Lab C		29
Lab D		29
Lab E		29
-001 A		27
-001 B		28
-001 C		30
-001 D		29
-001 E		27
-003 A		28
-003 B		29
-003 C		26
-003 D		29
-003 E		29
-008 A		29
-008 B		29
-008 C		27
-008 D		30
-008 E		30
RESDS A		28
RESDS B		27
RESDS C		30
RESDS D		30
RESDS E		30

Initials BB
Date 10/12/05

Macoma nasuta SEDIMENT BIOACCUMULATION ASSAY
28 Day Survival Data

STUDY # 13569	CLIENT: Battelle	Overlying Water: Hampton Estuary	START DATE:

Replicate	Organisms Added at Test Initiation	Organisms Recovered at Day 28
BBDS A	30	30
BBDS B	↓	29
BBDS C	↓	30
BBDS D	↓	28
BBDS E	↓	30

Initials BB
Date 10/12/05

CETIS Test Summary

Report Date: 26 Oct-05 11:40 AM
Link: 11-3837-3039

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Sample No:	01-8359-6054	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	13 Sep-05 12:00 PM	**Code:**	13569-000	**Project:**	Dredged Sediment Evaluation
Receive Date:	13 Sep-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	24h	**Station:**	Lab Control		
Sample No:	04-7399-9752	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-1	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	49d 12h	**Station:**	Composite 1		
Sample No:	07-1195-7239	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-10	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	49d 0h	**Station:**	BBDS - Reference Site		
Sample No:	02-4724-2483	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05	**Code:**	13569-3	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	49d 12h	**Station:**	Composite 3		
Sample No:	02-7684-9294	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-8	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 12:00 PM	**Source:**	New Bedford Harbor, MA		
Sample Age:	49d 0h	**Station:**	Composite 8		
Sample No:	05-3183-7796	**Material:**	Dredged Sediment Suspended Particul	**Client:**	Battelle Labs
Sample Date:	27 Jul-05 12:00 PM	**Code:**	13569-9	**Project:**	Dredged Sediment Evaluation
Receive Date:	29 Jul-05 10:00 AM	**Source:**	New Bedford Harbor, MA		
Sample Age:	49d 0h	**Station:**	RISDS - Reference Site		

Proportion Survived Summary

Sample Code	Reps	Mean	Minimum	Maximum	SE	SD	CV
13569-000	5	0.96000	0.93333	0.96667	0.00667	0.01491	1.55%
13569-9	5	0.96667	0.90000	1.00000	0.02108	0.04714	4.88%
13569-10	5	0.98000	0.93333	1.00000	0.01333	0.02981	3.04%
13569-1	5	0.94000	0.90000	1.00000	0.01944	0.04346	4.62%
13569-3	5	0.94000	0.86667	0.96667	0.01944	0.04346	4.62%
13569-8	5	0.96667	0.90000	1.00000	0.01826	0.04082	4.22%

Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000
13569-1	0.90000	0.93333	1.00000	0.96667	0.90000
13569-3	0.93333	0.96667	0.86667	0.96667	0.96667
13569-8	0.96667	0.96667	0.90000	1.00000	1.00000

CETIS Data Worksheet

Report Date: 26 Oct-05 11:39 AM
Link: 11-3837-3039

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Start Date:	14 Sep-05 12:00 PM	**Species:**	Macoma nasuta	**Sample Code:**	13569-000
Ending Date:	12 Oct-05 12:00 PM	**Protocol:**		**Sample Source:**	New Bedford Harbor, MA
Sample Date:	13 Sep-05 12:00 PM	**Material:**	Dredged Sediment Suspended Particul	**Sample Station:**	Lab Control

Conc-%	Rep	Pos	# Exposed	# Survived	Notes
13569-000	1	25	30	29	
13569-000	2	14	30	28	
13569-000	3	30	30	29	
13569-000	4	5	30	29	
13569-000	5	17	30	29	
13569-9	1	9	30	28	
13569-9	2	3	30	27	
13569-9	3	24	30	30	
13569-9	4	21	30	30	
13569-9	5	7	30	30	
13569-10	1	27	30	30	
13569-10	2	12	30	29	
13569-10	3	19	30	30	
13569-10	4	6	30	28	
13569-10	5	16	30	30	
13569-1	1	29	30	27	
13569-1	2	10	30	28	
13569-1	3	13	30	30	
13569-1	4	23	30	29	
13569-1	5	26	30	27	
13569-3	1	11	30	28	
13569-3	2	2	30	29	
13569-3	3	4	30	26	
13569-3	4	1	30	29	
13569-3	5	18	30	29	
13569-8	1	15	30	29	
13569-8	2	20	30	29	
13569-8	3	28	30	27	
13569-8	4	8	30	30	
13569-8	5	22	30	30	

CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:39 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	10.36132	23.15450	0.04376	Equal Variances
Distribution	Shapiro-Wilk W	0.87308	0.78055	0.11037	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0019161	0.0019161	1	0.28	0.61081	Non-Significant Effect
Error	0.0546664	0.0068333	8			
Total	0.05658249	0.0087494	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-000		13569-9	-0.5295	1.85955	0.6946	0.09722	Non-Significant Effect

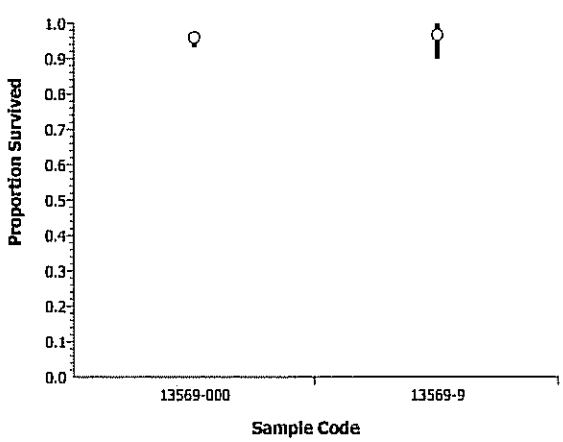
Data Summary

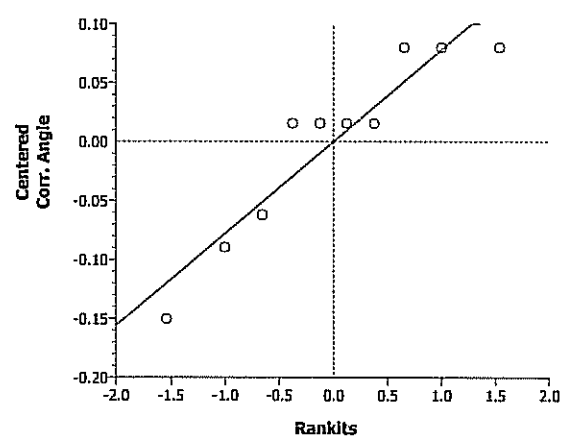
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-000	5	0.96000	0.93333	0.96667	0.01491	1.37168	1.30964	1.38719	0.03468
13569-9	5	0.96667	0.90000	1.00000	0.04714	1.39937	1.24905	1.47938	0.11164

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667					
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:39 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	4.90269	23.15450	0.15276	Equal Variances
Distribution	Shapiro-Wilk W	0.84386	0.78055	0.05298	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0076490	0.0076490	1	2.15	0.18033	Non-Significant Effect
Error	0.0284015	0.0035502	8			
Total	0.03605055	0.0111992	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-000		13569-10	-1.4678	1.85955	0.9098	0.07008	Non-Significant Effect

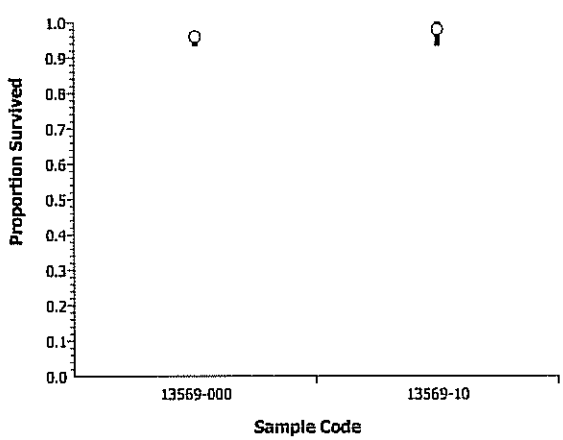
Data Summary

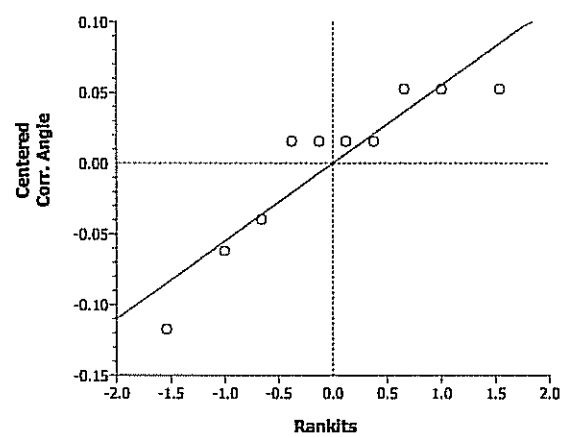
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-000	5	0.96000	0.93333	0.96667	0.01491	1.37168	1.30964	1.38719	0.03468
13569-10	5	0.98000	0.93333	1.00000	0.02981	1.42700	1.30964	1.47938	0.07680

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667					
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	2.11340	23.15450	0.48645	Equal Variances
Distribution	Shapiro-Wilk W	0.81576	0.78055	0.02563	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0019084	0.0019084	1	0.21	0.66056	Non-Significant Effect
Error	0.0734447	0.0091806	8			
Total	0.07535312	0.0110890	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-10	-0.4559	1.85955	0.6697	0.11269	Non-Significant Effect

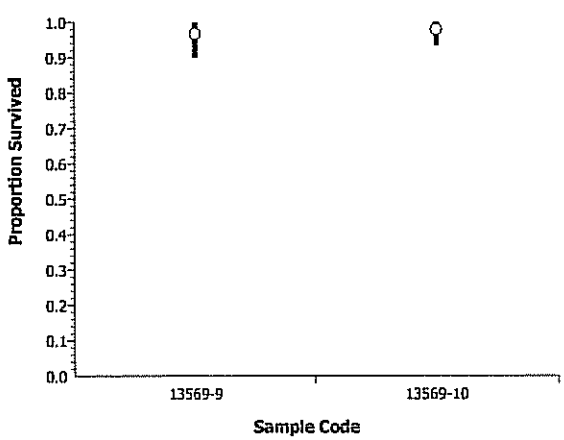
Data Summary

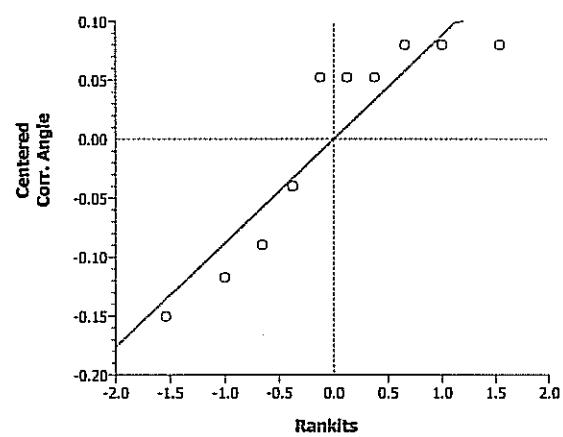
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96667	0.90000	1.00000	0.04714	1.39937	1.24905	1.47938	0.11164
13569-10	5	0.98000	0.93333	1.00000	0.02981	1.42700	1.30964	1.47938	0.07680

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000					
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:39 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	8.10320	23.15450	0.06710	Equal Variances
Distribution	Shapiro-Wilk W	0.90633	0.78055	0.24689	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0033894	0.0033894	1	0.62	0.45407	Non-Significant Effect
Error	0.0438012	0.0054751	8			
Total	0.04719057	0.0088646	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-000		13569-1	0.7868	1.85955	0.2270	0.08702	Non-Significant Effect

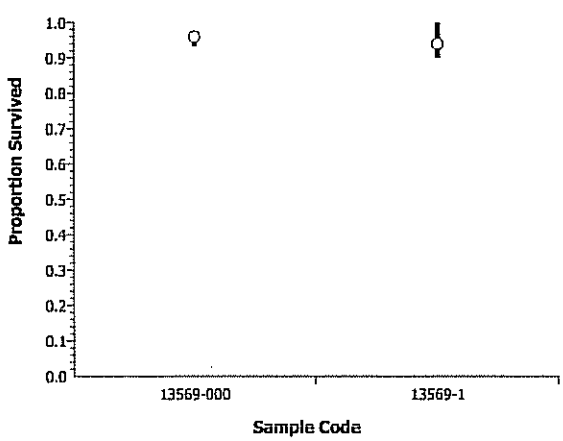
Data Summary

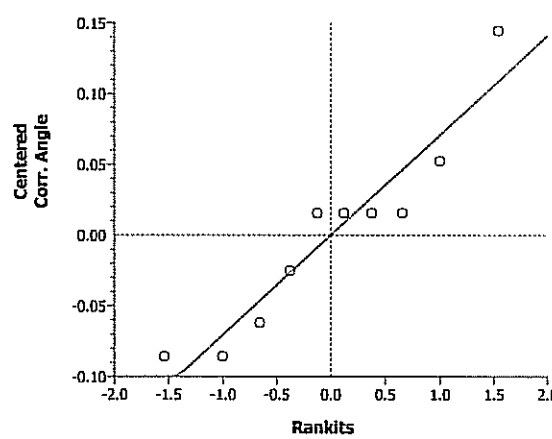
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-000	5	0.96000	0.93333	0.96667	0.01491	1.37168	1.30964	1.38719	0.03468
13569-1	5	0.94000	0.90000	1.00000	0.04346	1.33486	1.24905	1.47938	0.09873

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667					
13569-1	0.90000	0.93333	1.00000	0.96667	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.27867	23.15450	0.81747	Equal Variances
Distribution	Shapiro-Wilk W	0.90763	0.78055	0.25461	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0104023	0.0104023	1	0.94	0.36148	Non-Significant Effect
Error	0.0888443	0.0111055	8			
Total	0.09924661	0.0215078	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-1	0.96782	1.85955	0.1807	0.12394	Non-Significant Effect

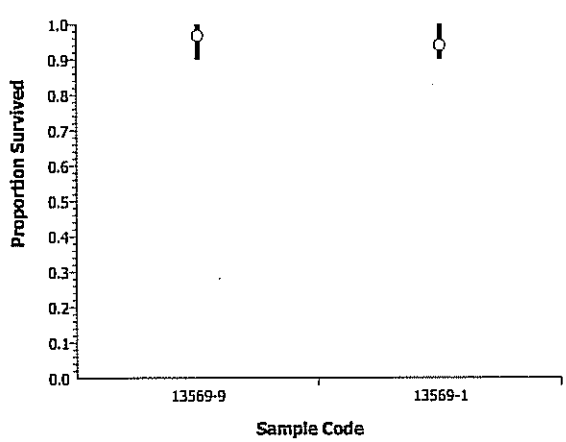
Data Summary

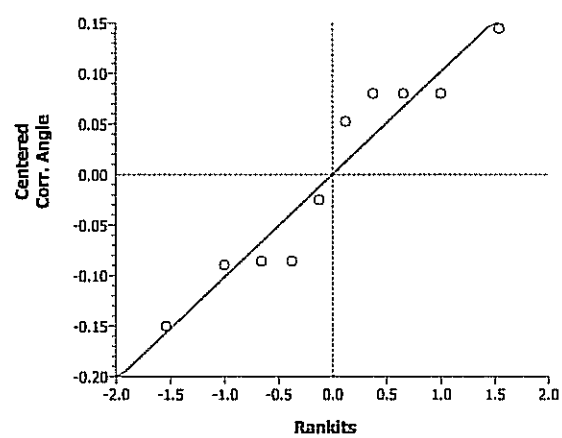
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96667	0.90000	1.00000	0.04714	1.39937	1.24905	1.47938	0.11164
13569-1	5	0.94000	0.90000	1.00000	0.04346	1.33486	1.24905	1.47938	0.09873

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000					
13569-1	0.90000	0.93333	1.00000	0.96667	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.65281	23.15450	0.63833	Equal Variances
Distribution	Shapiro-Wilk W	0.91845	0.78055	0.32713	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0212219	0.0212219	1	2.71	0.13815	Non-Significant Effect
Error	0.0625794	0.0078224	8			
Total	0.08380133	0.0290443	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-1	1.64711	1.85955	0.0691	0.10402	Non-Significant Effect

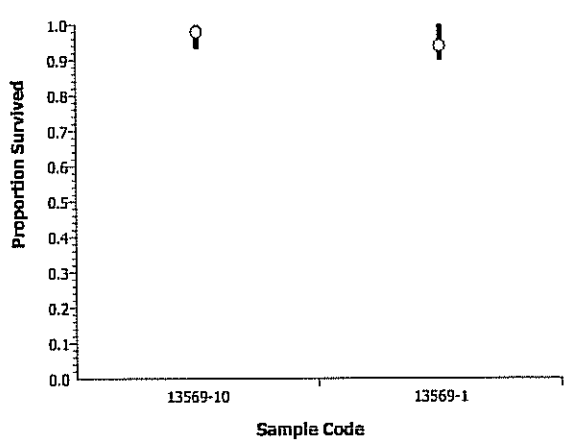
Data Summary

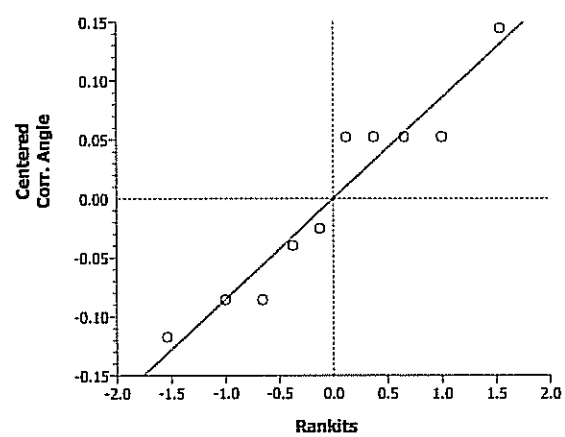
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.98000	0.93333	1.00000	0.02981	1.42700	1.30964	1.47938	0.07680
13569-1	5	0.94000	0.90000	1.00000	0.04346	1.33486	1.24905	1.47938	0.09873

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000					
13569-1	0.90000	0.93333	1.00000	0.96667	0.90000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:39 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	5.78785	23.15450	0.11743	Equal Variances
Distribution	Shapiro-Wilk W	0.82143	0.78055	0.02973	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0036172	0.0036172	1	0.89	0.37411	Non-Significant Effect
Error	0.0326606	0.0040826	8			
Total	0.03627773	0.0076997	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-000		13569-3	0.94128	1.85955	0.1871	0.07515	Non-Significant Effect

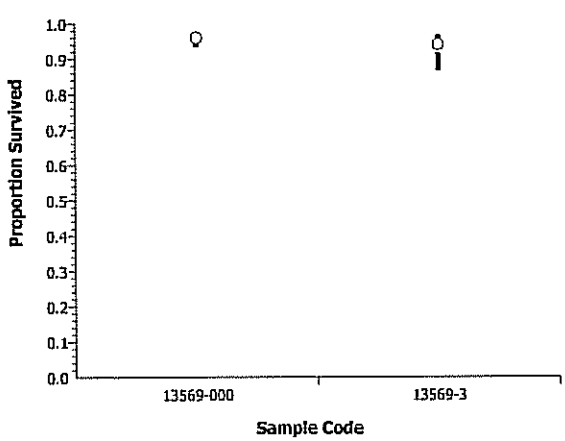
Data Summary

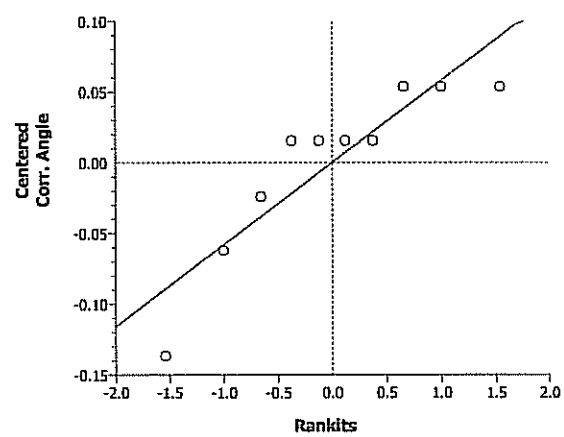
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-000	5	0.96000	0.93333	0.96667	0.01491	1.37168	1.30964	1.38719	0.03468
13569-3	5	0.94000	0.86667	0.96667	0.04346	1.33364	1.19700	1.38719	0.08344

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667					
13569-3	0.93333	0.96667	0.86667	0.96667	0.96667					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.79018	23.15450	0.58655	Equal Variances
Distribution	Shapiro-Wilk W	0.80000	0.78055	0.01691	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0107985	0.0107985	1	1.11	0.32250	Non-Significant Effect
Error	0.0777037	0.009713	8			
Total	0.08850224	0.0205115	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-3	1.0544	1.85955	0.1613	0.11591	Non-Significant Effect

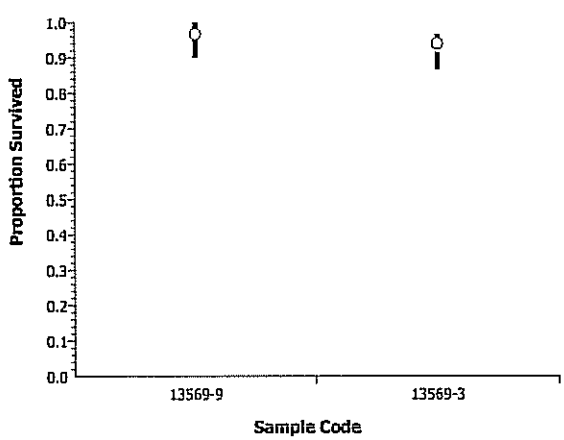
Data Summary

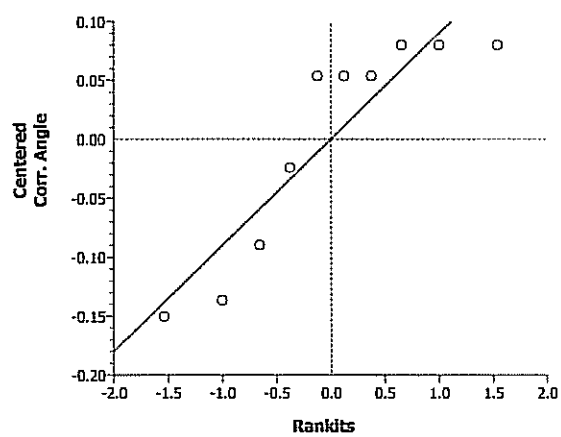
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96667	0.90000	1.00000	0.04714	1.39937	1.24905	1.47938	0.11164
13569-3	5	0.94000	0.86667	0.96667	0.04346	1.33364	1.19700	1.38719	0.08344

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000					
13569-3	0.93333	0.96667	0.86667	0.96667	0.96667					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Mann-Whitney U	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.18055	23.15450	0.87609	Equal Variances
Distribution	Shapiro-Wilk W	0.73719	0.78055	0.00294	Non-normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0217862	0.0217862	1	3.39	0.10293	Non-Significant Effect
Error	0.0514389	0.0064299	8			
Total	0.07322507	0.0282161	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	Ties	Decision(0.05)
13569-10		13569-3	20		0.0754	3	Non-Significant Effect

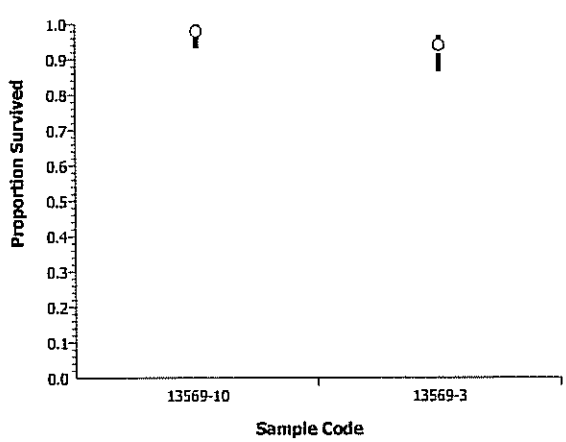
Data Summary

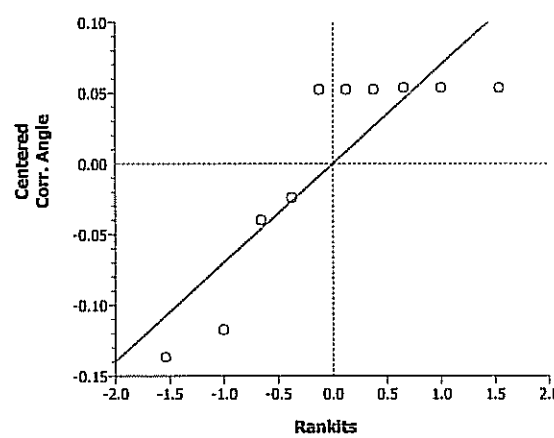
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.98000	0.93333	1.00000	0.02981	1.42700	1.30964	1.47938	0.07680
13569-3	5	0.94000	0.86667	0.96667	0.04346	1.33364	1.19700	1.38719	0.08344

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000					
13569-3	0.93333	0.96667	0.86667	0.96667	0.96667					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	7.41015	23.15450	0.07810	Equal Variances
Distribution	Shapiro-Wilk W	0.87560	0.78055	0.11749	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0015323	0.0015323	1	0.30	0.59708	Non-Significant Effect
Error	0.0404665	0.0050583	8			
Total	0.04199876	0.0065906	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-000		13569-8	-0.5504	1.85955	0.7015	0.08365	Non-Significant Effect

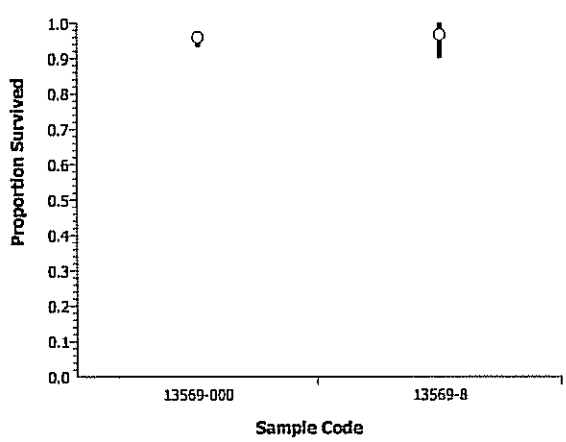
Data Summary

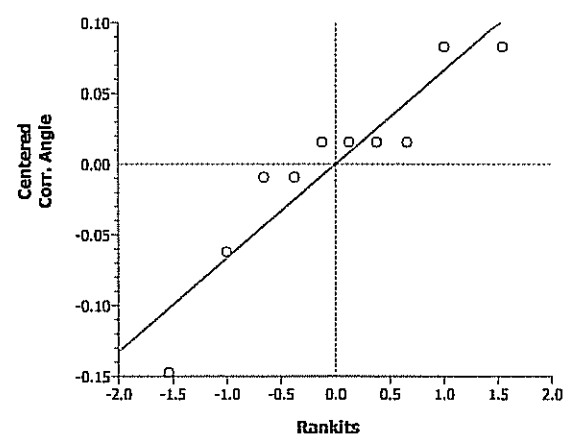
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-000	5	0.96000	0.93333	0.96667	0.01491	1.37168	1.30964	1.38719	0.03468
13569-8	5	0.96667	0.90000	1.00000	0.04082	1.39644	1.24905	1.47938	0.09441

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-000	0.96667	0.93333	0.96667	0.96667	0.96667					
13569-8	0.96667	0.96667	0.90000	1.00000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — **EnviroSystems, Inc.**

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.39826	23.15450	0.75320	Equal Variances
Distribution	Shapiro-Wilk W	0.79361	0.78055	0.01425	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	2.142E-05	2.142E-05	1	0.00	0.96539	Non-Significant Effect
Error	0.0855096	0.0106887	8			
Total	0.08553104	0.0107101	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-9		13569-8	0.04477	1.85955	0.4827	0.12159	Non-Significant Effect

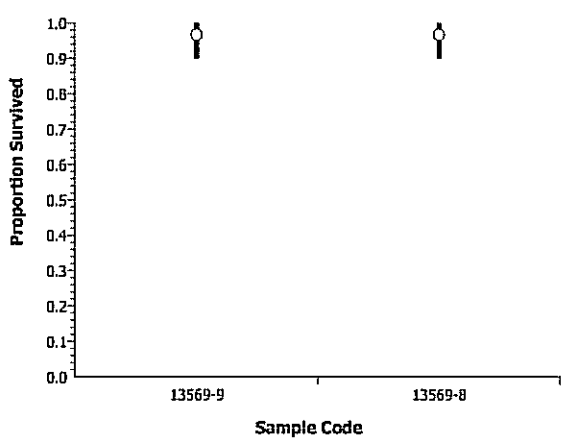
Data Summary

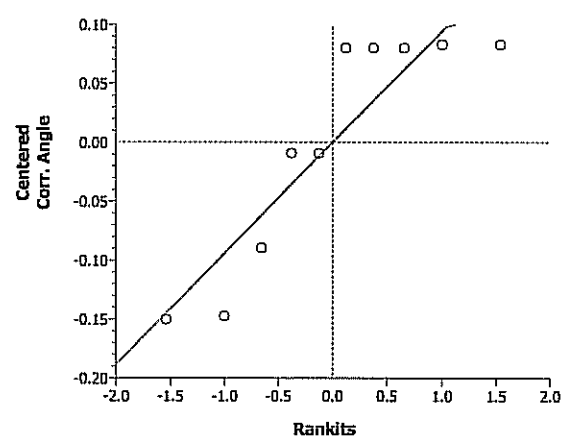
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-9	5	0.96667	0.90000	1.00000	0.04714	1.39937	1.24905	1.47938	0.11164
13569-8	5	0.96667	0.90000	1.00000	0.04082	1.39644	1.24905	1.47938	0.09441

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-9	0.93333	0.90000	1.00000	1.00000	1.00000					
13569-8	0.96667	0.96667	0.90000	1.00000	1.00000					

Graphics





CETIS Analysis Detail

Bioaccumulation Evaluation — EnviroSystems, Inc.

Test No:	06-5671-8723	**Test Type:**	Survival	**Duration:**	28d 0h
Start Date:	14 Sep-05 12:00 PM	**Protocol:**		**Species:**	Macoma nasuta
Ending Date:	12 Oct-05 12:00 PM	**Dil Water:**	Laboratory Seawater	**Source:**	Aquatic Research Organisms, NH
Setup Date:	14 Sep-05 12:00 PM	**Brine:**	Not Applicable		

Endpoint	Analysis Type	Sample Link	Control Link	Date Analyzed	Version
Proportion Survived	Comparison	11-3837-3039	11-3837-3039	26 Oct-05 11:40 AM	CETISv1.026

Method	Alt H	Data Transform	Z	NOEL	LOEL	Toxic Units	ChV	MSDp
Equal Variance t	C > T	Angular (Corrected)				N/A		

ANOVA Assumptions

Attribute	Test	Statistic	Critical	P Level	Decision(0.01)
Variances	Variance Ratio	1.51145	23.15450	0.69875	Equal Variances
Distribution	Shapiro-Wilk W	0.87629	0.78055	0.11948	Normal Distribution

ANOVA Table

Source	Sum of Squares	Mean Square	DF	F Statistic	P Level	Decision(0.05)
Between	0.0023343	0.0023343	1	0.32	0.58988	Non-Significant Effect
Error	0.0592447	0.0074056	8			
Total	0.06157898	0.0097398	9			

Group Comparisons

Sample	vs	Sample	Statistic	Critical	P Level	MSD	Decision(0.05)
13569-10		13569-8	0.56143	1.85955	0.2949	0.10121	Non-Significant Effect

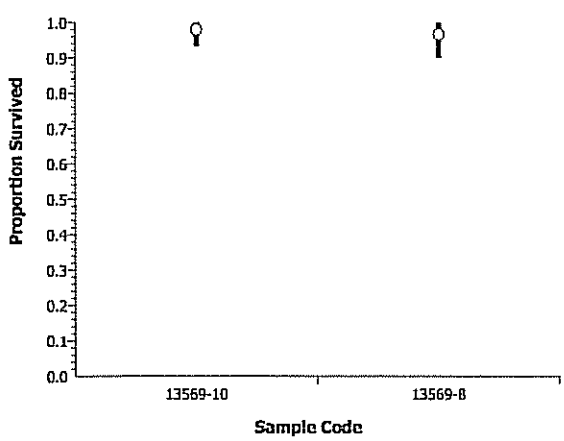
Data Summary

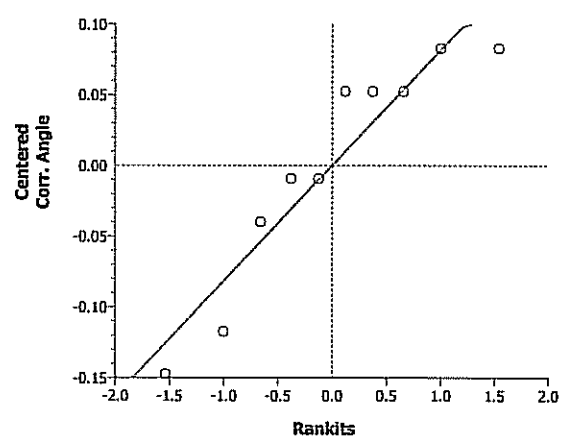
		Original Data				Transformed Data			
Sample Code	Count	Mean	Minimum	Maximum	SD	Mean	Minimum	Maximum	SD
13569-10	5	0.98000	0.93333	1.00000	0.02981	1.42700	1.30964	1.47938	0.07680
13569-8	5	0.96667	0.90000	1.00000	0.04082	1.39644	1.24905	1.47938	0.09441

Data Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
13569-10	1.00000	0.96667	1.00000	0.93333	1.00000					
13569-8	0.96667	0.96667	0.90000	1.00000	1.00000					

Graphics





STUDY: 13569
CLIENT: Battelle
PROJECT: New Bedford
TASK: Unionized Ammonia Calculations

Species	Treatment	NH_3 Conc	Exposure Days	Temperature Deg C	Sample pH SU	NH_3 mg/L	Unionized NH_3 mg/L
Macoma							
	LAB CONTROL		0	15.00	7.54	0.87	0.008
			28	15.00	7.61	0.23	0.003
	EAG-1009-I		0	14.00	7.75	0.68	0.010
	(Comp RISDS)		28	14.00	7.88	0.10	0.002
	EAG-1008-I		0	14.00	7.78	0.38	0.006
	(Comp BBDS)		28	14.00	7.87	0.10	0.002
	EAG-1001-I		0	14.00	7.71	0.57	0.007
	(Comp 1)		28	14.00	7.87	0.10	0.002
	EAG-1003-I		0	14.00	7.78	0.54	0.008
	(Comp 3)		28	14.00	7.85	0.10	0.002
	EAG-1002-I		0	14.00	7.77	0.69	0.010
	(Comp 8)		28	14.00	7.84	0.10	0.002
							0.000
Nereis							0.000
	LAB CONTROL		0	16	7.69	0.83	0.012
			28	14	7.58	0.1	0.001
	EAG-1009-I		0	16	7.75	1.1	0.018
	(Comp RISDS)		28	14	7.72	0.1	0.001
	EAG-1008-I		0	16	7.79	0.7	0.012
	(Comp BBDS)		28	14	7.76	0.1	0.001
	EAG-1001-I		0	16	7.77	3	0.051
	(Comp 1)		28	14	7.75	0.1	0.001
	EAG-1003-I		0	16	7.80	1.2	0.022
	(Comp 3)		28	14	7.73	0.10	0.001
	EAG-1002-I		0	16	7.75	3.70	0.060
	(Comp 8)		28	14	7.76	0.10	0.001

Lab Nv	13569-131	0.83	0.1	08/25/05
RISDS Nv	13569-135	1.1	0.1	08/25/05
BBDS Nv	13569-136	0.7	0.1	08/25/05
-001 Nv	13569-132	3	0.1	08/25/05
-003 Nv	13569-133	1.2	0.1	08/25/05
-008 Nv	13569-134	3.7	0.1	08/25/05
Lab Nv 092105	13569-143	ND	0.1	09/21/05
BBDS Nv 092105	13569-147	ND	0.1	09/21/05
RISDS Nv 092105	13569-148	ND	0.1	09/21/05
-001 Nv 092105	13569-144	ND	0.1	09/21/05
-003 Nv 092105	13569-145	ND	0.1	09/21/05
-008 Nv 092105	13569-146	ND	0.1	09/21/05
Lab Mn 091605	13569-137	0.87	0.1	09/16/05
RISDS Mn 091605	13569-141	0.68	0.1	09/16/05
BBDS Mn 091605	13569-142	0.38	0.1	09/16/05
-001 Mn 091605	13569-138	0.57	0.1	09/16/05
-003 Mn 091605	13569-139	0.54	0.1	09/16/05
-008 Mn 091605	13569-140	0.69	0.1	09/16/05
Lab Mn End	13569-149	0.23	0.1	10/12/05
RISDS Mn End	13569-153	ND	0.1	10/12/05
BBDS Mn End	13569-154	ND	0.1	10/12/05
-001Mn End	13569-150	ND	0.1	10/12/05
-003 Mn End	13569-151	ND	0.1	10/12/05
-008 Mn End	13569-152	ND	0.1	10/12/05

LABORATORY SAMPLE RECEIVING LOG

ESI Project Number: 13569 Date/Time Received: 7/29/05 1230

Client Name and Address: Battelle

Method of Shipment/ Pick Up: From: Client

Via: Client

Description of Shipping / Packing Containers(s) 1 truck
(Number, Type, Size)

Sample ID	~~ESI #~~	# Containers/Vol/Wt	Other	Sampled
EAG-1002-I Comp 8	F,G,IK			
EAG-1004-I Comp 4	L,M,N			
EAG-1007-I Comp 7	EE,FF,II,JJ			
EAG-1010-I Comp 2	1,2,3			
A,C,D,E				
F,G,I,K				
H+J				
O,P,Q,R,S,T,U,V,W,X,Y,AA+BB				
CC,DD,GG,HH,LL,MM,KK				
EE,FF,II,JJ				
1,2,3				
L,M,N				

Sed
mpositer

Water
mpositer

Sample Storage Location and Required Storage Conditions Refrigerator "F" Locked, 4°C & Dark

Signature: [signature] Date: 7/29/05

Notes:

Date and Description of Final Sample Removal / Disposal:

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Contact:
Lisa Lefkovitz 781-952-5254

Chain of Custody

Proj. No: 606416

Proj. Name: New Bedford O+M 2005

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER TOX + Bioaccumulation	ACIDIFIED	PRESERVED	Total Number of Containers
-29-05		EAG-1001-I	(Comp 1)	Sediment Composite of Sites A, C, D, E											8
-27-05		EAG-1003-I	(Comp 3)	Sites H, J											8
-27-05		EAG-1005-I	(Comp 5)	Sites O, P, Q, R, S, T, U, V, W, X, Y, AA, BB											9
-27-05		EAG-1006-I	(Comp 6)	Sites CC, DD, GG, HH, LL, MM, KK											9
-29-05		EAG-1009-I	(Comp RISDS)	Rhode Island Sound Ref Sed											8
-30-05		EAG-1008-I	(Comp BBDS)	Buzzards Bay Reference Sed											8

Relinquished by:	Date/Time	Received by:	Date/Time
	7-30-05		7/30/05 06:45
Relinquished by:	Date/Time	Received by:	Date/Time
	8-1-05 11:00		8/1/05 1100

Comments:

ORIGINAL

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Contact: Lisa Letkowitz 781-952-5297
or
Alex Mansfield 781-952-5329

Chain of Custody

Sediments

+Bioaccumulation Tox

Proj. No: 606416

Proj. Name: New Bedford O+M 2005

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER Tox	ACIDIFIED	PRESERVED	Total Number of Containers
29-05	—	EAG-1002-I	(Comp 8)	Composite of Sites F, G, I K								X			8
28-05	—	EAG-1004-I	(Comp 4)	Composite of Sites L, M, N								X			8
28-05	—	EAG-1007-I	(Comp 7)	Composite of Sites EE, FF, II, JJ								X			8
28-05	—	EAG-1010-I	(Comp 2)	Composite of Sites 1, 2, 3								X			8

Relinquished by:	Date/Time	Received by:	Date/Time
	7/29/05 1230		
Relinquished by:	Date/Time	Received by:	Date/Time
	7/29/05 1230		7/29/05 1230

Comments:

ORIGINAL

Battelle
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Chain of Custody

Proj. No: 606416-00016
Proj. Name: New Bedford Harbor

5 gal containers

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
28-05	1630			Composite water sites A, C, D, + E											4
28-05				Composite water sites F, G, I + K											4
				" " " H + J											4
				" " " O, P, Q, R, S, U, V, W, X, Y, AA + BB											5
				" " " CC, DD, GG, HH, LL, MM, + KK											5
				" " " EE, FF, II + JJ											4
				" " " 1, 2, + 3											4
				" " " L, M, + N											4

Relinquished by:	Date/Time	Received by:	Date/Time
	1630 7-28-05		
Relinquished by:	Date/Time	Received by:	Date/Time
	1230 7/28/05		7/28/05 1230

Comments:

On ice

ORIGINAL

LABORATORY SAMPLE RECEIVING LOG

ESI Project Number: 13569 Date/Time Received: 8/1/05 1100

Client Name and Address: Battelle

Method of Shipment/ Pick Up: From: Client

Via: client

Description of Shipping / Packing Containers(s) 1 truck
(Number, Type, Size)

Sample ID	ESI #	# Containers/Vol/Wt	Other	Sampled
EAG-1001-I Comp 1		8 x 3 gal		
EAG-1003-I Comp 3		8 x 3 gal		
EAG-1005-I Comp 5		9 x 3 gal		
EAG-1006-I Comp 6		9 x 3 gal		
EAG-1009-I RISDS		8 x 3 gal		
EAG-1008-I BBDS		8 x 3 gal		
RISDS water		4 x 5 gal		
BBDS water		4 x 5 gal		

Sed comp.

Sample Storage Location and Required Storage Conditions Refrigerator "F" Locked, 4°C & Dark

Signature: [signature] Date: 8/1/05

Notes:

Date and Description of Final Sample Removal / Disposal:

Battelle
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Chain of Custody

Proj. No: G0064Ile-0001h
Proj. Name: New Bedford Harbor
SAMPLERS: Signature

3 gal Cubitainers

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7-29-05	1015	EAG-051		Composite water from BISDS											4
7-30-05	0830	EAG-056		Composite water from BBDS											4

Relinquished by:	Date/Time		Received by:	Date/Time	
	1800	7/29/05		7/30/05	06:45
Relinquished by:	Date/Time		Received by:	Date/Time	
	8-1-05	11:00		8/1/05	1100

Comments:

on ice

ORIGINAL

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Appendix J

Bioaccumulation Test – Tissue Chemistry

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Appendix J-1

Tissue PCB and Pesticide Data

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Pesticide/PCB–QA/QC SUMMARY 06-0195
M. nasuta

PROJECT: New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER: Pesticide/PCB
LABORATORY: Battelle, Duxbury, MA
MATRIX: Tissue – M. nasuta
SAMPLE CUSTODY: Tissue samples for this project were collected on 10/13/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
Pesticide /PCB	General NS&T	< 5x MDL	30-150% Recovery	50-120% for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% RPD for analytes >10 x MDL	MDL: 0.02 – 0.19 Toxaphene RL: 3.47

METHOD: Tissue samples were extracted for Pesticides/PCB following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was concentrated, fortified with internal standards (IS) and split 50:50 for analysis. Extracts intended for Pesticides/PCB analysis were analyzed using gas chromatography/electron capture detector (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the IS compounds. During initial analysis, problems arose due to interference from sample matrix (lipid). The extracts were sent back to the lab for further clean-up. Extracts were processed through silica gel columns, and then concentrated and resubmitted for analysis. Data was evaluated against 2006 MDLs.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 8 months of collection and analyzed within 27 days of extraction.

Batch	Extraction Date	Analysis Date
06-0195	6/13/2006	7/07/2006 – 7/10/2006

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0195 – No exceedences noted.

Comments – No target pesticides or PCBs were detected in the procedural blank.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared for the analytical batch. The percent recoveries of pesticides and PCB compounds were calculated to measure data quality in terms of accuracy.

06-0195 – All percent recoveries for spiked analytes were within laboratory control limits (50-120%).

Comments – None.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PCB and pesticide were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0195 – 1 (out of 72) percent recovery exceedence noted. No RPD exceedences noted.

Comments – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), except for PCB 28 in sample S9764MS (background BBDS A M.n Tissue). PCB 28 was under-recovered at 49%. Chromatography and calculations were reviewed. No discrepancies were found. The data was qualified and no corrective action was taken. Accuracy for PCB 28 was demonstrated in the LCS, MSD, and SRM QC samples.

SURROGATES:

Two surrogate compounds were added prior to extraction, including PCB 34, and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0195 – All percent recoveries for surrogates were within laboratory control limits (30-150%).

Comments – None

DUPLICATES:

Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for pesticides and PCB compounds were calculated to measure data quality in terms of precision.

06-0195 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0195 – Two exceedences noted.

Comments – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance) except for a-chlordane and PCB 8. a-chlordane was under-recovered. The results for this analyte historically have been low. No corrective action was taken. PCB 8 was over-recovered in the SRM. Chromatograms and calculations were reviewed, and no discrepancies were found. It should be noted that results for a-chlordane in the field samples may be biased low, and results for PCB 8 may be biased high.

CALIBRATIONS: The GC/ECD was calibrated with a 6 level curve, with a correlation coefficient of $\geq$0.995. Each batch of samples analyzed is bracketed by continuing calibration verification (CCV) samples, running at a frequency of minimally every 24 hours. The PD between the initial calibration (ICAL) RF and the continuing calibration samples should be <20% for each compound. Additionally an Initial Calibration Check (ICC) sample is run immediately following the ICAL. The ICC is to have a percent difference < 20%.

06-0195 – No ICAL exceedences. 1 CCV exceedences. No ICC exceedences.

Comments – Methoxychlor was over-recovered in CCV M6006.d. The analyte was not detected in any of the associated field samples and therefore sample data were not affected.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue	BBDS B M.n. Tissue	BBDS C M.n. Tissue	BBDS D M.n. Tissue
Battelle ID	S9764-P	S9765-P	S9766-P	S9767-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/08/06	07/08/06	07/08/06	07/08/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	89.59	88.76	88.11	89.27
% Lipid	0.8	0.72	0.84	0.81
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.08	29.73	30.46	30.06
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.14	0.26	0.24	0.22
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04 U	0.04	0.05	0.04
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05 U	0.05 U	0.05 U	0.05 U
trans-nonachlor	0.04 U	0.04 U	0.04 U	0.04 U
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.1
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	3.47 U	3.51 U	3.43 U	3.47 U
Cl2(8)	0.52	1.43	1.13	1.16
Cl3(18)	0.08	0.04 U	0.1	0.04
Cl3(28)	0.17	0.22	0.22	0.21
Cl4(44)	0.09	0.05	0.17	0.16
Cl4(52)	0.18	0.26	0.24	0.2
Cl4(66)	0.83	1.1	1.14	1
Cl5(101)	0.31	0.45	0.43	0.53
Cl5(105)	0.09	0.14	0.13	0.09
Cl5(118)	0.48	0.78	0.63	0.7
Cl6(128)	0.11	0.19	0.29	0.25
Cl6(138)	0.59	0.99	0.88	0.9
Cl6(153)	0.71	1.15	0.95	1.04
Cl7(170)	0.08	0.12	0.1	0.11
Cl7(180)	0.08	0.1	0.12	0.12
Cl7(187)	0.08	0.13	0.13	0.11
Cl8(195)	0.03 U	0.03 U	0.03 U	0.03 U
Cl9(206)	0.02 U	0.02 U	0.02 U	0.02 U
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	54	48	50	46
Cl6(152)	73	76	72	81

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS E M.n. Tissue	RISDS A M.n. Tissue	RISDS B M.n. Tissue	RISDS C M.n. Tissue
Battelle ID	S9768-P	S9769-P	S9770-P	S9771-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/08/06	07/08/06	07/09/06	07/09/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.74	90.27	89.72	88.4
% Lipid	1.04	0.89	0.84	0.85
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.99	29.79	30.41	30.11
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.16	0.11	0.12	0.18
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05 U	0.05 U	0.05 U	0.05 U
trans-nonachlor	0.04 U	0.04 U	0.04 U	0.04 U
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	3.48 U	3.51 U	3.43 U	3.47 U
Cl2(8)	0.19 U	0.19 U	0.77	0.19 U
Cl3(18)	0.04 U	0.04 U	0.04 U	0.04 U
Cl3(28)	0.23	0.13	0.08	0.11
Cl4(44)	0.1	0.23	0.03 U	0.03 U
Cl4(52)	0.21	0.1	0.08	0.11
Cl4(66)	0.82	0.86	0.03 U	0.03 U
Cl5(101)	0.35	0.1	0.1	0.15
Cl5(105)	0.11	0.05 U	0.05 U	0.05 U
Cl5(118)	0.63	0.1	0.13	0.12
Cl6(128)	0.22	0.03 U	0.03 U	0.03 U
Cl6(138)	0.82	0.12	0.2	0.26
Cl6(153)	0.91	0.13	0.14	0.19
Cl7(170)	0.14	0.03 U	0.08	0.03 U
Cl7(180)	0.11	0.03 U	0.06	0.08
Cl7(187)	0.12	0.04 U	0.04 U	0.06
Cl8(195)	0.03 U	0.03 U	0.03 U	0.03 U
Cl9(206)	0.02 U	0.02 U	0.02 U	0.02 U
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	50	66	57	51
Cl6(152)	85	73	77	80

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS D M.n. Tissue	RISDS E M.n. Tissue	001 A M.n. Tissue	001 B M.n. Tissue
Battelle ID	S9772-P	S9773-P	S9774-P	S9775-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/09/06	07/12/06	07/09/06	07/09/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.75	88.6	90.03	88.65
% Lipid	0.89	0.85	0.68	0.78
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.94	29.74	30.94	30.29
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.16	0.2	1.48	1.83
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05 U	0.05 U	0.05 U	0.05 U
trans-nonachlor	0.04 U	0.04 U	0.04 U	0.04 U
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	3.49 U	3.51 U	3.38 U	3.45 U
Cl2(8)	0.19 U	1.16	5.26	5.93
Cl3(18)	0.04 U	0.04 U	6.75	8.31
Cl3(28)	0.1	0.12	22.02 D	25.81 D
Cl4(44)	0.03 U	0.03 U	10.35 D	8.25
Cl4(52)	0.12	0.11	43.14 D	53.13 D
Cl4(66)	0.03 U	0.03 U	16.24 D	19.71 D
Cl5(101)	0.11	0.09	46.83 D	62.14 D
Cl5(105)	0.05 U	0.05 U	11.83 D	19.19
Cl5(118)	0.13	0.15	31.17 D	40.66 D
Cl6(128)	0.03 U	0.03 U	8.29	10.74
Cl6(138)	0.25	0.27	34.07 D	45.88 D
Cl6(153)	0.2	0.16	33.78 D	44.12 D
Cl7(170)	0.07	0.08	2.29	2.97
Cl7(180)	0.07	0.09	2.89	3.83
Cl7(187)	0.05	0.04 U	2.04	2.6
Cl8(195)	0.03 U	0.03 U	0.26	0.33
Cl9(206)	0.02 U	0.02 U	0.06	0.09
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	52	42	63	52
Cl6(152)	84	77	81	90

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 C M.n. Tissue	001 D M.n. Tissue	001 E M.n. Tissue	003 A M.n. Tissue
Battelle ID	S9776-P	S9777-P	S9778-P	S9779-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/09/06	07/09/06	07/09/06	07/10/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	89.57	89.85	89.25	89.79
% Lipid	0.85	0.72	0.66	0.8
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.12	30.91	29.94	29.56
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	1.38	1.69	1.95	1.21
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05 U	0.05 U	0.05 U	0.05 U
trans-nonachlor	0.04 U	0.04 U	0.04 U	0.04 U
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	3.47 U	3.38 U	3.49 U	3.53 U
Cl2(8)	5.36	5.81	6.17	3.73
Cl3(18)	7.56	12.69 D	12.62 D	10.33 D
Cl3(28)	22.78 D	24.08 D	28.64 D	19.03 D
Cl4(44)	7.17	12.04 D	11.85 D	9.63 D
Cl4(52)	44.53 D	50.41 D	55.73 D	47.32 D
Cl4(66)	17.53 D	18.06 D	22.42 D	12.62 D
Cl5(101)	49.3 D	53.84 D	65.22 D	34.96 D
Cl5(105)	14.22	14.54 D	17.29 D	8.22 D
Cl5(118)	32.42 D	36.32 D	42.52 D	21.56 D
Cl6(128)	8.08	9.75	10.73 D	6.67
Cl6(138)	35.66 D	41.49 D	46.45 D	29.17 D
Cl6(153)	34.51 D	38.85 D	44.85 D	29.26 D
Cl7(170)	2.18	2.68	2.79	1.65
Cl7(180)	2.86	3.58	3.69	2.21
Cl7(187)	1.97	2.44	2.57	1.8
Cl8(195)	0.26	0.31	0.35	0.19
Cl9(206)	0.07	0.08	0.1	0.05
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	62	62	57	74
Cl6(152)	81	90	82	94

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 B M.n. Tissue	003 C M.n. Tissue	003 D M.n. Tissue	003 E M.n. Tissue
Battelle ID	S9780-P	S9781-P	S9782-P	S9783-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/10/06	07/10/06	07/10/06	07/10/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.49	88.99	90.16	88.55
% Lipid	0.94	0.95	0.82	0.82
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.39	29.83	29.93	30.01
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	1.5	1.56	1.44	1.74
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05 U	0.05 U	0.05 U	0.05 U
trans-nonachlor	0.04 U	0.04 U	0.04 U	0.04 U
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	3.55 U	3.5 U	3.49 U	3.48 U
Cl2(8)	4.17	4.52	4.35	5.66
Cl3(18)	10.67 D	14.79 D	13.8 D	13.78 D
Cl3(28)	19.99 D	23.68 D	22.74 D	25.45 D
Cl4(44)	10.9 D	14.72 D	11.69 D	15.18 D
Cl4(52)	51.71 D	61.34 D	59.31 D	63.58 D
Cl4(66)	12.95 D	15.17 D	14.96 D	16.91 D
Cl5(101)	40.41 D	48.04 D	47.32 D	47.99 D
Cl5(105)	9.58 D	11.56 D	11.2 D	11.84 D
Cl5(118)	24.23 D	29.36 D	28.21 D	29.24 D
Cl6(128)	7.82 D	9.61 D	9.35	9.09 D
Cl6(138)	34.28 D	41.02 D	40.1 D	40.39 D
Cl6(153)	34.58 D	42.5 D	40.03 D	40.56 D
Cl7(170)	2.48	2.65	2.71	2.84
Cl7(180)	3.18	3.48	3.53	3.84
Cl7(187)	2.4	2.69	2.58	2.96
Cl8(195)	0.28	0.32	0.32	0.35
Cl9(206)	0.1	0.11	0.1	0.09
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03
Surrogate Recoveries (%)				
Cl3(34)	67	64	59	68
Cl6(152)	69	78	68	90

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BI992PB-P
Sample Type	PB
Collection Date	06/13/06
Extraction Date	06/13/06
Analysis Date	07/07/06
Analytical Instrument	ECD
% Moisture	89.18
% Lipid	NA
Matrix	CLAMS
Sample Size	30.06
Size Unit-Basis	G_WET
Units	UG/KG_WET
4,4'-DDD	0.05 U
4,4'-DDE	0.06 U
4,4'-DDT	0.05 U
aldrin	0.03 U
a-chlordane	0.04 U
g-chlordane	0.04 U
Lindane	0.05 U
cis-nonachlor	0.05 U
trans-nonachlor	0.04 U
oxychlordane	0.05 U
dieldrin	0.06 U
endosulfan I	0.02 U
endosulfan II	0.06 U
endrin	0.05 U
heptachlor	0.04 U
heptachlor epoxide	0.02 U
Hexachlorobenzene	0.05 U
methoxychlor	0.05 U
Toxaphene	3.47 U
Cl2(8)	0.19 U
Cl3(18)	0.04 U
Cl3(28)	0.05 U
Cl4(44)	0.03 U
Cl4(52)	0.05 U
Cl4(66)	0.03 U
Cl5(101)	0.05 U
Cl5(105)	0.05 U
Cl5(118)	0.05 U
Cl6(128)	0.03 U
Cl6(138)	0.06 U
Cl6(153)	0.04 U
Cl7(170)	0.03 U
Cl7(180)	0.03 U
Cl7(187)	0.04 U
Cl8(195)	0.03 U
Cl9(206)	0.02 U
Cl10(209)	0.03 U

Surrogate Recoveries (%)

Cl3(34)	72
Cl6(152)	76

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia				
Battelle ID	BI993LCS-P				
Sample Type	LCS				
Collection Date	06/13/06				
Extraction Date	06/13/06				
Analysis Date	07/08/06				
Analytical Instrument	ECD				
% Moisture	78.37				
% Lipid	NA				
Matrix	CLAMS				
Sample Size	30.03				
Size Unit-Basis	G_WET				
Units	UG/KG_WET		Target	% Recovery	Qualifier
4,4'-DDD	2		2.67	75	
4,4'-DDE	2.02		2.67	76	
4,4'-DDT	2.07		2.67	78	
aldrin	1.66		2.67	62	
a-chlordane	1.85		2.67	69	
g-chlordane	1.81		2.67	68	
Lindane	1.59		2.67	60	
cis-nonachlor	1.9		2.67	71	
trans-nonachlor	1.91		2.67	72	
oxychlordane	1.86		2.68	69	
dieldrin	1.88		2.67	70	
endosulfan I	1.87		2.67	70	
endosulfan II	1.97		2.67	74	
endrin	2.11		2.67	79	
heptachlor	1.71		2.67	64	
heptachlor epoxide	2.02		2.67	76	
Hexachlorobenzene	2.08		2.67	78	
methoxychlor	2.32		2.66	87	
Toxaphene	3.48	U			
Cl2(8)	2.18		2.67	82	
Cl3(18)	2.01		2.67	75	
Cl3(28)	1.61		2.67	60	
Cl4(44)	1.72		2.67	64	
Cl4(52)	1.75		2.66	66	
Cl4(66)	1.76		2.67	66	
Cl5(101)	1.82		2.67	68	
Cl5(105)	1.75		2.67	66	
Cl5(118)	1.73		2.67	65	
Cl6(128)	1.85		2.68	69	
Cl6(138)	1.79		2.67	67	
Cl6(153)	1.69		2.67	63	
Cl7(170)	1.84		2.68	69	
Cl7(180)	1.76		2.67	66	
Cl7(187)	1.63		2.67	61	
Cl8(195)	1.79		2.67	67	
Cl9(206)	1.65		2.67	62	
Cl10(209)	1.87		2.67	70	

Surrogate Recoveries (%)

Cl3(34)	71
Cl6(152)	76

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977
Battelle ID	BI994SRM-P
Sample Type	SRM
Collection Date	06/13/06
Extraction Date	06/13/06
Analysis Date	07/08/06
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	CLAMS
Sample Size	2.00
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
4,4'-DDD	2.91	4.3	0.38	38.84	32.3	
4,4'-DDE	7.5	12.5	1.60	42.8	40	
4,4'-DDT	1.08	1.28	0.18	44.06	15.6	
aldrin	0.03 U					
a-chlordane	0.63	1.42	0.13	39.15	55.6	N
g-chlordane	0.04 U					
Lindane	0.69					
cis-nonachlor	1.64					
trans-nonachlor	0.97	1.43	0.10	36.99	32.2	
oxychlordane	0.05 U					
dieldrin	7.91	6.04	0.52	38.61	31	
endosulfan I	0.02 U					
endosulfan II	1.76					
endrin	1.01					
heptachlor	0.04 U					
heptachlor epoxide	0.02 U					
Hexachlorobenzene	1.18					
methoxychlor	0.05 U					
Toxaphene	52.22 U					
Cl2(8)	13.08	2.1	0.15	37.14	522.9	N
Cl3(18)	2.26	2.65	0.30	41.32	14.7	
Cl3(28)	3.49	5.37	0.44	38.19	35	
Cl4(44)	4.44	3.25	0.63	49.38	36.6	
Cl4(52)	6.46	8.37	0.54	36.45	22.8	
Cl4(66)	4.67	3.64	0.32	38.79	28.3	
Cl5(101)	7.66	11.2	1.20	40.71	31.6	
Cl5(105)	2.46	3.76	0.49	43.03	34.6	
Cl5(118)	8.34	10.5	1.00	39.52	20.6	
Cl6(128)	3.05	2.49	0.28	41.24	22.5	
Cl6(138)	11.02	16.6	1.60	39.64	33.6	
Cl6(153)	10.74	14.1	1.00	37.09	23.8	
Cl7(170)	2.79	2.95	0.23	37.8	5.4	
Cl7(180)	6.91 ME	6.79	0.67	39.87	1.8	
Cl7(187)	2.97	4.76	0.38	37.98	37.6	
Cl8(195)	0.03 U					
Cl9(206)	0.02 U					
Cl10(209)	0.03 U					

Surrogate Recoveries (%)

Cl3(34)	79
Cl6(152)	97

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue	BBDS A M.n. Tissue				
Battelle ID	S9764-P	S9764MS-P				
Sample Type	SA	MS				
Collection Date	10/13/05	10/13/2005				
Extraction Date	06/13/06	6/13/2006				
Analysis Date	07/08/06	7/8/2006				
Analytical Instrument	ECD	ECD				
% Moisture	89.59	89.44				
% Lipid	0.8	NA				
Matrix	CLAMS	CLAMS				
Sample Size	30.08	30.16				
Size Unit-Basis	G_WET	G_WET				
Units	UG/KG_WET	UG/KG_WET		Target	% Recovery	Qualifier
4,4'-DDD	0.05 U	2.26		2.65	85	
4,4'-DDE	0.14	2.29		2.65	81	
4,4'-DDT	0.05 U	2.25		2.65	85	
aldrin	0.03 U	1.46		2.65	55	
a-chlordane	0.04 U	1.62		2.65	61	
g-chlordane	0.04 U	1.55		2.66	58	
Lindane	0.05 U	1.45		2.65	54	
cis-nonachlor	0.05 U	2.12		2.65	80	
trans-nonachlor	0.04 U	1.58		2.66	59	
oxychlordane	0.05 U	1.95		2.67	73	
dieldrin	0.06 U	2.12		2.65	80	
endosulfan I	0.02 U	1.56		2.65	59	
endosulfan II	0.06 U	2.17		2.65	82	
endrin	0.05 U	2.53		2.65	95	
heptachlor	0.04 U	1.52		2.65	57	
heptachlor epoxide	0.02 U	1.74		2.65	66	
Hexachlorobenzene	0.05 U	1.67		2.66	63	
methoxychlor	0.05 U	2.54		2.65	96	
Toxaphene	3.47 U	3.46	U			
Cl2(8)	0.52	3.1		2.66	97	
Cl3(18)	0.08	1.67		2.66	60	
Cl3(28)	0.17	1.48		2.66	49	N
Cl4(44)	0.09	1.59		2.66	56	
Cl4(52)	0.18	1.61		2.65	54	
Cl4(66)	0.83	2.3		2.66	55	
Cl5(101)	0.31	1.77		2.66	55	
Cl5(105)	0.09	2.09		2.66	75	
Cl5(118)	0.48	2.32		2.66	69	
Cl6(128)	0.11	1.98		2.67	70	
Cl6(138)	0.59	2.43		2.66	69	
Cl6(153)	0.71	2.37		2.66	62	
Cl7(170)	0.08	1.94		2.67	70	
Cl7(180)	0.08	1.94		2.66	70	
Cl7(187)	0.08	1.8		2.66	65	
Cl8(195)	0.03 U	1.95		2.66	73	
Cl9(206)	0.02 U	1.8		2.66	68	
Cl10(209)	0.03 U	2.01		2.66	76	

Surrogate Recoveries (%)

Cl3(34)	54	55
Cl6(152)	73	70

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue						
Battelle ID	S9764MSD-P						
Sample Type	MSD						
Collection Date	10/13/2005						
Extraction Date	6/13/2006						
Analysis Date	7/8/2006						
Analytical Instrument	ECD						
% Moisture	89.26						
% Lipid	NA						
Matrix	CLAMS						
Sample Size	29.83						
Size Unit-Basis	G_WET						
Units	UG/KG_WET		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDD	2.34		2.68	87		2.3	
4,4'-DDE	2.36		2.68	83		2.4	
4,4'-DDT	2.32		2.68	87		2.3	
aldrin	1.41		2.68	53		3.7	
a-chlordane	1.62		2.68	60		1.7	
g-chlordane	1.52		2.69	57		1.7	
Lindane	1.37		2.68	50		7.7	
cis-nonachlor	2.15		2.68	80		0.0	
trans-nonachlor	1.54		2.69	57		3.4	
oxychlordane	1.85		2.70	69		5.6	
dieldrin	2.12		2.68	79		1.3	
endosulfan I	1.46		2.68	54		8.8	
endosulfan II	2.17		2.68	81		1.2	
endrin	2.75		2.68	103		8.1	
heptachlor	1.43		2.68	53		7.3	
heptachlor epoxide	1.69		2.68	63		4.7	
Hexachlorobenzene	1.79		2.69	67		6.2	
methoxychlor	2.7		2.68	101		5.1	
Toxaphene	3.5	U					
Cl2(8)	3.12		2.69	97		0.0	
Cl3(18)	1.83		2.69	65		8.0	
Cl3(28)	1.6		2.68	53		7.8	
Cl4(44)	1.66		2.69	58		3.5	
Cl4(52)	1.74		2.68	58		7.1	
Cl4(66)	2.36		2.68	57		3.6	
Cl5(101)	1.83		2.69	57		3.6	
Cl5(105)	2.14		2.68	76		1.3	
Cl5(118)	2.4		2.68	72		4.3	
Cl6(128)	2.11		2.70	74		5.6	
Cl6(138)	2.62		2.69	75		8.3	
Cl6(153)	2.63		2.68	72		14.9	
Cl7(170)	2.12		2.70	76		8.2	
Cl7(180)	2.12		2.69	76		8.2	
Cl7(187)	1.89		2.69	67		3.0	
Cl8(195)	2.11		2.69	78		6.6	
Cl9(206)	1.9		2.69	71		4.3	
Cl10(209)	2.04		2.68	76		0.0	

Surrogate Recoveries (%)

Cl3(34)	61
Cl6(152)	74

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 A M.n. Tissue		001 A M.n. Tissue			
Battelle ID	S9774-P		S9774DUP-P			
Sample Type	SA		QADU			
Collection Date	10/13/05		10/13/2005			
Extraction Date	06/13/06		6/13/2006			
Analysis Date	07/09/06		7/9/2006			
Analytical Instrument	ECD		ECD			
% Moisture	90.03		90.06			
% Lipid	0.68		NA			
Matrix	CLAMS		CLAMS			
Sample Size	30.94		29.53			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
4,4'-DDD	0.05	U	0.05	U	NA	
4,4'-DDE	1.48		1.56		5.3	
4,4'-DDT	0.05	U	0.05	U	NA	
aldrin	0.03	U	0.03	U	NA	
a-chlordane	0.04	U	0.04	U	NA	
g-chlordane	0.04	U	0.04	U	NA	
Lindane	0.05	U	0.05	U	NA	
cis-nonachlor	0.05	U	0.05	U	NA	
trans-nonachlor	0.04	U	0.04	U	NA	
oxychlordane	0.05	U	0.05	U	NA	
dieldrin	0.06	U	0.06	U	NA	
endosulfan I	0.02	U	0.02	U	NA	
endosulfan II	0.06	U	0.06	U	NA	
endrin	0.05	U	0.05	U	NA	
heptachlor	0.04	U	0.04	U	NA	
heptachlor epoxide	0.02	U	0.02	U	NA	
Hexachlorobenzene	0.05	U	0.05	U	NA	
methoxychlor	0.05	U	0.05	U	NA	
Toxaphene	3.38	U	3.54	U	NA	
Cl2(8)	5.26		5.67		7.5	
Cl3(18)	6.75		7.25		7.1	
Cl3(28)	22.02	D	21.98	D	0.2	
Cl4(44)	10.35	D	10.4	D	0.5	
Cl4(52)	43.14	D	45.42	D	5.1	
Cl4(66)	16.24	D	17.27	D	6.1	
Cl5(101)	46.83	D	50.45	D	7.4	
Cl5(105)	11.83	D	13.3	D	11.7	
Cl5(118)	31.17	D	32.21	D	3.3	
Cl6(128)	8.29		8.51		2.6	
Cl6(138)	34.07	D	37.16	D	8.7	
Cl6(153)	33.78	D	34.89	D	3.2	
Cl7(170)	2.29		2.43		5.9	
Cl7(180)	2.89		3.14		8.3	
Cl7(187)	2.04		2.14		4.8	
Cl8(195)	0.26		0.27		3.8	
Cl9(206)	0.06		0.08		28.6	
Cl10(209)	0.03	U	0.03	U	NA	

Surrogate Recoveries (%)

Cl3(34)	63	66
Cl6(152)	81	87

Pesticide/PCB–QA/QC SUMMARY 06-0196
N. virens

PROJECT: New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER: Pestcide/PCB
LABORATORY: Battelle, Duxbury, MA
MATRIX: Tissue –N. virens
SAMPLE CUSTODY: Tissue samples for this project were collected on 9/22/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
Pesticide /PCB	General NS&T	< 5x MDL	30-150% Recovery	50-120% for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% RPD for analytes >10 x MDL	~0.02 – 0.06 (no MDL available for Toxaphene, RL = 3.07)

METHOD: Tissue samples were extracted for Pesticides/PCB following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was then concentrated, processed through silica gel columns, concentrated, fortified with internal standards (IS) and split 50:50 for analysis. Extracts intended for Pesticides/PCB analysis were analyzed using gas chromatography/electron capture detector (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the IS compounds. Data was evaluated against 2006 MDLs.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 9 months of collection and analyzed within 29 days of extraction.

Batch	Extraction Date	Analysis Date
06-0196	6/19/2006	7/14/2006 – 7/18/2006

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0196 – No exceedences noted.

Comments – No target pesticides or PCBs were detected in the procedural blank.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared for the analytical batch. The percent recoveries of pesticides and PCB compounds were calculated to measure data quality in terms of accuracy.

06-0196 – All percent recoveries were within the laboratory control limits (50-120%)

Comments – None.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PCB and pesticide were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0196 – 36 (out of 72) percent recovery exceedences noted. 36 (out of 36) RPD exceedence noted.

Comments – All percent recoveries for spiked analytes were within laboratory control limits (50-120%) for the MS sample. However, all percent recoveries failed low in the MSD sample. In addition, although meeting the criteria, the surrogate recoveries for the MSD sample were also low (32% - 37%), indicating an extract loss during sample preparation. Results from the PAH analysis for this batch are also low, further indicating an extract loss. All exceedences were qualified with an “N”. Precision was demonstrated between the lab duplicates S9809 and S9809DUP. No corrective action was taken.

SURROGATES:

Two surrogate compounds were added prior to extraction, including PCB 34, and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0196 – 2 exceedences noted.

Comments – All percent recoveries for surrogates were within laboratory control limits (30-150%), except for the SIS recoveries for sample S9813 (003 E N.v Tissue). Both PCB 34 and 152 were under-recovered at 27% and 28%, respectively. In the sample prep records, the technician noted that an extract loss of sample S9813 occurred after it went through the clean-up column. Re-extraction was not possible due to limited sample mass. No corrective action was taken. It should be noted that results for this sample are biased low.

DUPLICATES:

Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for pesticides and PCB compounds were calculated to measure data quality in terms of precision.

06-0196 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0196 – 5 (out of 21) exceedences noted.

Comments – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance) except for a-chlordane, endosulfan I, PCB 8, PCB 170, and PCB 180. a-chlordane was recovered low and the other four compounds were recovered high. Integrations, calibrations, and calculations were reviewed, and no error was found. The GC/ECD analyst notes a matrix interference affecting the chromatography for PCB 180. This result has been qualified with an "ME" in the SRM to indicate the result is an estimate. Exceedences were qualified and no corrective action was taken. It should be noted that in the field samples, results for a-chlordane may be biased low, and results for the other four compounds may have a high bias.

CALIBRATIONS: The GC/ECD was calibrated with a 6 level curve, with a correlation coefficient of ≥0.995. Each batch of samples analyzed is bracketed by continuing calibration verification (CCV) samples, running at a frequency of minimally every 24 hours. The PD between the initial calibration (ICAL) RF and the continuing calibration samples should be <20% for each compound. Additionally an Initial Calibration Check (ICC) sample is run immediately following the ICAL. The ICC is to have a percent difference < 20%.

06-0196 – No ICAL exceedences. 21 CCV exceedences. 1 ICC exceedences.

Comments – PCB/pesticide data for this project was collected over 3 sequences, each with its own ICAL, CCV, and ICC. The exceedences listed above are the totals over all three sequences.

In the ICC GL57 data file L6429.d, from method ML0145E, 4,4'-DDT is under-recovered. The percent difference is 23.5%. This compound passes in the ICAL, as well as in the LCS and MS QC samples. The exceedence was qualified on the ICC report and no corrective action was taken.

21 pesticides did not meet DQO criteria in various CCVs. All exceedences are due to over-recoveries, except for methoxychlor. Methoxychlor failed low in CCV L6442,d and L6427.d at 24.7% and 24.3%, respectively. None of the over-recovered pesticides were detected in any field samples, and therefore data was not impacted. The GC/ECD analyst notes that the methoxychlor failures are due to sample matrix interference, and therefore re-analyzing the samples would not be beneficial. The following samples are bracketed by the above failing mids and may have biased low data for methoxychlor: BI999PB, BJ001LCS, BJ002SRM, S9794, S9795, S9796, S9797, S9798, S9799, S9799MS, S9799MSD, S9800, S9801, S9802, S9803, S9804, S9805, and S9806. However, it should be noted that both the LCS and MS have acceptable recoveries for methoxychlor, indicating the impact of CCV failure is insignificant.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A N.v. Tissue	BBDS B N.v. Tissue	BBDS C N.v. Tissue	BBDS D N.v. Tissue
Battelle ID	S9794-P	S9795-P	S9796-P	S9797-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/14/06	07/14/06	07/14/06	07/14/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.2	88.64	87.89	87.26
% Lipid	1.16	1.15	1.26	1.24
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.14	20.65	29.61	29.24
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.06 U	0.06 U	0.06 U	0.06 U
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.04	0.04 U	0.04	0.04
g-chlordane	0.04 U	0.04 U	0.04 U	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05	0.05 U	0.05	0.05
trans-nonachlor	0.25	0.21	0.23	0.22
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.12	0.26
Toxaphene	2.87 U	4.05 U	2.82 U	2.86 U
Cl2(8)	0.19 U	0.19 U	0.19 U	0.19 U
Cl3(18)	0.08	0.07	0.08	0.09
Cl3(28)	0.06	0.06	0.06	0.07
Cl4(44)	0.07	0.09	0.07	0.08
Cl4(52)	0.23	0.23	0.2	0.22
Cl4(66)	0.04 ME	0.05 ME	0.04 ME	0.06 ME
Cl5(101)	0.29	0.31	0.27	0.32
Cl5(105)	0.07	0.08	0.06	0.07
Cl5(118)	0.16	0.17	0.13	0.16
Cl6(128)	0.12	0.16	0.12	0.13
Cl6(138)	0.57	0.67	0.55	0.65
Cl6(153)	0.71	0.84	0.71	0.7
Cl7(170)	0.17	0.32	0.2	0.4
Cl7(180)	0.11	0.15	0.11	0.14
Cl7(187)	0.11	0.12	0.11	0.11
Cl8(195)	0.03 U	0.03 U	0.03 U	0.03 U
Cl9(206)	0.02 J	0.02 J	0.02 J	0.03
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U

Surrogate Recoveries (%)

Cl3(34)	76	72	78	73
Cl6(152)	79	73	77	67

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS E N.v. Tissue	RISDS A N.v. Tissue	RISDS B N.v. Tissue	RISDS C N.v. Tissue
Battelle ID	S9798-P	S9799-P	S9800-P	S9801-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/15/06	07/15/06	07/15/06	07/16/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	87.05	86.81	86.94	87.64
% Lipid	1.41	1.32	1.4	1.29
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.36	14.82	29.60	29.91
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.06	0.05 U
4,4'-DDE	0.06 U	0.06 U	0.06 U	0.06 U
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.07	0.07	0.06	0.05
g-chlordane	0.05	0.04 J	0.04	0.04
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.07	0.07	0.06	0.05
trans-nonachlor	0.33	0.33	0.32	0.29
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.67	0.96	0.05 U	0.05 U
Toxaphene	2.85 U	5.64 U	2.82 U	2.79 U
Cl2(8)	0.19 U	0.19 U	0.19 U	0.19 U
Cl3(18)	0.11	0.12	0.09	0.08
Cl3(28)	0.1	0.09	0.06	0.05 U
Cl4(44)	0.13	0.18	0.11	0.08
Cl4(52)	0.25	0.24	0.17	0.13
Cl4(66)	0.06 ME	0.03 JME	0.03 U	0.03 U
Cl5(101)	0.33	0.18	0.15	0.11
Cl5(105)	0.08	0.06	0.05 U	0.05 U
Cl5(118)	0.19	0.1	0.07	0.05
Cl6(128)	0.13	0.12	0.06	0.05
Cl6(138)	0.59	0.42	0.29	0.23
Cl6(153)	0.72	0.37	0.32	0.27
Cl7(170)	0.24	0.55	0.18	0.13
Cl7(180)	0.1	0.12	0.1	0.08
Cl7(187)	0.12	0.1	0.1	0.08
Cl8(195)	0.03 U	0.03 U	0.03 U	0.03 U
Cl9(206)	0.02 J	0.03 J	0.02 J	0.02 J
Cl10(209)	0.03 U	0.03 U	0.03 U	0.03 U
Surrogate Recoveries (%)				
Cl3(34)	78	76	81	74
Cl6(152)	76	80	79	73

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS D N.v. Tissue	RISDS E N.v. Tissue	001 A N.v. Tissue	001 B N.v. Tissue
Battelle ID	S9802-P	S9803-P	S9804-P	S9805-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/16/06	07/16/06	07/16/06	07/16/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	87.77	87.9	87.55	87.79
% Lipid	1.39	1.38	0.95	1.32
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.51	29.68	30.10	29.30
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	2.09	1.59
4,4'-DDE	0.06 U	0.06 U	0.62	0.46
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.06	0.06	0.14	0.12
g-chlordane	0.04	0.04	0.1	0.11
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.06	0.05	2.06	1.53
trans-nonachlor	0.32	0.3	0.34	0.3
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 J	0.05 U	0.05 U
Toxaphene	2.83 U	2.82 U	2.78 U	2.85 U
Cl2(8)	0.19 U	0.19 U	1.46	1.96
Cl3(18)	0.1	0.1	14.62 D	14.96 D
Cl3(28)	0.05	0.05	10.66 D	10.77 D
Cl4(44)	0.14	0.08	7.15 D	7.34 D
Cl4(52)	0.16	0.16	43.22 D	40.64 D
Cl4(66)	0.03 ME	0.03 ME	5.29 DME	6.43 ME
Cl5(101)	0.14	0.11	43.31 D	36.5 D
Cl5(105)	0.05	0.05 U	15.65 D	11.73 D
Cl5(118)	0.06	0.05	18.21 D	15.28 D
Cl6(128)	0.06	0.06	11.6 D	8.69 D
Cl6(138)	0.29	0.25	52.53 D	38.69 D
Cl6(153)	0.34	0.27	48.21 D	37.05 D
Cl7(170)	0.16	0.16	4.24 D	5.35
Cl7(180)	0.1	0.08	6.71 D	7.47
Cl7(187)	0.1	0.08	3.95 D	3.68
Cl8(195)	0.03 U	0.03 U	0.46	0.34
Cl9(206)	0.03	0.02 J	0.29	0.26
Cl10(209)	0.03	0.03 U	0.08	0.07
Surrogate Recoveries (%)				
Cl3(34)	79	81	73	71
Cl6(152)	81	78	86	85

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 C N.v. Tissue	001 D N.v. Tissue	001 E N.v. Tissue	003 A N.v. Tissue
Battelle ID	S9806-P	S9807-P	S9808-P	S9809-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/16/06	07/16/06	07/16/06	07/16/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	87.15	88.62	87.8	87.74
% Lipid	1.24	1.08	1.42	1.09
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.01	29.34	29.86	14.78
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	2.95	1.2	1.08	0.92
4,4'-DDE	0.6	0.39	0.33	0.39
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.16	0.11	0.13	0.11
g-chlordane	0.15	0.09	0.12	0.1
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	1.75	1.29	1.04	1.25
trans-nonachlor	0.33	0.27	0.29	0.33
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	2.78 U	2.85 U	2.8 U	5.65 U
Cl2(8)	1.74	1.33	1.38	1.19
Cl3(18)	16.05 D	13.29 D	13.4 D	15.03 D
Cl3(28)	10.76 D	8.69 D	8.55 D	8.13 D
Cl4(44)	8.16 D	5.36 D	5.74 D	8.31
Cl4(52)	42.88 D	34.25 D	31.47 D	40.76 D
Cl4(66)	4.68 DME	4.03 D	3.11 D	4.35
Cl5(101)	37.32 D	29.61 D	23.74 D	24.72 D
Cl5(105)	11.64 D	9.9 D	8.02 D	11.58
Cl5(118)	15.77 D	12.32 D	9.17 D	12.34
Cl6(128)	8.16 D	7.31 D	5.62 D	9.01
Cl6(138)	37.02 D	33.42 D	24.83 D	30.83 D
Cl6(153)	36.11 D	32.54 D	24.79 D	30.86 D
Cl7(170)	3.39 D	4.54	3.31	4.22
Cl7(180)	4.73 D	4.45 D	4.53	5.5
Cl7(187)	4.02	3.2	2.31	3.19
Cl8(195)	0.35	0.29	0.22	0.29
Cl9(206)	0.25	0.2	0.16	0.23
Cl10(209)	0.07	0.05	0.05	0.06

Surrogate Recoveries (%)

Cl3(34)	72	77	67	76
Cl6(152)	81	83	76	81

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 B N.v. Tissue	003 C N.v. Tissue	003 D N.v. Tissue	003 E N.v. Tissue
Battelle ID	S9810-P	S9811-P	S9812-P	S9813-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/17/06	07/17/06	07/17/06	07/17/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	87.92	87.12	88.83	88.36
% Lipid	1.11	1.23	1.11	1.19
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	28.89	21.18	30.56	28.26
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	1.21	0.74	0.71	0.32
4,4'-DDE	0.42	0.23	0.26	0.11
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.11	0.09	0.08	0.04 U
g-chlordane	0.1	0.08	0.08	0.04 U
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	1.64	1.08	1.03	0.5
trans-nonachlor	0.31	0.3	0.27	0.1
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	2.89 U	3.95 U	2.73 U	2.96 U
Cl2(8)	1.46	0.9	1.1	0.42
Cl3(18)	11.31 D	8.43 D	10.06 D	5.07
Cl3(28)	6.65 D	4.5 D	4.98 D	2.66
Cl4(44)	5.04 D	4.22	3.97 D	2.03
Cl4(52)	37.29 D	25.99 D	29.88 D	12.28 D
Cl4(66)	3.35 D	2.46	2.23	1.17
Cl5(101)	27.57 D	15.9 D	17.46 D	8.18 D
Cl5(105)	9.09 D	5.07 D	5.88 D	3.97
Cl5(118)	11.06 D	5.65 D	5.81 D	4.11
Cl6(128)	8.18 D	4.91 D	5.44 D	3.44
Cl6(138)	36.13 D	21.63 D	23.8 D	11.8 D
Cl6(153)	34.57 D	22.56 D	24.71 D	12.14 D
Cl7(170)	3.74 D	3.53	3.38	1.71
Cl7(180)	5.2 D	4.82	4.67	2.22
Cl7(187)	3.17 D	2.65	2.53	1.28
Cl8(195)	0.36	0.25	0.24	0.12
Cl9(206)	0.26	0.19	0.18	0.09
Cl10(209)	0.07	0.06	0.05	0.03 U

Surrogate Recoveries (%)

Cl3(34)	77	71	74	27 N
Cl6(152)	82	74	81	28 N

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BI999PB-P
Sample Type	PB
Collection Date	06/19/06
Extraction Date	06/19/06
Analysis Date	07/14/06
Analytical Instrument	ECD
% Moisture	87.75
% Lipid	NA
Matrix	WORMS
Sample Size	27.19
Size Unit-Basis	G_WET
Units	UG/KG_WET
4,4'-DDD	0.05 U
4,4'-DDE	0.06 U
4,4'-DDT	0.05 U
aldrin	0.03 U
a-chlordane	0.04 U
g-chlordane	0.04 U
Lindane	0.05 U
cis-nonachlor	0.05 U
trans-nonachlor	0.04 U
oxychlordane	0.05 U
dieldrin	0.06 U
endosulfan I	0.02 U
endosulfan II	0.06 U
endrin	0.05 U
heptachlor	0.04 U
heptachlor epoxide	0.02 U
Hexachlorobenzene	0.05 U
methoxychlor	0.05 U
Toxaphene	3.07 U
Cl2(8)	0.19 U
Cl3(18)	0.04 U
Cl3(28)	0.05 U
Cl4(44)	0.03 U
Cl4(52)	0.05 U
Cl4(66)	0.03 U
Cl5(101)	0.05 U
Cl5(105)	0.05 U
Cl5(118)	0.05 U
Cl6(128)	0.03 U
Cl6(138)	0.06 U
Cl6(153)	0.04 U
Cl7(170)	0.03 U
Cl7(180)	0.03 U
Cl7(187)	0.04 U
Cl8(195)	0.03 U
Cl9(206)	0.02 U
Cl10(209)	0.03 U

Surrogate Recoveries (%)

Cl3(34)	76
Cl6(152)	75

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia				
Battelle ID	BJ001LCS-P				
Sample Type	LCS				
Collection Date	06/19/06				
Extraction Date	06/19/06				
Analysis Date	07/18/06				
Analytical Instrument	ECD				
% Moisture	78.37				
% Lipid	NA				
Matrix	WORMS				
Sample Size	30.12				
Size Unit-Basis	G_WET				
Units	UG/KG_WET		Target	% Recovery	Qualifier
4,4'-DDD	2.36		2.66	89	
4,4'-DDE	2.4		2.66	90	
4,4'-DDT	2.86		2.66	108	
aldrin	2.69		2.66	101	
a-chlordane	2.63		2.66	99	
g-chlordane	2.58		2.66	97	
Lindane	2.77		2.66	104	
cis-nonachlor	2.25		2.66	85	
trans-nonachlor	2.77		2.66	104	
oxychlordane	2.78		2.67	104	
dieldrin	2.25		2.66	85	
endosulfan I	2.49		2.66	94	
endosulfan II	2.04		2.66	77	
endrin	2.29		2.66	86	
heptachlor	2.97		2.66	112	
heptachlor epoxide	2.6		2.66	98	
Hexachlorobenzene	2.21		2.66	83	
methoxychlor	2.25		2.66	85	
Toxaphene	2.77	U			
Cl2(8)	1.49		2.66	56	
Cl3(18)	1.64		2.66	62	
Cl3(28)	1.88		2.66	71	
Cl4(44)	2.05		2.66	77	
Cl4(52)	1.95		2.66	73	
Cl4(66)	2.35		2.66	88	
Cl5(101)	2.25		2.66	85	
Cl5(105)	1.96		2.66	74	
Cl5(118)	1.87		2.66	70	
Cl6(128)	2.09		2.67	78	
Cl6(138)	2.07		2.66	78	
Cl6(153)	1.83		2.66	69	
Cl7(170)	2.29		2.67	86	
Cl7(180)	2.11		2.67	79	
Cl7(187)	1.82		2.66	68	
Cl8(195)	2.07		2.66	78	
Cl9(206)	1.79		2.66	67	
Cl10(209)	2.02		2.66	76	

Surrogate Recoveries (%)

Cl3(34)	87
Cl6(152)	69

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977
Battelle ID	BJ002SRM-P
Sample Type	SRM
Collection Date	06/19/06
Extraction Date	06/19/06
Analysis Date	07/14/06
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	WORMS
Sample Size	1.91
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
4,4'-DDD	3.57	4.3	0.38	38.84	17	
4,4'-DDE	11.04	12.5	1.60	42.8	11.7	
4,4'-DDT	1.22 J	1.28	0.18	44.06	4.7	
aldrin	0.03 U					
a-chlordane	0.76	1.42	0.13	39.15	46.5	N
g-chlordane	1.15					
Lindane	0.72					
cis-nonachlor	2.06					
trans-nonachlor	1.3	1.43	0.10	36.99	9.1	
oxychlordane	0.05 U					
dieldrin	8.97	6.04	0.52	38.61	48.5	N
endosulfan I	0.02 U					
endosulfan II	0.06 U					
endrin	2.02					
heptachlor	0.04 U					
heptachlor epoxide	0.02 U					
Hexachlorobenzene	0.76					
methoxychlor	0.05 U					
Toxaphene	43.75 U					
Cl2(8)	6.55	2.1	0.15	37.14	211.9	N
Cl3(18)	2.83	2.65	0.30	41.32	6.8	
Cl3(28)	6.05	5.37	0.44	38.19	12.7	
Cl4(44)	2.64	3.25	0.63	49.38	18.8	
Cl4(52)	8.02	8.37	0.54	36.45	4.2	
Cl4(66)	4.11	3.64	0.32	38.79	12.9	
Cl5(101)	10.56	11.2	1.20	40.71	5.7	
Cl5(105)	3.24	3.76	0.49	43.03	13.8	
Cl5(118)	13.55	10.5	1.00	39.52	29	
Cl6(128)	2.71	2.49	0.28	41.24	8.8	
Cl6(138)	15.4	16.6	1.60	39.64	7.2	
Cl6(153)	16.51	14.1	1.00	37.09	17.1	
Cl7(170)	5.87	2.95	0.23	37.8	99	N
Cl7(180)	10.71 ME	6.79	0.67	39.87	57.7	N
Cl7(187)	5.16	4.76	0.38	37.98	8.4	
Cl8(195)	0.27 J					
Cl9(206)	0.02 U					
Cl10(209)	0.03 U					

Surrogate Recoveries (%)

Cl3(34)	71
Cl6(152)	68

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS A N.v. Tissue	RISDS A N.v. Tissue			
Battelle ID	S9799-P	S9799MS-P			
Sample Type	SA	MS			
Collection Date	09/22/05	9/22/2005			
Extraction Date	06/19/06	6/19/2006			
Analysis Date	07/15/06	7/15/2006			
Analytical Instrument	ECD	ECD			
% Moisture	86.81	87.09			
% Lipid	1.32	NA			
Matrix	WORMS	WORMS			
Sample Size	14.82	10.68			
Size Unit-Basis	G_WET	G_WET			
Units	UG/KG_WET	UG/KG_WET		Target	% Recovery	Qualifier
4,4'-DDD	0.05 U	6.99		7.49	93	
4,4'-DDE	0.06 U	6.74		7.50	90	
4,4'-DDT	0.05 U	8.46		7.49	113	
aldrin	0.03 U	7.03		7.49	94	
a-chlordane	0.07	7.18		7.50	95	
g-chlordane	0.04 J	6.94		7.50	92	
Lindane	0.05 U	7.72		7.50	103	
cis-nonachlor	0.07	6.32		7.50	83	
trans-nonachlor	0.33	7.68		7.50	98	
oxychlordane	0.05 U	7.71		7.53	102	
dieldrin	0.06 U	6.64		7.49	89	
endosulfan I	0.02 U	7.4		7.50	99	
endosulfan II	0.06 U	5.95		7.50	79	
endrin	0.05 U	6.49		7.49	87	
heptachlor	0.04 U	8.53		7.49	114	
heptachlor epoxide	0.02 U	7.2		7.50	96	
Hexachlorobenzene	0.05 U	6.59		7.50	87	
methoxychlor	0.96	7.71		7.49	90	
Toxaphene	5.64 U	7.82	U			
Cl2(8)	0.19 U	5.21		7.51	69	
Cl3(18)	0.12	5.33		7.51	69	
Cl3(28)	0.09	5.65		7.50	74	
Cl4(44)	0.18	5.86		7.51	76	
Cl4(52)	0.24	5.89		7.49	75	
Cl4(66)	0.03 JME	7.05		7.50	94	
Cl5(101)	0.18	6.25		7.51	81	
Cl5(105)	0.06	5.85		7.50	77	
Cl5(118)	0.1	5.9		7.50	77	
Cl6(128)	0.12	5.73		7.54	74	
Cl6(138)	0.42	6.22		7.51	77	
Cl6(153)	0.37	5.44		7.50	68	
Cl7(170)	0.55	6.43		7.53	78	
Cl7(180)	0.12	6.22		7.52	81	
Cl7(187)	0.1	5.45		7.51	71	
Cl8(195)	0.03 U	6.06		7.51	80	
Cl9(206)	0.03 J	5.35		7.51	71	
Cl10(209)	0.03 U	5.88		7.50	78	

Surrogate Recoveries (%)

Cl3(34)	76	86
Cl6(152)	80	74

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS A N.v. Tissue
Battelle ID	S9799MSD-P
Sample Type	MSD
Collection Date	9/22/2005
Extraction Date	6/19/2006
Analysis Date	7/15/2006
Analytical Instrument	ECD
% Moisture	87.03
% Lipid	NA
Matrix	WORMS
Sample Size	10.05
Size Unit-Basis	G_WET

Units	UG/KG_WET		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDD	2.67		7.96	33	N	95.2	N
4,4'-DDE	2.7		7.97	34	N	90.3	N
4,4'-DDT	2.71		7.96	34	N	107.5	N
aldrin	2.94		7.96	37	N	87.0	N
a-chlordane	2.94		7.97	36	N	90.1	N
g-chlordane	2.84		7.97	35	N	89.8	N
Lindane	2.98		7.97	37	N	94.3	N
cis-nonachlor	2.53		7.97	31	N	91.2	N
trans-nonachlor	3.09		7.97	35	N	94.7	N
oxychlordane	3.26		8.00	41	N	85.3	N
dieldrin	2.55		7.96	32	N	94.2	N
endosulfan I	2.98		7.97	37	N	91.2	N
endosulfan II	2.39		7.97	30	N	89.9	N
endrin	2.46		7.96	31	N	94.9	N
heptachlor	2.64		7.96	33	N	110.2	N
heptachlor epoxide	3.04		7.97	38	N	86.6	N
Hexachlorobenzene	3.07		7.97	38	N	78.4	N
methoxychlor	2.81		7.96	23	N	118.6	N
Toxaphene	8.32	U					
Cl2(8)	2.63		7.98	33	N	70.6	N
Cl3(18)	2.53		7.98	30	N	78.8	N
Cl3(28)	2.53		7.97	31	N	81.9	N
Cl4(44)	2.77		7.98	32	N	81.5	N
Cl4(52)	2.72		7.96	31	N	83.0	N
Cl4(66)	3.15		7.97	39	N	82.7	N
Cl5(101)	2.8		7.98	33	N	84.2	N
Cl5(105)	2.47		7.97	30	N	87.9	N
Cl5(118)	2.49		7.97	30	N	87.9	N
Cl6(128)	2.51		8.01	30	N	84.6	N
Cl6(138)	2.84		7.98	30	N	87.9	N
Cl6(153)	2.61		7.97	28	N	83.3	N
Cl7(170)	3.13		8.00	32	N	83.6	N
Cl7(180)	2.78		7.99	33	N	84.2	N
Cl7(187)	2.46		7.98	30	N	81.2	N
Cl8(195)	2.71		7.98	34	N	80.7	N
Cl9(206)	2.44		7.98	30	N	81.2	N
Cl10(209)	2.73		7.97	34	N	78.6	N

Surrogate Recoveries (%)

Cl3(34)	37
Cl6(152)	32

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 A N.v. Tissue		003 A N.v. Tissue			
Battelle ID	S9809-P		S9809DUP-P			
Sample Type	SA		QADU			
Collection Date	09/22/05		9/22/2005			
Extraction Date	06/19/06		6/19/2006			
Analysis Date	07/16/06		7/16/2006			
Analytical Instrument	ECD		ECD			
% Moisture	87.74		88.07			
% Lipid	NA		NA			
Matrix	WORMS		WORMS			
Sample Size	14.78		14.37			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
4,4'-DDD	0.92		0.78		16.5	
4,4'-DDE	0.39		0.31		22.9	
4,4'-DDT	0.05	U	0.05	U	NA	
aldrin	0.03	U	0.03	U	NA	
a-chlordane	0.11		0.1		9.5	
g-chlordane	0.1		0.08		22.2	
Lindane	0.05	U	0.05	U	NA	
cis-nonachlor	1.25		1.04		18.3	
trans-nonachlor	0.33		0.27		20.0	
oxychlordane	0.05	U	0.05	U	NA	
dieldrin	0.06	U	0.06	U	NA	
endosulfan I	0.02	U	0.02	U	NA	
endosulfan II	0.06	U	0.06	U	NA	
endrin	0.05	U	0.05	U	NA	
heptachlor	0.04	U	0.04	U	NA	
heptachlor epoxide	0.02	U	0.02	U	NA	
Hexachlorobenzene	0.05	U	0.05	U	NA	
methoxychlor	0.05	U	0.05	U	NA	
Toxaphene	5.65	U	5.82	U	NA	
Cl2(8)	1.19		1.09		8.8	
Cl3(18)	15.03	D	11.58	D	25.9	
Cl3(28)	8.13	D	8.22		1.1	
Cl4(44)	8.31		6.88		18.8	
Cl4(52)	40.76	D	31.88	D	24.4	
Cl4(66)	4.35		3.46		22.8	
Cl5(101)	24.72	D	18.94	D	26.5	
Cl5(105)	11.58		9.14		23.6	
Cl5(118)	12.34		10.06		20.4	
Cl6(128)	9.01		7.53		17.9	
Cl6(138)	30.83	D	24.21	D	24.1	
Cl6(153)	30.86	D	24.51	D	22.9	
Cl7(170)	4.22		3.57		16.7	
Cl7(180)	5.5		4.61		17.6	
Cl7(187)	3.19		2.66		18.1	
Cl8(195)	0.29		0.25		14.8	
Cl9(206)	0.23		0.19		19.0	
Cl10(209)	0.06		0.06		0.0	

Surrogate Recoveries (%)

Cl3(34)	76	70
Cl6(152)	81	75

Pesticide/PCB–QA/QC SUMMARY 06-0197
M. nasuta and N. virens

PROJECT: New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER: Pesticide/PCB
LABORATORY: Battelle, Duxbury, MA
MATRIX: Tissue – M. nasuta and N. virens
SAMPLE CUSTODY: Tissue samples for this project were collected on 9/22/05 and 10/13/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
Pesticide /PCB	General NS&T	< 5x MDL	30-150% Recovery	50-120% for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% RPD for analytes >10 x MDL	MDL: 0.02 – 0.19 Toxaphene RL: 3.0

METHOD: Tissue samples were extracted for Pesticides/PCB following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was concentrated, processed through silica gel columns, concentrated, fortified with internal standard (IS) and split 50:50 for analysis. Extracts intended for Pesticides/PCB analysis were analyzed using gas chromatography/electron capture detector (GC/ECD), following general NS&T methods. Sample data were quantified by the method of internal standards, using the IS compounds. Data was evaluated against 2006 MDLs.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 9 months of collection and analyzed within 25 days of extraction.

Batch	Extraction Date	Analysis Date
06-0197	6/22/2006	7/13/2006 – 7/27/2006

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0197 – No exceedences noted.

Comments – No target pesticides or PCBs were detected in the procedural blank.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared for the analytical batch. The percent recoveries of pesticides and PCB compounds were calculated to measure data quality in terms of accuracy.

06-0197 – 12 (out of 36) exceedences noted.

Comments – Percent recoveries varied for sample BJ004LCS, from 33% to 175%. The two exceedences involving over-recoveries were for PCB 138 and PCB 170, with recoveries at 139% and 175%, respectively. These exceedences are due to phthalate interference as noted by the GC/ECD analyst. Results for PCB 138 and PCB 170 have been flagged with an "ME" in the LCS to indicate the results are estimates. All other exceedences were due to under-recoveries. Chromatography and calculations were reviewed, and no errors were found. In the sample prep records, however, an extract loss for the LCS due to a leaky KD apparatus was noted. The exceedences were qualified with an "N" and no corrective action was taken. The LCS extract split for PAH analysis also had similarly low recoveries, confirming the extract loss during sample prep. Since this was an isolated incident, the exceedences should have no impact on the field sample data. Accuracy for all failed compounds in LCS was demonstrated in the MS and MSD samples.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PCB and pesticide were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0197 – 3 (out of 72) percent recovery exceedences noted. 1 (out of 36) RPD exceedence noted.

Comments – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), except for 4,4-DDT and endrin in sample S9759MS and endrin in sample S9759MSD (background Lab A M.n Tissue). 4,4-DDT was over-recovered at 128%, while endrin was under-recovered in both samples at 10% and 36%, respectively. The RPD between endrin percent recoveries was also calculated to be in exceedence at 113%. Chromatography and calculations were reviewed, and no discrepancies were found. The MS/MSD samples were re-run with similar results. The data was qualified and no further corrective action was taken. It should be noted that endrin results for the field samples in this batch may be biased low. Accuracy for 4,4-DDT was demonstrated in the SRM.

SURROGATES:

Two surrogate compounds were added prior to extraction, including PCB 34, and PCB 152. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0197 – All percent recoveries for surrogates were within laboratory control limits (30-150%).

Comments – None

DUPLICATES: Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for pesticides and PCB compounds were calculated to measure data quality in terms of precision.

06-0197 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0197 – 2 exceedences noted.

Comments – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance) except for dieldrin and PCB 170 which were over-recovered in the SRM. All integrations, calibrations, and calculations were checked, and no discrepancy was found. The GC/ECD analyst notes a phthalate interference affecting the chromatography for PCB 170. This result has been qualified with an "ME" in the SRM to indicate the result is an estimate. Exceedences were qualified and no corrective action was taken. It should be noted that the results for dieldrin and PCB 170 in the field samples of this batch may be biased high.

CALIBRATIONS: The GC/ECD was calibrated with a 6 level curve, with a correlation coefficient of ≥0.995. Each batch of samples analyzed is bracketed by continuing calibration verification (CCV) samples, running at a frequency of minimally every 24 hours. The PD between the initial calibration (ICAL) RF and the continuing calibration samples should be <20% for each compound. Additionally an Initial Calibration Check (ICC) sample is run immediately following the ICAL. The ICC is to have a percent difference < 20%.

06-0197 – No ICAL exceedences. 7 CCV exceedences. 2 ICC exceedences.

Comments – Data for this batch was acquired on 3 methods. Each method has its own associated ICAL, CCV and ICC samples.

In the ICC data file L6505.d, method ML0148, PCB 206 and PCB 209 were both under-recovered. Their percent differences were calculated to be 29% and 23.2%, respectively. Chromatography and calculations were reviewed. No discrepancies were found. While data for these compounds may be considered biased low, both accuracy and precision for these compounds were demonstrated in the MS and MSD samples. The exceedences were qualified on the ICC evaluation report, no corrective action was taken.

All CCV samples had acceptable results except for CCV GK44 mid, data file M6046.d. In this CCV, g-BHC, heptachlor, heptachlor epoxide, oxychlordane, and methoxychlor were all over-recovered. However, since these compounds were not detected in any of the affected samples, sample data were not affected. PCB 206 and PCB 209 were also over-recovered at 27.2% and 23.5%, respectively. Chromatography and calculations were reviewed. PCB 206 and PCB 209 data maybe biased high for the following samples: S9814, S9814DUP, S9815, S9816k, S9817, S9818, and S9788. However, due to the low concentrations of PCB 206 and PCB 209 relative to other lighter PCBs in the samples, the contribution of the two compounds to the total PCB concentrations is insignificant. No corrective action was taken.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue	Lab B M.n. Tissue	Lab C M.n. Tissue	008 A M.n. Tissue
Battelle ID	S9759-P	S9760-P	S9761-P	S9784-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/26/06	07/27/06	07/27/06	07/13/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.13	90.55	90.97	90.78
% Lipid	0.87	0.85	0.8	0.73
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	19.86	29.48	29.45	29.97
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.36	0.21	0.17	0.05 U
4,4'-DDE	0.37	0.25	0.23	1.35
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.11	0.06	0.05	0.07
g-chlordane	0.04	0.04 U	0.04 U	0.08
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.05	0.05 U	0.05 U	1.45
trans-nonachlor	0.06	0.04 U	0.04 U	0.04
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.11	0.07	0.07	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.23	0.18	0.12	0.05 U
methoxychlor	0.05 U	0.21	0.05 U	0.05 U
Toxaphene	4.21 U	2.83 U	2.84 U	2.79 U
Cl2(8)	0.19 U	0.19 U	0.19 U	25.4 D
Cl3(18)	0.04 U	0.05	0.04 U	29.19 D
Cl3(28)	0.17	0.13	0.11	47.19 D
Cl4(44)	0.03 U	0.03 U	0.03 U	16.3 D
Cl4(52)	0.18	0.13	0.11	77.45 D
Cl4(66)	0.18	0.03 U	0.03 U	17.65 D
Cl5(101)	0.19	0.11	0.11	36.47 D
Cl5(105)	0.05	0.05 U	0.05 U	8 D
Cl5(118)	0.15	0.09	0.09	22.92 D
Cl6(128)	0.03 J	0.03 U	0.03 U	4.96 D
Cl6(138)	0.19	0.11	0.12	25.61 D
Cl6(153)	0.2	0.13	0.13	26.22 D
Cl7(170)	0.29	0.18	0.13	2.14
Cl7(180)	0.15	0.08	0.07	2.5
Cl7(187)	0.05	0.04	0.04	2
Cl8(195)	0.03 U	0.03 U	0.03 U	0.24
Cl9(206)	0.02 U	0.02 U	0.02 U	0.1
Cl10(209)	0.03 U	0.03 U	0.03 U	0.04

Surrogate Recoveries (%)

Cl3(34)	72	65	70	73
Cl6(152)	67	64	71	78

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 B M.n. Tissue	008 C M.n. Tissue	008 D M.n. Tissue	008 E M.n. Tissue
Battelle ID	S9785-P	S9786-P	S9787-P	S9788-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/13/06	07/13/06	07/13/06	07/14/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	90.3	91.62	91.13	90.47
% Lipid	0.68	0.68	0.75	0.68
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.38	30.53	30.18	29.16
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	2.23	1.51	1.84	2.42
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.09	0.06	0.07	0.09
g-chlordane	0.1	0.08	0.11	0.08
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	2.36	1.59	2	2.5
trans-nonachlor	0.05	0.04	0.04	0.05
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	2.75 U	2.74 U	2.77 U	2.87 U
Cl2(8)	33.13 D	28.37 D	33.37 D	27.07 D
Cl3(18)	45.96 D	30.93 D	39.87 D	34.73 D
Cl3(28)	66.85 D	46.6 D	66.45 D	51.58 D
Cl4(44)	27.32 D	18.4 D	20.87 D	24.14 D
Cl4(52)	108.67 D	76.78 D	107.68 D	113.59 D
Cl4(66)	23.68 D	19.05 D	23.34 D	21.4 D
Cl5(101)	53.05 D	40 D	49.33 D	58.92 D
Cl5(105)	13.66 D	9.67 D	12.76 D	13.98 D
Cl5(118)	37.87 D	26.96 D	34.16 D	38.57 D
Cl6(128)	8.01 D	6.09 D	7.32 D	9.6 D
Cl6(138)	41.87 D	31.22 D	37.56 D	50.29 D
Cl6(153)	44.27 D	31.44 D	38.92 D	52.98 D
Cl7(170)	3.63	2.55	2.81	4.35
Cl7(180)	4.45	3.19	3.58	3.77 D
Cl7(187)	3.33	2.24	2.81	3.93
Cl8(195)	0.45	0.3	0.34	0.53
Cl9(206)	0.19	0.13	0.16	0.21
Cl10(209)	0.07	0.05	0.05	0.09

Surrogate Recoveries (%)

Cl3(34)	81	69	67	70
Cl6(152)	93	77	76	74

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A N.v. Tissue	Lab B N.v. Tissue	Lab C N.v. Tissue	008 A N.v. Tissue
Battelle ID	S9789-P	S9790-P	S9791-P	S9814-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/13/06	07/13/06	07/14/06	07/14/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	88.11	88.36	88.48	88.36
% Lipid	1.61	1.27	1.35	1.44
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.13	26.97	26.40	15.41
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.06 U	0.06 U	0.06 U	0.61
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.08	0.06	0.08	0.13
g-chlordane	0.05	0.04 U	0.04	0.12
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	0.06	0.05	0.05	1.43
trans-nonachlor	0.26	0.26	0.24	0.29
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.12	0.1	0.11	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.14	0.24	0.11	0.05 U
methoxychlor	2.46 D	0.06	0.05 U	0.05 U
Toxaphene	2.77 U	3.1 U	3.17 U	5.42 U
Cl2(8)	0.19 U	0.19 U	0.19 U	1.09
Cl3(18)	0.09	0.04 U	0.04 U	39.31 D
Cl3(28)	0.13	0.05 U	0.05 U	29.21 D
Cl4(44)	0.07	0.03 U	0.03 U	14.12 D
Cl4(52)	0.27	0.1	0.11	80.19 D
Cl4(66)	0.05	0.03 U	0.03 U	8.84 D
Cl5(101)	0.18	0.06	0.1	30.82 D
Cl5(105)	0.06	0.05 U	0.05 U	10.23 D
Cl5(118)	0.1	0.05 U	0.05 U	14.59 D
Cl6(128)	0.04	0.03	0.03 U	8.27
Cl6(138)	0.23	0.15	0.14	32.92 D
Cl6(153)	0.29	0.19	0.21	30.18 D
Cl7(170)	0.33	0.19	0.13	3.85
Cl7(180)	0.08	0.07	0.06	4.99
Cl7(187)	0.06	0.05	0.05	3.02
Cl8(195)	0.03 U	0.03 U	0.03 U	0.29
Cl9(206)	0.02 U	0.02 U	0.02 U	0.25
Cl10(209)	0.03 U	0.03 U	0.03 U	0.08

Surrogate Recoveries (%)

Cl3(34)	66	72	62	69
Cl6(152)	68	77	67	90

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The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 B N.v. Tissue	008 C N.v. Tissue	008 D N.v. Tissue	008 E N.v. Tissue
Battelle ID	S9815-P	S9816-P	S9817-P	S9818-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/14/06	07/14/06	07/14/06	07/14/06
Analytical Instrument	ECD	ECD	ECD	ECD
% Moisture	89.41	88.11	89.03	88.32
% Lipid	1.29	1.67	1.46	1.5
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.29	29.51	29.20	29.49
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
4,4'-DDD	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.73	0.68	0.73	0.71
4,4'-DDT	0.05 U	0.05 U	0.05 U	0.05 U
aldrin	0.03 U	0.03 U	0.03 U	0.03 U
a-chlordane	0.1	0.1	0.12	0.12
g-chlordane	0.07	0.09	0.1	0.11
Lindane	0.05 U	0.05 U	0.05 U	0.05 U
cis-nonachlor	1.79	1.82	1.77	1.69
trans-nonachlor	0.22	0.26	0.27	0.31
oxychlordane	0.05 U	0.05 U	0.05 U	0.05 U
dieldrin	0.06 U	0.06 U	0.06 U	0.06 U
endosulfan I	0.02 U	0.02 U	0.02 U	0.02 U
endosulfan II	0.06 U	0.06 U	0.06 U	0.06 U
endrin	0.05 U	0.05 U	0.05 U	0.05 U
heptachlor	0.04 U	0.04 U	0.04 U	0.04 U
heptachlor epoxide	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.05 U	0.05 U	0.05 U	0.05 U
methoxychlor	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	2.76 U	2.83 U	2.86 U	2.83 U
Cl2(8)	0.71	1.32	1.18	0.7
Cl3(18)	28.63 D	37.73 D	35.25 D	29.76 D
Cl3(28)	20.48 D	28.96 D	24.9 D	20.29 D
Cl4(44)	11.9 D	13.53 D	14.94 D	13.69 D
Cl4(52)	72.36 D	97.08 D	83.7 D	79.5 D
Cl4(66)	7.59 D	8.48 D	7.86 D	6.86 D
Cl5(101)	32.73 D	37.38 D	36 D	35.07 D
Cl5(105)	10.84 D	12.64 D	10.86 D	11.6 D
Cl5(118)	15.11 D	16.89 D	16.61 D	14.4 D
Cl6(128)	7.64 D	8.61 D	8.1 D	8.56 D
Cl6(138)	39.03 D	42.26 D	40.35 D	41.56 D
Cl6(153)	36.19 D	39.33 D	36.14 D	39.07 D
Cl7(170)	4.93	4.87	3.23 D	3.24 D
Cl7(180)	4.65 D	5.07 D	4.9 D	5.02 D
Cl7(187)	4.11	3.89	4.08	3.22 D
Cl8(195)	0.38	0.37	0.43	0.43
Cl9(206)	0.31	0.32	0.37	0.34
Cl10(209)	0.07	0.07	0.08	0.09
Surrogate Recoveries (%)				
Cl3(34)	65	65	69	64
Cl6(152)	88	89	87	79

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BJ003PB-P
Sample Type	PB
Collection Date	06/22/06
Extraction Date	06/22/06
Analysis Date	07/26/06
Analytical Instrument	ECD
% Moisture	89.51
% Lipid	NA
Matrix	CLAMS, WORMS
Sample Size	27.90
Size Unit-Basis	G_WET
Units	UG/KG_WET
4,4'-DDD	0.05 U
4,4'-DDE	0.06 U
4,4'-DDT	0.05 U
aldrin	0.03 U
a-chlordane	0.04 U
g-chlordane	0.04 U
Lindane	0.05 U
cis-nonachlor	0.05 U
trans-nonachlor	0.04 U
oxychlordane	0.05 U
dieldrin	0.06 U
endosulfan I	0.02 U
endosulfan II	0.06 U
endrin	0.05 U
heptachlor	0.04 U
heptachlor epoxide	0.02 U
Hexachlorobenzene	0.05 U
methoxychlor	0.05 U
Toxaphene	3 U
Cl2(8)	0.19 U
Cl3(18)	0.04 U
Cl3(28)	0.05 U
Cl4(44)	0.03 U
Cl4(52)	0.05 U
Cl4(66)	0.03 U
Cl5(101)	0.05 U
Cl5(105)	0.05 U
Cl5(118)	0.05 U
Cl6(128)	0.03 U
Cl6(138)	0.06 U
Cl6(153)	0.04 U
Cl7(170)	0.03 U
Cl7(180)	0.03 U
Cl7(187)	0.04 U
Cl8(195)	0.03 U
Cl9(206)	0.02 U
Cl10(209)	0.03 U

Surrogate Recoveries (%)

Cl3(34)	65
Cl6(152)	67

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia				
Battelle ID	BJ004LCS-P				
Sample Type	LCS				
Collection Date	06/22/06				
Extraction Date	06/22/06				
Analysis Date	07/26/06				
Analytical Instrument	ECD				
% Moisture	78.37				
% Lipid	NA				
Matrix	CLAMS, WORMS				
Sample Size	29.73				
Size Unit-Basis	G_WET				
Units	UG/KG_WET		Target	% Recovery	Qualifier
4,4'-DDD	1.85		2.69	69	
4,4'-DDE	1.55		2.69	58	
4,4'-DDT	2.64		2.69	98	
aldrin	1.4		2.69	52	
a-chlordane	1.68		2.69	62	
g-chlordane	1.72		2.70	64	
Lindane	1.64		2.69	61	
cis-nonachlor	1.64		2.69	61	
trans-nonachlor	1.86		2.69	69	
oxychlordane	2.16		2.70	80	
dieldrin	1.77		2.69	66	
endosulfan I	1.44		2.69	54	
endosulfan II	1.71		2.69	64	
endrin	1.89		2.69	70	
heptachlor	2.28		2.69	85	
heptachlor epoxide	2.04		2.69	76	
Hexachlorobenzene	1.12		2.69	42	N
methoxychlor	2.76		2.69	103	
Toxaphene	2.81	U			
Cl2(8)	1.14		2.70	42	N
Cl3(18)	0.89		2.70	33	N
Cl3(28)	1.09		2.69	41	N
Cl4(44)	1.17		2.70	43	N
Cl4(52)	1.15		2.69	43	N
Cl4(66)	1.32		2.69	49	N
Cl5(101)	1.29		2.70	48	N
Cl5(105)	1.28		2.69	48	N
Cl5(118)	1.27		2.69	47	N
Cl6(128)	1.28		2.71	47	N
Cl6(138)	3.76	ME	2.70	139	N
Cl6(153)	1.38		2.69	51	
Cl7(170)	4.73	ME	2.70	175	N
Cl7(180)	1.52		2.70	56	
Cl7(187)	1.27		2.70	47	N
Cl8(195)	1.2		2.70	44	N
Cl9(206)	1.08		2.70	40	N
Cl10(209)	1.11		2.69	41	N

Surrogate Recoveries (%)

Cl3(34)	41
Cl6(152)	48

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977
Battelle ID	BJ005SRM-P
Sample Type	SRM
Collection Date	06/22/06
Extraction Date	06/22/06
Analysis Date	07/26/06
Analytical Instrument	ECD
% Moisture	NA
% Lipid	NA
Matrix	CLAMS, WORMS
Sample Size	1.67
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
4,4'-DDD	4.86	4.3	0.38	38.84	13	
4,4'-DDE	13.98	12.5	1.60	42.8	11.8	
4,4'-DDT	1.42	1.28	0.18	44.06	10.9	
aldrin	0.03 U					
a-chlordane	0.87	1.42	0.13	39.15	38.7	
g-chlordane	0.04 U					
Lindane	0.05 U					
cis-nonachlor	0.05 U					
trans-nonachlor	1.74	1.43	0.10	36.99	21.7	
oxychlordane	0.05 U					
dieldrin	12.89	6.04	0.52	38.61	113.4	N
endosulfan I	0.02 U					
endosulfan II	0.06 U					
endrin	0.05 U					
heptachlor	0.04 U					
heptachlor epoxide	0.02 U					
Hexachlorobenzene	0.05 U					
methoxychlor	0.05 U					
Toxaphene	50.04 U					
Cl2(8)	2.39	2.1	0.15	37.14	13.8	
Cl3(18)	2.44	2.65	0.30	41.32	7.9	
Cl3(28)	6.98	5.37	0.44	38.19	30	
Cl4(44)	2.94	3.25	0.63	49.38	9.5	
Cl4(52)	8.04	8.37	0.54	36.45	3.9	
Cl4(66)	4.37	3.64	0.32	38.79	20.1	
Cl5(101)	10.87	11.2	1.20	40.71	2.9	
Cl5(105)	3.3	3.76	0.49	43.03	12.2	
Cl5(118)	12.19	10.5	1.00	39.52	16.1	
Cl6(128)	2.16	2.49	0.28	41.24	13.3	
Cl6(138)	14.56	16.6	1.60	39.64	12.3	
Cl6(153)	16.88	14.1	1.00	37.09	19.7	
Cl7(170)	7.85 ME	2.95	0.23	37.8	166.1	N
Cl7(180)	4.4 ME	6.79	0.67	39.87	35.2	
Cl7(187)	5.22	4.76	0.38	37.98	9.7	
Cl8(195)	0.03 U					
Cl9(206)	0.02 U					
Cl10(209)	0.03 U					

Surrogate Recoveries (%)

Cl3(34)	79
Cl6(152)	72

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue	Lab A M.n. Tissue			
Battelle ID	S9759-P	S9759MS-P			
Sample Type	SA	MS			
Collection Date	10/13/05	10/13/2005			
Extraction Date	06/22/06	6/22/2006			
Analysis Date	07/26/06	7/27/2006			
Analytical Instrument	ECD	ECD			
% Moisture	88.13	88.22			
% Lipid	0.87	NA			
Matrix	CLAMS	CLAMS			
Sample Size	19.86	14.92			
Size Unit-Basis	G_WET	G_WET			
Units	UG/KG_WET	UG/KG_WET	Target	% Recovery	Qualifier
4,4'-DDD	0.36	5.63	5.36	98	
4,4'-DDE	0.37	4.9	5.37	84	
4,4'-DDT	0.05 U	6.86	5.36	128	N
aldrin	0.03 U	4.93	5.36	92	
a-chlordane	0.11	5.65	5.37	103	
g-chlordane	0.04	5.57	5.37	103	
Lindane	0.05 U	6.07	5.37	113	
cis-nonachlor	0.05	5.02	5.37	93	
trans-nonachlor	0.06	5.98	5.37	110	
oxychlordane	0.05 U	6.47	5.39	120	
dieldrin	0.11	5.59	5.36	102	
endosulfan I	0.02 U	5.12	5.37	95	
endosulfan II	0.06 U	4.94	5.37	92	
endrin	0.05 U	0.54	5.36	10	N
heptachlor	0.04 U	6.43	5.36	120	
heptachlor epoxide	0.02 U	6.2	5.37	115	
Hexachlorobenzene	0.23	5.12	5.37	91	
methoxychlor	0.05 U	6.01	5.36	112	
Toxaphene	4.21 U	5.6 U			
Cl2(8)	0.19 U	3.66	5.38	68	
Cl3(18)	0.04 U	3.48	5.38	65	
Cl3(28)	0.17	4.11	5.37	73	
Cl4(44)	0.03 U	4.14	5.37	77	
Cl4(52)	0.18	4.36	5.36	78	
Cl4(66)	0.18	4.44	5.37	79	
Cl5(101)	0.19	4.56	5.37	81	
Cl5(105)	0.05	3.85	5.37	71	
Cl5(118)	0.15	3.98	5.37	71	
Cl6(128)	0.03 J	3.8	5.39	70	
Cl6(138)	0.19	4.12	5.37	73	
Cl6(153)	0.2	4.34	5.37	77	
Cl7(170)	0.29	4.21	5.39	73	
Cl7(180)	0.15	4.33	5.38	78	
Cl7(187)	0.05	3.96	5.38	73	
Cl8(195)	0.03 U	3.99	5.38	74	
Cl9(206)	0.02 U	3.35	5.38	62	
Cl10(209)	0.03 U	3.85	5.37	72	

Surrogate Recoveries (%)

Cl3(34)	72	83
Cl6(152)	67	74

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue						
Battelle ID	S9759MSD-P						
Sample Type	MSD						
Collection Date	10/13/2005						
Extraction Date	6/22/2006						
Analysis Date	7/27/2006						
Analytical Instrument	ECD						
% Moisture	89.41						
% Lipid	NA						
Matrix	CLAMS						
Sample Size	14.87						
Size Unit-Basis	G_WET						
Units	UG/KG_WET		Target	% Recovery	Qualifier	RPD (%)	Qualifier
4,4'-DDD	5.09		5.38	88		10.8	
4,4'-DDE	4.69		5.38	80		4.9	
4,4'-DDT	5.76		5.38	107		17.9	
aldrin	4.67		5.38	87		5.6	
a-chlordane	5.32		5.38	97		6.0	
g-chlordane	5.12		5.39	94		9.1	
Lindane	5.24		5.38	97		15.2	
cis-nonachlor	4.69		5.38	86		7.8	
trans-nonachlor	5.49		5.39	101		8.5	
oxychlordane	6.03		5.41	111		7.8	
dieldrin	5.12		5.38	93		9.2	
endosulfan I	5.11		5.38	95		0.0	
endosulfan II	4.45		5.38	83		10.3	
endrin	1.91		5.38	36	N	113.0	N
heptachlor	5.75		5.38	107		11.5	
heptachlor epoxide	5.47		5.38	102		12.0	
Hexachlorobenzene	4.42		5.39	78		15.4	
methoxychlor	4.65		5.38	86		26.3	
Toxaphene	5.62	U					
Cl2(8)	3.37		5.40	62		9.2	
Cl3(18)	3.34		5.40	62		4.7	
Cl3(28)	4		5.39	71		2.8	
Cl4(44)	4.05		5.39	75		2.6	
Cl4(52)	4.17		5.38	74		5.3	
Cl4(66)	4.97		5.39	89		11.9	
Cl5(101)	4.39		5.39	78		3.8	
Cl5(105)	3.76		5.39	69		2.9	
Cl5(118)	3.89		5.39	69		2.9	
Cl6(128)	3.63		5.41	67		4.4	
Cl6(138)	3.96		5.39	70		4.2	
Cl6(153)	4.09		5.39	72		6.7	
Cl7(170)	3.91		5.41	67		8.6	
Cl7(180)	4.02		5.40	72		8.0	
Cl7(187)	3.79		5.40	69		5.6	
Cl8(195)	3.73		5.40	69		7.0	
Cl9(206)	3.13		5.40	58		6.7	
Cl10(209)	3.57		5.39	66		8.7	

Surrogate Recoveries (%)

Cl3(34)	79
Cl6(152)	73

Battelle
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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 A N.v. Tissue		008 A N.v. Tissue			
Battelle ID	S9814-P		S9814DUP-P			
Sample Type	SA		QADU			
Collection Date	09/22/05		9/22/2005			
Extraction Date	06/22/06		6/22/2006			
Analysis Date	07/14/06		7/14/2006			
Analytical Instrument	ECD		ECD			
% Moisture	88.36		88.91			
% Lipid	1.44		NA			
Matrix	WORMS		WORMS			
Sample Size	15.41		15.99			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
4,4'-DDD	0.05	U	0.05	U	NA	
4,4'-DDE	0.61		0.55		10.3	
4,4'-DDT	0.05	U	0.05	U	NA	
aldrin	0.03	U	0.03	U	NA	
a-chlordane	0.13		0.12		8.0	
g-chlordane	0.12		0.1		18.2	
Lindane	0.05	U	0.05	U	NA	
cis-nonachlor	1.43		1.25		13.4	
trans-nonachlor	0.29		0.28		3.5	
oxychlordane	0.05	U	0.05	U	NA	
dieldrin	0.06	U	0.06	U	NA	
endosulfan I	0.02	U	0.02	U	NA	
endosulfan II	0.06	U	0.06	U	NA	
endrin	0.05	U	0.05	U	NA	
heptachlor	0.04	U	0.04	U	NA	
heptachlor epoxide	0.02	U	0.02	U	NA	
Hexachlorobenzene	0.05	U	0.05	U	NA	
methoxychlor	0.05	U	0.05	U	NA	
Toxaphene	5.42	U	5.23	U	NA	
Cl2(8)	1.09		0.86		23.6	
Cl3(18)	39.31	D	38.17	D	2.9	
Cl3(28)	29.21	D	27.76	D	5.1	
Cl4(44)	14.12	D	13.04	D	8.0	
Cl4(52)	80.19	D	74.17	D	7.8	
Cl4(66)	8.84	D	8.15	D	8.1	
Cl5(101)	30.82	D	28.61	D	7.4	
Cl5(105)	10.23	D	9.31	D	9.4	
Cl5(118)	14.59	D	13.05	D	11.1	
Cl6(128)	8.27		7.41		11.0	
Cl6(138)	32.92	D	29.56	D	10.8	
Cl6(153)	30.18	D	27.63	D	8.8	
Cl7(170)	3.85		3.45		11.0	
Cl7(180)	4.99		4.54		9.4	
Cl7(187)	3.02		2.71		10.8	
Cl8(195)	0.29		0.26		10.9	
Cl9(206)	0.25		0.22		12.8	
Cl10(209)	0.08		0.08		0.0	

Surrogate Recoveries (%)

Cl3(34)	69	67
Cl6(152)	90	89

Appendix J-2

Tissue PAH Data

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PAH – QA/QC SUMMARY 06-0195
M. nasuta

PROJECT: New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER: PAH
LABORATORY: Battelle, Duxbury, MA
MATRIX: Tissue – M. nasuta
SAMPLE CUSTODY: Tissue samples for this project were collected on 10/13/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
PAH	General NS&T	< 5x MDL	30-150% Recovery	50-120% for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% RPD for analytes >10 x MDL	PAH ~0.02 – 0.14

METHOD: Tissue samples were extracted for PAH following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The extracts were then concentrated, fortified with internal standard (IS) and split for analysis. Extracts intended for PAH analysis were analyzed using gas chromatography/mass spectrometry (GC/MS), following general NS&T methods. Sample data were quantified by the method of internal standards, using the IS compounds. During initial analysis, problems arose due to interference from sample matrix (lipid). The extracts were sent back to the lab for further clean-up. Extracts were processed through silica gel columns, and then concentrated and resubmitted to the lab. Data was evaluated against sample-specific 2005 MDLs.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 8 months of collection and analyzed within 18 days of extraction.

Batch	Extraction Date	Analysis Date
06-0195	6/13/2006	6/29/2006 – 7/1/2006

PAH – QA/QC SUMMARY 06-0195
M. nasuta

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0195 – No exceedences noted.

Comments – No target analytes were detected in the blank at a level greater than the laboratory control limit (5 x MDL). However naphthalene was detected in the blank at a concentration greater than the RL. Any authentic field sample concentration for naphthalene that was greater than the RL but less than 3x the concentration detected in the blank, was qualified with a "B". This resulted in all but one field samples in this batch being "B" qualified for naphthalene.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy.

06-0195 – All percent recoveries for spiked analytes were within laboratory control limits (50-120%).

Comments – None.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0195 – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), and all RPDs were within laboratory control limits (<30%).

Comments – None.

SURROGATES:

Five surrogate compounds were added prior to extraction, including napthalene-d8, acenaphthene-d10, phenanthrene-d10, benzo(b)fluoranthene-d12, and benzo(a)pyrene-d12. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0195 – All percent recoveries for surrogates were within laboratory control limits (30-150%).

Comments – None

DUPLICATES:

Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for PAH is calculated to measure data quality in terms of precision.

06-0195 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

PAH – QA/QC SUMMARY 06-0195
M. nasuta

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0195 – Two exceedences noted.

Comments – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance), except for benzo(a)pyrene and benzo(g,h,i)perylene which were under-recovered in the SRM sample. Chromatography and calculations were reviewed. No discrepancies were found. Since all other QC samples met the criteria and all calibration requirements were met for these two compounds, no corrective action was taken. The SRM exceedences were qualified with an "N". The results for the two compounds in the field samples may be slightly biased low.

CALIBRATIONS: The GC/MS is calibrated with a 7 level curve. The RSD between response factors for the individual target analytes must be <30%. Each batch of samples analyzed is bracketed by a continuing calibration check (CCC) sample, run at a frequency of minimally every 12 hours. This percent difference (PD) between the initial calibration RF and the CCC should be <25% for individual analytes. Additionally an initial calibration check (ICC) sample is run immediately after each initial calibration. The PD between the ICC and the initial calibration should be < 25%.

06-0195 – No initial calibration, ICC, or CCC exceedences noted.

Comments – None.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue	BBDS B M.n. Tissue	BBDS C M.n. Tissue	BBDS D M.n. Tissue
Battelle ID	S9764-P	S9765-P	S9766-P	S9767-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	06/29/06	06/30/06	06/30/06	06/30/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	89.59	88.76	88.11	89.27
% Lipid	0.8	0.72	0.84	0.81
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.08	29.73	30.46	30.06
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.38 B	0.42 B	0.4 B	0.4 B
Acenaphthylene	0.09 J	0.14	0.14	0.1 J
Acenaphthene	0.13 J	0.19	0.21	0.17
Fluorene	0.52	0.71	0.72	0.66
Anthracene	0.25	0.3	0.31	0.25
Phenanthrene	3.95	5.37	6.82	5.61
Fluoranthene	2.66	3.55	4.79	3.33
Pyrene	1.84	2.6	3.34	2.32
Benzo(a)anthracene	0.49	0.42	0.56	0.33
Chrysene	0.91	0.96	0.99	0.79
Benzo(b)fluoranthene	0.69	0.81	0.78	0.7
Benzo(k)fluoranthene	0.68	0.79	0.74	0.68
Benzo(a)pyrene	0.51	0.49	0.56	0.45
Indeno(1,2,3-cd)pyrene	0.32	0.39	0.37	0.29
Dibenz(a,h)anthracene	0.08 J	0.08 J	0.09 J	0.07 J
Benzo(g,h,i)perylene	0.36	0.43	0.43	0.35
Surrogate Recoveries (%)				
Naphthalene-d8	64	63	65	61
Acenaphthene-d10	72	71	73	70
Phenanthrene-d10	84	85	90	86
Benzo(b)fluoranthene-d12	90	84	86	82
Benzo(a)pyrene-d12	72	66	67	68

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS E M.n. Tissue	RISDS A M.n. Tissue	RISDS B M.n. Tissue	RISDS C M.n. Tissue
Battelle ID	S9768-P	S9769-P	S9770-P	S9771-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	06/30/06	06/30/06	06/30/06	06/30/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.74	90.27	89.72	88.4
% Lipid	1.04	0.89	0.84	0.85
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.99	29.79	30.41	30.11
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.43 B	0.41 B	0.33 B	0.32 B
Acenaphthylene	0.12 J	0.07 J	0.06 J	0.09 J
Acenaphthene	0.35	0.12 J	0.18	0.19
Fluorene	0.72	0.49	0.56	0.64
Anthracene	0.34	0.13 J	0.16	0.21
Phenanthrene	6.9	4.25	4.73	5.77
Fluoranthene	4.34	2.06	2.78	3.45
Pyrene	3	1.11	1.68	2.02
Benzo(a)anthracene	0.48	0.2	0.21	0.31
Chrysene	1.02	0.52	0.53	0.84
Benzo(b)fluoranthene	0.77	0.42	0.48	0.63
Benzo(k)fluoranthene	0.74	0.38	0.41	0.57
Benzo(a)pyrene	0.59	0.22	0.25	0.34
Indeno(1,2,3-cd)pyrene	0.34	0.17	0.18	0.25
Dibenz(a,h)anthracene	0.08 J	0.03 J	0.04 J	0.05 J
Benzo(g,h,i)perylene	0.42	0.19	0.2	0.28
Surrogate Recoveries (%)				
Naphthalene-d8	64	67	69	60
Acenaphthene-d10	74	75	76	69
Phenanthrene-d10	92	93	95	87
Benzo(b)fluoranthene-d12	89	88	88	83
Benzo(a)pyrene-d12	70	68	69	65

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS D M.n. Tissue	RISDS E M.n. Tissue	001 A M.n. Tissue	001 B M.n. Tissue
Battelle ID	S9772-P	S9773-P	S9774-P	S9775-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	06/30/06	06/30/06	06/30/06	06/30/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.75	88.6	90.03	88.65
% Lipid	0.89	0.85	0.68	0.78
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.94	29.74	30.94	30.29
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.36 B	0.35 B	0.52 B	0.62 B
Acenaphthylene	0.09 J	0.1 J	0.47	0.49
Acenaphthene	0.18	0.2	0.21	0.26
Fluorene	0.68	0.79	0.51	0.68
Anthracene	0.19	0.21	0.87	0.94
Phenanthrene	6.17	7.97	4.67	5.98
Fluoranthene	3.27	3.98	6.43	7.46
Pyrene	1.91	2.17	11.84	13.75
Benzo(a)anthracene	0.29	0.26	2.93	2.97
Chrysene	0.71	0.7	4.05	4.39
Benzo(b)fluoranthene	0.63	0.56	2.79	2.95
Benzo(k)fluoranthene	0.55	0.51	3.16	3.57
Benzo(a)pyrene	0.34	0.3	3.41	3.43
Indeno(1,2,3-cd)pyrene	0.24	0.23	1.71	1.77
Dibenz(a,h)anthracene	0.05 J	0.05 J	0.43	0.43
Benzo(g,h,i)perylene	0.27	0.26	2.04	2.03
Surrogate Recoveries (%)				
Naphthalene-d8	70	63	60	65
Acenaphthene-d10	78	76	76	78
Phenanthrene-d10	95	97	105	110
Benzo(b)fluoranthene-d12	92	88	95	96
Benzo(a)pyrene-d12	73	68	78	81

Battelle
The Business of Innovation

Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 C M.n. Tissue	001 D M.n. Tissue	001 E M.n. Tissue	003 A M.n. Tissue
Battelle ID	S9776-P	S9777-P	S9778-P	S9779-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	06/30/06	06/30/06	07/01/06	07/01/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	89.57	89.85	89.25	89.79
% Lipid	0.85	0.72	0.66	0.8
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.12	30.91	29.94	29.56
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.53 B	0.61 B	0.68 B	0.51 B
Acenaphthylene	0.31	0.52	0.85	0.3
Acenaphthene	0.19	0.21	0.28	0.19
Fluorene	0.51	0.6	0.63	0.47
Anthracene	0.73	0.84	1.28	0.58
Phenanthrene	4.25	4.79	5.45	3.56
Fluoranthene	5.61	6.41	8.65	3.34
Pyrene	9.94	10.78	13.86	5.99
Benzo(a)anthracene	2.32	2.98	4.53	1.26
Chrysene	3.53	4.15	5.78	2.2
Benzo(b)fluoranthene	2.37	2.83	3.97	1.65
Benzo(k)fluoranthene	2.84	3.34	4.81	1.84
Benzo(a)pyrene	2.62	3.39	5.36	1.69
Indeno(1,2,3-cd)pyrene	1.28	1.73	2.77	0.95
Dibenz(a,h)anthracene	0.34	0.45	0.7	0.26
Benzo(g,h,i)perylene	1.54	1.77	2.15	0.21
Surrogate Recoveries (%)				
Naphthalene-d8	66	63	61	64
Acenaphthene-d10	75	73	70	72
Phenanthrene-d10	103	102	95	99
Benzo(b)fluoranthene-d12	93	92	90	90
Benzo(a)pyrene-d12	76	76	75	74

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 B M.n. Tissue	003 C M.n. Tissue	003 D M.n. Tissue	003 E M.n. Tissue
Battelle ID	S9780-P	S9781-P	S9782-P	S9783-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/13/06	06/13/06	06/13/06	06/13/06
Analysis Date	07/01/06	07/01/06	07/01/06	07/01/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.49	88.99	90.16	88.55
% Lipid	0.94	0.95	0.82	0.82
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	29.39	29.83	29.93	30.01
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.78 B	1.18	0.85 B	0.88 B
Acenaphthylene	0.57	1.3	0.61	0.74
Acenaphthene	0.32	0.41	0.26	0.24
Fluorene	0.57	0.84	0.73	0.68
Anthracene	0.9	2.2	1.07	1.31
Phenanthrene	4.39	7.51	5.42	5.41
Fluoranthene	5.3	11.36	6.64	6.74
Pyrene	9.38	16.17	10.47	10.71
Benzo(a)anthracene	2.69	5.56	2.9	3.4
Chrysene	3.9	6.92	4.34	4.93
Benzo(b)fluoranthene	3.09	4.79	3.33	3.72
Benzo(k)fluoranthene	3.6	5.97	3.84	4.29
Benzo(a)pyrene	3.76	6.53	4.08	4.61
Indeno(1,2,3-cd)pyrene	2.09	3.54	2.32	2.57
Dibenz(a,h)anthracene	0.55	0.89	0.6	0.7
Benzo(g,h,i)perylene	2.32	1.45	1.17	2.26
Surrogate Recoveries (%)				
Naphthalene-d8	66	66	64	62
Acenaphthene-d10	73	74	73	72
Phenanthrene-d10	99	102	101	99
Benzo(b)fluoranthene-d12	92	90	93	93
Benzo(a)pyrene-d12	77	70	77	78

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BI992PB-P
Sample Type	PB
Collection Date	06/13/06
Extraction Date	06/13/06
Analysis Date	06/29/06
Analytical Instrument	MS
% Moisture	89.18
% Lipid	NA
Matrix	CLAMS
Sample Size	30.06
Size Unit-Basis	G_WET
Units	UG/KG_WET
Naphthalene	0.2
Acenaphthylene	0.02 U
Acenaphthene	0.04 U
Fluorene	0.05 U
Anthracene	0.04 U
Phenanthrene	0.09 U
Fluoranthene	0.07 U
Pyrene	0.12 U
Benzo(a)anthracene	0.02 U
Chrysene	0.04 U
Benzo(b)fluoranthene	0.04 U
Benzo(k)fluoranthene	0.04 U
Benzo(a)pyrene	0.05 U
Indeno(1,2,3-cd)pyrene	0.07 U
Dibenz(a,h)anthracene	0.02 U
Benzo(g,h,i)perylene	0.09 U

Surrogate Recoveries (%)

Naphthalene-d8	53
Acenaphthene-d10	65
Phenanthrene-d10	85
Benzo(b)fluoranthene-d12	90
Benzo(a)pyrene-d12	70

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia
Battelle ID	BI993LCS-P
Sample Type	LCS
Collection Date	06/13/06
Extraction Date	06/13/06
Analysis Date	06/29/06
Analytical Instrument	MS
% Moisture	78.37
% Lipid	NA
Matrix	CLAMS
Sample Size	30.03
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Target	% Recovery	Qualifier
Naphthalene	16.64	33.31	50	
Acenaphthylene	20.03	33.33	60	
Acenaphthene	20.76	33.32	62	
Fluorene	21.98	33.32	66	
Anthracene	26.47	33.31	79	
Phenanthrene	23.88	33.32	72	
Fluoranthene	23.15	33.32	69	
Pyrene	24.29	33.31	73	
Benzo(a)anthracene	19.4	33.31	58	
Chrysene	18.74	33.31	56	
Benzo(b)fluoranthene	18.43	33.33	55	
Benzo(k)fluoranthene	20.55	33.32	62	
Benzo(a)pyrene	19.78	33.33	59	
Indeno(1,2,3-cd)pyrene	19.01	33.32	57	
Dibenz(a,h)anthracene	19.66	33.32	59	
Benzo(g,h,i)perylene	18.64	33.31	56	

Surrogate Recoveries (%)

Naphthalene-d8	52
Acenaphthene-d10	60
Phenanthrene-d10	77
Benzo(b)fluoranthene-d12	75
Benzo(a)pyrene-d12	59

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977
Battelle ID	BI994SRM-P
Sample Type	SRM
Collection Date	06/13/06
Extraction Date	06/13/06
Analysis Date	06/29/06
Analytical Instrument	MS
% Moisture	NA
% Lipid	NA
Matrix	CLAMS
Sample Size	2.00
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
Naphthalene	13.14					
Acenaphthylene	2.57					
Acenaphthene	0.65 U					
Fluorene	9.73	10.24	0.43	34.2	5	
Anthracene	5.87					
Phenanthrene	32.02	35.1	3.80	40.83	8.8	
Fluoranthene	30.15	38.7	1.00	32.58	22.1	
Pyrene	65.27	78.9	3.50	34.44	17.3	
Benzo(a)anthracene	13.96	20.34	0.78	33.83	31.4	
Chrysene	52.63					
Benzo(b)fluoranthene	10.38	11.01	0.28	32.54	5.7	
Benzo(k)fluoranthene	8.96					
Benzo(a)pyrene	4.55	8.35	0.72	38.62	45.5	N
Indeno(1,2,3-cd)pyrene	3.58	4.84	0.81	46.74	26	
Dibenz(a,h)anthracene	1.65 J	1.41	0.19	43.48	17	
Benzo(g,h,i)perylene	6.03	9.53	0.43	34.51	36.7	N

Surrogate Recoveries (%)

Naphthalene-d8	53
Acenaphthene-d10	62
Phenanthrene-d10	79
Benzo(b)fluoranthene-d12	81
Benzo(a)pyrene-d12	66

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue	BBDS A M.n. Tissue			
Battelle ID	S9764-P	S9764MS-P			
Sample Type	SA	MS			
Collection Date	10/13/05	10/13/2005			
Extraction Date	06/13/06	6/13/2006			
Analysis Date	06/29/06	6/30/2006			
Analytical Instrument	MS	MS			
% Moisture	89.59	89.44			
% Lipid	0.8	NA			
Matrix	CLAMS	CLAMS			
Sample Size	30.08	30.16			
Size Unit-Basis	G_WET	G_WET			
Units	UG/KG_WET	UG/KG_WET	Target	% Recovery	Qualifier
Naphthalene	0.38 B	19.81	33.16	59	
Acenaphthylene	0.09 J	23.19	33.19	70	
Acenaphthene	0.13 J	25.76	33.18	77	
Fluorene	0.52	25.61	33.17	76	
Anthracene	0.25	29.11	33.16	87	
Phenanthrene	3.95	29.7	33.17	78	
Fluoranthene	2.66	28.16	33.17	77	
Pyrene	1.84	28.53	33.17	80	
Benzo(a)anthracene	0.49	22.75	33.16	67	
Chrysene	0.91	22.2	33.17	64	
Benzo(b)fluoranthene	0.69	22.52	33.18	66	
Benzo(k)fluoranthene	0.68	24.9	33.17	73	
Benzo(a)pyrene	0.51	23.27	33.18	69	
Indeno(1,2,3-cd)pyrene	0.32	22.59	33.17	67	
Dibenz(a,h)anthracene	0.08 J	23.26	33.17	70	
Benzo(g,h,i)perylene	0.36	22.2	33.17	66	

Surrogate Recoveries (%)

Naphthalene-d8	64	61
Acenaphthene-d10	72	69
Phenanthrene-d10	84	83
Benzo(b)fluoranthene-d12	90	85
Benzo(a)pyrene-d12	72	66

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A M.n. Tissue					
Battelle ID	S9764MSD-P					
Sample Type	MSD					
Collection Date	10/13/2005					
Extraction Date	6/13/2006					
Analysis Date	6/30/2006					
Analytical Instrument	MS					
% Moisture	89.26					
% Lipid	NA					
Matrix	CLAMS					
Sample Size	29.83					
Size Unit-Basis	G_WET					
Units	UG/KG_WET	Target	% Recovery	Qualifier	RPD (%)	Qualifier
Naphthalene	22.21	33.53	65		9.7	
Acenaphthylene	24.67	33.55	73		4.2	
Acenaphthene	26.98	33.55	80		3.8	
Fluorene	26.59	33.54	78		2.6	
Anthracene	29.79	33.53	88		1.1	
Phenanthrene	30.49	33.54	79		1.3	
Fluoranthene	28.99	33.54	79		2.6	
Pyrene	29.39	33.54	82		2.5	
Benzo(a)anthracene	23.48	33.53	69		2.9	
Chrysene	23.13	33.54	66		3.1	
Benzo(b)fluoranthene	23.1	33.55	67		1.5	
Benzo(k)fluoranthene	25.62	33.54	74		1.4	
Benzo(a)pyrene	23.82	33.55	69		0.0	
Indeno(1,2,3-cd)pyrene	23.03	33.54	68		1.5	
Dibenz(a,h)anthracene	23.88	33.54	71		1.4	
Benzo(g,h,i)perylene	22.85	33.53	67		1.5	

Surrogate Recoveries (%)

Naphthalene-d8	68
Acenaphthene-d10	74
Phenanthrene-d10	85
Benzo(b)fluoranthene-d12	88
Benzo(a)pyrene-d12	68

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 A M.n. Tissue		001 A M.n. Tissue			
Battelle ID	S9774-P		S9774DUP-P			
Sample Type	SA		QADU			
Collection Date	10/13/05		10/13/2005			
Extraction Date	06/13/06		6/13/2006			
Analysis Date	06/30/06		6/30/2006			
Analytical Instrument	MS		MS			
% Moisture	90.03		90.06			
% Lipid	0.68		NA			
Matrix	CLAMS		CLAMS			
Sample Size	30.94		29.53			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
Naphthalene	0.52	B	0.57	B	9.2	
Acenaphthylene	0.47		0.46		2.2	
Acenaphthene	0.21		0.21		0.0	
Fluorene	0.51		0.56		9.3	
Anthracene	0.87		0.88		1.1	
Phenanthrene	4.67		4.42		5.5	
Fluoranthene	6.43		6.36		1.1	
Pyrene	11.84		11.01		7.3	
Benzo(a)anthracene	2.93		2.63		10.8	
Chrysene	4.05		3.69		9.3	
Benzo(b)fluoranthene	2.79		2.55		9.0	
Benzo(k)fluoranthene	3.16		3.12		1.3	
Benzo(a)pyrene	3.41		3.04		11.5	
Indeno(1,2,3-cd)pyrene	1.71		1.55		9.8	
Dibenz(a,h)anthracene	0.43		0.37		15.0	
Benzo(g,h,i)perylene	2.04		1.82		11.4	

Surrogate Recoveries (%)

Naphthalene-d8	60	64
Acenaphthene-d10	76	74
Phenanthrene-d10	105	100
Benzo(b)fluoranthene-d12	95	92
Benzo(a)pyrene-d12	78	75

PAH – QA/QC SUMMARY 06-0196
N. virens

PROJECT:	New Bedford Harbor Dredging Tissue Analysis
PARAMETER:	PAH
LABORATORY:	Battelle, Duxbury, MA
MATRIX:	Tissue –N. virens
SAMPLE CUSTODY:	Tissue samples for this project were colleted on 9/22/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
PAH	General NS&T	< 5x MDL	30-150% Recovery	50-120% (for LCS) for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% PSD for analytes >5 x MDL (Deviations must be documented)	PAH ~0.02 – 0.15

METHOD: Tissue samples were extracted for PAH following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was further cleaned using silica gel gravity columns. Next the extracts were concentrated, fortified with RIS and split for analysis. Extracts intended for PAH analysis were analyzed using gas chromatography/mass spectrometry (GC/MS), following general NS&T methods. Sample data were quantified by the method of internal standards, using the Recovery Internal Standard (RIS) compounds. Data was evaluated against sample-specific 2005 MDLs.

HOLDING TIMES: Holding times for tissues are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 9 months of collection and analyzed within 11 days of extraction.

Batch	Extraction Date	Analysis Date
06-0196	6/19/2006	7/1/2006 – 7/4/2006

PAH – QA/QC SUMMARY 06-0196
N. virens

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0197 – No exceedences noted.

Comments – No target analytes were detected in the blank at a level greater than the laboratory control limit (5 x MDL). However, amounts of naphthalene and phenanthrene were detected at a concentration greater than the RL. Any authentic field sample concentration for these analytes, that was greater than the RL but not greater than three times the concentration detected in the blank, was qualified with a "B". This resulted in 15 samples being "B" qualified for naphthalene and one sample being "B" qualified for phenanthrene.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy.

06-0197 – 2 exceedences noted.

Comments – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), except for benzo(a)pyrene and indeno(1,2,3-cd)pyrene. Both of these compounds were under-recovered at 45% and 44%, respectively. Chromatography and calculations were reviewed. No discrepancies were found. Since all bracketing mid checks, as well as the MS sample, had acceptable recoveries for these compounds, it appears this issue is exclusive to the LCS. While data for these two compounds may be considered biased low, the impact on the data is thought to be minimal. Accuracy for all target PAH was demonstrated in the MS sample. The exceedences were qualified and no further corrective action was taken.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0197 – 16 exceedences noted.

Comments – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), for the MS sample. However, all compounds failed low in the MSD sample. Surrogate recoveries for the MSD sample were also low, ranging from 25% - 40%. These results indicate an extract loss during sample preparation. Results from the ECD analysis are also low, again indicating an extract loss. All exceedences were qualified with an "N". Precision was demonstrated between the lab duplicates S9809 and S9809DUP. No further corrective action was taken.

PAH – QA/QC SUMMARY 06-0196
N. virens

SURROGATES: Five surrogate compounds were added prior to extraction, including napthalene-d8, acenaphthene-d10, phenanthrene-d10, benzo(b)fluoranthene-d12, and benzo(a)pyrene-d12. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0197 – 5 exceedences noted.

Comments – All percent recoveries for surrogates were within laboratory control limits (30-150%), except for naphthalene-d8 and benzo(a)pyrene in sample S9799MSD and naphthalene-d8, acenaphtene-d10, and benzo(a)pyrene-d12 in sample S9813 (003- E N.v tissue). The MSD failures are most likely indicative of an undocumented extract loss as described above. In the sample prep records, the technician does note that an extract loss of sample S9813 did occur after it went through the clean-up column. No archive extract existed for this sample. Additionally, re-extraction was not possible due to limited sample mass.

DUPLICATES: Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for PAH is calculated to measure data quality in terms of precision.

06-0197 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0197 – 2 exceedences noted.

Comments – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance), except for benzo(a)anthracene and benzo(a)pyrene. Both compounds were under-recovered. Chromatography and calculations were reviewed. No discrepancies were found. Although data may be considered biased low for these compounds, the affect is thought to be minimal because these compounds were within laboratory control limits in both the surrounding midchecks and in the MS sample. The exceedences were qualified with an "N". No further corrective action was taken.

CALIBRATIONS: The GC/MS is calibrated with a 7 level curve. The RSD between response factors for the individual target analytes must be <30%. Each batch of samples analyzed is bracketed by a continuing calibration check (CCC) sample, run at a frequency of minimally every 12 hours. This percent difference (PD) between the initial calibration RF and the CCC should be <25% for individual analytes. Additionally an initial calibration check (ICC) sample is run immediately after each initial calibration. The PD between the ICC and the initial calibration should be < 25%.

06-0197 – No initial calibration or ICC. 1 CCC exceedences noted.

Comments – Indeno(1,2,3-cd)pyrene was under-recovered in file G2499. The PD was calculated to be 25.2%. Calculations were reviewed. No discrepancies were found. The CCCs prior to and after the failing mids had acceptable results. The CCC exceedence was noted and qualified. No further corrective action was taken.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS A N.v. Tissue	BBDS B N.v. Tissue	BBDS C N.v. Tissue	BBDS D N.v. Tissue
Battelle ID	S9794-P	S9795-P	S9796-P	S9797-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/01/06	07/01/06	07/01/06	07/01/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.2	88.64	87.89	87.26
% Lipid	1.16	1.15	1.26	1.24
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.14	20.65	29.61	29.24
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	1.08 B	1.98	1 B	0.88 B
Acenaphthylene	0.07 J	0.03 U	0.07 J	0.07 J
Acenaphthene	0.91	0.06 U	0.93	0.84
Fluorene	0.35	0.08 U	0.4	0.33
Anthracene	0.04 J	0.06 U	0.07 J	0.07 J
Phenanthrene	1.68	2.31	1.81	1.62
Fluoranthene	0.62	0.94	0.63	0.76
Pyrene	0.32	0.57	0.26	0.64
Benzo(a)anthracene	0.02 J	0.03 U	0.02 J	0.05 J
Chrysene	0.06 J	0.05 U	0.06 J	0.13 J
Benzo(b)fluoranthene	0.04 U	0.06 U	0.04 U	0.08 J
Benzo(k)fluoranthene	0.04 U	0.06 U	0.04 U	0.08 J
Benzo(a)pyrene	0.06 U	0.08 U	0.06 U	0.06 U
Indeno(1,2,3-cd)pyrene	0.07 U	0.1 U	0.07 U	0.07 U
Dibenz(a,h)anthracene	0.02 U	0.03 U	0.02 U	0.02 U
Benzo(g,h,i)perylene	0.09 U	0.13 U	0.09 U	0.09 U
Surrogate Recoveries (%)				
Naphthalene-d8	72	79	68	64
Acenaphthene-d10	84	81	80	76
Phenanthrene-d10	102	95	98	90
Benzo(b)fluoranthene-d12	99	83	92	86
Benzo(a)pyrene-d12	77	50	71	67

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	BBDS E N.v. Tissue	RISDS A N.v. Tissue	RISDS B N.v. Tissue	RISDS C N.v. Tissue
Battelle ID	S9798-P	S9799-P	S9800-P	S9801-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/01/06	07/02/06	07/02/06	07/02/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	87.05	86.81	86.94	87.64
% Lipid	1.41	1.32	1.4	1.29
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.36	14.82	29.60	29.91
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.83 B	1.29	0.76 B	1.08 B
Acenaphthylene	0.07 J	0.09 J	0.07 J	0.07 J
Acenaphthene	1.1	1.12	0.89	1.01
Fluorene	0.39	0.6	0.41	0.47
Anthracene	0.07 J	0.08 J	0.08 J	0.06 J
Phenanthrene	1.77	2.68	1.9	2.15
Fluoranthene	0.66	0.85	0.9	0.85
Pyrene	0.33	0.42	0.37	0.39
Benzo(a)anthracene	0.04 J	0.06 J	0.02 J	0.02 J
Chrysene	0.09 J	0.13 J	0.09 J	0.1 J
Benzo(b)fluoranthene	0.04 J	0.09 U	0.05 J	0.04 J
Benzo(k)fluoranthene	0.05 J	0.08 U	0.04 U	0.04 U
Benzo(a)pyrene	0.06 U	0.11 U	0.06 U	0.05 U
Indeno(1,2,3-cd)pyrene	0.07 U	0.13 U	0.07 U	0.07 U
Dibenz(a,h)anthracene	0.02 U	0.04 U	0.02 U	0.02 U
Benzo(g,h,i)perylene	0.09 U	0.18 U	0.09 U	0.09 U
Surrogate Recoveries (%)				
Naphthalene-d8	64	68	68	65
Acenaphthene-d10	76	82	80	80
Phenanthrene-d10	95	99	95	100
Benzo(b)fluoranthene-d12	88	96	90	94
Benzo(a)pyrene-d12	68	73	67	73

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS D N.v. Tissue	RISDS E N.v. Tissue	001 A N.v. Tissue	001 B N.v. Tissue
Battelle ID	S9802-P	S9803-P	S9804-P	S9805-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/02/06	07/02/06	07/02/06	07/02/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	87.77	87.9	87.55	87.79
% Lipid	1.39	1.38	0.95	1.32
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	29.51	29.68	30.10	29.30
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	1.38	1.12 B	1.3	1.14 B
Acenaphthylene	0.08 J	0.08 J	0.29	0.21
Acenaphthene	1.29	1.14	1.08	1.07
Fluorene	0.6	0.48	0.72	0.52
Anthracene	0.08 J	0.08 J	0.45	0.3
Phenanthrene	3.04	2.3	3.49	2.35
Fluoranthene	0.86	0.67	2.3	1.24
Pyrene	0.35	0.26	2.83	1.72
Benzo(a)anthracene	0.02 U	0.02 U	0.54	0.25
Chrysene	0.06 J	0.05 J	1.15	0.65
Benzo(b)fluoranthene	0.04 U	0.04 U	0.62	0.29
Benzo(k)fluoranthene	0.04 U	0.04 U	0.81	0.4
Benzo(a)pyrene	0.06 U	0.06 U	0.73	0.34
Indeno(1,2,3-cd)pyrene	0.07 U	0.07 U	0.51	0.2
Dibenz(a,h)anthracene	0.02 U	0.02 U	0.13 J	0.05 J
Benzo(g,h,i)perylene	0.09 U	0.09 U	0.62	0.27
Surrogate Recoveries (%)				
Naphthalene-d8	68	67	62	66
Acenaphthene-d10	79	80	77	82
Phenanthrene-d10	97	97	105	107
Benzo(b)fluoranthene-d12	93	91	95	96
Benzo(a)pyrene-d12	71	68	78	76

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	001 C N.v. Tissue	001 D N.v. Tissue	001 E N.v. Tissue	003 A N.v. Tissue
Battelle ID	S9806-P	S9807-P	S9808-P	S9809-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/02/06	07/02/06	07/02/06	07/02/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	87.15	88.62	87.8	87.74
% Lipid	1.24	1.08	1.42	1.09
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.01	29.34	29.86	14.78
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	1.3	1.08 B	1.12 B	1.27
Acenaphthylene	0.19	0.13 J	0.16	0.17 J
Acenaphthene	1.33	1.01	1.3	1.06
Fluorene	0.69	0.45	0.7	0.58
Anthracene	0.33	0.21	0.32	0.21 J
Phenanthrene	3.09	2.09	3.27	3.15
Fluoranthene	2.01	0.93	2.26	1.1
Pyrene	2.13	1.14	2.39	1.17
Benzo(a)anthracene	0.18	0.04 J	0.29	0.05 J
Chrysene	0.71	0.3	0.74	0.3
Benzo(b)fluoranthene	0.22	0.08 J	0.29	0.12 J
Benzo(k)fluoranthene	0.33	0.09 J	0.38	0.17 J
Benzo(a)pyrene	0.2	0.06 U	0.28	0.11 U
Indeno(1,2,3-cd)pyrene	0.13 J	0.07 U	0.18	0.13 U
Dibenz(a,h)anthracene	0.04 J	0.02 U	0.05 J	0.04 U
Benzo(g,h,i)perylene	0.19	0.09 U	0.22	0.18 U
Surrogate Recoveries (%)				
Naphthalene-d8	64	68	62	75
Acenaphthene-d10	79	81	73	86
Phenanthrene-d10	107	104	96	107
Benzo(b)fluoranthene-d12	94	96	90	98
Benzo(a)pyrene-d12	75	77	72	77

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 B N.v. Tissue	003 C N.v. Tissue	003 D N.v. Tissue	003 E N.v. Tissue
Battelle ID	S9810-P	S9811-P	S9812-P	S9813-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/19/06	06/19/06	06/19/06	06/19/06
Analysis Date	07/02/06	07/02/06	07/03/06	07/03/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	87.92	87.12	88.83	88.36
% Lipid	1.11	1.23	1.11	1.19
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	28.89	21.18	30.56	28.26
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	1.14 B	0.99 B	0.84 B	0.62 B
Acenaphthylene	0.28	0.15 J	0.14	0.06 J
Acenaphthene	0.97	0.85	0.84	0.31
Fluorene	0.57	0.4	0.37	0.19
Anthracene	0.81	0.27	0.24	0.09 J
Phenanthrene	3.87	2.24	1.72	0.97 B
Fluoranthene	4.09	1.24	1.31	0.25
Pyrene	4.76	1.18	1.32	0.29
Benzo(a)anthracene	1.51	0.14 J	0.13 J	0.02 U
Chrysene	1.85	0.4	0.44	0.06 J
Benzo(b)fluoranthene	1.11	0.17 J	0.19	0.05 U
Benzo(k)fluoranthene	1.58	0.21 J	0.25 J	0.04 U
Benzo(a)pyrene	1.72	0.16 J	0.19	0.06 U
Indeno(1,2,3-cd)pyrene	0.94	0.1 J	0.12 J	0.07 U
Dibenz(a,h)anthracene	0.24	0.03 J	0.04 J	0.02 U
Benzo(g,h,i)perylene	1.11	0.14 J	0.15	0.09 U
Surrogate Recoveries (%)				
Naphthalene-d8	65	60	69	22 N
Acenaphthene-d10	80	72	83	25 N
Phenanthrene-d10	101	92	105	33
Benzo(b)fluoranthene-d12	96	88	97	30
Benzo(a)pyrene-d12	78	68	78	22 N

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BI999PB-P
Sample Type	PB
Collection Date	06/19/06
Extraction Date	06/19/06
Analysis Date	07/01/06
Analytical Instrument	MS
% Moisture	87.75
% Lipid	0.06
Matrix	WORMS
Sample Size	27.19
Size Unit-Basis	G_WET
Units	UG/KG_WET
Naphthalene	0.25
Acenaphthylene	0.02 U
Acenaphthene	0.05 U
Fluorene	0.06 U
Anthracene	0.04 U
Phenanthrene	0.28
Fluoranthene	0.08 U
Pyrene	0.14 U
Benzo(a)anthracene	0.03 U
Chrysene	0.04 U
Benzo(b)fluoranthene	0.05 U
Benzo(k)fluoranthene	0.04 U
Benzo(a)pyrene	0.06 U
Indeno(1,2,3-cd)pyrene	0.07 U
Dibenz(a,h)anthracene	0.02 U
Benzo(g,h,i)perylene	0.1 U

Surrogate Recoveries (%)

Naphthalene-d8	75
Acenaphthene-d10	77
Phenanthrene-d10	91
Benzo(b)fluoranthene-d12	93
Benzo(a)pyrene-d12	67

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia
Battelle ID	BJ001LCS-P
Sample Type	LCS
Collection Date	06/19/06
Extraction Date	06/19/06
Analysis Date	07/01/06
Analytical Instrument	MS
% Moisture	78.37
% Lipid	NA
Matrix	WORMS
Sample Size	30.12
Size Unit-Basis	G_WET

Units	UG/KG_WET	Target	% Recovery	Qualifier
Naphthalene	24.54	33.21	74	
Acenaphthylene	22.63	33.23	68	
Acenaphthene	26.96	33.22	81	
Fluorene	27.09	33.22	82	
Anthracene	26.93	33.21	81	
Phenanthrene	30.36	33.22	91	
Fluoranthene	28.82	33.22	87	
Pyrene	28.93	33.21	87	
Benzo(a)anthracene	17.71	33.21	53	
Chrysene	20.96	33.21	63	
Benzo(b)fluoranthene	17.36	33.23	52	
Benzo(k)fluoranthene	19.26	33.22	58	
Benzo(a)pyrene	14.94	33.23	45	N
Indeno(1,2,3-cd)pyrene	14.77	33.22	44	N
Dibenz(a,h)anthracene	16.97	33.22	51	
Benzo(g,h,i)perylene	18.59	33.21	56	

Surrogate Recoveries (%)

Naphthalene-d8	80
Acenaphthene-d10	83
Phenanthrene-d10	96
Benzo(b)fluoranthene-d12	74
Benzo(a)pyrene-d12	44

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977					
Battelle ID	BJ002SRM-P					
Sample Type	SRM					
Collection Date	06/19/06					
Extraction Date	06/19/06					
Analysis Date	07/01/06					
Analytical Instrument	MS					
% Moisture	NA					
% Lipid	NA					
Matrix	WORMS					
Sample Size	1.91					
Size Unit-Basis	G_WET	Certified		Passing	Actual	
Units	UG/KG_WET	Value	+/-	%Difference	%Difference	Qualifier
Naphthalene	11.32					
Acenaphthylene	1.86 J					
Acenaphthene	0.68 U					
Fluorene	9.63	10.24	0.43	34.2	6	
Anthracene	4.75					
Phenanthrene	33.78	35.1	3.80	40.83	3.8	
Fluoranthene	29.56	38.7	1.00	32.58	23.6	
Pyrene	65.55	78.9	3.50	34.44	16.9	
Benzo(a)anthracene	12.37	20.34	0.78	33.83	39.2	N
Chrysene	52.38					
Benzo(b)fluoranthene	10.03	11.01	0.28	32.54	8.9	
Benzo(k)fluoranthene	8.85					
Benzo(a)pyrene	3.52	8.35	0.72	38.62	57.8	N
Indeno(1,2,3-cd)pyrene	2.6	4.84	0.81	46.74	46.3	
Dibenz(a,h)anthracene	1.14 J	1.41	0.19	43.48	19.1	
Benzo(g,h,i)perylene	7.01	9.53	0.43	34.51	26.4	

Surrogate Recoveries (%)

Naphthalene-d8	67
Acenaphthene-d10	75
Phenanthrene-d10	89
Benzo(b)fluoranthene-d12	89
Benzo(a)pyrene-d12	69

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS A N.v. Tissue	RISDS A N.v. Tissue			
Battelle ID	S9799-P	S9799MS-P			
Sample Type	SA	MS			
Collection Date	09/22/05	9/22/2005			
Extraction Date	06/19/06	6/19/2006			
Analysis Date	07/02/06	7/2/2006			
Analytical Instrument	MS	MS			
% Moisture	86.81	87.09			
% Lipid	1.32	NA			
Matrix	WORMS	WORMS			
Sample Size	14.82	10.68			
Size Unit-Basis	G_WET	G_WET			
Units	UG/KG_WET	UG/KG_WET	Target	% Recovery	Qualifier
Naphthalene	1.29	59.79	93.65	62	
Acenaphthylene	0.09 J	67.54	93.72	72	
Acenaphthene	1.12	74.71	93.69	79	
Fluorene	0.6	78.34	93.68	83	
Anthracene	0.08 J	91.22	93.65	97	
Phenanthrene	2.68	87.64	93.68	91	
Fluoranthene	0.85	85.12	93.68	90	
Pyrene	0.42	85.14	93.67	90	
Benzo(a)anthracene	0.06 J	60.07	93.66	64	
Chrysene	0.13 J	62.03	93.67	66	
Benzo(b)fluoranthene	0.09 U	60.61	93.71	65	
Benzo(k)fluoranthene	0.08 U	68.82	93.68	73	
Benzo(a)pyrene	0.11 U	61.93	93.71	66	
Indeno(1,2,3-cd)pyrene	0.13 U	57.69	93.68	62	
Dibenz(a,h)anthracene	0.04 U	63.84	93.68	68	
Benzo(g,h,i)perylene	0.18 U	61.8	93.66	66	

Surrogate Recoveries (%)

Naphthalene-d8	68	69
Acenaphthene-d10	82	81
Phenanthrene-d10	99	101
Benzo(b)fluoranthene-d12	96	90
Benzo(a)pyrene-d12	73	68

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	RISDS A N.v. Tissue
Battelle ID	S9799MSD-P
Sample Type	MSD
Collection Date	9/22/2005
Extraction Date	6/19/2006
Analysis Date	7/4/2006
Analytical Instrument	MS
% Moisture	87.03
% Lipid	NA
Matrix	WORMS
Sample Size	10.05
Size Unit-Basis	G_WET

Units	UG/KG_WET	Target	% Recovery	Qualifier	RPD (%)	Qualifier
Naphthalene	25.5	99.52	24	N	88.4	N
Acenaphthylene	28.02	99.59	28	N	88.0	N
Acenaphthene	31.04	99.57	30	N	89.9	N
Fluorene	32.78	99.56	32	N	88.7	N
Anthracene	37.61	99.52	38	N	87.4	N
Phenanthrene	37.68	99.55	35	N	88.9	N
Fluoranthene	36.67	99.55	36	N	85.7	N
Pyrene	36.05	99.54	36	N	85.7	N
Benzo(a)anthracene	24.5	99.53	25	N	87.6	N
Chrysene	26.17	99.54	26	N	87.0	N
Benzo(b)fluoranthene	24.2	99.59	24	N	92.1	N
Benzo(k)fluoranthene	28.86	99.56	29	N	86.3	N
Benzo(a)pyrene	23.7	99.58	24	N	93.3	N
Indeno(1,2,3-cd)pyrene	19.98	99.55	20	N	102.4	N
Dibenz(a,h)anthracene	22.69	99.56	23	N	98.9	N
Benzo(g,h,i)perylene	22.9	99.53	23	N	96.6	N

Surrogate Recoveries (%)

Naphthalene-d8	27	N
Acenaphthene-d10	32	
Phenanthrene-d10	40	
Benzo(b)fluoranthene-d12	35	
Benzo(a)pyrene-d12	25	N

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	003 A N.v. Tissue		003 A N.v. Tissue			
Battelle ID	S9809-P		S9809DUP-P			
Sample Type	SA		QADU			
Collection Date	09/22/05		9/22/2005			
Extraction Date	06/19/06		6/19/2006			
Analysis Date	07/02/06		7/2/2006			
Analytical Instrument	MS		MS			
% Moisture	87.74		88.07			
% Lipid	NA		NA			
Matrix	WORMS		WORMS			
Sample Size	14.78		14.37			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
Naphthalene	1.27		1.15	B	9.9	
Acenaphthylene	0.17	J	0.13	J	NA	
Acenaphthene	1.06		0.91		15.2	
Fluorene	0.58		0.47		21.0	
Anthracene	0.21	J	0.22	J	NA	
Phenanthrene	3.15		2.41		26.6	
Fluoranthene	1.1		0.89		21.1	
Pyrene	1.17		0.93		22.9	
Benzo(a)anthracene	0.05	J	0.05	J	NA	
Chrysene	0.3		0.26	J	14.3	
Benzo(b)fluoranthene	0.12	J	0.09	J	NA	
Benzo(k)fluoranthene	0.17	J	0.1	J	NA	
Benzo(a)pyrene	0.11	U	0.11	U	NA	
Indeno(1,2,3-cd)pyrene	0.13	U	0.14	U	NA	
Dibenz(a,h)anthracene	0.04	U	0.04	U	NA	
Benzo(g,h,i)perylene	0.18	U	0.19	U	NA	

Surrogate Recoveries (%)

Naphthalene-d8	75	69
Acenaphthene-d10	86	81
Phenanthrene-d10	107	100
Benzo(b)fluoranthene-d12	98	94
Benzo(a)pyrene-d12	77	74

PAH – QA/QC SUMMARY 06-0197
M. nasuta and N. virens

PROJECT:	New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER:	PAH
LABORATORY:	Battelle, Duxbury, MA
MATRIX:	Tissue – M. nasuta and N. virens
SAMPLE CUSTODY:	Tissue samples for this project were colleted on 9/22/05 and 10/13/05. The shipment was received on 10/28/05. Upon arrival, the cooler temperatures were recorded at -27.7°C and -3.0°C. No custody issues were noted. The samples were logged in to LIMS and assigned unique Battelle IDs. Samples were stored in a limited-access walk-in freezer until preparation could begin.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Blank	Surrogate Recovery	LCS/MS Recovery	SRM % Diff.	Sample Replicate Relative Precision	Achieved Detection Limit (ug/Kg Wet Wt)
PAH	General NS&T	< 5x MDL	30-150% Recovery	50-120% for MS target spike must be > 5 x background	PD < 30% plus variance. Target concentration must be > 5 x MDL	< 30% RPD for analytes >10 x MDL	PAH ~0.02 – 0.15

METHOD: Tissue samples were extracted for PAH following general NS&T methods. Approximately 30 g of tissue was spiked with surrogates and extracted three times with dichloromethane using tissuemizer and shaker table techniques. The combined extract was dried over anhydrous sodium sulfate, concentrated, processed through alumina cleanup column, concentrated, and further purified by GPC/HPLC. The post-HPLC extract was further cleaned using silica gel columns. The extracts were then concentrated, fortified with internal standards (IS) and split for analysis. Extracts intended for PAH analysis were analyzed using gas chromatography/mass spectrometry (GC/MS), following general NS&T methods. Sample data were quantified by the method of internal standards, using the IS compounds. Data was evaluated against sample-specific 2005 MDLs.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for extraction and 40-days from extraction to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were extracted within 9 months of collection and analyzed within 12 days of extraction.

Batch	Extraction Date	Analysis Date
06-0197	6/22/2006	7/3/2006 – 7/4/2006

BLANKS:

A procedural blank (PB) was prepared with the analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

06-0197 – No exceedences noted.

Comments – No target analytes were detected in the blank at a level greater than the laboratory control limit (5 x MDL). However, naphthalene and phenanthrene were detected at a concentration greater than the RL. Any authentic field sample concentration for these analytes that was greater than the RL but less than 3x the concentration detected in the blank, was qualified with a "B". This resulted in 14 field samples being "B" qualified for naphthalene.

LABORATORY CONTROL SAMPLE (Blank Spike)

A laboratory control sample (LCS) was prepared the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy.

06-0197 – 12 (out of 16) exceedences noted.

Comments – Percent recoveries for the LCS sample ranged from 36% to 52%. Although meeting the laboratory control limit (30% - 150%), the surrogate recoveries (45% - 62%) in the LCS sample were lower than those recovered in the other samples of this batch. Chromatography and calculations were reviewed, and no errors were found. In the sample prep records, an extract loss for the LCS due to a leaky KD apparatus was noted. The exceedences were qualified with an "N" and no corrective action was taken. Accuracy for target PAHs was demonstrated in both the MS and MSD samples.

MATRIX SPIKES/MATRIX SPIKE DUPLCATE:

A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recoveries of PAH were calculated to measure data quality in terms of accuracy and precision. The RPD between percent recoveries was calculated to measure the data quality in terms of precision.

06-0197 – All percent recoveries for spiked analytes were within laboratory control limits (50-120%), and all RPDs were within laboratory control limits (<30%).

Comments – None.

SURROGATES:

Five surrogate compounds were added prior to extraction, including napthalene-d8, acenaphthene-d10, phenanthrene-d10, benzo(b)fluoranthene-d12, and benzo(a)pyrene-d12. The recovery of each surrogate compound was calculated to measure data quality in terms of accuracy (extraction efficiency).

06-0197 – All percent recoveries for surrogates were within laboratory control limits (30-150%).

Comments – None

DUPLICATES:

Duplicate samples were prepared with the analytical batch. The RPD between replicate analyses for PAH is calculated to measure data quality in terms of precision.

06-0197 – All RPDs were calculated to be within the laboratory control limits (<30%)

Comments – None

SRM: A standard reference material (SRM, NIST 2977) was prepared with the analytical batch. The percent difference (PD) between the measured value and the certified value was calculated to measure data quality in terms of accuracy.

06-0197 – All percent differences were calculated to be within the laboratory control limits (<30% PD, plus variance).

Comments – None.

CALIBRATIONS: The GC/MS is calibrated with a 7 level curve. The RSD between response factors for the individual target analytes must be <30%. Each batch of samples analyzed is bracketed by a continuing calibration check (CCC) sample, run at a frequency of minimally every 12 hours. This percent difference (PD) between the initial calibration RF and the CCC should be <25% for individual analytes. Additionally an initial calibration check (ICC) sample is run immediately after each initial calibration. The PD between the ICC and the initial calibration should be < 25%.

06-0197 – No initial calibration or ICC. 2 CCC exceedences noted.

Comments – Indeno(1,2,3-cd)pyrene was under-recovered in files G2499 and C2527. The PDs were 25.2% and 32.5%, respectively. Calculations were reviewed and no discrepancies were found. The CCCs prior to and after the failing CCCs had acceptable results. Field sample data maybe biased low for this compound, however the LCS, SRM, and MS QC samples affected by the failing CCVs all had acceptable results for indeno(1,2,3-cd)pyrene. The CCC exceedences were noted and qualified. No corrective action was taken.

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio. The sample-specific method detection limit (MDL) reported.

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue	Lab B M.n. Tissue	Lab C M.n. Tissue	008 A M.n. Tissue
Battelle ID	S9759-P	S9760-P	S9761-P	S9784-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/03/06	07/03/06	07/03/06	07/03/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.13	90.55	90.97	90.78
% Lipid	0.87	0.85	0.8	0.73
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	19.86	29.48	29.45	29.97
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.44 B	0.31 B	0.34 B	0.47 B
Acenaphthylene	0.13 J	0.11 J	0.08 J	0.34
Acenaphthene	0.2 J	0.17	0.16	0.2
Fluorene	0.78	0.58	0.43	0.51
Anthracene	0.32	0.26	0.2	0.8
Phenanthrene	6.23	4.54	3.45	4.53
Fluoranthene	4.19	3.39	2.38	7.31
Pyrene	3.28	2.61	1.77	9.46
Benzo(a)anthracene	0.51	0.42	0.28	2.48
Chrysene	1.17	0.99	0.64	3.89
Benzo(b)fluoranthene	0.78	0.62	0.44	2.46
Benzo(k)fluoranthene	0.86	0.65	0.45	2.82
Benzo(a)pyrene	0.44	0.36	0.24	2.44
Indeno(1,2,3-cd)pyrene	0.36	0.27	0.18	1.15
Dibenz(a,h)anthracene	0.07 J	0.07 J	0.04 J	0.31
Benzo(g,h,i)perylene	0.38	0.31	0.22	1.57
Surrogate Recoveries (%)				
Naphthalene-d8	64	58	60	57
Acenaphthene-d10	74	68	72	71
Phenanthrene-d10	88	83	89	108
Benzo(b)fluoranthene-d12	90	82	87	91
Benzo(a)pyrene-d12	67	60	62	71

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 B M.n. Tissue	008 C M.n. Tissue	008 D M.n. Tissue	008 E M.n. Tissue
Battelle ID	S9785-P	S9786-P	S9787-P	S9788-P
Sample Type	SA	SA	SA	SA
Collection Date	10/13/05	10/13/05	10/13/05	10/13/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/03/06	07/03/06	07/03/06	07/03/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	90.3	91.62	91.13	90.47
% Lipid	0.68	0.68	0.75	0.68
Matrix	CLAMS	CLAMS	CLAMS	CLAMS
Sample Size	30.38	30.53	30.18	29.16
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.72 B	0.69 B	0.82 B	0.96 B
Acenaphthylene	0.79	0.45	0.56	0.64
Acenaphthene	0.38	0.26	0.35	0.32
Fluorene	0.84	0.6	0.75	0.8
Anthracene	1.52	0.94	1.3	1.27
Phenanthrene	7.7	4.63	6.91	6.86
Fluoranthene	14.27	7.56	11.56	9.91
Pyrene	17.56	8.81	13.92	13.9
Benzo(a)anthracene	5.32	2.97	4.15	3.75
Chrysene	7.4	4.39	6.14	5.97
Benzo(b)fluoranthene	4.7	2.94	4.13	3.85
Benzo(k)fluoranthene	5.82	3.38	4.84	4.56
Benzo(a)pyrene	5.57	3.15	4.51	4.15
Indeno(1,2,3-cd)pyrene	2.79	1.65	2.38	2.15
Dibenz(a,h)anthracene	0.7	0.38	0.59	0.55
Benzo(g,h,i)perylene	3.41	2	2.95	2.81
Surrogate Recoveries (%)				
Naphthalene-d8	60	59	60	59
Acenaphthene-d10	72	68	67	68
Phenanthrene-d10	117	101	99	102
Benzo(b)fluoranthene-d12	94	86	82	87
Benzo(a)pyrene-d12	76	68	65	70

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A N.v. Tissue	Lab B N.v. Tissue	Lab C N.v. Tissue	008 A N.v. Tissue
Battelle ID	S9789-P	S9790-P	S9791-P	S9814-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/04/06	07/04/06	07/04/06	07/04/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	88.11	88.36	88.48	88.36
% Lipid	1.61	1.27	1.35	1.44
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.13	26.97	26.40	15.41
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.82 B	0.88 B	0.78 B	1.09
Acenaphthylene	0.08 J	0.24	0.07 J	0.17 J
Acenaphthene	1.12	1.19	1.07	1.22
Fluorene	0.42	0.76	0.43	0.54
Anthracene	0.07 J	0.69	0.08 J	0.29
Phenanthrene	1.74	2.78	1.79	2.51
Fluoranthene	0.87	1.72	0.7	2.25
Pyrene	0.49	1.15	0.36	2.04
Benzo(a)anthracene	0.12 J	0.56	0.06 J	0.18 J
Chrysene	0.18	0.68	0.14 J	0.73
Benzo(b)fluoranthene	0.11 J	0.66	0.12 J	0.26 J
Benzo(k)fluoranthene	0.12 J	1.35	0.19 J	0.35 J
Benzo(a)pyrene	0.08 J	0.6	0.06 J	0.14 J
Indeno(1,2,3-cd)pyrene	0.07 U	0.55	0.1 J	0.13 J
Dibenz(a,h)anthracene	0.02 J	0.52	0.08 J	0.07 J
Benzo(g,h,i)perylene	0.09 U	0.65	0.14 J	0.2 J
Surrogate Recoveries (%)				
Naphthalene-d8	65	67	60	70
Acenaphthene-d10	72	77	68	78
Phenanthrene-d10	83	93	79	106
Benzo(b)fluoranthene-d12	82	91	79	94
Benzo(a)pyrene-d12	63	69	58	73

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 B N.v. Tissue	008 C N.v. Tissue	008 D N.v. Tissue	008 E N.v. Tissue
Battelle ID	S9815-P	S9816-P	S9817-P	S9818-P
Sample Type	SA	SA	SA	SA
Collection Date	09/22/05	09/22/05	09/22/05	09/22/05
Extraction Date	06/22/06	06/22/06	06/22/06	06/22/06
Analysis Date	07/04/06	07/04/06	07/04/06	07/04/06
Analytical Instrument	MS	MS	MS	MS
% Moisture	89.41	88.11	89.03	88.32
% Lipid	1.29	1.67	1.46	1.5
Matrix	WORMS	WORMS	WORMS	WORMS
Sample Size	30.29	29.51	29.20	29.49
Size Unit-Basis	G_WET	G_WET	G_WET	G_WET
Units	UG/KG_WET	UG/KG_WET	UG/KG_WET	UG/KG_WET
Naphthalene	0.73 B	0.9 B	0.84 B	1.16
Acenaphthylene	0.14	0.17	0.18	0.21
Acenaphthene	0.76	1.23	1.09	1.43
Fluorene	0.33	0.5	0.56	0.78
Anthracene	0.24	0.29	0.28	0.38
Phenanthrene	1.38	2.02	2.3	3.24
Fluoranthene	1.05	1.73	1.42	1.98
Pyrene	1.02	1.65	1.34	1.74
Benzo(a)anthracene	0.07 J	0.11 J	0.09 J	0.14
Chrysene	0.45	0.65	0.48	0.64
Benzo(b)fluoranthene	0.13 J	0.14	0.13 J	0.18
Benzo(k)fluoranthene	0.16 J	0.22 J	0.16 J	0.31
Benzo(a)pyrene	0.07 J	0.09 J	0.06 J	0.11 J
Indeno(1,2,3-cd)pyrene	0.07 U	0.07 U	0.07 U	0.1 J
Dibenz(a,h)anthracene	0.02 J	0.03 J	0.02 J	0.07 J
Benzo(g,h,i)perylene	0.09 J	0.09 J	0.09 U	0.15
Surrogate Recoveries (%)				
Naphthalene-d8	62	66	68	67
Acenaphthene-d10	69	74	77	77
Phenanthrene-d10	99	108	110	110
Benzo(b)fluoranthene-d12	88	95	98	97
Benzo(a)pyrene-d12	70	75	78	77

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Procedural Blank
Battelle ID	BJ003PB-P
Sample Type	PB
Collection Date	06/22/06
Extraction Date	06/22/06
Analysis Date	07/03/06
Analytical Instrument	MS
% Moisture	89.51
% Lipid	NA
Matrix	CLAMS, WORMS
Sample Size	27.90
Size Unit-Basis	G_WET
Units	UG/KG_WET
Naphthalene	0.2
Acenaphthylene	0.02 U
Acenaphthene	0.05 U
Fluorene	0.06 U
Anthracene	0.04 U
Phenanthrene	0.15
Fluoranthene	0.08 U
Pyrene	0.13 U
Benzo(a)anthracene	0.02 U
Chrysene	0.04 U
Benzo(b)fluoranthene	0.05 U
Benzo(k)fluoranthene	0.04 U
Benzo(a)pyrene	0.06 U
Indeno(1,2,3-cd)pyrene	0.07 U
Dibenz(a,h)anthracene	0.02 U
Benzo(g,h,i)perylene	0.1 U

Surrogate Recoveries (%)

Naphthalene-d8	62
Acenaphthene-d10	71
Phenanthrene-d10	86
Benzo(b)fluoranthene-d12	88
Benzo(a)pyrene-d12	60

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060313-01: Tilapia
Battelle ID	BJ004LCS-P
Sample Type	LCS
Collection Date	06/22/06
Extraction Date	06/22/06
Analysis Date	07/03/06
Analytical Instrument	MS
% Moisture	78.37
% Lipid	NA
Matrix	CLAMS, WORMS
Sample Size	29.73
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Target	% Recovery	Qualifier
Naphthalene	12.04	33.64	36	N
Acenaphthylene	13.08	33.67	39	N
Acenaphthene	14.12	33.66	42	N
Fluorene	15.08	33.65	45	N
Anthracene	17.37	33.64	52	
Phenanthrene	16.74	33.65	50	
Fluoranthene	16.77	33.65	50	
Pyrene	17.44	33.65	52	
Benzo(a)anthracene	12.51	33.64	37	N
Chrysene	12.35	33.65	37	N
Benzo(b)fluoranthene	12.4	33.66	37	N
Benzo(k)fluoranthene	14.23	33.65	42	N
Benzo(a)pyrene	13.39	33.66	40	N
Indeno(1,2,3-cd)pyrene	13.35	33.65	40	N
Dibenz(a,h)anthracene	14.44	33.65	43	N
Benzo(g,h,i)perylene	13.79	33.65	41	N

Surrogate Recoveries (%)

Naphthalene-d8	45
Acenaphthene-d10	52
Phenanthrene-d10	65
Benzo(b)fluoranthene-d12	62
Benzo(a)pyrene-d12	50

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	060406-01: NIST 2977
Battelle ID	BJ005SRM-P
Sample Type	SRM
Collection Date	06/22/06
Extraction Date	06/22/06
Analysis Date	07/03/06
Analytical Instrument	MS
% Moisture	NA
% Lipid	NA
Matrix	CLAMS, WORMS
Sample Size	1.67
Size Unit-Basis	G_WET
Units	UG/KG_WET

		Certified Value	+/-	Passing %Difference	Actual %Difference	Qualifier
Naphthalene	11.87					
Acenaphthylene	2.57					
Acenaphthene	5.33					
Fluorene	9.69	10.24	0.43	34.2	5.4	
Anthracene	5.68					
Phenanthrene	38.28	35.1	3.80	40.83	9.1	
Fluoranthene	33.24	38.7	1.00	32.58	14.1	
Pyrene	69.72	78.9	3.50	34.44	11.6	
Benzo(a)anthracene	14.95	20.34	0.78	33.83	26.5	
Chrysene	57.89					
Benzo(b)fluoranthene	11.95	11.01	0.28	32.54	8.5	
Benzo(k)fluoranthene	10.56					
Benzo(a)pyrene	5.6	8.35	0.72	38.62	32.9	
Indeno(1,2,3-cd)pyrene	3.87	4.84	0.81	46.74	20	
Dibenz(a,h)anthracene	1.63 J	1.41	0.19	43.48	15.6	
Benzo(g,h,i)perylene	8.63	9.53	0.43	34.51	9.4	

Surrogate Recoveries (%)

Naphthalene-d8	66
Acenaphthene-d10	74
Phenanthrene-d10	86
Benzo(b)fluoranthene-d12	95
Benzo(a)pyrene-d12	75

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue	Lab A M.n. Tissue			
Battelle ID	S9759-P	S9759MS-P			
Sample Type	SA	MS			
Collection Date	10/13/05	10/13/2005			
Extraction Date	06/22/06	6/22/2006			
Analysis Date	07/03/06	7/3/2006			
Analytical Instrument	MS	MS			
% Moisture	88.13	88.22			
% Lipid	0.87	NA			
Matrix	CLAMS	CLAMS			
Sample Size	19.86	14.92			
Size Unit-Basis	G_WET	G_WET			
Units	UG/KG_WET	UG/KG_WET	Target	% Recovery	Qualifier
Naphthalene	0.44 B	38.27	67.04	56	
Acenaphthylene	0.13 J	42.69	67.08	63	
Acenaphthene	0.2 J	48.99	67.07	73	
Fluorene	0.78	49.06	67.06	72	
Anthracene	0.32	53.62	67.03	80	
Phenanthrene	6.23	56.33	67.06	75	
Fluoranthene	4.19	54.14	67.06	74	
Pyrene	3.28	54.8	67.05	77	
Benzo(a)anthracene	0.51	41.83	67.04	62	
Chrysene	1.17	42.68	67.05	62	
Benzo(b)fluoranthene	0.78	41.89	67.08	61	
Benzo(k)fluoranthene	0.86	47.36	67.06	69	
Benzo(a)pyrene	0.44	42.2	67.08	62	
Indeno(1,2,3-cd)pyrene	0.36	41.19	67.06	61	
Dibenz(a,h)anthracene	0.07 J	44.09	67.06	66	
Benzo(g,h,i)perylene	0.38	42.32	67.04	63	

Surrogate Recoveries (%)

Naphthalene-d8	64	67
Acenaphthene-d10	74	76
Phenanthrene-d10	88	92
Benzo(b)fluoranthene-d12	90	93
Benzo(a)pyrene-d12	67	69

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	Lab A M.n. Tissue					
Battelle ID	S9759MSD-P					
Sample Type	MSD					
Collection Date	10/13/2005					
Extraction Date	6/22/2006					
Analysis Date	7/3/2006					
Analytical Instrument	MS					
% Moisture	89.41					
% Lipid	NA					
Matrix	CLAMS					
Sample Size	14.87					
Size Unit-Basis	G_WET					
Units	UG/KG_WET	Target	% Recovery	Qualifier	RPD (%)	Qualifier
Naphthalene	40.3	67.26	59		5.2	
Acenaphthylene	45.57	67.31	68		7.6	
Acenaphthene	52.33	67.29	77		5.3	
Fluorene	52.03	67.29	76		5.4	
Anthracene	57.64	67.26	85		6.1	
Phenanthrene	59.88	67.28	80		6.5	
Fluoranthene	56.6	67.28	78		5.3	
Pyrene	57.1	67.27	80		3.8	
Benzo(a)anthracene	42.6	67.27	63		1.6	
Chrysene	43.57	67.28	63		1.6	
Benzo(b)fluoranthene	42.76	67.31	62		1.6	
Benzo(k)fluoranthene	49.2	67.29	72		4.3	
Benzo(a)pyrene	42.94	67.30	63		1.6	
Indeno(1,2,3-cd)pyrene	41.54	67.28	61		0.0	
Dibenz(a,h)anthracene	44.69	67.29	66		0.0	
Benzo(g,h,i)perylene	43.04	67.27	63		0.0	

Surrogate Recoveries (%)

Naphthalene-d8	64
Acenaphthene-d10	74
Phenanthrene-d10	90
Benzo(b)fluoranthene-d12	88
Benzo(a)pyrene-d12	66

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Project Client: USACE - North Atlantic Division
Project Name: Tissue Analysis for PCB/Pest, PAHs, and Lipid Content
Project Number: G606416-DUXTISCHEM

Client ID	008 A N.v. Tissue		008 A N.v. Tissue			
Battelle ID	S9814-P		S9814DUP-P			
Sample Type	SA		QADU			
Collection Date	09/22/05		9/22/2005			
Extraction Date	06/22/06		6/22/2006			
Analysis Date	07/04/06		7/4/2006			
Analytical Instrument	MS		MS			
% Moisture	88.36		88.91			
% Lipid	1.44		NA			
Matrix	WORMS		WORMS			
Sample Size	15.41		15.99			
Size Unit-Basis	G_WET		G_WET			
Units	UG/KG_WET		UG/KG_WET		RPD	Qualifier
Naphthalene	1.09		0.99	B	9.6	
Acenaphthylene	0.17	J	0.15	J	NA	
Acenaphthene	1.22		0.95		24.9	
Fluorene	0.54		0.49		9.7	
Anthracene	0.29		0.25	J	14.8	
Phenanthrene	2.51		2.12		16.8	
Fluoranthene	2.25		1.7		27.8	
Pyrene	2.04		1.58		25.4	
Benzo(a)anthracene	0.18	J	0.08	J	NA	
Chrysene	0.73		0.58		22.9	
Benzo(b)fluoranthene	0.26	J	0.15	J	NA	
Benzo(k)fluoranthene	0.35	J	0.2	J	NA	
Benzo(a)pyrene	0.14	J	0.1	U	NA	
Indeno(1,2,3-cd)pyrene	0.13	J	0.12	U	NA	
Dibenz(a,h)anthracene	0.07	J	0.04	J	NA	
Benzo(g,h,i)perylene	0.2	J	0.17	U	NA	

Surrogate Recoveries (%)

Naphthalene-d8	70	68
Acenaphthene-d10	78	77
Phenanthrene-d10	106	102
Benzo(b)fluoranthene-d12	94	97
Benzo(a)pyrene-d12	73	75

Appendix J-3

Tissue Metals Data

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QUALITY CONTROL SUMMARY - METALS

STUDY NO: 14737
PROJECT: New Bedford Harbor O&M 2005 Tissue Analysis
PARAMETER: Total Metals: As, Cd, Cr, Cu, Pb, Ni, Hg, Zn
LABORATORY: EnviroSystems, Inc. Hampton, NH
MATRIX: Tissue

SAMPLE CUSTODY: Tissue samples for this project were collected on 09/22/05 and 10/13/05. The shipment was received on 07/12/06. No custody issues were noted. Upon arrival, the cooler temperatures were recorded at -17.8˚C (estimate). The samples were logged in to the laboratory and assigned unique lab IDs. Samples were stored in a limited-access freezer until preparation.

DATA QUALITY OBJECTIVES FOR QC MEASUREMENTS:

Referenced Method: EPA Method 200.7, 245.7

Blank: < RL or < 5 x MDL

LCS/MS Recovery: 75 -125%

SRM % Recovery: 70 -130%

Sample MS/MSD Relative Precision: < 30% RPD

Achieved Detection Limit (ug/g Wet Wt)

As	0.4 ug/g	Pb	0.2 ug/g
Cd	0.05 ug/g	Ni	0.1 ug/g
Cr	0.1 ug/g	Hg	0.02 ug/g
Cu	0.1 ug/g	Zn	0.1 ug/g

METHOD: Tissue samples were digested for mercury following EPA and USCOE methods. Two to three hundred milligrams of tissue was digested with ultrapure nitric acid using closed reflux techniques. The digests were brought to analytical volume with reagent water and analyzed by cold vapor atomic fluorescence spectrophotometry.

Tissue samples were digested for other metals following EPA and USCOE methods. One to four grams of tissue was digested with ultrapure nitric acid using open reflux techniques. The digests were brought to analytical volume with reagent water and analyzed by inductively-coupled plasma emission spectrometry.

HOLDING TIMES: Holding times for tissues (frozen) are 365-days for digestion and 60-days from digestion to analysis. Tissue samples were stored frozen until sample preparation could begin. All samples were digested within 12 months of collection and analyzed within 60 days of digestion.

Batch	Digestion Date	Analysis Date
873W	07/18/06	07/20/06 - 07/28/06
874W	07/19/06	07/30/06
875W	07/20/06	07/31/06
562G	07/26/06	07/27/06
563G	07/27/06	07/28/06
564G	07/28/06	07/31/06

BLANKS: A procedural blank (PB) was prepared with each analytical batch. Blanks were analyzed to ensure the sample digestion and analysis methods were free of contamination. Blanks met acceptance criteria. Comments - No target analytes were detected in the blank at a level greater than the laboratory control limit (RL or 5 x MDL). Field sample concentrations for analytes greater than the RL but less than 5x the concentration detected in the blank, are qualified with a "B". No field samples in this batch needed "B" qualification for any analyte.

LABORATORY CONTROL SAMPLE (Blank Spike) A laboratory control sample (LCS) and duplicate were prepared with the analytical batch. The percent recoveries of the metals were calculated to measure data quality in terms of accuracy. - Recovery for spiked analytes were within laboratory control limits (75-125%). Comments - None.

MATRIX SPIKE/ MATRIX SPIKE DUPLCATE: A pair of matrix spike (MS) and matrix spike duplicate (MSD) samples was prepared with the analytical batch. The percent recovery for each spiked analyte was calculated to measure data quality in terms of accuracy. The RPD between percent recoveries was calculated to measure the data quality in terms of precision. All percent recoveries for spiked analytes were within laboratory control limits (75-125%), and all RPDs were within acceptance limits (<30%).Comments - None.

SRM: A standard reference material was prepared with the analytical batch. The percent recovery between the measured value and the reference value of all analytes were calculated to measure accuracy and were all within the laboratory control limits (70-130%). Comments - None.

INSTRUMENT CALIBRATION: The ICP is calibrated daily. An initial calibration verification (ICV) standard is run immediately after initial calibration. The percent difference (PD) should be <10%. A continuing calibration verification (CCV) standard is run at least every ten samples and at the end of an analytical session. The PD was <10%. The ICV and all CCV's met acceptance criteria.

The Cold Vapor Atomic Fluorescence instrument is calibrated at 5 levels. The RSD over the range must be <15%. An initial calibration verification (ICV) standard is run immediately after initial calibration. The percent difference (PD) should be <20%. A continuing calibration verification (CCV) standard is run at least every ten samples and at the end of an analytical session. The PD was <20%. Initial calibration, the ICV and all CCV's met acceptance criteria.

ESI

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Cheryl Biggs
Battelle Ocean Science Laboratory
397 Washington Street
Duxbury, MA 02332

PO Number: None
Report Number: 14737
Date Received: 07/12/06
Date Reported: 08/04/06

Project: New Bedford O&M Tissues

Attached please find results for analyses performed on samples received on 07/12/06 at 1015.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Except as noted analytes in blanks were below levels effecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Date 8/4/06

Authorized
Signature

Attachment
Report

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-001		14737-002		14737-003		14737-004		14737-005	
Sample Designation:		LAB A MN		LAB B MN		LAB C MN		LAB D MN		LAB E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	3		2.8		2.5		2.7		2.8	
Cadmium, total	ug/g	0.097		0.058		0.05		0.055		0.061	
Chromium, total	ug/g	1.9		1.2		0.86		1.3		1.1	
Copper, total	ug/g	1.3		0.99		0.97		1.1		1.1	
Lead, total	ug/g	0.39		0.3	U	0.2	U	0.35		0.31	
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.75		0.69		0.59		0.76		0.74	
Zinc, total	ug/g	12		9.9		11		12		12	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-006		14737-007		14737-008		14737-009		14737-010	
Sample Designation:		BBDS A MN		BBDS B MN		BBDS C MN		BBDS D MN		BBDS E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	2.2		2.9		2.9		2.5		2.7	
Cadmium, total	ug/g	0.058		0.059		0.069		0.069		0.069	
Chromium, total	ug/g	0.93		0.90		0.96		0.99		1.1	
Copper, total	ug/g	0.99		0.87		1.4		1.2		1.2	
Lead, total	ug/g	0.32		0.2	U	0.37		0.26		0.27	
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.68		0.63		0.63		0.63		0.69	
Zinc, total	ug/g	11		10		11		11		10	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-011		14737-012		14737-013		14737-014		14737-015	
Sample Designation:		RISDS A MN		RISDS B MN		RISDS C MN		RISDS D MN		RISDS E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	2.3		1.9		2.5		2.8		2.6	
Cadmium, total	ug/g	0.07		0.064		0.068		0.055		0.063	
Chromium, total	ug/g	0.89		1.1		0.91		1.2		1.0	
Copper, total	ug/g	1.0		1.0		0.95		1.0		1.0	
Lead, total	ug/g	0.2	U	0.25		0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.61		0.65		0.70		0.68		0.62	
Zinc, total	ug/g	11		9.8		10		9.8		11	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-016		14737-017		14737-018		14737-019		14737-020	
Sample Designation:		001 A MN		001 B MN		001 C MN		001 D MN		001 E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	2.2		2.8		2.7		2.6		2.4	
Cadmium, total	ug/g	0.059		0.064		0.075		0.077		0.065	
Chromium, total	ug/g	0.93		1.4		1.1		1.2		0.95	
Copper, total	ug/g	1.3		1.4		1.4		1.3		1.3	
Lead, total	ug/g	0.35		0.42		0.49		0.39		0.38	
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.57		0.6		0.6		0.52		0.51	
Zinc, total	ug/g	10		14		12		12		11	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-021		14737-022		14737-023		14737-024		14737-025	
Sample Designation:		003 A MN		003 B MN		003 C MN		003 D MN		003 E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	2.4		3		2.5		2.1		2.7	
Cadmium, total	ug/g	0.1		0.095		0.094		0.091		0.089	
Chromium, total	ug/g	0.93		1.2		1.3		1		0.98	
Copper, total	ug/g	1.4		2.2		2.2		1.7		1.8	
Lead, total	ug/g	0.41		0.45		0.53		0.56		0.49	
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.61		0.67		0.76		0.63		0.61	
Zinc, total	ug/g	12		12		13		13		11	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Macoma nasuta

Lab Number:		14737-026		14737-027		14737-028		14737-029		14737-030	
Sample Designation:		008 A MN		008 B MN		008 C MN		008 D MN		008 E MN	
Date Sampled:		10/13/05		10/13/05		10/13/05		10/13/05		10/13/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	2.3		2.5		2.4		2.3		2.6	
Cadmium, total	ug/g	0.073		0.088		0.091		0.094		0.087	
Chromium, total	ug/g	1.2		1.2		1.2		1.4		1.2	
Copper, total	ug/g	3.2		1.5		1.7		1.8		1.8	
Lead, total	ug/g	0.44		0.32		0.49		0.57		0.46	
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.59		0.61		0.61		0.67		0.61	
Zinc, total	ug/g	11		11		11		11		11	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-031		14737-032		14737-033		14737-034		14737-035	
Sample Designation:		LAB A NV		LAB B NV		LAB C NV		LAB D NV		LAB E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.7		1.8		1.7		1.7		1.4	
Cadmium, total	ug/g	0.12		0.13		0.12		0.13		0.13	
Chromium, total	ug/g	0.32		0.33		0.3		0.27		0.75	
Copper, total	ug/g	1.5		1.3		1.4		1.3		1.3	
Lead, total	ug/g	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.49		0.43		0.43		0.46		0.5	
Zinc, total	ug/g	8.7		8.1		8		8.5		9.3	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-036		14737-037		14737-038		14737-039		14737-040	
Sample Designation:		BBDS A NV		BBDS B NV		BBDS C NV		BBDS D NV		BBDS E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.3		1.5		1.4		1.5		1.6	
Cadmium, total	ug/g	0.11		0.11		0.12		0.12		0.12	
Chromium, total	ug/g	0.32		0.36		0.32		0.43		0.37	
Copper, total	ug/g	1.3		1.2		1.4		1.4		1.5	
Lead, total	ug/g	0.26		0.2	U	0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.47		0.46		0.48		0.56		0.44	
Zinc, total	ug/g	8.1		7.7		23		16		9.2	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-041		14737-042		14737-043		14737-044		14737-045	
Sample Designation:		RISDS A NV		RISDS B NV		RISDS C NV		RISDS D NV		RISDS E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.9		1.2		1.3		1.9		1.9	
Cadmium, total	ug/g	0.074		0.12		0.11		0.11		0.097	
Chromium, total	ug/g	0.4		0.3		0.32		0.26		0.23	
Copper, total	ug/g	1.2		1.4		1.5		1.4		1.4	
Lead, total	ug/g	0.2	U	0.3	U	0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.32		0.36		0.45		0.43		0.42	
Zinc, total	ug/g	8		11		11		9.7		7.6	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-046		14737-047		14737-048		14737-049		14737-050	
Sample Designation:		001 A NV		001 B NV		001 C NV		001 D NV		001 E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.5		1.7		1.3		1.1		1.4	
Cadmium, total	ug/g	0.11		0.12		0.12		0.11		0.12	
Chromium, total	ug/g	0.55		0.43		0.30		0.23		0.36	
Copper, total	ug/g	2.1		1.9		1.6		1.5		1.7	
Lead, total	ug/g	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.40		0.41		0.28		0.30		0.38	
Zinc, total	ug/g	12		8.6		8.0		9.7		8.8	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-051		14737-052		14737-053		14737-054		14737-055	
Sample Designation:		003 A NV		003 B NV		003 C NV		003 D NV		003 E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.1		1.2		1.4		1.1		1.0	
Cadmium, total	ug/g	0.11		0.12		0.13		0.11		0.13	
Chromium, total	ug/g	0.26		0.47		0.35		0.46		0.26	
Copper, total	ug/g	1.7		2.1		1.9		1.7		1.9	
Lead, total	ug/g	0.3	U	0.39		0.2	U	0.2	U	0.2	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.35		0.32		0.35		0.30		0.39	
Zinc, total	ug/g	7.5		16		8.7		9.3		13	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Inorganic Analytes in Tissue

Study: 14737

Site: New Bedford O&M Tissues
Species: Nereis virens

Lab Number:		14737-056		14737-057		14737-058		14737-059		14737-060	
Sample Designation:		008 A NV		008 B NV		008 C NV		008 D NV		008 E NV	
Date Sampled:		09/22/05		09/22/05		09/22/05		09/22/05		09/22/05	
Matrix:		Solid		Solid		Solid		Solid		Solid	
Analyte	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Total water content											
Arsenic, total	ug/g	1.7		1.4		1.7		1.5		1.7	
Cadmium, total	ug/g	0.12		0.11		0.11		0.12		0.091	
Chromium, total	ug/g	0.21		0.23		0.21		0.21		0.31	
Copper, total	ug/g	1.7		1.7		1.5		1.6		1.6	
Lead, total	ug/g	0.2	U	0.2	U	0.2	U	0.2	U	0.3	U
Mercury, total	ug/g	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel, total	ug/g	0.37		0.37		0.30		0.35		0.27	
Zinc, total	ug/g	9.4		9.3		10		8.6		19	

Analyte	Method
Arsenic, total	200.7 EPA 600/R-94/111
Cadmium, total	200.7 EPA 600/R-94/111
Chromium, total	200.7 EPA 600/R-94/111
Copper, total	200.7 EPA 600/R-94/111
Lead, total	200.7 EPA 600/R-94/111
Mercury, total	EPA 245.7
Nickel, total	200.7 EPA 600/R-94/111
Zinc, total	200.7 EPA 600/R-94/111

Quality Control Summary

Parameter: Arsenic, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	26	25	104	26	25	104	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	27	25	3.0		96		Pass
14737-001SD	70-130	27	25	3.0		96		Pass

Quality Control Summary

Parameter: Arsenic, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	27	25	108	27	25	108	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	27	24	2.4		103		Pass
14737-021SD	70-130	26	24	2.4		98		Pass

Quality Control Summary

Parameter: Arsenic, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	28	25	112	27	25	108	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	26	25	1.9		96		Pass
14737-041SD	70-130	25	25	1.9		92		Pass

Quality Control Summary

Parameter: Cadmium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	13	13	100	13	13	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	12	12	0.10		99		Pass
14737-001SD	70-130	11	12	0.10		91		Pass

Quality Control Summary

Parameter: Cadmium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	14	13	108	14	13	108	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	12	12	0.10		99		Pass
14737-021SD	70-130	12	12	0.10		99		Pass

Quality Control Summary

Parameter: Cadmium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.05	0.05	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	14	13	108	14	13	108	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	12	12	0.074		99		Pass
14737-041SD	70-130	12	12	0.074		99		Pass

Quality Control Summary

Parameter: Chromium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	5.3	5.0	105	5.2	5.0	105	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	6.5	5.0	1.9		93		Pass
14737-001SD	70-130	6.3	5.0	1.9		88		Pass

Quality Control Summary

Parameter: Chromium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	5.3	5.0	107	5.3	5.0	106	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	5.6	4.8	0.94		95		Pass
14737-021SD	70-130	5.5	4.8	0.94		95		Pass

Quality Control Summary

Parameter: Chromium, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	5.4	5.0	107	5.3	5.0	106	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	5.0	4.9	0.40		93		Pass
14737-041SD	70-130	5.0	4.9	0.40		93		Pass

Quality Control Summary

Parameter: Copper, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	6.4	6.3	102	6.2	6.3	99	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	7.7	6.2	1.3		103		Pass
14737-001SD	70-130	7.6	6.2	1.3		101		Pass

Quality Control Summary

Parameter: Copper, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.1	0.19	B		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	6.2	6.3	99	6.3	6.3	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	7.4	6.0	1.4		99		Pass
14737-021SD	70-130	7.6	6.0	1.4		104		Pass

Quality Control Summary

Parameter: Copper, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.1	0.1	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	6.1	6.3	98	6.1	6.3	98	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	7.6	6.1	1.2		103		Pass
14737-041SD	70-130	7.6	6.2	1.2		104		Pass

Quality Control Summary

Parameter: Lead, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB873W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS873W	75-125	28	25	112	28	25	112	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-001S	70-130	24	24	0.39		98		Pass
14737-001SD	70-130	24	24	0.39		98		Pass

Quality Control Summary

Parameter: Lead, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	28	25	112	28	25	112	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	25	24	0.41		102		Pass
14737-021SD	70-130	25	24	0.41		102		Pass

Quality Control Summary

Parameter: Lead, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.25	0.25	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	28	25	112	28	25	112	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	25	25	ND		100		Pass
14737-041SD	70-130	25	25	ND		100		Pass

Quality Control Summary

Parameter: Nickel, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.13	0.13	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	13	13	100	13	13	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	12	12	0.75		94		Pass
14737-001SD	70-130	12	12	0.75		94		Pass

Quality Control Summary

Parameter: Nickel, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.13	0.13	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	13	13	100	13	13	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	12	12	0.62		95		Pass
14737-021SD	70-130	12	12	0.62		95		Pass

Quality Control Summary

Parameter: Nickel, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.13	0.13	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	14	13	108	13	13	100	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	12	12	0.32		97		Pass
14737-041SD	70-130	12	12	0.32		97		Pass

Quality Control Summary

Parameter: Zinc, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 873W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug\g	Q		M
PB873W	0.1	0.16	B		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug\g	True Value ug\g	%R	Lab Control Dup Sample Result ug\g	True Value ug\g	%R	
LCS873W	75-125	14	13	108	14	13	108	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug\g	Q	Sample Result ug\g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug\g	Spike Added ug\g	Sample Result ug\g	Q	%R	Q	
14737-001S	70-130	24	12	12		100		Pass
14737-001SD	70-130	24	12	12		100		Pass

Quality Control Summary

Parameter: Zinc, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 874W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB874W	0.1	0.22	B		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS874W	75-125	15	13	115	15	13	115	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	24	12	12		100		Pass
14737-021SD	70-130	23	12	12		92		Pass

Quality Control Summary

Parameter: Zinc, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 875W

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB875W	0.1	0.29	B		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS875W	75-125	15	13	115	15	13	115	Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	21	12	8.0		108		Pass
14737-041SD	70-130	21	12	8.0		108		Pass

Quality Control Summary

Parameter: Mercury, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 562G

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-001	LAB A MN	14737-011	RISDS A MN
14737-002	LAB B MN	14737-012	RISDS B MN
14737-003	LAB C MN	14737-013	RISDS C MN
14737-004	LAB D MN	14737-014	RISDS D MN
14737-005	LAB E MN	14737-015	RISDS E MN
14737-006	BBDS A MN	14737-016	001 A MN
14737-007	BBDS B MN	14737-017	001 B MN
14737-008	BBDS C MN	14737-018	001 C MN
14737-009	BBDS D MN	14737-019	001 D MN
14737-010	BBDS E MN	14737-020	001 E MN

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB562G	0.003	0.003	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS562G	75-125	0.019	0.017	112				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-001S	70-130	0.023	0.015	0.000		119		Pass
14737-001SD	70-130	0.024	0.015	0.000		125		Pass

Quality Control Summary

Parameter: Mercury, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 563G

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-021	003 A MN	14737-031	LAB A NV
14737-022	003 B MN	14737-032	LAB B NV
14737-023	003 C MN	14737-033	LAB C NV
14737-024	003 D MN	14737-034	LAB D NV
14737-025	003 E MN	14737-035	LAB E NV
14737-026	008 A MN	14737-036	BBDS A NV
14737-027	008 B MN	14737-037	BBDS B NV
14737-028	008 C MN	14737-038	BBDS C NV
14737-029	008 D MN	14737-039	BBDS D NV
14737-030	008 E MN	14737-040	BBDS E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB563G	0.003	0.003	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS563G	75-125	0.019	0.017	112				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-021S	70-130	0.022	0.016	0.000		113		Pass
14737-021SD	70-130	0.019	0.014	0.000		108		Pass

Quality Control Summary

Parameter: Mercury, total
Project: New Bedford O&M Tissues
Matrix: Solid
QC Batch No: 564G

Pertains to samples:

Lab ID	Sample ID	Lab ID	Sample ID
14737-041	RISDS A NV	14737-051	003 A NV
14737-042	RISDS B NV	14737-052	003 B NV
14737-043	RISDS C NV	14737-053	003 C NV
14737-044	RISDS D NV	14737-054	003 D NV
14737-045	RISDS E NV	14737-055	003 E NV
14737-046	001 A NV	14737-056	008 A NV
14737-047	001 B NV	14737-057	008 B NV
14737-048	001 C NV	14737-058	008 C NV
14737-049	001 D NV	14737-059	008 D NV
14737-050	001 E NV	14737-060	008 E NV

METHOD BLANK

ID	Control Limit +/-	Preparation Blank Result ug/g	Q		M
PB564G	0.003	0.003	U		Pass

LABORATORY CONTROL SAMPLE RECOVERY

ID	Control Limit %	Lab Control Sample Result ug/g	True Value ug/g	%R	Lab Control Dup Sample Result ug/g	True Value ug/g	%R	
LCS564G	75-125	0.019	0.017	112				Pass

DUPLICATE ANALYSIS

ID	Control Limit %	Duplicate Result ug/g	Q	Sample Result ug/g	Q	RPD	Q	
	25							Pass

SPIKE SAMPLE ANALYSIS

ID	Control Limit %	Spiked Sample Result ug/g	Spike Added ug/g	Sample Result ug/g	Q	%R	Q	
14737-041S	70-130	0.020	0.016	0.000		114		Pass
14737-041SD	70-130	0.020	0.016	0.000		114		Pass

Report No: 14737 SDG: New Bedford O&M Tissues
Project: New Bedford O&M Tissues

Sample ID: SRM2976
Matrix: Solid
Batch: 873W & 562G

Parameter	Result (ug/g)	Quant Limit (ug/g)	Reference Value (ug/g)	Limit (ug/g)	Date Prepared	Date of Analysis	Method/Reference
Arsenic, total	11.6	0.4	13.3	9.7 - 16.9	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Cadmium, total	0.86	0.05	0.82	0.5 - 1.14	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Chromium, total	0.75	0.1	0.50	0.18 - 0.82	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Copper, total	4.48	0.1	4.02	3.36 - 4.68	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Lead, total	0.95	0.25	1.19	0.83 - 1.55	07/18/06	07/28/06	200.7 EPA 600/R-94/111
Nickel, total	0.77	0.125	0.93	0.69 - 1.17	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Zinc, total	113	0.1	137	111 - 163	07/18/06	07/20/06	200.7 EPA 600/R-94/111
Mercury, total	0.058	0.003	0.061	0.0427 - 0.0793	07/26/06	07/27/06	EPA 245.7

Notes:

EnviroSystems, Inc. P.O. Box 778 Hampton, NH 03842-0778 603-926-3345 fax 603-926-3521 www.envirosystems.com

Report No: 14737 SDG: New Bedford O&M Tissues
Project: New Bedford O&M Tissues

Sample ID: SRM2976
Matrix: Solid
Batch: 874W & 563G

Parameter	Result (ug/g)	Quant Limit (ug/g)	Reference Value (ug/g)	Limit (ug/g)	Date Prepared	Date of Analysis	Method/Reference
Arsenic, total	11.6	0.4	13.3	9.7 - 16.9	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Cadmium, total	0.93	0.05	0.82	0.5 - 1.14	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Chromium, total	0.71	0.1	0.50	0.18 - 0.82	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Copper, total	4.35	0.1	4.02	3.36 - 4.68	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Lead, total	1.01	0.25	1.19	0.83 - 1.55	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Nickel, total	0.87	0.125	0.93	0.69 - 1.17	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Zinc, total	120	0.1	137	111 - 163	07/19/06	07/30/06	200.7 EPA 600/R-94/111
Mercury, total	0.043	0.003	0.061	0.0427 - 0.0793	07/27/06	07/28/06	EPA 245.7

Notes:

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Report No: 14737 SDG: New Bedford O&M Tissues
Project: New Bedford O&M Tissues

Sample ID: SRM2976
Matrix: Solid
Batch: 875W & 564G

Parameter	Result (ug/g)	Quant Limit (ug/g)	Reference Value (ug/g)	Limit (ug/g)	Date Prepared	Date of Analysis	Method/Reference
Arsenic, total	11.5	0.4	13.3	9.7 - 16.9	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Cadmium, total	0.89	0.05	0.82	0.5 - 1.14	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Chromium, total	0.68	0.1	0.50	0.18 - 0.82	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Copper, total	4.48	0.1	4.02	3.36 - 4.68	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Lead, total	1.1	0.25	1.19	0.83 - 1.55	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Nickel, total	0.71	0.125	0.93	0.69 - 1.17	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Zinc, total	117	0.1	137	111 - 163	07/20/06	07/31/06	200.7 EPA 600/R-94/111
Mercury, total	0.045	0.003	0.061	0.0427 - 0.0793	07/28/06	07/31/06	EPA 245.7

Notes:

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Table 11-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue and Water Matrices

Method Reference Numbers: EPA 200.7 & 245.7

Table 11-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue and Water Matrices

Method Reference Numbers: EPA 200.7 & 245.7

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or In Data Package)
Linear Range Determination for ICP	Performed Quarterly	Yes		Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient 0.995)	Yes		Retained at Lab
Calculation of Method Detection Limits	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		In Data Package
Initial Calibration Verificationl Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	Yes		Retained at Lab
Initial Calibration Blank\ Continuing Calibration Blank	No target analytes > three time Instrument Detection Limit (IDL) Target analytes over RL less than one fifth associated sample value	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	Target analytes over RL less than five times associated sample value.	Yes	Cu 0.185 No samples qualified. Zn 0.155,0.22,0.288 No samples qualified.	In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (70 to 130%; RPD < 30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, NH 03843-0778
Telephone: 603-926-3345

SAMPLE RECEIPT RECORD

ESI STUDY NUMBER: 14737 **CLIENT:** Battelle

SAMPLE RECEIPT:
DATE: 7/12/06 TIME: 1015 BY: KS

DELIVERED VIA: ☒ FEDEX ☐ CLIENT ☐ ESI ☐ UPS ☐ OTHER

LOGGED INTO LAB:
DATE: 7/12 TIME: 1020 BY: LM

SAMPLE CONDITION:

CHAIN OF CUSTODY:	☒ YES	☐ NO
CHAIN OF CUSTODY SIGNED:	☒ YES	☐ NO
CHAIN OF CUSTODY COMPLETE:	☒ YES	☐ NO
SAMPLE DATE:	☒ YES	☐ NO
SAMPLE TIME RECORDED:	☒ YES	☐ NO
SAMPLE TYPE IDENTIFIED:	☒ YES	☐ NO
CUSTODY SEAL IN PLACE:	☒ YES	☐ NO
SHIPPING CONTAINER INTACT:	☒ YES	☐ NO
SAMPLE TEMPERATURE (AT ARRIVAL): Frozen °C		
DOES CLIENT NEED NOTIFICATION OF TEMPERATURE?	☐ YES	☒ NO
SAMPLE ARRIVED ON ICE:	☒ YES	☐ NO

COMMENTS: 60 200ml glass

14737

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Chain of Custody

Shipment No: SHP-060711-01

Proj. No:	Proj. Name: New Bedford O&M Tissues
SAMPLERS: Singature	ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

	DATE/TIME	BATTELLE ID	CLIENT ID	FIELD LOC	MATRIX	OIL CODE											Total No of Containers
001	10/13/05 0:00	S9759	Lab A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9760	Lab B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9761	Lab C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9762	Lab D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
005	10/13/05 0:00	S9763	Lab E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9764	BBDS A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9765	BBDS B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9766	BBDS C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9767	BBDS D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
010	10/13/05 0:00	S9768	BBDS E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9769	RISDS A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9770	RISDS B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9771	RISDS C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9772	RISDS D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
015	10/13/05 0:00	S9773	RISDS E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9774	001 A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9775	001 B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9776	001 C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9777	001 D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
020	10/13/05 0:00	S9778	001 E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1

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Heather Carlson HC	7/11/2006	8:05 AM	[signature]	07/12/06	1015
Relinquished by:	Date/Time:		Received by:	Date/Time:	

Comments:

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Chain of Custody

Shipment No: SHP-060711-01

Proj. No:	Proj. Name: New Bedford O&M Tissues
SAMPLERS: Singature	ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

	DATE/TIME	BATTELLE ID	CLIENT ID	FIELD LOC	MATRIX	OIL CODE											Total No of Containers
021	10/13/05 0:00	S9779	003 A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9780	003 B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9781	003 C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9782	003 D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
25	10/13/05 0:00	S9783	003 E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9784	008 A M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9785	008 B M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9786	008 C M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	10/13/05 0:00	S9787	008 D M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
-030	10/13/05 0:00	S9788	008 E M.n. Tissue		CLAMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9789	Lab A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9790	Lab B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9791	Lab C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9792	Lab D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
-035	09/22/05 0:00	S9793	Lab E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9794	BBDS A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9795	BBDS B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9796	BBDS C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9797	BBDS D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
-040	09/22/05 0:00	S9798	BBDS E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1

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Comments:

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Chain of Custody

Shipment No: SHP-060711-01

Proj. No:	Proj. Name: New Bedford O&M Tissues
SAMPLERS: Singature	ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

	DATE/TIME	BATTELLE ID	CLIENT ID	FIELD LOC	MATRIX	OIL CODE											Total No of Containers
1	09/22/05 0:00	S9799	RISDS A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9800	RISDS B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9801	RISDS C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9802	RISDS D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
045	09/22/05 0:00	S9803	RISDS E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9804	001 A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9805	001 B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9806	001 C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9807	001 D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
50	09/22/05 0:00	S9808	001 E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9809	003 A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9810	003 B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9811	003 C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9812	003 D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
055	09/22/05 0:00	S9813	003 E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9814	008 A N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9815	008 B N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9816	008 C N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
	09/22/05 0:00	S9817	008 D N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1
060	09/22/05 0:00	S9818	008 E N.v. Tissue		WORMS		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	1

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Relinquished by:	Date/Time:		Received by:	Date/Time:	

Comments:

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Appendix J-4

Tissue Bligh and Dyer Lipid Data

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BATTELLE - DUXBURY OPERATIONS
BLIGH AND DYER LIPID WEIGHT DETERMINATION

Project Title(s)
New Bedford Harbor Dredging Tissue Analysis

Project No.(s)
G606416-DUXTISCHEM

06-0246

Tissue Analysis for PCB/Pest, PAHs, and Lipid Content

CLAMS, WORMS

Sample ID:	Sample Wet Wt (g)	Vial Tare Wt. (g)	Vial and Residue (g)	Lipid Wt. (g)	% Dry Wt.	Sample Dry Wt. (g)	% Total Lipid (Wet)	% Total Lipid (Dry)
BJ133PB-BD	1.79	26.127100	26.127200	0.000100	10.49	0.187770	0.01	0.05
S9759-BD	1.82	26.273800	26.289670	0.015870	11.87	0.216030	0.87	7.35
S9760-BD	1.78	26.180400	26.195470	0.015070	9.45	0.168210	0.85	8.96
S9761-BD	1.76	26.251100	26.265190	0.014090	9.03	0.158930	0.80	8.87
S9784-BD	1.77	26.255680	26.268620	0.012940	9.22	0.163190	0.73	7.93
S9785-BD	1.78	26.110100	26.122180	0.012080	9.70	0.172660	0.68	7.00
S9786-BD	1.74	26.177800	26.189640	0.011840	8.38	0.145810	0.68	8.12
S9787-BD	1.77	26.169400	26.182620	0.013220	8.87	0.157000	0.75	8.42
S9788-BD	1.77	26.338600	26.350720	0.012120	9.53	0.168680	0.68	7.19
S9789-BD	1.83	26.363500	26.392940	0.029440	11.89	0.217590	1.61	13.53
S9790-BD	1.82	26.266800	26.289980	0.023180	11.64	0.211850	1.27	10.94
S9791-BD	1.81	26.329100	26.353620	0.024520	11.52	0.208510	1.35	11.76
S9814-BD	1.80	26.228200	26.254120	0.025920	11.64	0.209520	1.44	12.37
S9815-BD	1.79	26.274500	26.297560	0.023060	10.59	0.189560	1.29	12.16
S9815DUP-BD	1.78	26.196900	26.218670	0.021770	10.59	0.188500	1.22	11.55
S9816-BD	1.82	26.254800	26.285240	0.030440	11.89	0.216400	1.67	14.07
S9817-BD	1.80	25.423600	25.449920	0.026320	10.97	0.197460	1.46	13.33
S9818-BD	1.82	26.323500	26.350870	0.027370	11.68	0.212580	1.50	12.88

Lipid Weight (g) = Vial and Residue (g) - Vial Tare Weight (
Sample Dry Weight (%) = [(Sample Wet Weight (g) * (% Dry Weight/100
% total Lipid (Wet) = [Lipid Weight (g)/Sample Wet Weight (g)]*1
% total Lipid (Dry) = [Lipid Weight (g)/Sample Dry Weight (g)]*1

Validated:

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BATTELLE - DUXBURY OPERATIONS
BLIGH AND DYER LIPID WEIGHT DETERMINATION

Project Title(s)
New Bedford Harbor Dredging Tissue Analysis

Project No.(s)
G606416-DUXTISCHEM

06-0245

Tissue Analysis for PCB/Pest, PAHs, and Lipid Content

WORMS

Sample ID:	Sample Wet Wt (g)	Vial Tare Wt. (g)	Vial and Residue (g)	Lipid Wt. (g)	% Dry Wt.	Sample Dry Wt. (g)	% Total Lipid (Wet)	% Total Lipid (Dry)
BJ128PB-BD	1.82	26.295900	26.297030	0.001130	12.25	0.222950	0.06	0.51
S9794-BD	1.80	26.209530	26.230490	0.020960	11.80	0.212400	1.16	9.87
S9795-BD	1.80	26.354000	26.374730	0.020730	11.36	0.204480	1.15	10.14
S9796-BD	1.82	26.261140	26.284030	0.022890	12.11	0.220400	1.26	10.39
S9797-BD	1.84	26.175460	26.198300	0.022840	12.74	0.234420	1.24	9.74
S9798-BD	1.84	26.166380	26.192390	0.026010	12.95	0.238280	1.41	10.92
S9799-BD	1.83	26.313500	26.337590	0.024090	13.19	0.241380	1.32	9.98
S9800-BD	1.83	26.058210	26.083780	0.025570	13.06	0.239000	1.40	10.70
S9801-BD	1.82	26.278040	26.301430	0.023390	12.36	0.224950	1.29	10.40
S9802-BD	1.81	26.232840	26.258050	0.025210	12.23	0.221360	1.39	11.39
S9803-BD	1.82	26.155670	26.180750	0.025080	12.10	0.220220	1.38	11.39
S9804-BD	1.84	26.234530	26.252090	0.017560	12.45	0.229080	0.95	7.67
S9805-BD	1.82	26.205460	26.229510	0.024050	12.21	0.222220	1.32	10.82
S9805DUP-BD	1.83	26.153070	26.177440	0.024370	12.21	0.223440	1.33	10.91
S9806-BD	1.83	26.299020	26.321760	0.022740	12.85	0.235160	1.24	9.67
S9807-BD	1.80	26.161670	26.181190	0.019520	11.38	0.204840	1.08	9.53
S9808-BD	1.82	26.142320	26.168160	0.025840	12.20	0.222040	1.42	11.64
S9809-BD	1.81	26.213200	26.232900	0.019700	12.26	0.221910	1.09	8.88
S9810-BD	1.81	26.046950	26.067090	0.020140	12.08	0.218650	1.11	9.21
S9811-BD	1.84	26.268730	26.291400	0.022670	12.88	0.236990	1.23	9.57
S9812-BD	1.80	26.346230	26.366290	0.020060	11.17	0.201060	1.11	9.98
S9813-BD	1.82	26.285140	26.306720	0.021580	11.64	0.211850	1.19	10.19

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BATTELLE - DUXBURY OPERATIONS
BLIGH AND DYER LIPID WEIGHT DETERMINATION

Project Title(s)
New Bedford Harbor Dredging Tissue Analysis

Project No.(s)
G606416-DUXTISCHEM

06-0244

Tissue Analysis for PCB/Pest, PAHs, and Lipid Content

CLAMS

Sample ID:	Sample Wet Wt (g)	Vial Tare Wt. (g)	Vial and Residue (g)	Lipid Wt. (g)	% Dry Wt.	Sample Dry Wt. (g)	% Total Lipid (Wet)	% Total Lipid (Dry)
BJ127PB-BD	1.79	26.313500	26.319010	0.005510	10.82	0.193680	0.31	2.84
S9764-BD	1.78	26.302090	26.316270	0.014180	10.41	0.185300	0.80	7.65
S9764DUP-BD	1.78	26.305760	26.321870	0.016110	10.41	0.185300	0.91	8.69
S9765-BD	1.80	26.270640	26.283600	0.012960	11.24	0.202320	0.72	6.41
S9766-BD	1.82	26.199410	26.214770	0.015360	11.89	0.216400	0.84	7.10
S9767-BD	1.78	26.191650	26.206020	0.014370	10.73	0.190990	0.81	7.52
S9768-BD	1.81	26.298680	26.317420	0.018740	11.26	0.203810	1.04	9.20
S9769-BD	1.77	26.231170	26.247010	0.015840	9.73	0.172220	0.89	9.20
S9770-BD	1.79	26.344730	26.359680	0.014950	10.28	0.184010	0.84	8.12
S9771-BD	1.81	26.302860	26.318210	0.015350	11.60	0.209960	0.85	7.31
S9772-BD	1.80	26.170780	26.186850	0.016070	11.25	0.202500	0.89	7.94
S9773-BD	1.82	26.346360	26.361830	0.015470	11.40	0.207480	0.85	7.46
S9774-BD	1.79	26.169230	26.181370	0.012140	9.97	0.178460	0.68	6.80
S9775-BD	1.79	26.363860	26.377850	0.013990	11.35	0.203170	0.78	6.89
S9776-BD	1.78	26.329740	26.344950	0.015210	10.43	0.185650	0.85	8.19
S9777-BD	1.77	26.285640	26.298450	0.012810	10.15	0.179660	0.72	7.13
S9778-BD	1.80	26.180210	26.192040	0.011830	10.75	0.193500	0.66	6.11
S9779-BD	1.78	26.178910	26.193150	0.014240	10.21	0.181740	0.80	7.84
S9780-BD	1.81	26.073990	26.090930	0.016940	11.51	0.208330	0.94	8.13
S9781-BD	1.80	26.237900	26.254980	0.017080	11.01	0.198180	0.95	8.62
S9782-BD	1.76	25.993290	26.007660	0.014370	9.84	0.173180	0.82	8.30
S9783-BD	1.81	26.360990	26.375790	0.014800	11.45	0.207250	0.82	7.14

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Appendix K

Bioaccumulation Statistics

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Appendix K - 1

BBDS Bioaccumulation Statistics
(BBDS Reference)

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Table 1. Mean Wet Weight Concentrations of Bioaccumulation Tissues for Project Harbor (*Macoma nasuta* and *Nereis virens*)

Project Name:

Project Number:

CONTAMINANT	BBDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Metals (ug/g wet weight)								
Arsenic	2.64		2.54	NS	2.54	NS	2.42	NS
Cadmium	0.06		0.07	NS	0.09	S	0.09	S
Chromium	0.98		1.12	NS	1.08	NS	1.24	S
Copper	1.13		1.34	S	1.86	S	2.00	S
Lead	0.28	a	0.41	S	0.49	S	0.46	S
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.65		0.56	NS	0.66	NS	0.62	NS
Zinc	10.60		11.80	S	12.20	S	11.00	NS
PAHs (ng/g wet weight)								
Acenaphthene	0.21	b	0.23	NS	0.28	NS	0.30	S
Acenaphthylene	0.12	b	0.53	S	0.70	S	0.56	S
Anthracene	0.29		0.93	S	1.21	S	1.17	S
Benzo(a)anthracene	0.46		3.15	S	3.16	S	3.73	S
Benzo(a)pyrene	0.52		3.64	S	4.13	S	3.96	S
Benzo(b)fluoranthene	0.75		2.98	S	3.32	S	3.62	S
Benzo(k)fluoranthene	0.73		3.54	S	3.91	S	4.28	S
Benzo(g,h,i)perylene	0.40		1.91	S	1.48	NS	2.55	S
Chrysene	0.93		4.38	S	4.46	S	5.56	S
Dibenzo(a,h)anthracene	0.08	b	0.47	S	0.60	S	0.51	S
Fluoranthene	3.73		6.91	S	6.68	S	10.12	S
Fluorene	0.67		0.59	NS	0.66	NS	0.70	NS
Indeno(1,2,3-c,d)pyrene	0.34		1.85	S	2.29	S	2.02	S
Naphthalene	0.41		0.59	S	0.84	S	0.73	S
Phenanthrene	5.73		5.03	NS	5.26	NS	6.13	NS
Pyrene	2.62		12.03	S	10.54	S	12.73	S
PAH Total	17.98		48.76	S	49.53	S	58.67	S
Macoma nasuta								
PCB Congeners (ng/g wet wt.)								
8	0.89	a	5.71	S	4.49	S	29.47	S
18	0.06	a	9.59	S	12.67	S	36.14	S
28	0.21		24.67	S	22.18	S	55.73	S
44	0.11		9.93	S	12.42	S	21.41	S
52	0.22		49.39	S	56.65	S	96.83	S
66	0.98		18.79	S	14.52	S	21.02	S
101	0.41		55.47	S	43.74	S	47.55	S
105	0.11		15.41	S	10.48	S	11.61	S
118	0.64		36.62	S	26.52	S	32.10	S
128	0.21		9.52	S	8.51	S	7.20	S
138	0.84		40.71	S	36.99	S	37.31	S
153	0.95		39.22	S	37.39	S	38.77	S
170	0.11		2.58	S	2.47	S	3.10	S
180	0.11		3.37	S	3.25	S	3.50	S
187	0.11		2.32	S	2.49	S	2.86	S
195	0.03	a	0.30	c	0.29	c	0.37	c
206	0.02	a	0.08	c	0.09	c	0.16	c
209	0.03	a	0.03	a	0.03	a	0.06	c
Total PCBs	12.09	S	647.41	S	590.36	S	890.37	S

Macoma nasuta

Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.04	a	0.04	a	0.04	a	0.08	S
trans-Chlordane	0.04	a	0.04	a	0.04	a	0.09	c
cis-Nonachlor	0.05	a	0.05	a	0.05	a	1.98	c
trans-Nonachlor	0.04	a	0.04	a	0.04	a	0.04	c
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.22	a	0.22	a	0.22	a	2.24	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDE	0.20		1.67	S	1.49	S	1.87	S
Total DDT	0.30		1.77	S	1.59	S	1.97	S
Dieldrin	0.07	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans (Total)	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.05	a	0.05	a	0.05	a	0.05	a
Toxaphene	3.47	a	3.43	a	3.51	a	2.78	a

Macoma nasuta

Dioxins (pg/g wet weight)				
2378 TCDD	NA	NA	NA	NA
12378 PeDD	NA	NA	NA	NA
123478 HxDD	NA	NA	NA	NA
123678 HxDD	NA	NA	NA	NA
123789 HxDD	NA	NA	NA	NA
1234678 HpDD	NA	NA	NA	NA
OCDD	NA	NA	NA	NA
2378 TCDF	NA	NA	NA	NA
12378 PeDF	NA	NA	NA	NA
23478 PeDF	NA	NA	NA	NA
123478 HxDF	NA	NA	NA	NA
123678 HxDF	NA	NA	NA	NA
123789 HxDF	NA	NA	NA	NA
234678 HxDF	NA	NA	NA	NA
1234678 HpDF	NA	NA	NA	NA
1234789 HpDF	NA	NA	NA	NA
OCDF	NA	NA	NA	NA
PCB - 77	NA	NA	NA	NA
PCB - 81	NA	NA	NA	NA
PCB - 105	NA	NA	NA	NA
PCB - 114	NA	NA	NA	NA
PCB - 118	NA	NA	NA	NA
PCB - 123	NA	NA	NA	NA
PCB - 126	NA	NA	NA	NA
PCB - 156	NA	NA	NA	NA
PCB - 157	NA	NA	NA	NA
PCB - 167	NA	NA	NA	NA
PCB - 169	NA	NA	NA	NA
PCB - 189	NA	NA	NA	NA

* = Qualifiers

NA Not Analyzed
S Treatment mean is statistically greater than Reference mean (state statistical test used)
NS Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below Method Detection Limit) in at least one replicate; mean value was calculated using Method Detection Limit
b Analyte estimated (detected below Reporting Limit but above Method Detection Limit) in at least one replicate; mean value calculated using estimated value
c Analyte was detected in the Treatment sample at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates

Nereis virens

Metals (ug/g wet weight)								
Arsenic	1.46		1.40	NS	1.16	NS	1.60	NS
Cadmium	0.12		0.12	NS	0.12	NS	0.11	NS
Chromium	0.36		0.37	NS	0.36	NS	0.23	NS
Copper	1.36		1.76	S	1.86	S	1.62	S
Lead	0.21	a	0.20	a	0.26	a NS	0.22	a
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.48		0.35	NS	0.34	NS	0.33	NS
Zinc	12.80		9.42	NS	10.90	NS	11.26	NS
PAHs (ng/g wet weight)								
Acenaphthene	0.77	a	1.16	S	0.93	NS	1.15	S
Acenaphthylene	0.06	a b	0.20	b S	0.19	b S	0.17	b S
Anthracene	0.06	a b	0.32	S	0.38	b S	0.30	S
Benzo(a)anthracene	0.03	a b	0.26	b S	0.46	b S	0.12	b S
Benzo(a)pyrene	0.06	a	0.32	a c	0.55	a b c	0.09	c
Benzo(b)fluoranthene	0.05	a b	0.30	b S	0.40	b S	0.17	b S
Benzo(k)fluoranthene	0.05	a b	0.40	b S	0.55	b S	0.24	b S
Benzo(g,h,i)perylene	0.10	a	0.28	a c	0.40	a b c	0.12	a b c
Chrysene	0.08	a b	0.71	S	0.75	S	0.59	S
Dibenzo(a,h)anthracene	0.02	a	0.06	a b c	0.09	a b c	0.04	c
Fluoranthene	0.72		1.75	S	1.94	S	1.69	S
Fluorene	0.31	a	0.62	S	0.48	NS	0.54	S
Indeno(1,2,3-c,d)pyrene	0.08	a	0.22	a c	0.32	a b c	0.09	a b c
Naphthalene	1.15		1.19	NS	1.06	NS	0.94	NS
Phenanthrene	1.84		2.86	S	2.75	S	2.29	NS
Pyrene	0.42		2.04	S	2.11	S	1.56	S
PAH Total	5.82		12.68	S	13.33	S	10.10	S
Nereis virens								
PCB Congeners (ng/g wet wt.)								
8	0.19	a	1.57	c	1.16	c	1.00	c
18	0.09		14.46	S	11.21	S	34.14	S
28	0.07		9.89	S	6.07	S	24.77	S
44	0.09		6.75	S	5.39	S	13.64	S
52	0.23		38.49	S	33.48	S	82.57	S
66	0.05		4.71	S	3.10	S	7.93	S
101	0.30		34.10	S	21.41	S	34.40	S
105	0.07		11.39	S	7.91	S	11.23	S
118	0.16		14.15	S	8.72	S	15.52	S
128	0.13		8.28	S	6.89	S	8.24	S
138	0.61		37.30	S	28.10	S	39.22	S
153	0.74		35.74	S	28.18	S	36.18	S
170	0.27		4.17	S	3.72	S	4.02	S
180	0.12		5.58	S	5.05	S	4.93	S
187	0.11		3.43	S	2.89	S	3.66	S
195	0.03	a	0.33	c	0.29	c	0.38	c
206	0.02	b	0.23	S	0.22	S	0.32	S
209	0.03	a	0.06	c	0.06	c	0.08	c
Total PCBs	6.61		461.25	S	347.60	S	644.44	S

Nereis virens

Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.05	a	0.13	S	0.10	S	0.11	S
trans-Chlordane	0.04	a	0.11	S	0.09	S	0.10	S
cis-Nonachlor	0.05	a	1.53	S	1.25	S	1.70	S
trans-Nonachlor	0.25		0.31	S	0.30	S	0.27	NS
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.44		2.14	S	1.79	S	2.23	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	1.78	c	0.90	c	0.05	a
4,4'-DDE	0.06	a	0.48	c	0.33	c	0.69	c
Total DDT	0.16		2.31	S	1.27	S	0.79	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans (Total)	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.23	a	0.05	a	0.05	a NS	0.05	a
Toxaphene	3.09	a	2.81	a	3.81	a	3.34	a

Nereis virens

Dioxins (pg/g wet weight)				
2378 TCDD	NA	NA	NA	NA
12378 PeDD	NA	NA	NA	NA
123478 HxDD	NA	NA	NA	NA
123678 HxDD	NA	NA	NA	NA
123789 HxDD	NA	NA	NA	NA
1234678 HpDD	NA	NA	NA	NA
OCDD	NA	NA	NA	NA
2378 TCDF	NA	NA	NA	NA
12378 PeDF	NA	NA	NA	NA
23478 PeDF	NA	NA	NA	NA
123478 HxDF	NA	NA	NA	NA
123678 HxDF	NA	NA	NA	NA
123789 HxDF	NA	NA	NA	NA
234678 HxDF	NA	NA	NA	NA
1234678 HpDF	NA	NA	NA	NA
1234789 HpDF	NA	NA	NA	NA
OCDF	NA	NA	NA	NA
PCB - 77	NA	NA	NA	NA
PCB - 81	NA	NA	NA	NA
PCB - 105	NA	NA	NA	NA
PCB - 114	NA	NA	NA	NA
PCB - 118	NA	NA	NA	NA
PCB - 123	NA	NA	NA	NA
PCB - 126	NA	NA	NA	NA
PCB - 156	NA	NA	NA	NA
PCB - 157	NA	NA	NA	NA
PCB - 167	NA	NA	NA	NA
PCB - 169	NA	NA	NA	NA
PCB - 189	NA	NA	NA	NA

*** = Qualifiers**

NA Not Analyzed
S Treatment mean is statistically greater than Reference mean (state statistical test used)
NS Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below Method Detection Limit) in at least one replicate; mean value was calculated using Method Detection Limit
b Analyte estimated (detected below Reporting Limit but above Method Detection Limit) in at least one replicate; mean value calculated using estimated value
c Analyte was detected in the Treatment at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	BBDS									
	BBDS A M.n. Tissue		BBDS B M.n. Tissue		BBDS C M.n. Tissue		BBDS D M.n. Tissue		BBDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	2.2		2.9		2.9		2.5		2.7	
Cadmium	0.058		0.059		0.069		0.069		0.069	
Chromium	0.93		0.9		0.96		0.99		1.1	
Copper	0.99		0.87		1.4		1.2		1.2	
Lead	0.32		0.2	U	0.37		0.26		0.27	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.68		0.63		0.63		0.63		0.69	
Zinc	11.		10.		11.		11.		10.	
PAHs (ng/g wet weight)										
Acenaphthene	0.13	J	0.19		0.21		0.17		0.35	
Acenaphthylene	0.09	J	0.14		0.14		0.1	J	0.12	J
Anthracene	0.25		0.3		0.31		0.25		0.34	
Benzo(a)anthracene	0.49		0.42		0.56		0.33		0.48	
Benzo(a)pyrene	0.51		0.49		0.56		0.45		0.59	
Benzo(b)fluoranthene	0.69		0.81		0.78		0.7		0.77	
Benzo(k)fluoranthene	0.68		0.79		0.74		0.68		0.74	
Benzo(g,h,i)perylene	0.36		0.43		0.43		0.35		0.42	
Chrysene	0.91		0.96		0.99		0.79		1.02	
Dibenzo(a,h)anthracene	0.08	J	0.08	J	0.09	J	0.07	J	0.08	J
Fluoranthene	2.66		3.55		4.79		3.33		4.34	
Fluorene	0.52		0.71		0.72		0.66		0.72	
Indeno(1,2,3-c,d)pyrene	0.32		0.39		0.37		0.29		0.34	
Naphthalene	0.38		0.42		0.4		0.4		0.43	
Phenanthrene	3.95		5.37		6.82		5.61		6.9	
Pyrene	1.84		2.6		3.34		2.32		3.	
PAH Total	13.86		17.65		21.25		16.50		20.64	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	BBDS									
	BBDS A M.n. Tissue		BBDS B M.n. Tissue		BBDS C M.n. Tissue		BBDS D M.n. Tissue		BBDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)										
8	0.52		1.43		1.13		1.16		0.19	U
18	0.08		0.04	U	0.1		0.04		0.04	U
28	0.17		0.22		0.22		0.21		0.23	
44	0.09		0.05		0.17		0.16		0.1	
52	0.18		0.26		0.24		0.2		0.21	
66	0.83		1.1		1.14		1.		0.82	
101	0.31		0.45		0.43		0.53		0.35	
105	0.09		0.14		0.13		0.09		0.11	
118	0.48		0.78		0.63		0.7		0.63	
128	0.11		0.19		0.29		0.25		0.22	
138	0.59		0.99		0.88		0.9		0.82	
153	0.71		1.15		0.95		1.04		0.91	
170	0.08		0.12		0.1		0.11		0.14	
180	0.08		0.1		0.12		0.12		0.11	
187	0.08		0.13		0.13		0.11		0.12	
195	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
206	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Total PCBs	8.96		14.46		13.48		13.40		10.16	

* = Qualifiers

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit
J Analyte estimated; detection below Reporting Limit but above Method Detection Limit
NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	BBDS									
	BBDS A M.n. Tissue		BBDS B M.n. Tissue		BBDS C M.n. Tissue		BBDS D M.n. Tissue		BBDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04		0.05		0.04		0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.23		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.14		0.26		0.24		0.22		0.16	
Total DDT	0.24		0.36		0.34		0.32		0.26	
Dieldrin	0.06	U	0.06	U	0.06	U	0.1		0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.47	U	3.51	U	3.43	U	3.47	U	3.48	U

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	BBDS									
	BBDS A M.n. Tissue		BBDS B M.n. Tissue		BBDS C M.n. Tissue		BBDS D M.n. Tissue		BBDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit
J Analyte estimated; detection below Reporting Limit but above Method Detection Limit
NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	001 A M.n. Tissue REP1	*	001 B M.n. Tissue REP2	*	001 C M.n. Tissue REP3	*	001 D M.n. Tissue REP4	*	001 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.2		2.8		2.7		2.6		2.4	
Cadmium	0.059		0.064		0.075		0.077		0.065	
Chromium	0.93		1.4		1.1		1.2		0.95	
Copper	1.3		1.4		1.4		1.3		1.3	
Lead	0.35		0.42		0.49		0.39		0.38	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.57		0.6		0.6		0.52		0.51	
Zinc	10.		14.		12.		12.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.21		0.26		0.19		0.21		0.28	
Acenaphthylene	0.47		0.49		0.31		0.52		0.85	
Anthracene	0.87		0.94		0.73		0.84		1.28	
Benzo(a)anthracene	2.93		2.97		2.32		2.98		4.53	
Benzo(a)pyrene	3.41		3.43		2.62		3.39		5.36	
Benzo(b)fluoranthene	2.79		2.95		2.37		2.83		3.97	
Benzo(k)fluoranthene	3.16		3.57		2.84		3.34		4.81	
Benzo(g,h,i)perylene	2.04		2.03		1.54		1.77		2.15	
Chrysene	4.05		4.39		3.53		4.15		5.78	
Dibenzo(a,h)anthracene	0.43		0.43		0.34		0.45		0.7	
Fluoranthene	6.43		7.46		5.61		6.41		8.65	
Fluorene	0.51		0.68		0.51		0.6		0.63	
Indeno(1,2,3-c,d)pyrene	1.71		1.77		1.28		1.73		2.77	
Naphthalene	0.52		0.62		0.53		0.61		0.68	
Phenanthrene	4.67		5.98		4.25		4.79		5.45	
Pyrene	11.84		13.75		9.94		10.78		13.86	
PAH Total	46.04		51.72		38.91		45.40		61.75	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	001 001 A M.n. Tissue REP1	*	001 B M.n. Tissue REP2	*	001 C M.n. Tissue REP3	*	001 D M.n. Tissue REP4	*	001 E M.n. Tissue REP5	*
PCB Congeners (ng/g wet wt.)										
8	5.26		5.93		5.36		5.81		6.17	
18	6.75		8.31		7.56		12.69		12.62	
28	22.02		25.81		22.78		24.08		28.64	
44	10.35		8.25		7.17		12.04		11.85	
52	43.14		53.13		44.53		50.41		55.73	
66	16.24		19.71		17.53		18.06		22.42	
101	46.83		62.14		49.3		53.84		65.22	
105	11.83		19.19		14.22		14.54		17.29	
118	31.17		40.66		32.42		36.32		42.52	
128	8.29		10.74		8.08		9.75		10.73	
138	34.07		45.88		35.66		41.49		46.45	
153	33.78		44.12		34.51		38.85		44.85	
170	2.29		2.97		2.18		2.68		2.79	
180	2.89		3.83		2.86		3.58		3.69	
187	2.04		2.6		1.97		2.44		2.57	
195	0.26		0.33		0.26		0.31		0.35	
206	0.06		0.09		0.07		0.08		0.1	
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Total PCBs	554.60		707.44		572.98		654.00		748.04	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	001									
	001 A M.n. Tissue		001 B M.n. Tissue		001 C M.n. Tissue		001 D M.n. Tissue		001 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.22		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.48		1.83		1.38		1.69		1.95	
Total DDT	1.58		1.93		1.48		1.79		2.05	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.38	U	3.45	U	3.47	U	3.38	U	3.49	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	001									
	001 A M.n. Tissue		001 B M.n. Tissue		001 C M.n. Tissue		001 D M.n. Tissue		001 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	003 A M.n. Tissue REP1	*	003 B M.n. Tissue REP2	*	003 C M.n. Tissue REP3	*	003 D M.n. Tissue REP4	*	003 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.4		3.		2.5		2.1		2.7	
Cadmium	0.1		0.095		0.094		0.091		0.089	
Chromium	0.93		1.2		1.3		1.		0.98	
Copper	1.4		2.2		2.2		1.7		1.8	
Lead	0.41		0.45		0.53		0.56		0.49	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.61		0.67		0.76		0.63		0.61	
Zinc	12.		12.		13.		13.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.19		0.32		0.41		0.26		0.24	
Acenaphthylene	0.3		0.57		1.3		0.61		0.74	
Anthracene	0.58		0.9		2.2		1.07		1.31	
Benzo(a)anthracene	1.26		2.69		5.56		2.9		3.4	
Benzo(a)pyrene	1.69		3.76		6.53		4.08		4.61	
Benzo(b)fluoranthene	1.65		3.09		4.79		3.33		3.72	
Benzo(k)fluoranthene	1.84		3.6		5.97		3.84		4.29	
Benzo(g,h,i)perylene	0.21		2.32		1.45		1.17		2.26	
Chrysene	2.2		3.9		6.92		4.34		4.93	
Dibenzo(a,h)anthracene	0.26		0.55		0.89		0.6		0.7	
Fluoranthene	3.34		5.3		11.36		6.64		6.74	
Fluorene	0.47		0.57		0.84		0.73		0.68	
Indeno(1,2,3-c,d)pyrene	0.95		2.09		3.54		2.32		2.57	
Naphthalene	0.51		0.78		1.18		0.85		0.88	
Phenanthrene	3.56		4.39		7.51		5.42		5.41	
Pyrene	5.99		9.38		16.17		10.47		10.71	
PAH Total	25.00		44.21		76.62		48.63		53.19	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	003 003 A M.n. Tissue REP1	*	003 B M.n. Tissue REP2	*	003 C M.n. Tissue REP3	*	003 D M.n. Tissue REP4	*	003 E M.n. Tissue REP5	*
PCB Congeners (ng/g wet wt.)										
8	3.73		4.17		4.52		4.35		5.66	
18	10.33		10.67		14.79		13.8		13.78	
28	19.03		19.99		23.68		22.74		25.45	
44	9.63		10.9		14.72		11.69		15.18	
52	47.32		51.71		61.34		59.31		63.58	
66	12.62		12.95		15.17		14.96		16.91	
101	34.96		40.41		48.04		47.32		47.99	
105	8.22		9.58		11.56		11.2		11.84	
118	21.56		24.23		29.36		28.21		29.24	
128	6.67		7.82		9.61		9.35		9.09	
138	29.17		34.28		41.02		40.1		40.39	
153	29.26		34.58		42.5		40.03		40.56	
170	1.65		2.48		2.65		2.71		2.84	
180	2.21		3.18		3.48		3.53		3.84	
187	1.8		2.4		2.69		2.58		2.96	
195	0.19		0.28		0.32		0.32		0.35	
206	0.05		0.1		0.11		0.1		0.09	
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	
Total PCBs	476.86		539.52		651.18		624.66		659.56	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	003									
	003 A M.n. Tissue		003 B M.n. Tissue		003 C M.n. Tissue		003 D M.n. Tissue		003 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.22		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.21		1.5		1.56		1.44		1.74	
Total DDT	1.31		1.60		1.66		1.54		1.84	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.53	U	3.55	U	3.5	U	3.49	U	3.48	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	003									
	003 A M.n. Tissue		003 B M.n. Tissue		003 C M.n. Tissue		003 D M.n. Tissue		003 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	008 008 A M.n. Tissue REP1	*	008 B M.n. Tissue REP2	*	008 C M.n. Tissue REP3	*	008 D M.n. Tissue REP4	*	008 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.3		2.5		2.4		2.3		2.6	
Cadmium	0.073		0.088		0.091		0.094		0.087	
Chromium	1.2		1.2		1.2		1.4		1.2	
Copper	3.2		1.5		1.7		1.8		1.8	
Lead	0.44		0.32		0.49		0.57		0.46	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.59		0.61		0.61		0.67		0.61	
Zinc	11.		11.		11.		11.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.2		0.38		0.26		0.35		0.32	
Acenaphthylene	0.34		0.79		0.45		0.56		0.64	
Anthracene	0.8		1.52		0.94		1.3		1.27	
Benzo(a)anthracene	2.48		5.32		2.97		4.15		3.75	
Benzo(a)pyrene	2.44		5.57		3.15		4.51		4.15	
Benzo(b)fluoranthene	2.46		4.7		2.94		4.13		3.85	
Benzo(k)fluoranthene	2.82		5.82		3.38		4.84		4.56	
Benzo(g,h,i)perylene	1.57		3.41		2.		2.95		2.81	
Chrysene	3.89		7.4		4.39		6.14		5.97	
Dibenzo(a,h)anthracene	0.31		0.7		0.38		0.59		0.55	
Fluoranthene	7.31		14.27		7.56		11.56		9.91	
Fluorene	0.51		0.84		0.6		0.75		0.8	
Indeno(1,2,3-c,d)pyrene	1.15		2.79		1.65		2.38		2.15	
Naphthalene	0.47		0.72		0.69		0.82		0.96	
Phenanthrene	4.53		7.7		4.63		6.91		6.86	
Pyrene	9.46		17.56		8.81		13.92		13.9	
PAH Total	40.74		79.49		44.80		65.86		62.45	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	008 008 A M.n. Tissue REP1 *	008 B M.n. Tissue REP2 *	008 C M.n. Tissue REP3 *	008 D M.n. Tissue REP4 *	008 E M.n. Tissue REP5 *
PCB Congeners (ng/g wet wt.)					
8	25.4	33.13	28.37	33.37	27.07
18	29.19	45.96	30.93	39.87	34.73
28	47.19	66.85	46.6	66.45	51.58
44	16.3	27.32	18.4	20.87	24.14
52	77.45	108.67	76.78	107.68	113.59
66	17.65	23.68	19.05	23.34	21.4
101	36.47	53.05	40.	49.33	58.92
105	8.	13.66	9.67	12.76	13.98
118	22.92	37.87	26.96	34.16	38.57
128	4.96	8.01	6.09	7.32	9.6
138	25.61	41.87	31.22	37.56	50.29
153	26.22	44.27	31.44	38.92	52.98
170	2.14	3.63	2.55	2.81	4.35
180	2.5	4.45	3.19	3.58	3.77
187	2.	3.33	2.24	2.81	3.93
195	0.24	0.45	0.3	0.34	0.53
206	0.1	0.19	0.13	0.16	0.21
209	0.04	0.07	0.05	0.05	0.09
Total PCBs	688.76	1032.92	747.94	962.76	1019.46

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	008									
	008 A M.n. Tissue		008 B M.n. Tissue		008 C M.n. Tissue		008 D M.n. Tissue		008 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.07		0.09		0.06		0.07		0.09	
trans-Chlordane	0.08		0.1		0.08		0.11		0.08	
cis-Nonachlor	1.45		2.36		1.59		2.		2.5	
trans-Nonachlor	0.04		0.05		0.04		0.04		0.05	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	1.69		2.65		1.82		2.27		2.77	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.35		2.23		1.51		1.84		2.42	
Total DDT	1.45		2.33		1.61		1.94		2.52	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	2.79	U	2.75	U	2.74	U	2.77	U	2.87	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	008									
	008 A M.n. Tissue		008 B M.n. Tissue		008 C M.n. Tissue		008 D M.n. Tissue		008 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE WORM *Nereis virens*)

	BBDS									
	BBDS A N.v. Tissue		BBDS B N.v. Tissue		BBDS C N.v. Tissue		BBDS D N.v. Tissue		BBDS E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.3		1.5		1.4		1.5		1.6	
Cadmium	0.11		0.11		0.12		0.12		0.12	
Chromium	0.32		0.36		0.32		0.43		0.37	
Copper	1.3		1.2		1.4		1.4		1.5	
Lead	0.26		0.2	U	0.2	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.47		0.46		0.48		0.56		0.44	
Zinc	8.1		7.7		23.		16.		9.2	
PAHs (ng/g wet weight)										
Acenaphthene	0.91		0.06	U	0.93		0.84		1.1	
Acenaphthylene	0.07	J	0.03	U	0.07	J	0.07	J	0.07	J
Anthracene	0.04	J	0.06	U	0.07	J	0.07	J	0.07	J
Benzo(a)anthracene	0.02	J	0.03	U	0.02	J	0.05	J	0.04	J
Benzo(a)pyrene	0.06	U	0.08	U	0.06	U	0.06	U	0.06	U
Benzo(b)fluoranthene	0.04	U	0.06	U	0.04	U	0.08	J	0.04	J
Benzo(k)fluoranthene	0.04	U	0.06	U	0.04	U	0.08	J	0.05	J
Benzo(g,h,i)perylene	0.09	U	0.13	U	0.09	U	0.09	U	0.09	U
Chrysene	0.06	J	0.05	U	0.06	J	0.13	J	0.09	J
Dibenzo(a,h)anthracene	0.02	U	0.03	U	0.02	U	0.02	U	0.02	U
Fluoranthene	0.62		0.94		0.63		0.76		0.66	
Fluorene	0.35		0.08	U	0.4		0.33		0.39	
Indeno(1,2,3-c,d)pyrene	0.07	U	0.1	U	0.07	U	0.07	U	0.07	U
Naphthalene	1.08		1.98		1.		0.88		0.83	
Phenanthrene	1.68		2.31		1.81		1.62		1.77	
Pyrene	0.32		0.57		0.26		0.64		0.33	
PAH Total	5.47		6.57		5.57		5.79		5.68	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

	BBDS									
	BBDS A N.v. Tissue		BBDS B N.v. Tissue		BBDS C N.v. Tissue		BBDS D N.v. Tissue		BBDS E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)										
8	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
18	0.08		0.07		0.08		0.09		0.11	
28	0.06		0.06		0.06		0.07		0.1	
44	0.07		0.09		0.07		0.08		0.13	
52	0.23		0.23		0.2		0.22		0.25	
66	0.04		0.05		0.04		0.06		0.06	
101	0.29		0.31		0.27		0.32		0.33	
105	0.07		0.08		0.06		0.07		0.08	
118	0.16		0.17		0.13		0.16		0.19	
128	0.12		0.16		0.12		0.13		0.13	
138	0.57		0.67		0.55		0.65		0.59	
153	0.71		0.84		0.71		0.7		0.72	
170	0.17		0.32		0.2		0.4		0.24	
180	0.11		0.15		0.11		0.14		0.1	
187	0.11		0.12		0.11		0.11		0.12	
195	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
206	0.02	J	0.02	J	0.02	J	0.03		0.02	J
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Total PCBs	6.12		7.18		5.96		6.96		6.84	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

	BBDS									
	BBDS A N.v. Tissue		BBDS B N.v. Tissue		BBDS C N.v. Tissue		BBDS D N.v. Tissue		BBDS E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04		0.04	U	0.04		0.04		0.07	
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.05	
cis-Nonachlor	0.05		0.05	U	0.05		0.05		0.07	
trans-Nonachlor	0.25		0.21		0.23		0.22		0.33	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.43		0.39		0.41		0.40		0.57	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Total DDT	0.16		0.16		0.16		0.16		0.16	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.12		0.26		0.67	
Toxaphene	2.87	U	4.05	U	2.82	U	2.86	U	2.85	U

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

	BBDS									
	BBDS A N.v. Tissue		BBDS B N.v. Tissue		BBDS C N.v. Tissue		BBDS D N.v. Tissue		BBDS E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA

	001									
	001 A N.v. Tissue		001 B N.v. Tissue		001 C N.v. Tissue		001 D N.v. Tissue		001 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.5		1.7		1.3		1.1		1.4	
Cadmium	0.11		0.12		0.12		0.11		0.12	
Chromium	0.55		0.43		0.3		0.23		0.36	
Copper	2.1		1.9		1.6		1.5		1.7	
Lead	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.4		0.41		0.28		0.3		0.38	
Zinc	12.		8.6		8.		9.7		8.8	
PAHs (ng/g wet weight)										
Acenaphthene	1.08		1.07		1.33		1.01		1.3	
Acenaphthylene	0.29		0.21		0.19		0.13	J	0.16	
Anthracene	0.45		0.3		0.33		0.21		0.32	
Benzo(a)anthracene	0.54		0.25		0.18		0.04	J	0.29	
Benzo(a)pyrene	0.73		0.34		0.2		0.06	U	0.28	
Benzo(b)fluoranthene	0.62		0.29		0.22		0.08	J	0.29	
Benzo(k)fluoranthene	0.81		0.4		0.33		0.09	J	0.38	
Benzo(g,h,i)perylene	0.62		0.27		0.19		0.09	U	0.22	
Chrysene	1.15		0.65		0.71		0.3		0.74	
Dibenzo(a,h)anthracene	0.13	J	0.05	J	0.04	J	0.02	U	0.05	J
Fluoranthene	2.3		1.24		2.01		0.93		2.26	
Fluorene	0.72		0.52		0.69		0.45		0.7	
Indeno(1,2,3-c,d)pyrene	0.51		0.2		0.13	J	0.07	U	0.18	
Naphthalene	1.3		1.14		1.3		1.08		1.12	
Phenanthrene	3.49		2.35		3.09		2.09		3.27	
Pyrene	2.83		1.72		2.13		1.14		2.39	
PAH Total	17.57		11.00		13.07		7.79		13.95	

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	001				
	001 A N.v. Tissue	001 B N.v. Tissue	001 C N.v. Tissue	001 D N.v. Tissue	001 E N.v. Tissue
CONTAMINANT	REP1 *	REP2 *	REP3 *	REP4 *	REP5 *
PCB Congeners (ng/g wet wt.)					
8	1.46	1.96	1.74	1.33	1.38
18	14.62	14.96	16.05	13.29	13.4
28	10.66	10.77	10.76	8.69	8.55
44	7.15	7.34	8.16	5.36	5.74
52	43.22	40.64	42.88	34.25	31.47
66	5.29	6.43	4.68	4.03	3.11
101	43.31	36.5	37.32	29.61	23.74
105	15.65	11.73	11.64	9.9	8.02
118	18.21	15.28	15.77	12.32	9.17
128	11.6	8.69	8.16	7.31	5.62
138	52.53	38.69	37.02	33.42	24.83
153	48.21	37.05	36.11	32.54	24.79
170	4.24	5.35	3.39	4.54	3.31
180	6.71	7.47	4.73	4.45	4.53
187	3.95	3.68	4.02	3.2	2.31
195	0.46	0.34	0.35	0.29	0.22
206	0.29	0.26	0.25	0.2	0.16
209	0.08	0.07	0.07	0.05	0.05
Total PCBs	575.28	494.42	486.20	409.56	340.80

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	001									
	001 A N.v. Tissue		001 B N.v. Tissue		001 C N.v. Tissue		001 D N.v. Tissue		001 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.14		0.12		0.16		0.11		0.13	
trans-Chlordane	0.1		0.11		0.15		0.09		0.12	
cis-Nonachlor	2.06		1.53		1.75		1.29		1.04	
trans-Nonachlor	0.34		0.3		0.33		0.27		0.29	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	2.69		2.11		2.44		1.81		1.63	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	2.09		1.59		2.95		1.2		1.08	
4,4'-DDE	0.62		0.46		0.6		0.39		0.33	
Total DDT	2.76		2.10		3.60		1.64		1.46	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	2.78	U	2.85	U	2.78	U	2.85	U	2.8	U

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	001									
	001 A N.v. Tissue		001 B N.v. Tissue		001 C N.v. Tissue		001 D N.v. Tissue		001 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Meth
J Analyte estimated; detection belo
NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.1		1.2		1.4		1.1		1.	
Cadmium	0.11		0.12		0.13		0.11		0.13	
Chromium	0.26		0.47		0.35		0.46		0.26	
Copper	1.7		2.1		1.9		1.7		1.9	
Lead	0.3	U	0.39		0.2	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.35		0.32		0.35		0.3		0.39	
Zinc	7.5		16.		8.7		9.3		13.	
PAHs (ng/g wet weight)										
Acenaphthene	1.06		0.97		0.85		0.84			
Acenaphthylene	0.17	J	0.28		0.15	J	0.14			
Anthracene	0.21	J	0.81		0.27		0.24			
Benzo(a)anthracene	0.05	J	1.51		0.14	J	0.13	J		
Benzo(a)pyrene	0.11	U	1.72		0.16	J	0.19			
Benzo(b)fluoranthene	0.12	J	1.11		0.17	J	0.19			
Benzo(k)fluoranthene	0.17	J	1.58		0.21	J	0.25	J		
Benzo(g,h,i)perylene	0.18	U	1.11		0.14	J	0.15			
Chrysene	0.3		1.85		0.4		0.44			
Dibenzo(a,h)anthracene	0.04	U	0.24		0.03	J	0.04	J		
Fluoranthene	1.1		4.09		1.24		1.31			
Fluorene	0.58		0.57		0.4		0.37			
Indeno(1,2,3-c,d)pyrene	0.13	U	0.94		0.1	J	0.12	J		
Naphthalene	1.27		1.14		0.99		0.84			
Phenanthrene	3.15		3.87		2.24		1.72			
Pyrene	1.17		4.76		1.18		1.32			
PAH Total	9.81		26.55		8.67		8.29		0.00	

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)										
8	1.19		1.46		0.9		1.1			
18	15.03		11.31		8.43		10.06			
28	8.13		6.65		4.5		4.98			
44	8.31		5.04		4.22		3.97			
52	40.76		37.29		25.99		29.88			
66	4.35		3.35		2.46		2.23			
101	24.72		27.57		15.9		17.46			
105	11.58		9.09		5.07		5.88			
118	12.34		11.06		5.65		5.81			
128	9.01		8.18		4.91		5.44			
138	30.83		36.13		21.63		23.8			
153	30.86		34.57		22.56		24.71			
170	4.22		3.74		3.53		3.38			
180	5.5		5.2		4.82		4.67			
187	3.19		3.17		2.65		2.53			
195	0.29		0.36		0.25		0.24			
206	0.23		0.26		0.19		0.18			
209	0.06		0.07		0.06		0.05			
Total PCBs	421.20		409.00		267.44		292.74		0.00	

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U		
cis-Chlordane	0.11		0.11		0.09		0.08			
trans-Chlordane	0.1		0.1		0.08		0.08			
cis-Nonachlor	1.25		1.64		1.08		1.03			
trans-Nonachlor	0.33		0.31		0.3		0.27			
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U		
Total Chlordanes	1.84		2.21		1.60		1.51		0.00	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U		
4,4'-DDD	0.92		1.21		0.74		0.71			
4,4'-DDE	0.39		0.42		0.23		0.26			
Total DDT	1.36		1.68		1.02		1.02		0.00	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U		
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U		
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U		
Endosulfans	0.08		0.08		0.08		0.08		0.00	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U		
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U		
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U		
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U		
Lindane	0.05	U	0.05	U	0.05	U	0.05	U		
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U		
Toxaphene	5.65	U	2.89	U	3.95	U	2.73	U		

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA

	008									
	008 A N.v. Tissue		008 B N.v. Tissue		008 C N.v. Tissue		008 D N.v. Tissue		008 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.7		1.4		1.7		1.5		1.7	
Cadmium	0.12		0.11		0.11		0.12		0.091	
Chromium	0.21		0.23		0.21		0.21		0.31	
Copper	1.7		1.7		1.5		1.6		1.6	
Lead	0.2	U	0.2	U	0.2	U	0.2	U	0.3	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.37		0.37		0.3		0.35		0.27	
Zinc	9.4		9.3		10.		8.6		19.	
PAHs (ng/g wet weight)										
Acenaphthene	1.22		0.76		1.23		1.09		1.43	
Acenaphthylene	0.17	J	0.14		0.17		0.18		0.21	
Anthracene	0.29		0.24		0.29		0.28		0.38	
Benzo(a)anthracene	0.18	J	0.07	J	0.11	J	0.09	J	0.14	
Benzo(a)pyrene	0.14	J	0.07	J	0.09	J	0.06	J	0.11	J
Benzo(b)fluoranthene	0.26	J	0.13	J	0.14		0.13	J	0.18	
Benzo(k)fluoranthene	0.35	J	0.16	J	0.22	J	0.16	J	0.31	
Benzo(g,h,i)perylene	0.2	J	0.09	J	0.09	J	0.09	U	0.15	
Chrysene	0.73		0.45		0.65		0.48		0.64	
Dibenzo(a,h)anthracene	0.07	J	0.02	J	0.03	J	0.02	J	0.07	J
Fluoranthene	2.25		1.05		1.73		1.42		1.98	
Fluorene	0.54		0.33		0.5		0.56		0.78	
Indeno(1,2,3-c,d)pyrene	0.13	J	0.07	U	0.07	U	0.07	U	0.1	J
Naphthalene	1.09		0.73		0.9		0.84		1.16	
Phenanthrene	2.51		1.38		2.02		2.3		3.24	
Pyrene	2.04		1.02		1.65		1.34		1.74	
PAH Total	12.17		6.71		9.89		9.11		12.62	

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	008				
	008 A N.v. Tissue	008 B N.v. Tissue	008 C N.v. Tissue	008 D N.v. Tissue	008 E N.v. Tissue
CONTAMINANT	REP1 *	REP2 *	REP3 *	REP4 *	REP5 *
PCB Congeners (ng/g wet wt.)					
8	1.09	0.71	1.32	1.18	0.7
18	39.31	28.63	37.73	35.25	29.76
28	29.21	20.48	28.96	24.9	20.29
44	14.12	11.9	13.53	14.94	13.69
52	80.19	72.36	97.08	83.7	79.5
66	8.84	7.59	8.48	7.86	6.86
101	30.82	32.73	37.38	36.	35.07
105	10.23	10.84	12.64	10.86	11.6
118	14.59	15.11	16.89	16.61	14.4
128	8.27	7.64	8.61	8.1	8.56
138	32.92	39.03	42.26	40.35	41.56
153	30.18	36.19	39.33	36.14	39.07
170	3.85	4.93	4.87	3.23	3.24
180	4.99	4.65	5.07	4.9	5.02
187	3.02	4.11	3.89	4.08	3.22
195	0.29	0.38	0.37	0.43	0.43
206	0.25	0.31	0.32	0.37	0.34
209	0.08	0.07	0.07	0.08	0.09
Total PCBs	624.50	595.32	717.60	657.96	626.80

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	008									
	008 A N.v. Tissue		008 B N.v. Tissue		008 C N.v. Tissue		008 D N.v. Tissue		008 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.13		0.1		0.1		0.12		0.12	
trans-Chlordane	0.12		0.07		0.09		0.1		0.11	
cis-Nonachlor	1.43		1.79		1.82		1.77		1.69	
trans-Nonachlor	0.29		0.22		0.26		0.27		0.31	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	2.02		2.23		2.32		2.31		2.28	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.61		0.73		0.68		0.73		0.71	
Total DDT	0.71		0.83		0.78		0.83		0.81	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	5.42	U	2.76	U	2.83	U	2.86	U	2.83	U

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

	008									
	008 A N.v. Tissue		008 B N.v. Tissue		008 C N.v. Tissue		008 D N.v. Tissue		008 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Meth

J Analyte estimated; detection belo

NA Not Analyzed

Appendix K - 2

RISDS Bioaccumulation Statistics
(RISDS Reference Site)

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Table 1. Mean Wet Weight Concentrations of Bioaccumulation Tissues for Project Harbor (*Macoma nasuta* and *Nereis virens*)

Project Name:

Project Number:

CONTAMINANT	RISDS	*	Comp 001	*	Comp 003	*	Comp 008	*
Macoma nasuta								
Metals (ug/g wet weight)								
Arsenic	2.42		2.54	NS	2.54	NS	2.42	NS
Cadmium	0.06		0.07	NS	0.09	S	0.09	S
Chromium	1.02		1.12	NS	1.08	NS	1.24	S
Copper	0.99		1.34	S	1.86	S	2.00	S
Lead	0.21	a	0.41	S	0.49	S	0.46	S
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.65		0.56	NS	0.66	NS	0.62	NS
Zinc	10.32		11.80	S	12.20	S	11.00	NS
PAHs (ng/g wet weight)								
Acenaphthene	0.17	b	0.23	NS	0.28	S	0.30	S
Acenaphthylene	0.08	b	0.53	S	0.70	S	0.56	S
Anthracene	0.18	b	0.93	S	1.21	S	1.17	S
Benzo(a)anthracene	0.25		3.15	S	3.16	S	3.73	S
Benzo(a)pyrene	0.29		3.64	S	4.13	S	3.96	S
Benzo(b)fluoranthene	0.54		2.98	S	3.32	S	3.62	S
Benzo(k)fluoranthene	0.48		3.54	S	3.91	S	4.28	S
Benzo(g,h,i)perylene	0.24		1.91	S	1.48	S	2.55	S
Chrysene	0.66		4.38	S	4.46	S	5.56	S
Dibenzo(a,h)anthracene	0.04	b	0.47	S	0.60	S	0.51	S
Fluoranthene	3.11		6.91	S	6.68	S	10.12	S
Fluorene	0.63		0.59	NS	0.66	NS	0.70	NS
Indeno(1,2,3-c,d)pyrene	0.21		1.85	S	2.29	S	2.02	S
Naphthalene	0.35		0.59	S	0.84	S	0.73	S
Phenanthrene	5.78		5.03	NS	5.26	NS	6.13	NS
Pyrene	1.78		12.03	S	10.54	S	12.73	S
PAH Total	14.82		48.76	S	49.53	S	58.67	S
Macoma nasuta								
PCB Congeners (ng/g wet wt.)								
8	0.50	a	5.71	S	4.49	S	29.47	S
18	0.04	a	9.59	c	12.67	c	36.14	c
28	0.11		24.67	S	22.18	S	55.73	S
44	0.07	a	9.93	S	12.42	S	21.41	S
52	0.10		49.39	S	56.65	S	96.83	S
66	0.20	a	18.79	S	14.52	S	21.02	S
101	0.11		55.47	S	43.74	S	47.55	S
105	0.05	a	15.41	c	10.48	c	11.61	c
118	0.13		36.62	S	26.52	S	32.10	S
128	0.03	a	9.52	c	8.51	c	7.20	c
138	0.22		40.71	S	36.99	S	37.31	S
153	0.16		39.22	S	37.39	S	38.77	S
170	0.06	a	2.58	S	2.47	S	3.10	S
180	0.07	a	3.37	S	3.25	S	3.50	S
187	0.05	a	2.32	S	2.49	S	2.86	S
195	0.03	a	0.30	c	0.29	c	0.37	c
206	0.02	a	0.08	c	0.09	c	0.16	c
209	0.03	a	0.03	a	0.03	a	0.06	c
Total PCBs	3.94		647.41	S	590.36	S	890.37	S

Table 1. Mean Wet Weight Concentrations of Bioaccumulation Tissues for Project Harbor (*Macoma nasuta* and *Nereis virens*)

Macoma nasuta

Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.04	a	0.04	a	0.04	a	0.08	c
trans-Chlordane	0.04	a	0.04	a	0.04	a	0.09	c
cis-Nonachlor	0.05	a	0.05	a	0.05	a	1.98	c
trans-Nonachlor	0.04	a	0.04	a	0.04	a	0.04	c
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.22		0.22	a	0.22	a	2.24	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDE	0.20		1.67	S	1.49	S	1.87	S
Total DDT	0.30		1.77	S	1.59	S	1.97	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.05	a	0.05	a	0.05	a	0.05	a
Toxaphene	3.48	a	3.43	a	3.51	a	2.78	a

Macoma nasuta

Dioxins (pg/g wet weight)				
2378 TCDD	NA	NA	NA	NA
12378 PeDD	NA	NA	NA	NA
123478 HxDD	NA	NA	NA	NA
123678 HxDD	NA	NA	NA	NA
123789 HxDD	NA	NA	NA	NA
1234678 HpDD	NA	NA	NA	NA
OCDD	NA	NA	NA	NA
2378 TCDF	NA	NA	NA	NA
12378 PeDF	NA	NA	NA	NA
23478 PeDF	NA	NA	NA	NA
123478 HxDF	NA	NA	NA	NA
123678 HxDF	NA	NA	NA	NA
123789 HxDF	NA	NA	NA	NA
234678 HxDF	NA	NA	NA	NA
1234678 HpDF	NA	NA	NA	NA
1234789 HpDF	NA	NA	NA	NA
OCDF	NA	NA	NA	NA
PCB - 77	NA	NA	NA	NA
PCB - 81	NA	NA	NA	NA
PCB - 105	NA	NA	NA	NA
PCB - 114	NA	NA	NA	NA
PCB - 118	NA	NA	NA	NA
PCB - 123	NA	NA	NA	NA
PCB - 126	NA	NA	NA	NA
PCB - 156	NA	NA	NA	NA
PCB - 157	NA	NA	NA	NA
PCB - 167	NA	NA	NA	NA
PCB - 169	NA	NA	NA	NA
PCB - 189	NA	NA	NA	NA

*** = Qualifiers**

NA Not Analyzed
S Treatment mean is statistically greater than Reference mean (state statistical test used)
NS Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below Method Detection Limit) in at least one replicate; mean value was calculated using Method Detection Limit
b Analyte estimated (detected below Reporting Limit but above Method Detection Limit) in at least one replicate; mean value calculated using estimated value
c Analyte was detected in the Treatment sample at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates

Table 1. Mean Wet Weight Concentrations of Bioaccumulation Tissues for Project Harbor (*Macoma nasuta* and *Nereis virens*)

Nereis virens

Metals (ug/g wet weight)								
Arsenic	1.64		1.40	NS	1.16	NS	1.60	NS
Cadmium	0.10		0.12	NS	0.12	S	0.11	NS
Chromium	0.30		0.37	NS	0.36	NS	0.23	NS
Copper	1.38		1.76	S	1.86	S	1.62	S
Lead	0.22	a	0.20	a	0.26	a	0.22	a
Mercury	0.02	a	0.02	a	0.02	a	0.02	a
Nickel	0.40		0.35	NS	0.34	NS	0.33	NS
Zinc	9.46		9.42	NS	10.90	NS	11.26	NS
PAHs (ng/g wet weight)								
Acenaphthene	1.09		1.16	NS	0.93	NS	1.15	NS
Acenaphthylene	0.08	b	0.20	b S	0.19	b S	0.17	b S
Anthracene	0.08	b	0.32	S	0.38	b S	0.30	S
Benzo(a)anthracene	0.03	a b	0.26	b S	0.46	b S	0.12	b S
Benzo(a)pyrene	0.07	a	0.32	a c	0.55	a b c	0.09	c
Benzo(b)fluoranthene	0.05	a b	0.30	b S	0.40	b S	0.17	b S
Benzo(k)fluoranthene	0.05		0.40	b c	0.55	b c	0.24	b c
Benzo(g,h,i)perylene	0.11	a	0.28	a c	0.40	a b c	0.12	a b c
Chrysene	0.09	b	0.71	S	0.75	S	0.59	S
Dibenzo(a,h)anthracene	0.02	a	0.06	a b c	0.09	a b c	0.04	c
Fluoranthene	0.83		1.75	S	1.94	S	1.69	S
Fluorene	0.51		0.62	NS	0.48	NS	0.54	NS
Indeno(1,2,3-c,d)pyrene	0.08	a	0.22	a c	0.32	a b c	0.09	a b c
Naphthalene	1.13		1.19	NS	1.06	NS	0.94	NS
Phenanthrene	2.41		2.86	NS	2.75	NS	2.29	NS
Pyrene	0.36		2.04	S	2.11	S	1.56	S
PAH Total	6.98		12.68	S	13.33	S	10.10	S

Nereis virens

PCB Congeners (ng/g wet wt.)								
8	0.19	a	1.57	c	1.16	c	1.00	c
18	0.10		14.46	S	11.21	S	34.14	S
28	0.06	a	9.89	S	6.07	S	24.77	S
44	0.12		6.75	S	5.39	S	13.64	S
52	0.17		38.49	S	33.48	S	82.57	S
66	0.03	a b	4.71	S	3.10	S	7.93	S
101	0.14		34.10	S	21.41	S	34.40	S
105	0.05	a	11.39	S	7.91	S	11.23	S
118	0.07		14.15	S	8.72	S	15.52	S
128	0.07		8.28	S	6.89	S	8.24	S
138	0.30		37.30	S	28.10	S	39.22	S
153	0.31		35.74	S	28.18	S	36.18	S
170	0.24		4.17	S	3.72	S	4.02	S
180	0.10		5.58	S	5.05	S	4.93	S
187	0.09		3.43	S	2.89	S	3.66	S
195	0.03	a	0.33	c	0.29	c	0.38	c
206	0.02	b	0.23	S	0.22	S	0.32	S
209	0.03	a	0.06	S	0.06	S	0.08	S
Total PCBs	4.22		461.25	S	347.60	S	644.44	S

Table 1. Mean Wet Weight Concentrations of Bioaccumulation Tissues for Project Harbor (*Macoma nasuta* and *Nereis virens*)

Nereis virens

Pesticides (ng/g wet weight)								
Aldrin	0.03	a	0.03	a	0.03	a	0.03	a
cis-Chlordane	0.06		0.13	S	0.10	S	0.11	S
trans-Chlordane	0.04	b	0.11	S	0.09	S	0.10	S
cis-Nonachlor	0.06		1.53	S	1.25	S	1.70	S
trans-Nonachlor	0.31		0.31	NS	0.30	NS	0.27	NS
Oxychlordane	0.05	a	0.05	a	0.05	a	0.05	a
Total Chlordanes	0.52		2.14	S	1.79	S	2.23	S
4,4'-DDT	0.05	a	0.05	a	0.05	a	0.05	a
4,4'-DDD	0.05	a	1.78	S	0.90	S	0.05	a
4,4'-DDE	0.06	a	0.48	c	0.33	c	0.69	c
Total DDT	0.16		2.31	S	1.27	S	0.79	S
Dieldrin	0.06	a	0.06	a	0.06	a	0.06	a
alpha-Endosulfan	0.02	a	0.02	a	0.02	a	0.02	a
beta-Endosulfan	0.06	a	0.06	a	0.06	a	0.06	a
Endosulfans	0.08		0.08	a	0.08	a	0.08	a
Endrin	0.05	a	0.05	a	0.05	a	0.05	a
Heptachlor	0.04	a	0.04	a	0.04	a	0.04	a
Heptachlor epoxide	0.02	a	0.02	a	0.02	a	0.02	a
Hexachlorobenzene	0.05	a	0.05	a	0.05	a	0.05	a
Lindane	0.05	a	0.05	a	0.05	a	0.05	a
Methoxychlor	0.23	a	0.05	a	0.05	a NS	0.05	a
Toxaphene	3.38	a	2.81	a	3.81	a	3.34	a

Nereis virens

Dioxins (pg/g wet weight)				
2378 TCDD	NA	NA	NA	NA
12378 PeDD	NA	NA	NA	NA
123478 HxDD	NA	NA	NA	NA
123678 HxDD	NA	NA	NA	NA
123789 HxDD	NA	NA	NA	NA
1234678 HpDD	NA	NA	NA	NA
OCDD	NA	NA	NA	NA
2378 TCDF	NA	NA	NA	NA
12378 PeDF	NA	NA	NA	NA
23478 PeDF	NA	NA	NA	NA
123478 HxDF	NA	NA	NA	NA
123678 HxDF	NA	NA	NA	NA
123789 HxDF	NA	NA	NA	NA
234678 HxDF	NA	NA	NA	NA
1234678 HpDF	NA	NA	NA	NA
1234789 HpDF	NA	NA	NA	NA
OCDF	NA	NA	NA	NA
PCB - 77	NA	NA	NA	NA
PCB - 81	NA	NA	NA	NA
PCB - 105	NA	NA	NA	NA
PCB - 114	NA	NA	NA	NA
PCB - 118	NA	NA	NA	NA
PCB - 123	NA	NA	NA	NA
PCB - 126	NA	NA	NA	NA
PCB - 156	NA	NA	NA	NA
PCB - 157	NA	NA	NA	NA
PCB - 167	NA	NA	NA	NA
PCB - 169	NA	NA	NA	NA
PCB - 189	NA	NA	NA	NA

*** = Qualifiers**

NA Not Analyzed
S Treatment mean is statistically greater than Reference mean (state statistical test used)
NS Treatment mean is not significantly greater than Reference mean (state statistical test used)
a Analyte not detected (below Method Detection Limit) in at least one replicate; mean value was calculated using Method Detection Limit
b Analyte estimated (detected below Reporting Limit but above Method Detection Limit) in at least one replicate; mean value calculated using estimated value
c Analyte was detected in the Treatment at a higher mean concentration than Reference; statistical analyses not conducted because analyte was not detected in any Reference replicates

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	RISDS									
	RISDS A M.n. Tissue		RISDS B M.n. Tissue		RISDS C M.n. Tissue		RISDS D M.n. Tissue		RISDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	2.3		1.9		2.5		2.8		2.6	
Cadmium	0.07		0.064		0.068		0.055		0.063	
Chromium	0.89		1.1		0.91		1.2		1.	
Copper	1.		1.		0.95		1.		1.	
Lead	0.2	U	0.25		0.2	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.61		0.65		0.7		0.68		0.62	
Zinc	11.		9.8		10.		9.8		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.12	J	0.18		0.19		0.18		0.2	
Acenaphthylene	0.07	J	0.06	J	0.09	J	0.09	J	0.1	J
Anthracene	0.13	J	0.16		0.21		0.19		0.21	
Benzo(a)anthracene	0.2		0.21		0.31		0.29		0.26	
Benzo(a)pyrene	0.22		0.25		0.34		0.34		0.3	
Benzo(b)fluoranthene	0.42		0.48		0.63		0.63		0.56	
Benzo(k)fluoranthene	0.38		0.41		0.57		0.55		0.51	
Benzo(g,h,i)perylene	0.19		0.2		0.28		0.27		0.26	
Chrysene	0.52		0.53		0.84		0.71		0.7	
Dibenzo(a,h)anthracene	0.03	J	0.04	J	0.05	J	0.05	J	0.05	J
Fluoranthene	2.06		2.78		3.45		3.27		3.98	
Fluorene	0.49		0.56		0.64		0.68		0.79	
Indeno(1,2,3-c,d)pyrene	0.17		0.18		0.25		0.24		0.23	
Naphthalene	0.41		0.33		0.32		0.36		0.35	
Phenanthrene	4.25		4.73		5.77		6.17		7.97	
Pyrene	1.11		1.68		2.02		1.91		2.17	
PAH Total	10.77		12.78		15.96		15.93		18.64	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	RISDS									
	RISDS A M.n. Tissue		RISDS B M.n. Tissue		RISDS C M.n. Tissue		RISDS D M.n. Tissue		RISDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)										
8	0.19	U	0.77		0.19	U	0.19	U	1.16	
18	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
28	0.13		0.08		0.11		0.1		0.12	
44	0.23		0.03	U	0.03	U	0.03	U	0.03	U
52	0.1		0.08		0.11		0.12		0.11	
66	0.86		0.03	U	0.03	U	0.03	U	0.03	U
101	0.1		0.1		0.15		0.11		0.09	
105	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
118	0.1		0.13		0.12		0.13		0.15	
128	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
138	0.12		0.2		0.26		0.25		0.27	
153	0.13		0.14		0.19		0.2		0.16	
170	0.03	U	0.08		0.03	U	0.07		0.08	
180	0.03	U	0.06		0.08		0.07		0.09	
187	0.04	U	0.04	U	0.06		0.05		0.04	U
195	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
206	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Total PCBs	4.52		3.88		3.12		3.10		5.06	

* = Qualifiers

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit
J Analyte estimated; detection below Reporting Limit but above Method Detection Limit
NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	RISDS									
	RISDS A M.n. Tissue		RISDS B M.n. Tissue		RISDS C M.n. Tissue		RISDS D M.n. Tissue		RISDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.22		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.11		0.12		0.18		0.16		0.2	
Total DDT	0.21		0.22		0.28		0.26		0.30	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.51	U	3.43	U	3.47	U	3.49	U	3.51	U

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE CLAM *Macoma nasuta*)

	RISDS									
	RISDS A M.n. Tissue		RISDS B M.n. Tissue		RISDS C M.n. Tissue		RISDS D M.n. Tissue		RISDS E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	001 A M.n. Tissue REP1	*	001 B M.n. Tissue REP2	*	001 C M.n. Tissue REP3	*	001 D M.n. Tissue REP4	*	001 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.2		2.8		2.7		2.6		2.4	
Cadmium	0.059		0.064		0.075		0.077		0.065	
Chromium	0.93		1.4		1.1		1.2		0.95	
Copper	1.3		1.4		1.4		1.3		1.3	
Lead	0.35		0.42		0.49		0.39		0.38	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.57		0.6		0.6		0.52		0.51	
Zinc	10.		14.		12.		12.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.21		0.26		0.19		0.21		0.28	
Acenaphthylene	0.47		0.49		0.31		0.52		0.85	
Anthracene	0.87		0.94		0.73		0.84		1.28	
Benzo(a)anthracene	2.93		2.97		2.32		2.98		4.53	
Benzo(a)pyrene	3.41		3.43		2.62		3.39		5.36	
Benzo(b)fluoranthene	2.79		2.95		2.37		2.83		3.97	
Benzo(k)fluoranthene	3.16		3.57		2.84		3.34		4.81	
Benzo(g,h,i)perylene	2.04		2.03		1.54		1.77		2.15	
Chrysene	4.05		4.39		3.53		4.15		5.78	
Dibenzo(a,h)anthracene	0.43		0.43		0.34		0.45		0.7	
Fluoranthene	6.43		7.46		5.61		6.41		8.65	
Fluorene	0.51		0.68		0.51		0.6		0.63	
Indeno(1,2,3-c,d)pyrene	1.71		1.77		1.28		1.73		2.77	
Naphthalene	0.52		0.62		0.53		0.61		0.68	
Phenanthrene	4.67		5.98		4.25		4.79		5.45	
Pyrene	11.84		13.75		9.94		10.78		13.86	
PAH Total	46.04		51.72		38.91		45.40		61.75	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	001 001 A M.n. Tissue REP1	*	001 B M.n. Tissue REP2	*	001 C M.n. Tissue REP3	*	001 D M.n. Tissue REP4	*	001 E M.n. Tissue REP5	*
PCB Congeners (ng/g wet wt.)										
8	5.26		5.93		5.36		5.81		6.17	
18	6.75		8.31		7.56		12.69		12.62	
28	22.02		25.81		22.78		24.08		28.64	
44	10.35		8.25		7.17		12.04		11.85	
52	43.14		53.13		44.53		50.41		55.73	
66	16.24		19.71		17.53		18.06		22.42	
101	46.83		62.14		49.3		53.84		65.22	
105	11.83		19.19		14.22		14.54		17.29	
118	31.17		40.66		32.42		36.32		42.52	
128	8.29		10.74		8.08		9.75		10.73	
138	34.07		45.88		35.66		41.49		46.45	
153	33.78		44.12		34.51		38.85		44.85	
170	2.29		2.97		2.18		2.68		2.79	
180	2.89		3.83		2.86		3.58		3.69	
187	2.04		2.6		1.97		2.44		2.57	
195	0.26		0.33		0.26		0.31		0.35	
206	0.06		0.09		0.07		0.08		0.1	
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Total PCBs	554.60		707.44		572.98		654.00		748.04	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	001									
	001 A M.n. Tissue		001 B M.n. Tissue		001 C M.n. Tissue		001 D M.n. Tissue		001 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.22		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.48		1.83		1.38		1.69		1.95	
Total DDT	1.58		1.93		1.48		1.79		2.05	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.38	U	3.45	U	3.47	U	3.38	U	3.49	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	001 001 A M.n. Tissue REP1	*	001 B M.n. Tissue REP2	*	001 C M.n. Tissue REP3	*	001 D M.n. Tissue REP4	*	001 E M.n. Tissue REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	003 A M.n. Tissue REP1	*	003 B M.n. Tissue REP2	*	003 C M.n. Tissue REP3	*	003 D M.n. Tissue REP4	*	003 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.4		3.		2.5		2.1		2.7	
Cadmium	0.1		0.095		0.094		0.091		0.089	
Chromium	0.93		1.2		1.3		1.		0.98	
Copper	1.4		2.2		2.2		1.7		1.8	
Lead	0.41		0.45		0.53		0.56		0.49	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.61		0.67		0.76		0.63		0.61	
Zinc	12.		12.		13.		13.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.19		0.32		0.41		0.26		0.24	
Acenaphthylene	0.3		0.57		1.3		0.61		0.74	
Anthracene	0.58		0.9		2.2		1.07		1.31	
Benzo(a)anthracene	1.26		2.69		5.56		2.9		3.4	
Benzo(a)pyrene	1.69		3.76		6.53		4.08		4.61	
Benzo(b)fluoranthene	1.65		3.09		4.79		3.33		3.72	
Benzo(k)fluoranthene	1.84		3.6		5.97		3.84		4.29	
Benzo(g,h,i)perylene	0.21		2.32		1.45		1.17		2.26	
Chrysene	2.2		3.9		6.92		4.34		4.93	
Dibenzo(a,h)anthracene	0.26		0.55		0.89		0.6		0.7	
Fluoranthene	3.34		5.3		11.36		6.64		6.74	
Fluorene	0.47		0.57		0.84		0.73		0.68	
Indeno(1,2,3-c,d)pyrene	0.95		2.09		3.54		2.32		2.57	
Naphthalene	0.51		0.78		1.18		0.85		0.88	
Phenanthrene	3.56		4.39		7.51		5.42		5.41	
Pyrene	5.99		9.38		16.17		10.47		10.71	
PAH Total	25.00		44.21		76.62		48.63		53.19	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	003 003 A M.n. Tissue REP1	*	003 B M.n. Tissue REP2	*	003 C M.n. Tissue REP3	*	003 D M.n. Tissue REP4	*	003 E M.n. Tissue REP5	*
PCB Congeners (ng/g wet wt.)										
8	3.73		4.17		4.52		4.35		5.66	
18	10.33		10.67		14.79		13.8		13.78	
28	19.03		19.99		23.68		22.74		25.45	
44	9.63		10.9		14.72		11.69		15.18	
52	47.32		51.71		61.34		59.31		63.58	
66	12.62		12.95		15.17		14.96		16.91	
101	34.96		40.41		48.04		47.32		47.99	
105	8.22		9.58		11.56		11.2		11.84	
118	21.56		24.23		29.36		28.21		29.24	
128	6.67		7.82		9.61		9.35		9.09	
138	29.17		34.28		41.02		40.1		40.39	
153	29.26		34.58		42.5		40.03		40.56	
170	1.65		2.48		2.65		2.71		2.84	
180	2.21		3.18		3.48		3.53		3.84	
187	1.8		2.4		2.69		2.58		2.96	
195	0.19		0.28		0.32		0.32		0.35	
206	0.05		0.1		0.11		0.1		0.09	
209	0.03	U	0.03	U	0.03	U	0.03	U	0.03	
Total PCBs	476.86		539.52		651.18		624.66		659.56	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	003									
	003 A M.n. Tissue		003 B M.n. Tissue		003 C M.n. Tissue		003 D M.n. Tissue		003 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
trans-Chlordane	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
cis-Nonachlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
trans-Nonachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.22		0.22		0.22		0.22		0.22	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.21		1.5		1.56		1.44		1.74	
Total DDT	1.31		1.60		1.66		1.54		1.84	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	3.53	U	3.55	U	3.5	U	3.49	U	3.48	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	003 003 A M.n. Tissue REP1	*	003 B M.n. Tissue REP2	*	003 C M.n. Tissue REP3	*	003 D M.n. Tissue REP4	*	003 E M.n. Tissue REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	008 008 A M.n. Tissue REP1	*	008 B M.n. Tissue REP2	*	008 C M.n. Tissue REP3	*	008 D M.n. Tissue REP4	*	008 E M.n. Tissue REP5	*
Metals (ug/g wet weight)										
Arsenic	2.3		2.5		2.4		2.3		2.6	
Cadmium	0.073		0.088		0.091		0.094		0.087	
Chromium	1.2		1.2		1.2		1.4		1.2	
Copper	3.2		1.5		1.7		1.8		1.8	
Lead	0.44		0.32		0.49		0.57		0.46	
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.59		0.61		0.61		0.67		0.61	
Zinc	11.		11.		11.		11.		11.	
PAHs (ng/g wet weight)										
Acenaphthene	0.2		0.38		0.26		0.35		0.32	
Acenaphthylene	0.34		0.79		0.45		0.56		0.64	
Anthracene	0.8		1.52		0.94		1.3		1.27	
Benzo(a)anthracene	2.48		5.32		2.97		4.15		3.75	
Benzo(a)pyrene	2.44		5.57		3.15		4.51		4.15	
Benzo(b)fluoranthene	2.46		4.7		2.94		4.13		3.85	
Benzo(k)fluoranthene	2.82		5.82		3.38		4.84		4.56	
Benzo(g,h,i)perylene	1.57		3.41		2.		2.95		2.81	
Chrysene	3.89		7.4		4.39		6.14		5.97	
Dibenzo(a,h)anthracene	0.31		0.7		0.38		0.59		0.55	
Fluoranthene	7.31		14.27		7.56		11.56		9.91	
Fluorene	0.51		0.84		0.6		0.75		0.8	
Indeno(1,2,3-c,d)pyrene	1.15		2.79		1.65		2.38		2.15	
Naphthalene	0.47		0.72		0.69		0.82		0.96	
Phenanthrene	4.53		7.7		4.63		6.91		6.86	
Pyrene	9.46		17.56		8.81		13.92		13.9	
PAH Total	40.74		79.49		44.80		65.86		62.45	

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	008 008 A M.n. Tissue REP1 *	008 B M.n. Tissue REP2 *	008 C M.n. Tissue REP3 *	008 D M.n. Tissue REP4 *	008 E M.n. Tissue REP5 *
PCB Congeners (ng/g wet wt.)					
8	25.4	33.13	28.37	33.37	27.07
18	29.19	45.96	30.93	39.87	34.73
28	47.19	66.85	46.6	66.45	51.58
44	16.3	27.32	18.4	20.87	24.14
52	77.45	108.67	76.78	107.68	113.59
66	17.65	23.68	19.05	23.34	21.4
101	36.47	53.05	40.	49.33	58.92
105	8.	13.66	9.67	12.76	13.98
118	22.92	37.87	26.96	34.16	38.57
128	4.96	8.01	6.09	7.32	9.6
138	25.61	41.87	31.22	37.56	50.29
153	26.22	44.27	31.44	38.92	52.98
170	2.14	3.63	2.55	2.81	4.35
180	2.5	4.45	3.19	3.58	3.77
187	2.	3.33	2.24	2.81	3.93
195	0.24	0.45	0.3	0.34	0.53
206	0.1	0.19	0.13	0.16	0.21
209	0.04	0.07	0.05	0.05	0.09
Total PCBs	688.76	1032.92	747.94	962.76	1019.46

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

	008									
	008 A M.n. Tissue		008 B M.n. Tissue		008 C M.n. Tissue		008 D M.n. Tissue		008 E M.n. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.07		0.09		0.06		0.07		0.09	
trans-Chlordane	0.08		0.1		0.08		0.11		0.08	
cis-Nonachlor	1.45		2.36		1.59		2.		2.5	
trans-Nonachlor	0.04		0.05		0.04		0.04		0.05	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	1.69		2.65		1.82		2.27		2.77	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	1.35		2.23		1.51		1.84		2.42	
Total DDT	1.45		2.33		1.61		1.94		2.52	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	2.79	U	2.75	U	2.74	U	2.77	U	2.87	U

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACC

CONTAMINANT	008 008 A M.n. Tissue REP1	*	008 B M.n. Tissue REP2	*	008 C M.n. Tissue REP3	*	008 D M.n. Tissue REP4	*	008 E M.n. Tissue REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method

J Analyte estimated; detection below R

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE WORM (*Nereis virer*

	RISDS							
	RISDS A N.v. Tissue		RISDS B N.v. Tissue		RISDS C N.v. Tissue		RISDS D N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*
Metals (ug/g wet weight)								
Arsenic	1.9		1.2		1.3		1.9	
Cadmium	0.074		0.12		0.11		0.11	
Chromium	0.4		0.3		0.32		0.26	
Copper	1.2		1.4		1.5		1.4	
Lead	0.2	U	0.3	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.32		0.36		0.45		0.43	
Zinc	8.		11.		11.		9.7	
PAHs (ng/g wet weight)								
Acenaphthene	1.12		0.89		1.01		1.29	
Acenaphthylene	0.09	J	0.07	J	0.07	J	0.08	J
Anthracene	0.08	J	0.08	J	0.06	J	0.08	J
Benzo(a)anthracene	0.06	J	0.02	J	0.02	J	0.02	U
Benzo(a)pyrene	0.11	U	0.06	U	0.05	U	0.06	U
Benzo(b)fluoranthene	0.09	U	0.05	J	0.04	J	0.04	U
Benzo(k)fluoranthene	0.08	U	0.04	U	0.04	U	0.04	U
Benzo(g,h,i)perylene	0.18	U	0.09	U	0.09	U	0.09	U
Chrysene	0.13	J	0.09	J	0.1	J	0.06	J
Dibenzo(a,h)anthracene	0.04	U	0.02	U	0.02	U	0.02	U
Fluoranthene	0.85		0.9		0.85		0.86	
Fluorene	0.6		0.41		0.47		0.6	
Indeno(1,2,3-c,d)pyrene	0.13	U	0.07	U	0.07	U	0.07	U
Naphthalene	1.29		0.76		1.08		1.38	
Phenanthrene	2.68		1.9		2.15		3.04	
Pyrene	0.42		0.37		0.39		0.35	
PAH Total	7.95		5.82		6.51		8.08	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE WORM (*Nereis virer*

	RISDS							
	RISDS A N.v. Tissue		RISDS B N.v. Tissue		RISDS C N.v. Tissue		RISDS D N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*
PCB Congeners (ng/g wet wt.)								
8	0.19	U	0.19	U	0.19	U	0.19	U
18	0.12		0.09		0.08		0.1	
28	0.09		0.06		0.05	U	0.05	
44	0.18		0.11		0.08		0.14	
52	0.24		0.17		0.13		0.16	
66	0.03	J	0.03	U	0.03	U	0.03	
101	0.18		0.15		0.11		0.14	
105	0.06		0.05	U	0.05	U	0.05	
118	0.1		0.07		0.05		0.06	
128	0.12		0.06		0.05		0.06	
138	0.42		0.29		0.23		0.29	
153	0.37		0.32		0.27		0.34	
170	0.55		0.18		0.13		0.16	
180	0.12		0.1		0.08		0.1	
187	0.1		0.1		0.08		0.1	
195	0.03	U	0.03	U	0.03	U	0.03	U
206	0.03	J	0.02	J	0.02	J	0.03	
209	0.03	U	0.03	U	0.03	U	0.03	
Total PCBs	5.92		4.10		3.38		4.12	

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE WORM (*Nereis virer*

	RISDS							
	RISDS A N.v. Tissue		RISDS B N.v. Tissue		RISDS C N.v. Tissue		RISDS D N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*
Pesticides (ng/g wet weight)								
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.07		0.06		0.05		0.06	
trans-Chlordane	0.04	J	0.04		0.04		0.04	
cis-Nonachlor	0.07		0.06		0.05		0.06	
trans-Nonachlor	0.33		0.32		0.29		0.32	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.56		0.53		0.48		0.53	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.06		0.05	U	0.05	U
4,4'-DDE	0.06	U	0.06	U	0.06	U	0.06	U
Total DDT	0.16		0.17		0.16		0.16	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.96		0.05	U	0.05	U	0.05	U
Toxaphene	5.64	U	2.82	U	2.79	U	2.83	U

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOACCUMULATION CONCENTRATIONS OF CONTAMINANTS IN THE WORM (*Nereis virer*

	RISDS							
	RISDS A N.v. Tissue		RISDS B N.v. Tissue		RISDS C N.v. Tissue		RISDS D N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*
Dioxins (pg/g wet weight)								
2378 TCDD		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA
OCDD		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA
OCDF		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Method Detection Limit; value is Method Detection Limit

J Analyte estimated; detection below Reporting Limit but above Method Detection Limit

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOAssays)

CONTAMINANT	RISDS E N.v. Tissue REP5 *	001 A N.v. Tissue REP1 *	001 B N.v. Tissue REP2 *	001 C N.v. Tissue REP3 *	001 D N.v. Tissue REP4 *	001 E N.v. Tissue REP5 *
Metals (ug/g wet weight)						
Arsenic	1.9	1.5	1.7	1.3	1.1	1.4
Cadmium	0.097	0.11	0.12	0.12	0.11	0.12
Chromium	0.23	0.55	0.43	0.3	0.23	0.36
Copper	1.4	2.1	1.9	1.6	1.5	1.7
Lead	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Mercury	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Nickel	0.42	0.4	0.41	0.28	0.3	0.38
Zinc	7.6	12.	8.6	8.	9.7	8.8
PAHs (ng/g wet weight)						
Acenaphthene	1.14	1.08	1.07	1.33	1.01	1.3
Acenaphthylene	0.08 J	0.29	0.21	0.19	0.13 J	0.16
Anthracene	0.08 J	0.45	0.3	0.33	0.21	0.32
Benzo(a)anthracene	0.02 U	0.54	0.25	0.18	0.04 J	0.29
Benzo(a)pyrene	0.06 U	0.73	0.34	0.2	0.06 U	0.28
Benzo(b)fluoranthene	0.04 U	0.62	0.29	0.22	0.08 J	0.29
Benzo(k)fluoranthene	0.04 U	0.81	0.4	0.33	0.09 J	0.38
Benzo(g,h,i)perylene	0.09 U	0.62	0.27	0.19	0.09 U	0.22
Chrysene	0.05 J	1.15	0.65	0.71	0.3	0.74
Dibenzo(a,h)anthracene	0.02 U	0.13 J	0.05 J	0.04 J	0.02 U	0.05 J
Fluoranthene	0.67	2.3	1.24	2.01	0.93	2.26
Fluorene	0.48	0.72	0.52	0.69	0.45	0.7
Indeno(1,2,3-c,d)pyrene	0.07 U	0.51	0.2	0.13 J	0.07 U	0.18
Naphthalene	1.12	1.3	1.14	1.3	1.08	1.12
Phenanthrene	2.3	3.49	2.35	3.09	2.09	3.27
Pyrene	0.26	2.83	1.72	2.13	1.14	2.39
PAH Total	6.52	17.57	11.00	13.07	7.79	13.95

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOAssays)

	RISDS E N.v. Tissue		001 A N.v. Tissue		001 B N.v. Tissue		001 C N.v. Tissue		001 D N.v. Tissue		001 E N.v. Tissue	
CONTAMINANT	REP5	*	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)												
8	0.19	U	1.46		1.96		1.74		1.33		1.38	
18	0.1		14.62		14.96		16.05		13.29		13.4	
28	0.05		10.66		10.77		10.76		8.69		8.55	
44	0.08		7.15		7.34		8.16		5.36		5.74	
52	0.16		43.22		40.64		42.88		34.25		31.47	
66	0.03		5.29		6.43		4.68		4.03		3.11	
101	0.11		43.31		36.5		37.32		29.61		23.74	
105	0.05	U	15.65		11.73		11.64		9.9		8.02	
118	0.05		18.21		15.28		15.77		12.32		9.17	
128	0.06		11.6		8.69		8.16		7.31		5.62	
138	0.25		52.53		38.69		37.02		33.42		24.83	
153	0.27		48.21		37.05		36.11		32.54		24.79	
170	0.16		4.24		5.35		3.39		4.54		3.31	
180	0.08		6.71		7.47		4.73		4.45		4.53	
187	0.08		3.95		3.68		4.02		3.2		2.31	
195	0.03	U	0.46		0.34		0.35		0.29		0.22	
206	0.02	J	0.29		0.26		0.25		0.2		0.16	
209	0.03	U	0.08		0.07		0.07		0.05		0.05	
Total PCBs	3.60		575.28		494.42		486.20		409.56		340.80	

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(s)

	RISDS E N.v. Tissue		001 A N.v. Tissue		001 B N.v. Tissue		001 C N.v. Tissue		001 D N.v. Tissue		001 E N.v. Tissue	
CONTAMINANT	REP5	*	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)												
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.06		0.14		0.12		0.16		0.11		0.13	
trans-Chlordane	0.04		0.1		0.11		0.15		0.09		0.12	
cis-Nonachlor	0.05		2.06		1.53		1.75		1.29		1.04	
trans-Nonachlor	0.3		0.34		0.3		0.33		0.27		0.29	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	0.50		2.69		2.11		2.44		1.81		1.63	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	2.09		1.59		2.95		1.2		1.08	
4,4'-DDE	0.06	U	0.62		0.46		0.6		0.39		0.33	
Total DDT	0.16		2.76		2.10		3.60		1.64		1.46	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	J	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	2.82	U	2.78	U	2.85	U	2.78	U	2.85	U	2.8	U

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOAtts)

CONTAMINANT	RISDS E N.v. Tissue REP5	*	001 001 A N.v. Tissue REP1	*	001 B N.v. Tissue REP2	*	001 C N.v. Tissue REP3	*	001 D N.v. Tissue REP4	*	001 E N.v. Tissue REP5	*
Dioxins (pg/g wet weight)												
2378 TCDD		NA		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.1		1.2		1.4		1.1		1.	
Cadmium	0.11		0.12		0.13		0.11		0.13	
Chromium	0.26		0.47		0.35		0.46		0.26	
Copper	1.7		2.1		1.9		1.7		1.9	
Lead	0.3	U	0.39		0.2	U	0.2	U	0.2	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.35		0.32		0.35		0.3		0.39	
Zinc	7.5		16.		8.7		9.3		13.	
PAHs (ng/g wet weight)										
Acenaphthene	1.06		0.97		0.85		0.84			
Acenaphthylene	0.17	J	0.28		0.15	J	0.14			
Anthracene	0.21	J	0.81		0.27		0.24			
Benzo(a)anthracene	0.05	J	1.51		0.14	J	0.13	J		
Benzo(a)pyrene	0.11	U	1.72		0.16	J	0.19			
Benzo(b)fluoranthene	0.12	J	1.11		0.17	J	0.19			
Benzo(k)fluoranthene	0.17	J	1.58		0.21	J	0.25	J		
Benzo(g,h,i)perylene	0.18	U	1.11		0.14	J	0.15			
Chrysene	0.3		1.85		0.4		0.44			
Dibenzo(a,h)anthracene	0.04	U	0.24		0.03	J	0.04	J		
Fluoranthene	1.1		4.09		1.24		1.31			
Fluorene	0.58		0.57		0.4		0.37			
Indeno(1,2,3-c,d)pyrene	0.13	U	0.94		0.1	J	0.12	J		
Naphthalene	1.27		1.14		0.99		0.84			
Phenanthrene	3.15		3.87		2.24		1.72			
Pyrene	1.17		4.76		1.18		1.32			
PAH Total	9.81		26.55		8.67		8.29		0.00	

*** = Qualifiers**

U Analyte not detected; below Meth(

J Analyte estimated; detection belov

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
PCB Congeners (ng/g wet wt.)										
8	1.19		1.46		0.9		1.1			
18	15.03		11.31		8.43		10.06			
28	8.13		6.65		4.5		4.98			
44	8.31		5.04		4.22		3.97			
52	40.76		37.29		25.99		29.88			
66	4.35		3.35		2.46		2.23			
101	24.72		27.57		15.9		17.46			
105	11.58		9.09		5.07		5.88			
118	12.34		11.06		5.65		5.81			
128	9.01		8.18		4.91		5.44			
138	30.83		36.13		21.63		23.8			
153	30.86		34.57		22.56		24.71			
170	4.22		3.74		3.53		3.38			
180	5.5		5.2		4.82		4.67			
187	3.19		3.17		2.65		2.53			
195	0.29		0.36		0.25		0.24			
206	0.23		0.26		0.19		0.18			
209	0.06		0.07		0.06		0.05			
Total PCBs	421.20		409.00		267.44		292.74		0.00	

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection belov

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	003									
	003 A N.v. Tissue		003 B N.v. Tissue		003 C N.v. Tissue		003 D N.v. Tissue		003 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U		
cis-Chlordane	0.11		0.11		0.09		0.08			
trans-Chlordane	0.1		0.1		0.08		0.08			
cis-Nonachlor	1.25		1.64		1.08		1.03			
trans-Nonachlor	0.33		0.31		0.3		0.27			
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U		
Total Chlordanes	1.84		2.21		1.60		1.51		0.00	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U		
4,4'-DDD	0.92		1.21		0.74		0.71			
4,4'-DDE	0.39		0.42		0.23		0.26			
Total DDT	1.36		1.68		1.02		1.02		0.00	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U		
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U		
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U		
Endosulfans	0.08		0.08		0.08		0.08		0.00	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U		
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U		
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U		
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U		
Lindane	0.05	U	0.05	U	0.05	U	0.05	U		
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U		
Toxaphene	5.65	U	2.89	U	3.95	U	2.73	U		

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

CONTAMINANT	003 003 A N.v. Tissue REP1	*	003 B N.v. Tissue REP2	*	003 C N.v. Tissue REP3	*	003 D N.v. Tissue REP4	*	003 E N.v. Tissue REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	008									
	008 A N.v. Tissue		008 B N.v. Tissue		008 C N.v. Tissue		008 D N.v. Tissue		008 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Metals (ug/g wet weight)										
Arsenic	1.7		1.4		1.7		1.5		1.7	
Cadmium	0.12		0.11		0.11		0.12		0.091	
Chromium	0.21		0.23		0.21		0.21		0.31	
Copper	1.7		1.7		1.5		1.6		1.6	
Lead	0.2	U	0.2	U	0.2	U	0.2	U	0.3	U
Mercury	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Nickel	0.37		0.37		0.3		0.35		0.27	
Zinc	9.4		9.3		10.		8.6		19.	
PAHs (ng/g wet weight)										
Acenaphthene	1.22		0.76		1.23		1.09		1.43	
Acenaphthylene	0.17	J	0.14		0.17		0.18		0.21	
Anthracene	0.29		0.24		0.29		0.28		0.38	
Benzo(a)anthracene	0.18	J	0.07	J	0.11	J	0.09	J	0.14	
Benzo(a)pyrene	0.14	J	0.07	J	0.09	J	0.06	J	0.11	J
Benzo(b)fluoranthene	0.26	J	0.13	J	0.14		0.13	J	0.18	
Benzo(k)fluoranthene	0.35	J	0.16	J	0.22	J	0.16	J	0.31	
Benzo(g,h,i)perylene	0.2	J	0.09	J	0.09	J	0.09	U	0.15	
Chrysene	0.73		0.45		0.65		0.48		0.64	
Dibenzo(a,h)anthracene	0.07	J	0.02	J	0.03	J	0.02	J	0.07	J
Fluoranthene	2.25		1.05		1.73		1.42		1.98	
Fluorene	0.54		0.33		0.5		0.56		0.78	
Indeno(1,2,3-c,d)pyrene	0.13	J	0.07	U	0.07	U	0.07	U	0.1	J
Naphthalene	1.09		0.73		0.9		0.84		1.16	
Phenanthrene	2.51		1.38		2.02		2.3		3.24	
Pyrene	2.04		1.02		1.65		1.34		1.74	
PAH Total	12.17		6.71		9.89		9.11		12.62	

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	008				
	008 A N.v. Tissue	008 B N.v. Tissue	008 C N.v. Tissue	008 D N.v. Tissue	008 E N.v. Tissue
CONTAMINANT	REP1 *	REP2 *	REP3 *	REP4 *	REP5 *
PCB Congeners (ng/g wet wt.)					
8	1.09	0.71	1.32	1.18	0.7
18	39.31	28.63	37.73	35.25	29.76
28	29.21	20.48	28.96	24.9	20.29
44	14.12	11.9	13.53	14.94	13.69
52	80.19	72.36	97.08	83.7	79.5
66	8.84	7.59	8.48	7.86	6.86
101	30.82	32.73	37.38	36.	35.07
105	10.23	10.84	12.64	10.86	11.6
118	14.59	15.11	16.89	16.61	14.4
128	8.27	7.64	8.61	8.1	8.56
138	32.92	39.03	42.26	40.35	41.56
153	30.18	36.19	39.33	36.14	39.07
170	3.85	4.93	4.87	3.23	3.24
180	4.99	4.65	5.07	4.9	5.02
187	3.02	4.11	3.89	4.08	3.22
195	0.29	0.38	0.37	0.43	0.43
206	0.25	0.31	0.32	0.37	0.34
209	0.08	0.07	0.07	0.08	0.09
Total PCBs	624.50	595.32	717.60	657.96	626.80

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection belov

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

	008									
	008 A N.v. Tissue		008 B N.v. Tissue		008 C N.v. Tissue		008 D N.v. Tissue		008 E N.v. Tissue	
CONTAMINANT	REP1	*	REP2	*	REP3	*	REP4	*	REP5	*
Pesticides (ng/g wet weight)										
Aldrin	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
cis-Chlordane	0.13		0.1		0.1		0.12		0.12	
trans-Chlordane	0.12		0.07		0.09		0.1		0.11	
cis-Nonachlor	1.43		1.79		1.82		1.77		1.69	
trans-Nonachlor	0.29		0.22		0.26		0.27		0.31	
Oxychlordane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Total Chlordanes	2.02		2.23		2.32		2.31		2.28	
4,4'-DDT	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDD	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	0.61		0.73		0.68		0.73		0.71	
Total DDT	0.71		0.83		0.78		0.83		0.81	
Dieldrin	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
alpha-Endosulfan	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
beta-Endosulfan	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U
Endosulfans	0.08		0.08		0.08		0.08		0.08	
Endrin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U
Heptachlor epoxide	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Hexachlorobenzene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Lindane	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Toxaphene	5.42	U	2.76	U	2.83	U	2.86	U	2.83	U

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

APPENDIX TABLE. REPLICATE BIOA(

CONTAMINANT	008 008 A N.v. Tissue REP1	*	008 B N.v. Tissue REP2	*	008 C N.v. Tissue REP3	*	008 D N.v. Tissue REP4	*	008 E N.v. Tissue REP5	*
Dioxins (pg/g wet weight)										
2378 TCDD		NA		NA		NA		NA		NA
12378 PeDD		NA		NA		NA		NA		NA
123478 HxDD		NA		NA		NA		NA		NA
123678 HxDD		NA		NA		NA		NA		NA
123789 HxDD		NA		NA		NA		NA		NA
1234678 HpDD		NA		NA		NA		NA		NA
OCDD		NA		NA		NA		NA		NA
2378 TCDF		NA		NA		NA		NA		NA
12378 PeDF		NA		NA		NA		NA		NA
23478 PeDF		NA		NA		NA		NA		NA
123478 HxDF		NA		NA		NA		NA		NA
123678 HxDF		NA		NA		NA		NA		NA
123789 HxDF		NA		NA		NA		NA		NA
234678 HxDF		NA		NA		NA		NA		NA
1234678 HpDF		NA		NA		NA		NA		NA
1234789 HpDF		NA		NA		NA		NA		NA
OCDF		NA		NA		NA		NA		NA
PCB - 77		NA		NA		NA		NA		NA
PCB - 81		NA		NA		NA		NA		NA
PCB - 105		NA		NA		NA		NA		NA
PCB - 114		NA		NA		NA		NA		NA
PCB - 118		NA		NA		NA		NA		NA
PCB - 123		NA		NA		NA		NA		NA
PCB - 126		NA		NA		NA		NA		NA
PCB - 156		NA		NA		NA		NA		NA
PCB - 157		NA		NA		NA		NA		NA
PCB - 167		NA		NA		NA		NA		NA
PCB - 169		NA		NA		NA		NA		NA
PCB - 189		NA		NA		NA		NA		NA

*** = Qualifiers**

U Analyte not detected; below Metho

J Analyte estimated; detection below

NA Not Analyzed

Appendix L

BATTELLE Chain of Custodies

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Battelle
. . . Putting Technology To Work

Chain of Custody

~~1L jar~~

Proj. No	Proj. Name
G6008116-0001b	New Bedford Harbor

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7-29-05	1015	EAG-051-G	58669	(*) BBIDS site water for PCB/pest 1 Liter jar	✓	✓									1
~~"~~	~~0800~~														
7/29/05	0800	~~EAG~~-052-G	58670	Grab rinsate blank 1L jar	✓	✓									1
"	1400	EAG-053-G	58671	core rinsate blank 1L jar	✓	✓									1
"	1400	" 054-G	58672	pump " " 1L	✓	✓									1
7-30-05	0830	EAG-056-G	58673	(*) BBIDS site water for PCB/pest	✓	✓									2

Relinquished by:	Date/Time		Received by:	Date/Time	
[signature]	7/29/05	1800	[signature]	8/1/05	6:30
Relinquished by:	Date/Time		Received by:	Date/Time	
[signature]	8/1/05	1300	[signature]	8/2/05	14:00

Comments:
(*) RISDS + BBIDS should be analyzed in triplicate + MS + MSD should be performed on one of these.
on ice

ORIGINAL

Battelle
The Business of Innovation

Chain of Custody

397 Washington Street
Duxbury, MA 02332
Phone: 781-952-5200
Fax: 781-934-2124

Proj. No: GL06416
Proj. Name: New Bedford Harbor

SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST (1)	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
7/26/05		58694	EAG-1001-G	Composite of Sites: A, C, D, E	✓	✓									1
7/26/05		58695	EAG-1002-G	F, G, I, K											
7/26/05		58696	EAG-1003-G	H + J											
7/27/05		58697	EAG-1004-G	L, M, N											
7/25/05		58698	EAG-1005-G	O, P, Q, R, S, T, U, V, W, XX, AA + BB											
7/25/05		58699	EAG-1006-G	CC, DD, GG, HH, LL, MM, + KK											
7/27/05		58700	EAG-1007-G	EE, FF, II, JJ											
7/30/05		58701	EAG-1008-G	BBDS											
7/29/05		58702	EAG-1009-G	RISDS											
7/29/05		58703	EAG-1010-G	1, 2, 3											

Relinquished by:	Date/Time	Received by:	Date/Time
	8/1/05 1500		8/2/05 14:00
Relinquished by:	Date/Time	Received by:	Date/Time

Comments:
1) See workplan or Carole Peven for instruction on analyses.

ORIGINAL

Battelle
The Business of Innovation

Chain of Custody

397 Washington Street
Duxbury, MA 02332
Phone: 781-952-5200
Fax: 781-934-2124

Proj. No: G606416
Proj. Name: New Bedford Harbor
SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	~~OTHER~~ Archive - frozen	ACIDIFIED	PRESERVED	Total Number of Containers
7/26/05		58684	EAG-1001-L	Composite of Sites A, C, D & E								✓			1
↓		58685	EAG-1002-L	F, G, I K								✓			↓
		58686	EAG-1003-L	H + J								✓			
7/27/05		58687	EAG-1004-L	L, M, N								✓			
7/25/05		58688	EAG-1005-L	O, P, Q, R, S, T, U, V, W, X, Y, AA + BB								✓			
7/25/05		58689	EAG-1006-L	CC, DD, GG, HH, LL, MM, + KK								✓			
7/27/05		58690	EAG-1007-L	EE, FF, II, JJ								✓			
7/30/05		58691	EAG-1008-L	BB DS								✓			
7/29/05		58692	EAG-1009-L	RJ SDS								✓			
7/27/05		58693	EAG-1010-L	1, 2, + 3								✓			

Relinquished by:	Date/Time	Received by:	Date/Time
	8/1/05 5/6 1500 TH ~~16:00~~		8/2/05 14:00
Relinquished by:	Date/Time	Received by:	Date/Time

Comments:

ORIGINAL

Battelle
The Business of Innovation

Chain of Custody

397 Washington Street
Duxbury, MA 02332
Phone: 781-952-5200
Fax: 781-934-2124

Proj. No: G6064116
Proj. Name: New Bedford Harbor
SAMPLERS: Signature

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	~~OTHER~~ ARCHIVE - COLD	ACIDIFIED	PRESERVED	Total Number of Containers
7/26/05		58704	EAG-1001-E	Composite of Sites A, C, D + E								1			1
7/26/05		58705	EAG-1002-E	F, G, I, K								1			
7/26/05		58706	EAG-1003-E	H + J								1			
7/27/05	58707	s/b EAG-1004-E	~~EAG-1004-E~~	L, M, + N								1			
7/25/05	58708	TH	EAG-1005-E	O, P, Q, R, S, T, U, V, W, X, Y, AA + BB								1			
7/25/05		58709	EAG-1006-E	CC, DD, GG, HH, LL, MM, KK								1			
7/27/05		58710	EAG-1007-E	EE, FF, II, JJ								1			
7/30/05		58711	EAG-1008-E	BB'DS								1			
7/29/05		58712	EAG-1009-E	RISDS								1			
7/27/05		58713	EAG-1010-E	1, 2+3								1			

Relinquished by:	Date/Time	Received by:	Date/Time
	8/1/05 15:00		8/2/05 14:00
Relinquished by:	Date/Time	Received by:	Date/Time

Comments:

ORIGINAL

ESI

EnviroSystems, Inc.
1 Lafayette Road
Hampton, N.H. 03842

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

Client: Battelle Labs	Contact: Lisa Leftkowitz	Project Name: New Bedford	Page 1 of 2
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager: L. Leftkowitz	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE # Containers Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
S8985	Comp1 ACDE 3	8/9/05	-	ESI	G	3.8L	G	4°C	W		Chlorinated Organics
S8986	Comp2 1,2,3 3	8/9/05	-	"	G	"	"	"	"		"
S8987	Comp3 H, J 1	8/9/05	-	"	G	"	"	"	"		"
S8988	Comp4 L, M, N 1	8/9/05	-	"	G	"	"	"	"		"
S8989	Comp5 O-BB 1	8/10/05	-	"		"	"	"	"		"
S8990	Comp6 CC-KK 2	8/10/05	-	"		"	"	"	"		"
S8991	Comp7 FF-JJ 2	8/10/05	-	"		"	"	"	"		"
S8992	Comp8 F-K 2	8/10/05	-	"		"	"	"	"		"
S8993	Comp9 A,C,D,E Blank 1	8/11/05		"		"	"	"	"		"
S8994	Comp2 1,2,3 Blank 3	8/4/05		"		"	"	"	"		"
S8995	Comp3 H, J Blank 3	8/4/05		"		"	"	"	"		"
S8996	Comp4 L, M, N Blank 3	8/4/05		"		"	"	"	"		"

Relinquished By: [signature]	Date: 8/12/05 Time: 0825	Received By: [signature]	Date: 8/12/05 Time: 0825
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

No: NO 1 of 0

ESI EnviroSystems, Inc.
1 Lafayette Road
Hampton, N.H. 03842

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

Client: Battelle Labs	Contact: Lisa Lefkowitz	Project Name: New Bedford	Page 2 of 2
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager: Lisa Lefkowitz	
Voice:	Fax:	email: –	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
S8997	Comp5 O-BB Blank[1]	8/4/05		ESI		3.8L	G	4°C	W		Eluviate Organics
S8998	Comp6 CC-KK Blank[1]	8/4/05		"		"	"	"	"		"
S8999	Comp7 FF-JJ Blank[1]	8/4/05		"		"	"	"	"		"
S9000	Comp8 F-K Blank[2]	8/4/05		"		"	"	"	"		"

Relinquished By: [signature]	Date: 8/12/05 Time: 0825	Received By: [signature]	Date: 8/12/05 Time: 0825
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

No: NO 1 of 1

Sampl[illegible]livery Group No: Page of

-27.7

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT:	CONTACT:	PROJECT NAME:	P.O. #
Battelle	Lisa Lefkovitz	New Bedford, MA	
REPORT TO:	ADDRESS:		PHONE:
INVOICE TO:	ADDRESS:		SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
59759	Lab A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59760	Lab B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59761	Lab C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59762	Lab D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59763	Lab E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59764	BBDS A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59765	BBDS B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59766	BBDS C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59767	BBDS D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59768	BBDS E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 1500
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT:	CONTACT:	PROJECT NAME:	P.O. #
Battelle	Lisa Lefkovitz	New Bedford, MA	
REPORT TO:	ADDRESS:		PHONE:
INVOICE TO:	ADDRESS:		SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
S9769	RISDS A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9770	RISDS B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9771	RISDS C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9772	RISDS D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9773	RISDS E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9774	001 A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9775	001 B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9776	001 C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9777	001 D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9778	001 E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 15:00
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT: Battelle	CONTACT: Lisa Lefkovitz	PROJECT NAME: New Bedford, MA	P.O. #
REPORT TO:	ADDRESS:		PHONE:
INVOICE TO:	ADDRESS:		SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
S9779	003 A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9780	003 B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9781	003 C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9782	003 D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9783	003 E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9784	008 A *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9785	008 B *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9786	008 C *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9787	008 D *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
S9788	008 E *M.n. Tissue*	10/13/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 1500
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT:	CONTACT:	PROJECT NAME:	P.O. #
Battelle	Lisa Lefkovitz	New Bedford, MA	
REPORT TO:	ADDRESS:		PHONE:
INVOICE TO:	ADDRESS:		SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
59789	Lab A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59790	Lab B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59791	Lab C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59792	Lab D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59793	Lab E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59794	BBDS A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59795	BBDS B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59796	BBDS C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59797	BBDS D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59798	BBDS E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 15:00 Battelle Ocean Sciences
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT:	CONTACT:	PROJECT NAME:	P.O. #
Battelle	Lisa Lefkovitz	New Bedford, MA	
REPORT TO:	ADDRESS:		PHONE:
INVOICE TO:	ADDRESS:		SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
59799	RISDS A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59800	RISDS B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59801	RISDS C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59802	RISDS D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59803	RISDS E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59804	001 A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59805	001 B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59806	001 C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59807	001 D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59808	001 E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 15:00
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

CHAIN OF CUSTODY RECORD

ENVIROSYSTEMS, INCORPORATED

ESI STUDY #13569

One Lafayette Road, P.O. Box 778, Hampton, New Hampshire 03843

Customer Services: Phone # (603) 926-3345
Fax # (603) 926-3521

PAGE 1 OF

CLIENT:	CONTACT:	PROJECT NAME:	P.O. #
Battelle	Lisa Lefkovitz	New Bedford, MA	

REPORT TO:	ADDRESS:	PHONE:
INVOICE TO:	ADDRESS:	SAMPLED BY:

SAMPLE #	FIELD IDENTIFICATION (MUST AGREE WITH CONTAINER)	DATE SAMPLED	COMPOSITE (YES/NO)	TIME SAMPLED	SAMPLE MATRIX	CONTAINER #/VOL/TYPE	DID YOU FIELD PRESERVE	NOTES / ANALYSIS REQUESTED (SPECIAL INSTRUCTIONS, CAUTIONS, ETC.)
59809	003 A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59810	003 B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59811	003 C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59812	003 D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59813	003 E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59814	008 A *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59815	008 B *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59816	008 C *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59817	008 D *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client
59818	008 E *N.v. Tissue*	09/22/05	No	N/A	Tissue	8oz glass	Frozen	As Per Client

RELINQUISHED BY:	DATE: 10/27/05	TIME: 1500	RECEIVED BY: 10/28/05 15:00
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

COMMENTS:

APPENDIX 38

GEOPHYSICAL INVESTIGATION REPORT
NEW BEDFORD MARINE COMMERCE TERMINAL
UPLAND GEOPHYSICAL INVESTIGATIONS

For the:
Massachusetts Clean Energy Center

June 2011

Apex Companies, LLC
184 High Street - Suite 502
Boston, MA 02210

INTRODUCTION AND PURPOSE

This "Geophysical Investigation Report – New Bedford Marine Commerce Terminal, Upland Geophysical Investigations" was prepared by Apex Companies, LLC (Apex) for the Massachusetts Clean Energy Center.

The objective of this geophysical investigation was to detect and characterize the subsurface at the site in an attempt to identify potential underground man-made structures (which could include buried pipes, buried septic systems, buried debris, buried former foundations, vaults, underground storage tanks (USTs), and/or other potential buried objects within the survey area) which might affect proposed surface construction, future foundation construction, and/or other subsurface investigation activities.

UPLAND STUDY AREA DEFINITION AND MEASUREMENT SPACING

The geophysical data was collected within the Areas of Interest (AOI), within properties anticipated to be included within the New Bedford Marine Commerce Terminal, including portions of (or the entire area of) the following properties (as referenced by Map and Block numbers issued by the New Bedford Assessor's Office): Map 31 Block 288 (also referred to as the "Unoccupied Shuster Property", Map 25A, Block 53 (also referred to as the "Northern Department of Marine Fisheries (DMF) Property", Map 25A, Block 49 (also referred to as the "Southern DMF Property"), and Map 25A, Block 48 (also referred to as the "City of New Bedford Property"). The exact boundaries of the Areas of Interest were determined during a walkthrough of the above-noted properties, but generally consisted of accessible areas (i.e. areas that allowed access of geophysical equipment) within the above-noted properties. Certain areas of the Unoccupied Shuster Property were densely covered with vegetation and therefore were not accessible, similarly certain areas contained a high concentration of rocks which also impeded data collection. It is Apex's estimate that data collection represents a sampling frequency sufficient to provide analysis of approximately 80% of the area of the above-noted properties.

Complete coverage Time Domain Electromagnetic Induction (TDEM) data was collected continuously (at a rate of at least 4 readings per second) over the Areas of Interest along traverses spaced approximately 2 – 3 feet apart. The TDEM data was position-stamped utilizing Differential Global Position System (DGPS) coordinates, and cross-checked with the grid established for the Ground Penetrating Radar (GPR) survey. Survey lines are shown on **Figure 1**.

Ground Penetrating Radar (GPR) data was collected continuously along "north-south" and "east-west" transects spaced approximately 5 to 15 feet apart over the survey footprint. GPR lines over select electromagnetic targets were also collected to further characterize potential subsurface anomalies identified from the EM data results.

METHODOLOGY

The geophysical methods best suited for this type of subsurface characterization are Time Domain Electromagnetic Induction (TDEM) in conjunction with Ground Penetrating Radar (GPR). TDEM instruments are sensitive to both ferrous and non-ferrous metals, are able to detect a buried 10 inch pipe to depths approaching 10 feet, are fast and easy to operate over rough terrain, and can be operated near buildings, fences, and power-lines. GPR utilizes electromagnetic waves propagated from an antenna focused on the ground surface to detect features or structures in the subsurface having contrasting electromagnetic properties, and is used in conjunction with TDEM data to further characterize anomalies identified from the TDEM data and to identify non-metallic structures in the subsurface.

The results of TDEM data collection were gridded and contoured into a color-coded plan-view contour map of the TDEM data. From this map, it is generally easy to pick out buried metallic structures, which show up as high intensity (red, orange, or pink) "anomalies" on the map view, examples of the field data can be found in **Appendix B**.

GPR results are obtained as cross-sectional representations of the response of the subsurface to emitted electromagnetic waves. This combination of TDEM data in map view with GPR data in cross-sectional view provides for the geophysical interpreter a three-dimensional representation of how the subsurface responds to induced electromagnetic energy.

Apex geophysicists performed the geophysical survey design, data collection, data reduction, and data interpretation. Details concerning the specific equipment utilized are presented in the sections below.

Instrumentation

Apex preformed Time Domain Electromagnetics (TDEM) survey on February 21st – 25th, February 28th – March 4th, March 7th – March 11th, 2011.

The Geonics EM61 Mk-II is a Time Domain Electromagnetic (TDEM) instrument that is currently considered one of the state-of-the-art technologies for the detection of subsurface metallic objects and features. The EM61 utilizes two receiver coils to measure the residual magnetic field generated by conductive and/or magnetic materials. In general, the EM61 employed for this project was designed to measure the residual magnetic field at a time when the response from conductive and/or magnetic objects is maximized compared to the response from most earth materials. The use of two receiver coils also makes it possible to differentiate, in a simplistic fashion, shallow versus deeper objects. An additional benefit of the specific design of the EM61 system is that it permits a more focused observation of the subsurface in areas of cultural interference, as well as in areas characterized by a high

spatial density of subsurface objects (i.e., it can differentiate between a high number of smaller buried metallic objects than its predecessor models, even in areas with high background noise). This capability is due to both the mechanical design and operational parameters of the instrument, as well as the inherent nature of active electromagnetic fields, which diminish in magnitude at a much higher rate than other sensor technologies such as magnetometry.

The primary factors that affect the "detectability" of objects or features with TDEM methods include: volumetric size and orientation; distance from the sensor; and material properties contrast between the object or feature and the surrounding materials.

Differential Global Positioning System (DGPS)

The Differential Global Positioning System (DGPS) system used for this project was a Trimble Pathfinder-ProXRS. The system utilizes satellite navigation technology to precisely (within approximately one meter accuracy) identify location in real-time (readings are collected approximately once per second). The Trimble Pathfinder is a dual frequency system that can provide the highest location accuracy (given the current technology) under the conditions anticipated at the site under investigation. An additional benefit is that the DGPS antenna is small and can be mounted directly onto the EM61 coils without significantly interfering with the TDEM signal.

The EM61 and DGPS instrumentation were operated in a manner consistent with the general procedures documented in their respective operational manuals. DGPS functional checks included occupation of known control points, as well as the reacquisition of specific targets or above-ground features generated from the interpretation of the geophysical data.

Ground Penetrating Radar (GPR)

Apex preformed GPR surveys on April 6th – April 8th, 2011 with the GSSI SIR-3000. The GSSI SIR-3000 GPR instrument is a portable, field-rugged system that has a built-in 8.5-inch high resolution monitor for real-time data analysis. Data is stored on an internal disk drive. The SIR-3000 can be used with a variety of antennas from 2500 megahertz (MHz) to less than 50 MHz. Based on the objectives of this geophysical investigation, a 400 MHz antenna was utilized, as it was considered the most likely to provide the necessary resolution and depth penetration for the targets and features sought.

GPR is a geophysical technique that utilizes the propagation of short wavelength (high frequency) electromagnetic waves into the subsurface to detect buried features. Records of the waves reflected back by features and structures in the subsurface that possesses contrasts in electrical properties are obtained in digital format. The GPR record is most

often displayed as a distance (horizontal) versus time (vertical) plot (in cross-section), and is recorded digitally to allow for post-acquisition processing. Although a GPR record is a complex composition of interface patterns, loss mechanisms (geometric, mechanical, and chemical), and reflections, its picture-like character can make it a very useful tool in the detection of buried subsurface features. The depth of investigation of radar is generally shallow due to the high frequencies utilized, however this disadvantage is (at least) partially offset by the increased resolution it offers over other geophysical techniques.

The "picture-like" character of GPR can make it a very useful tool to delineate many shallow subsurface features. The detection of an object or feature by the GPR system depends primarily upon the electrical properties of the host (i.e., natural site conditions, or "background") and target (i.e., buried structure, utility, void, etc.) materials. The subsurface parameters that dominate the propagation of the radar wave are the dielectric permittivity and the conductivity. The dielectric permittivity controls the velocity of the radar wave, and the conductivity controls the attenuation of the radar wave. Accordingly, subsurface materials or objects characterized by higher conductivities (i.e., metallic objects, moist or wet clays, saline water, and other conductive materials) attenuate the radar signal more readily.

PROCEDURES - Data Collection

Survey Design - EM61 Electromagnetics

The survey line spacing for the EM61 survey was approximately 2 - 3 feet (EM61 data was collected along lines spaced approximately 2 feet apart), resulting in complete, overlapping EM coverage of the AOI footprint. The survey was conducted along multiple parallel lines within the survey area. Several cross-lines were included within the survey area in order to provide data quality cross-checks. The EM61 data collection track lines are shown in **Figure 1**.

The survey setup involved a mounted coil (sensor) system placed on a specially designed wheel "harness" which was pulled by the field geophysicist along pre-designated survey lines. The GPS receiver was attached to the EM61 via a (non-metallic) fiberglass-pipe tripod mounting bracket attached to the EM61 top coil. A continuous data stream was collected from both the EM61 and the GPS units, and logged via a PC data-logger for post processing of position and TDEM data merging.

Survey Design - Ground Penetrating Radar

The GPR data was collected along "north-south" and "east-west" traverses along a 10 – 15 foot grid established over the proposed area of construction and along selected traverses across TDEM anomalies. **Figure 1** shows the approximate location of GPR survey lines collected for the initial phase of the investigation.

The GPR data collected in the field was both saved in the internal memory of the GPR unit, and saved to a removable disk for later post-processing and data play-back. Position information was obtained simultaneously and streamed into the data collector at the same time as surveying. Surveying in the cross points of the major grid lines and known corners for verification (utilizing the hand-held DGPS receiver), which transferred the position data to a data-logger for downloading after completion of the survey.

Data Processing

The data processing for this study was conducted in keeping with industry standards, and was performed using state-of-the-art and well-tested software. The Apex on-site geophysicist performed preliminary geophysical data processing in the field. Processing, analysis and interpretation of the data was performed with internally and commercially developed software that has been specifically produced to integrate and interpret digital geophysical data acquired with DGPS positioning systems. Several steps were performed to process the geophysical data prior to analysis:

Electromagnetics (TDEM)

GPS data was processed and transformed into the Universal Transverse Mercator coordinate system. GPS/TDEM data merging was checked for lag errors by analyzing linear anomalous trends for offsets. Offset corrections were applied where necessary. EM61 instrument bias was removed, signal drift was corrected where necessary, and minor instrument positioning corrections were applied.

Positioning and EM61 signal statistics were calculated; erroneous measurements were identified and removed from the data file. The TDEM data was analyzed utilizing the GeoSoft, Inc. "Oasis Montaj" geophysical data analysis software.

Data was interpreted using two independent modes of target prediction (1-D profile data and 2.5-D color-coded image data) to provide location information for each set of anomalous readings (different from surrounding readings). A color-coded image of the TDEM intensity (blues and greens for low TDEM readings, reds and oranges for high TDEM readings) was generated in order to assist the interpreter.

Ground Penetrating Radar (GPR)

The clarity of the images is influenced by the signal attenuation (in the subsurface), the amount of debris in the subsurface causing strong reflectors to be present, and the moisture content of the subsurface materials. Calibration of the system using gain controls and high and low pass filters were regularly performed to account for changing subsurface soil conditions within certain areas of survey, thus ensuring the best possible images were obtained.

Interpretation Techniques

The following sections describe the procedures utilized by Apex geophysicists in their interpretation of the multi-phased geophysical data collected on both of the properties respectfully. Initially, the interpretations of the TDEM and GPR data were conducted independently then merged. Discrepancies between the two interpreted data sets were resolved through interactive re-interpretation. An interactive interpretation procedure is utilized, whereby the interpreting geophysicist defines a possible interpretation scenario from the first "layer" of data (i.e., the TDEM data), then adds another "layer" of data (i.e., the GPR data), then re-interprets the resulting composite data interpretation, (and so-on) until the best fit interpretation for all of the available qualified data is achieved.

Electromagnetics (TDEM)

For the interpretation of the Time Domain Electromagnetic (TDEM) data, two primary modes of interpretation were used: 1D profile interpretation; and 2.5D interpretation using color-coded measurement data. For the profile interpretation, EM61 data maps were graphically displayed on the computer screen for review by the interpreter, data used for

this interpretation is attached in **Appendix B**. TDEM data were displayed with EM61 amplitudes along the y-axis, versus distance or sample points along the x-axis. The geographic positions of the displayed data were also graphically displayed on the computer screen along with any comments entered into the positioning system (e.g. surface metal, etc.). The anomalies selected were based on peak amplitudes above background values and/or the percentage of points above a local background value. The interpreter selected the minimum amplitude and percentage above background for anomaly targets. Background values are determined using the mode of a specified number of points in the data acquisition session, or by taking the median value of the data within a user-defined number of samples around the anomaly.

For 2.5D color-coded interpretation, the interpreter plots the target selection results of the 1D process on a mathematically gridded color-coded map (see **Figure 2**). The interpreter has the ability to modify targets based on evaluation of the spatial relationships within the data (e.g., pick a single target location for several 1D interpretation points that are closely–spaced), as well as deselect targets and features that appear to be aboveground features.

Ground Penetrating Radar

The interpretation of the GPR data consisted of the interpreting geophysicist identifying features and targets of interest on the data profiles (printing out data and data playback conducted in a digitally controlled environment on next-generation computing platforms using the GPR data processing and interpretation software RADAN©) and mapping these features in terms of their lateral extent. The amplitude of the response as well as the shape of the reflection was collectively utilized to interpret the data. Representative symbols were transcribed onto the plan maps of the site, representing the potential objects and features of interest for further investigation.

RESULTS

The following sections describe the results of the TDEM and GPR surveys conducted on the Unoccupied Shuster Property, Northern and Southern DMF Properties and City of New Bedford Properties.

The results of the TDEM survey are shown on the color registered contour plans of the TDEM response data shown on **Figure 2**. All EM61 data was compiled into a single file containing relative X and Y coordinates and the EM61 response data (Z coordinates). Data for each of the two instrument reading "coils" was interpolated to a regular grid using a minimum curvature gridding algorithm. The data was then displayed as high resolution color plots as shown. High electromagnetic responses appear as pinks or reds, whereas a low or "quiet" response is identified by blue or green colors.

The results of the GPR transects were interpreted by experienced geophysicists in order to identify areas of potential GPR anomalies. Results have been rendered on **Figure 3** as target "tick-marks" and "areas of anomalous GPR signature".

Electromagnetics (EM)

The Electromagnetic response within the survey area shows a variety of buried and surficial metallic objects (see **Figure 2**). The high electromagnetic responses are seen as pinks and reds, indicative of metallic objects or materials that have metallic or magnetic content or inclusions. Surface metal was noted during data collection and disregarded during the interpretation of subsurface objects.

<u>Surficial metallic objects displayed in the EM data include:</u>

- Fence that surrounds part of the Northern and Southern DMF properties;
- Manholes and utility covers;
- Catch basins;
- Utility poles;
- Light posts;
- Drain clean outs;
- Fire hydrants;
- Metal fences and gates;
- Traffic and other signs in parking area;
- Reinforced sidewalks;
- The curb surrounding the parking areas and street;
- Surficial debris located at the edge of the woods and within the woods;
- Surficial debris in grassy area and area that had been cleared on the properties;

- Metallic objects within possible old building footprint will also give a high EM response.

An EM response related to subsurface objects can come from a many types of structures including, pipes, septic systems, buried debris, and geologic features. Subsurface metallic features that may result in anomalous EM data include:

- Linear anomalies which indicate possible pipes and/or cables; and
- Isolated high EM responses indicate buried metallic debris or metallic or magnetic material in the subsurface.

A portion of the heavily vegetated area in the middle of the Unoccupied Shuster property was included as an area of interest for this survey. Due to the difficultly/incomplete clearing of the area, it was only possible to collect EM in a section of the area as seen in **Figure 2**. The interpretation of the data from this area suggests the possibility of some subsurface features. It may be necessary to clear the remaining vegetation in order to gain a clearer understanding of the potential features that may be found in the area.

Ground Penetrating Radar (GPR)

GPR results indicate the presence of multiple subsurface anomalies within the survey area. Anomalies are depicted as tick marks on **Figure 3** and identified with the anomalous objects approximate depth and orientation. Selected GPR transects are included in this report as **Appendix A**. GPR response will vary due to varying surface conditions such as grass, asphalt and other surface conditions, and the GPR was re-calibrated in the field when the GPR crossed between grass and asphalt whenever possible.

Anomalies interpreted indicate the potential presence of the following subsurface features:

Buried utility lines: numerous parabolic reflectors were noted in the GPR data, indicating the likely presence of buried utility lines, when oriented linearly. These varied from (small) possible buried electric lines to (larger) storm water drainage lines, or septic lines.

Chaotic/complex anomalies associated with EM anomalies in the within the area believed to be the buried building footprint. These very complex and chaotic anomalies were identified in the data ranging from shallow to deep. The random nature and chaotic signature of the anomalies is consistent with debris and/or possible structures buried in the subsurface.

INTERPRETATIONS

The geophysical data collected on both properties was processed and interpreted by Apex geophysicists. An interpretation of the composite EM and GPR data is presented on the "Electromagnetics and GPR Interpreted Results Map" in **Figure 2**. An "Interpretive Results Map" depicting only the interpretive lines is presented as **Figure 3**. It should be noted that not all anomalies identified in the EM and/or GPR data were interpreted as subsurface targets of interest. EM and GPR anomalies can be caused by a variety of subsurface conditions such as single item debris, rocks, and roots from trees, certain geological configurations, etc. Anomalies that were interpreted as being the result of either small debris, natural objects, or were not significant, were generally not translated onto the interpretive maps (unless they were deemed significant or of interest, or could be significant or of interest).

Many of the EM and GPR targets identified in the data exhibited coincident EM and GPR anomalies, while other features were interpreted from either singular EM responses or GPR-only anomalies. The following subsurface features were interpreted from the combined EM and GPR data:

Anomalies and Structures:

Within the fenced-in areas of the Northern and Southern DMF properties, as well as the grassy areas to the west of the DMF properties, the geophysical data indicates several drainage features:

- GPR anomalies indicate a possible drainage feature associated with a catch basin in the east within the fenced-in area of the Northern and Southern DMF properties and a catch basin/drywell in the southeast of the area. GPR anomalies suggest that a subsurface drainage structure connects these two catch basins. Anomalies also suggest a structure that trends southwest from the catch basin/drywell, which appears to split into two east/west trending structures.
- EM and GPR anomalies suggest that the more southern potential east/west trending structure discussed above may continue to the east where it appears to fork into a northwest/southeast trending structure that runs towards a potential drainage basin/wetland area. Anomalies also suggest that the east/west trending potential structure may continue to the south, where it appears to turn 90° to the east to potentially connect with a manhole located at the edge of the southern fence line.
- EM and GPR anomalies appear to indicate the presence of a structure that is associated with the drain and manhole located at the southern end of the fence line of the Northern and Southern DMF properties.

- EM and GPR anomalies suggest the presence of another drainage structure that originates to the west of the fence-line of the Northern and Southern DMF properties. The anomalies suggest the structure may trend east, where it appears to intersect with another drainage structure that trends north-south or possible underground storage.
- On the northeastern part of the Unoccupied Shuster property, EM and GPR anomalies suggest the presence of a drainage system that appears to include a large pipe trending southeast toward the water.
- In the grassy area on the western portion of the Unoccupied Shuster property, EM and GPR anomalies indicate the presence of possible building structure rubble.
- EM and GPR anomalies in the western part of the grassy area of the Unoccupied Shuster Property may indicate the presence of a building structure footprint north-south, anomalies also suggest that the possible footprint structure continues to the southeast, potentially into the Northern DMF Property.
- EM and associated GPR anomalies also indicate the presence of a potential structure that trends east-west, appearing to terminate at the northwest of the grassy area. It appears that the potential structure may connect with the above noted structure.
- There are linear EM and GPR anomalies that appear to be associated with the catch basins located west of the Northern and Southern DMF property fence, south of the Unoccupied Shuster Property, near Blackmer Street. The anomalies suggest potential subsurface drainage structures that connect the catch basins. The anomalies also indicate that a drainage structure may continue to the east toward the Northern and Southern DMF properties.

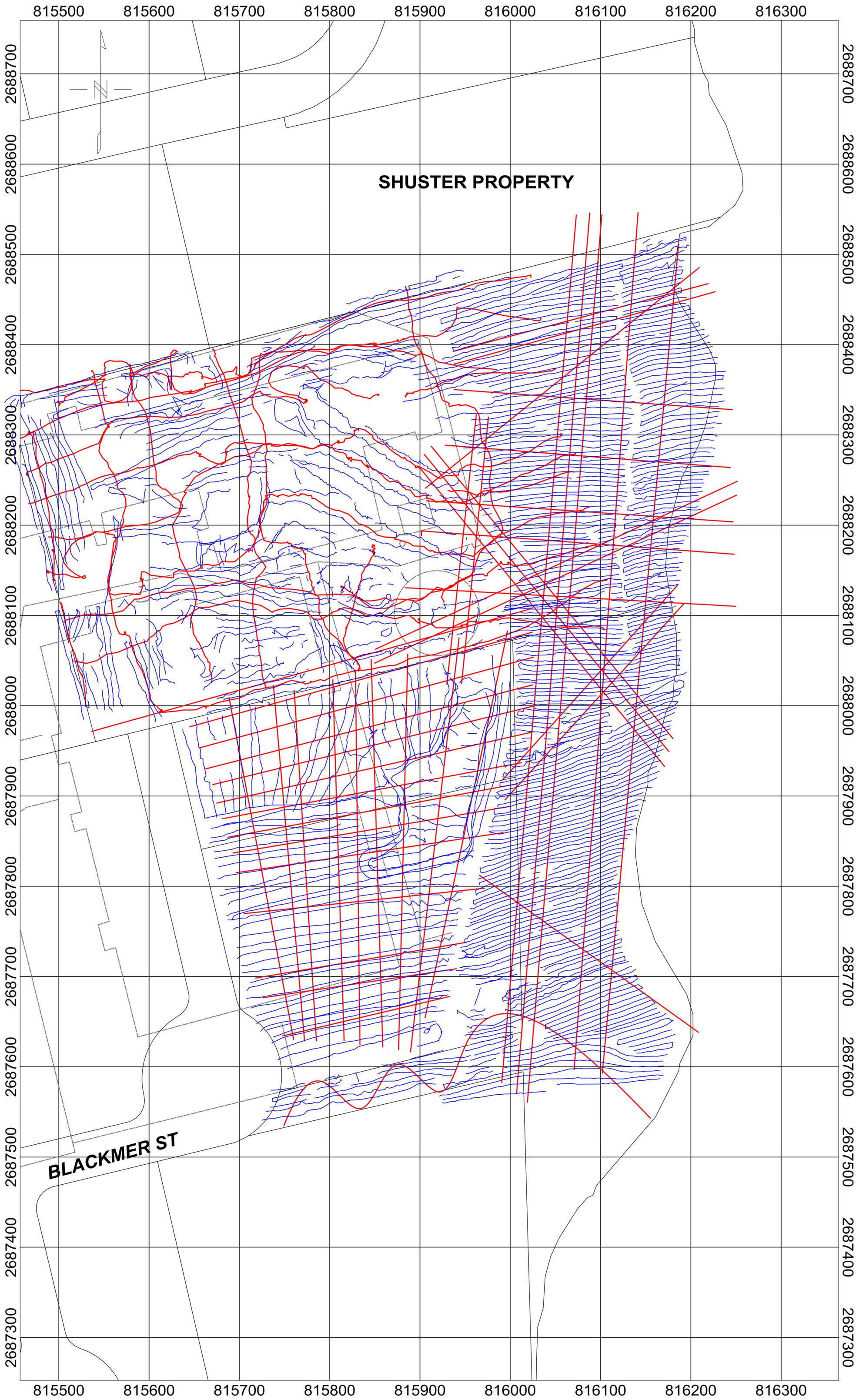
Buried Utilities:

The interpreted geophysical results suggest the presence of several linear anomalies likely to be indicative of the presence of buried utility lines at the site.

- There are EM and GPR anomalies that appear to extend from the north to the south. The anomalies appear to connect the riser with an overhead light pole. It is possible that these anomalies indicate the presence of a buried electric line. GPR anomalies also suggest that the potential electric line extends further to the east from the overhead light to another overhead light east of the parking lot. GPR anomalies also indicate that electric lines may run north and south from this overhead light to other lights in the north and south of the paved land with the Northern and Southern DMF properties.

Other Anomalous Subsurface Features:

1. EM and GPR data background levels varied depending upon the type of surface that existed in the survey areas (i.e., pavement areas exhibited a different background signature than did grassy or treed areas). Additionally, some of the low amplitude "scatter" seen in the EM and/or GPR data is likely the result of surficial or near-surficial debris or unknown structures. Features that were interpreted from the EM and GPR data include:
2. In the paved area within the Southern DMF property, the GPR data revealed a large underground anomaly. The GPR anomaly was very chaotic, and had high reflective properties. It is possible that it represents some debris or fill in the subsurface.
3. On the east side of the Northern and Southern DMF properties, EM and GPR anomalies may represent some subsurface features. It is unclear whether these anomalies have some relation to other possible buried structures, such as a potential leach field/wetland, or are just the result of subsurface debris.
4. In the grassy areas on the west side of the Unoccupied Shuster property, there are several EM and GPR anomalies that do not appear to be associated with any of the possible features or structures discussed above. They may potentially represent unknown buried structures, or may be the result of scattered subsurface debris or fill. To the north of the grassy area, some of these features appear to be subsurface structures as indicated by EM and GPR anomalies. The extent and nature of these features is unclear. In the southern half of the grassy area, geophysical anomalies may represent buried debris, such as a building footprint structure.
5. On the northeast side of the Unoccupied Shuster property, in a sandy environment, there is an EM and GPR anomaly that may potentially be related with several drainage structures discussed above. The EM anomaly may represent buried metallic debris, or a potential drywell and drainage structure.



Scale 1:1440

50 0 50 100 150

US survey foot

NAD83 / Massachusetts Mainland

ELECTROMAGNETIC SURVEY LINES

GPR SURVEY LINES

Figure 1

MASSACHUCHUSETTS CLEAN ENERGY CENTER
ELECTROMAGNETIC AND GPR SURVEY LINES
April 14, 2011

South Terminal Marine Infrastructure Park
Apex Companies LLC

6690 NBH_PHASE IV\oasis\em\em_nbh_south terminal EM 120sc.map

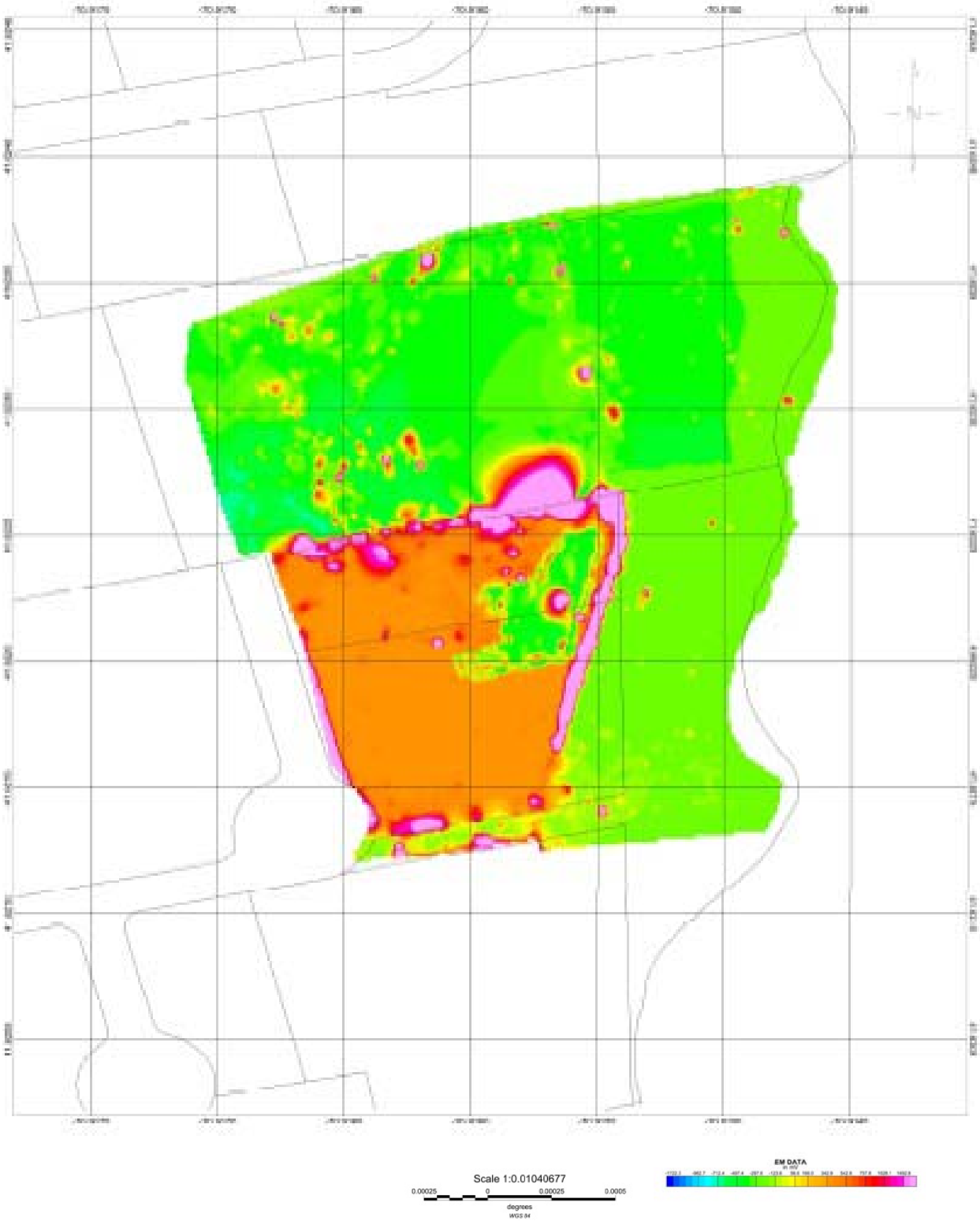
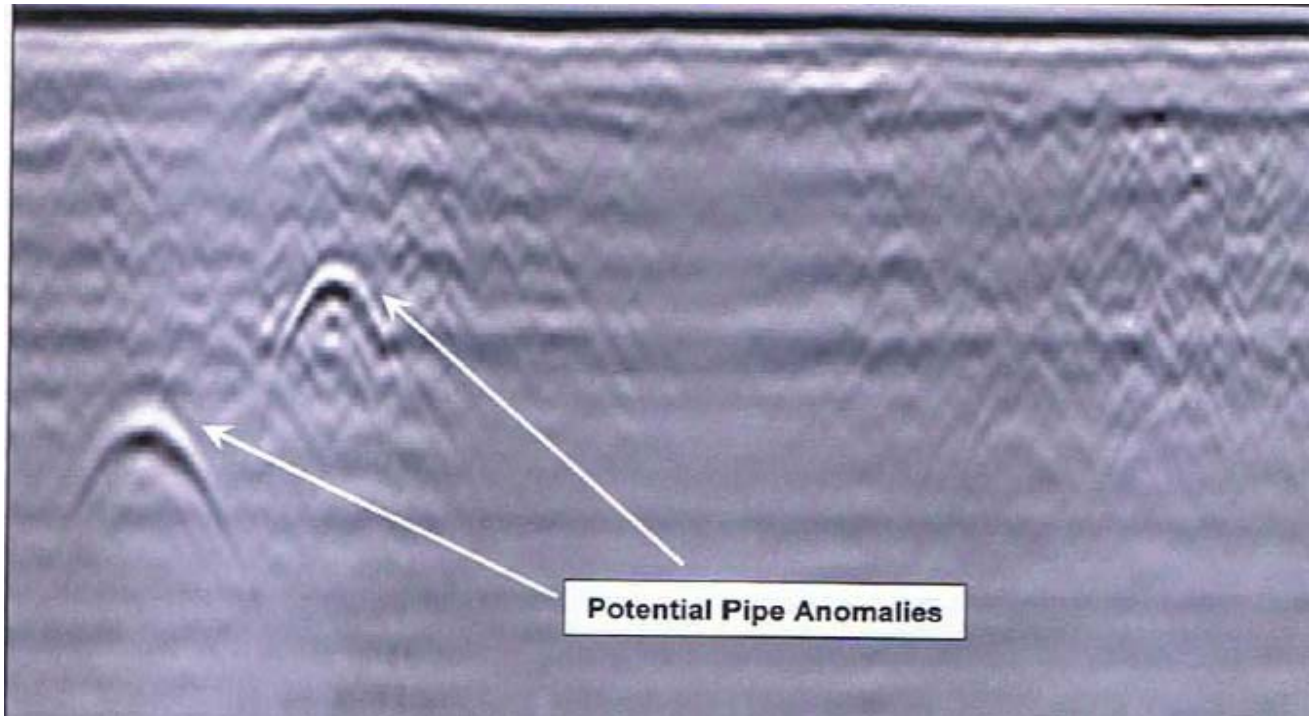


Figure 2 – EM Target Map

APPENDIX A

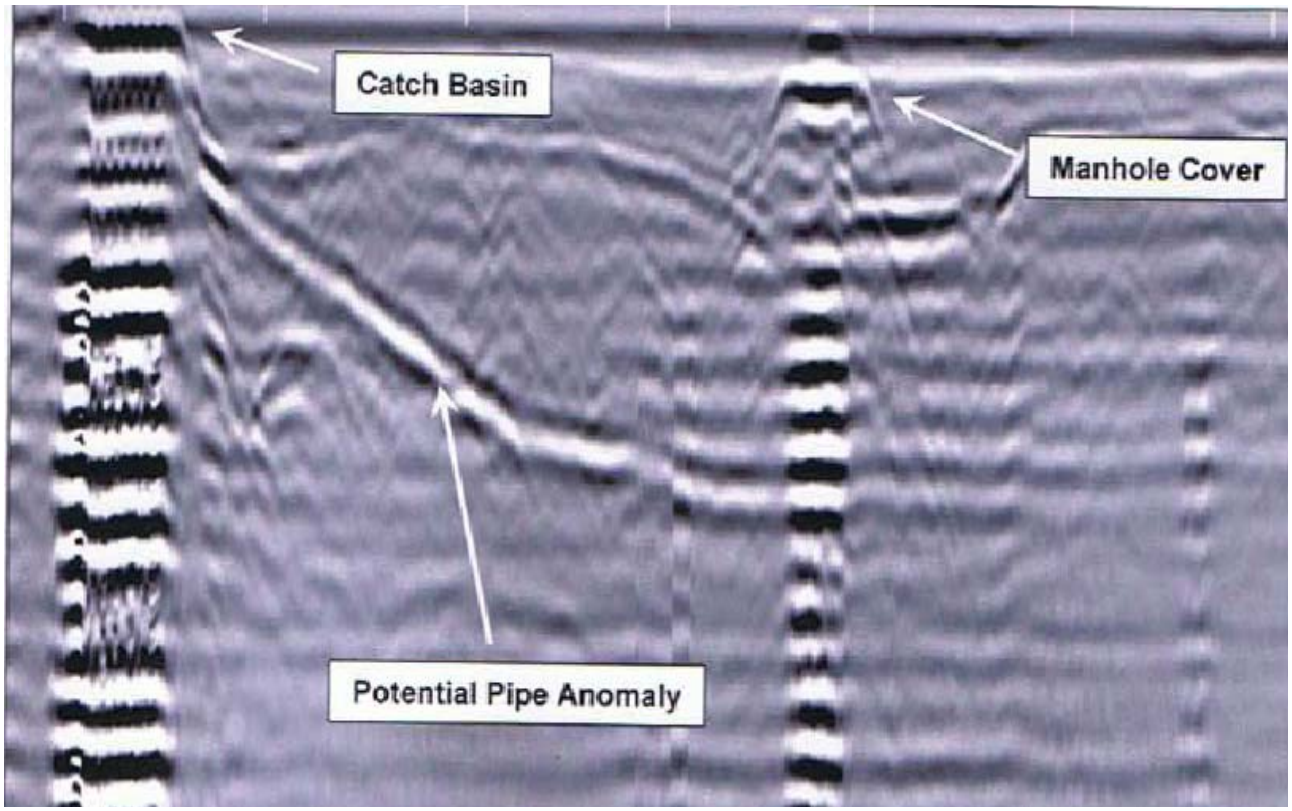
Selected GPR transects

Appendix A



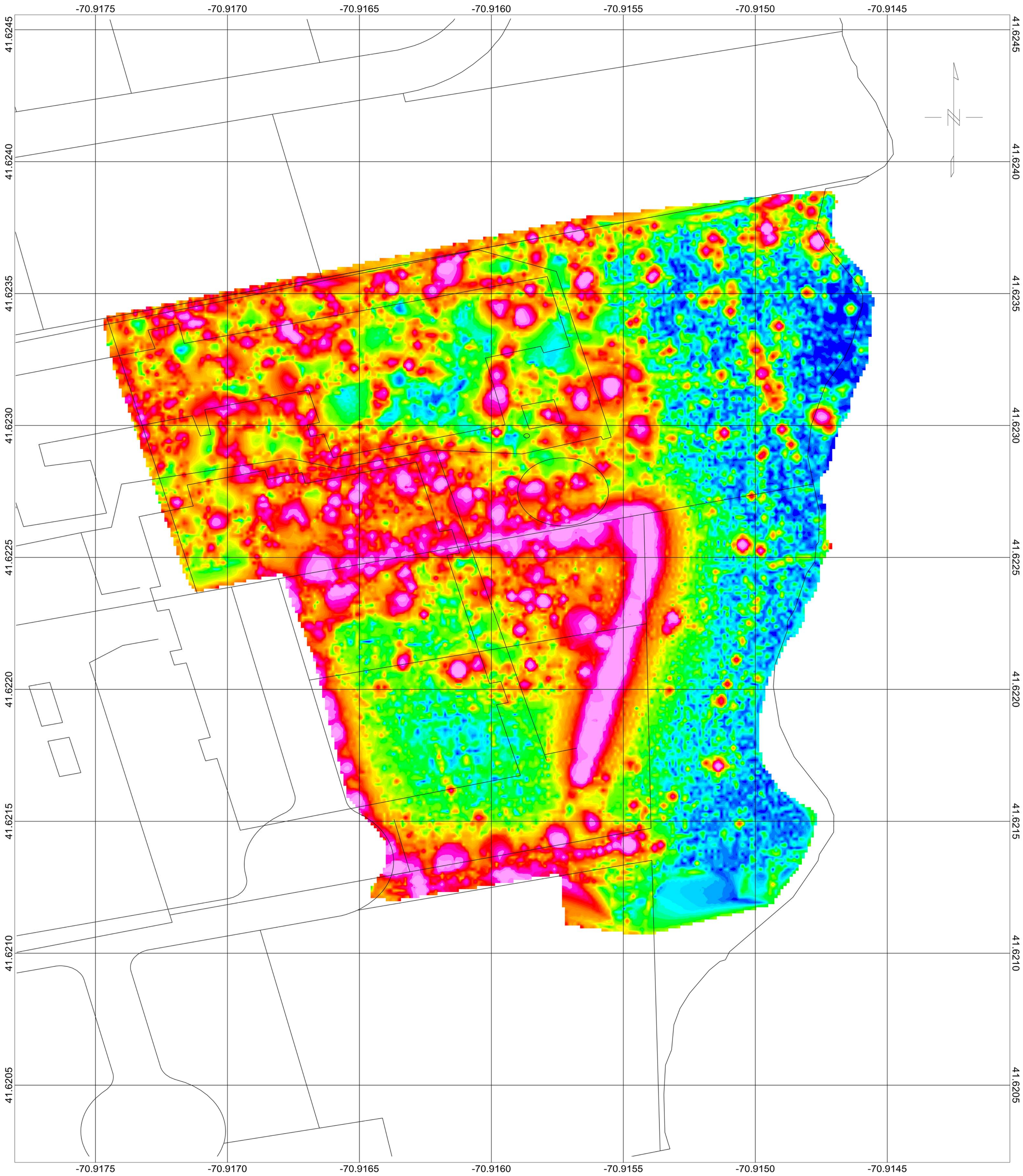
Above – Line102: A GPR transect collect on the northeast corner on the Shuster property showing possible pipe anomalies. Transect was collected north to south.

Below – Line 013: A GPR transect collected in the paved portion of the Department of Marine Fisheries, west to east.



APPENDIX B

Examples of Field Data



EM DATA

in mV

-114.0 -33.3 -12.3 -5.5 -3.3 -1.9 -0.8 0.2 1.6 4.0 8.4 18.6 36.1 62.8 101.1 251.3 1402.7

Scale 1:0.01040677

0.00025 0 0.00025 0.0005

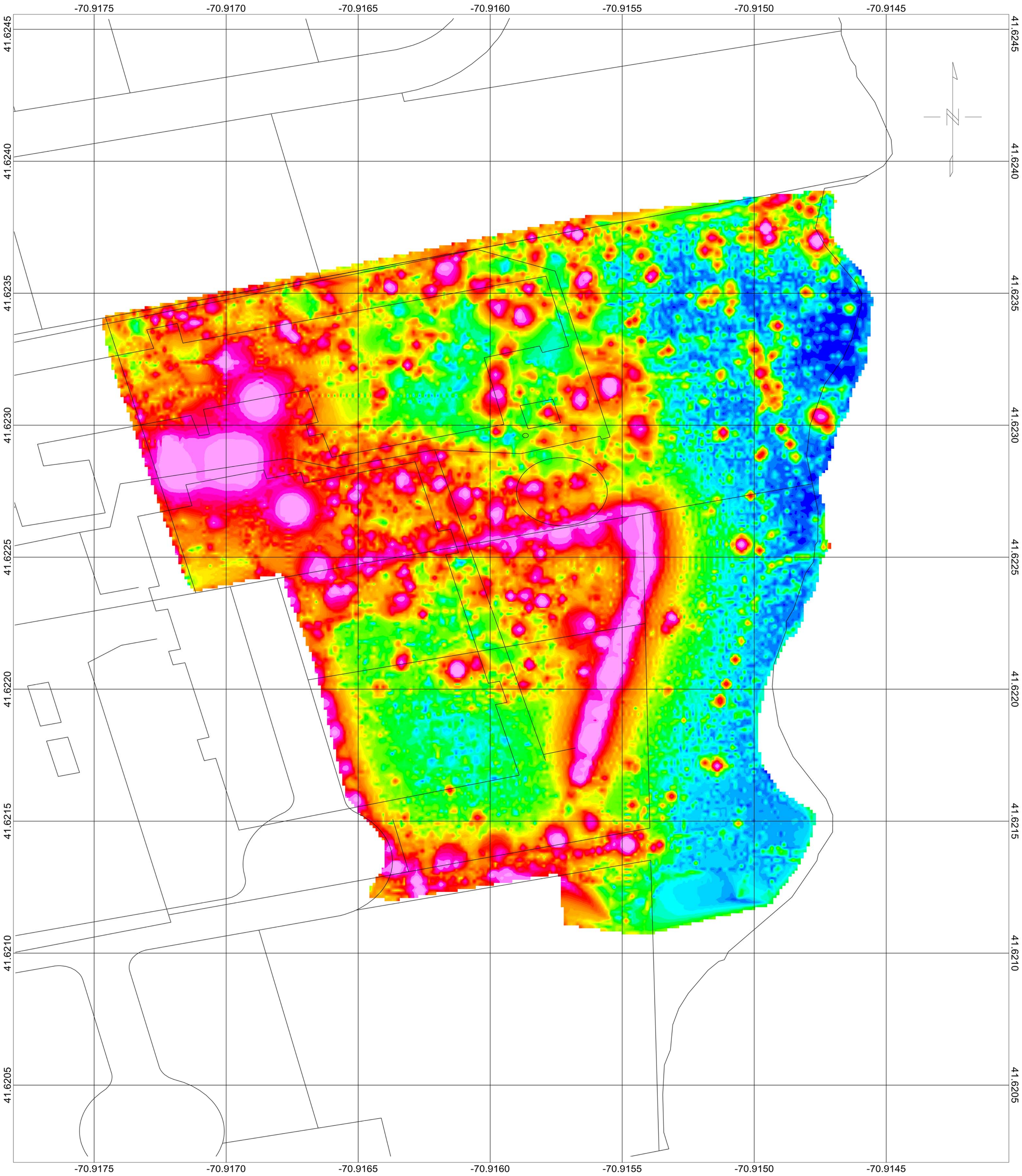
degrees

WGS 84

MASSACHUSETTS CLEAN ENERGY COUNSIL

ELECTROMAGNETIC SURVEY- CHANNEL 1
SOUTH TERMINAL LAND EXPANSION AREA
2/23/2011-3/16/2011

6690/OASIS/EM/SOUTH TERMINAL EM2.MAP



EM DATA
in mV

-80.0 -20.8 -7.6 -4.0 -2.3 -1.2 -0.6 -0.1 0.5 1.4 3.4 8.0 15.7 27.5 46.5 77.6 151.5 874.0

Scale 1:0.01040677

0.00025 0 0.00025 0.0005

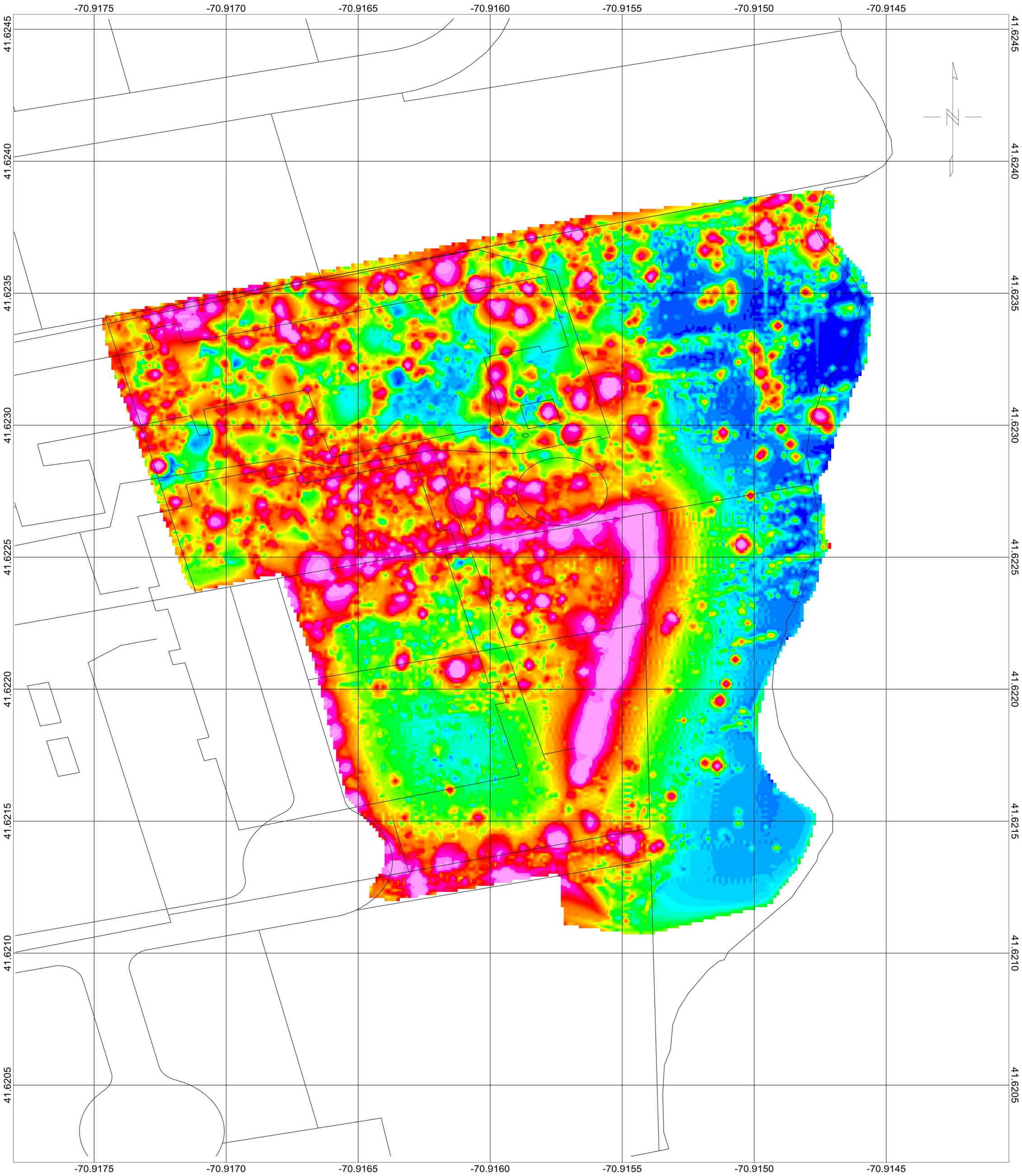
degrees

WGS 84

MASSACHUSETTS CLEAN ENERGY COUNSIL

ELECTROMAGNETIC SURVEY- CHANNEL 2
SOUTH TERMINAL LAND EXPANSION AREA
2/23/2011-3/16/2011

6690/OASIS/EM/SOUTH TERMINAL EM2.MAP



EM DATA

in mV

-58.0 -11.7 -4.2 -2.1 -0.9 -0.4 -0.2 -0.0 0.1 0.6 1.7 4.0 8.3 15.3 24.4 42.2 78.4 187.8

Scale 1:0.01040677

0.00025 0 0.00025 0.0005

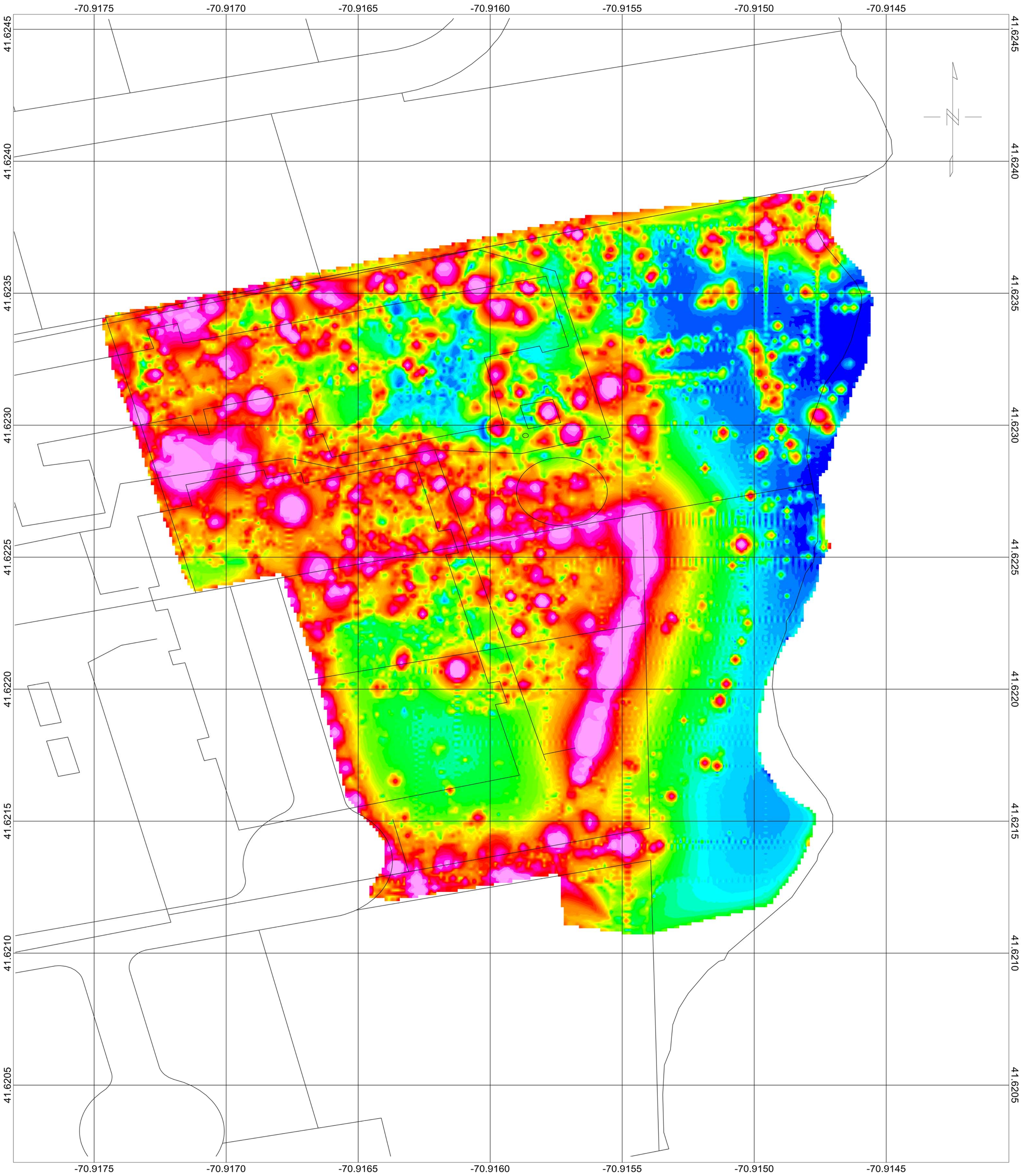
degrees

WGS 84

MASSACHUSETTS CLEAN ENERGY COUNSIL

ELECTROMAGNETIC SURVEY- CHANNEL 3
SOUTH TERMINAL LAND EXPANSION AREA
2/23/2011-3/16/2011

6690/OASIS/EM/SOUTH TERMINAL EM2.MAP



EM DATA

in mV

-33.8 -5.2 -2.3 -1.0 -0.3 -0.1 -0.0 0.0 0.1 0.2 0.2 1.0 2.5 5.0 8.5 14.1 24.5 49.4 195.2

Scale 1:0.01040677

0.00025 0 0.00025 0.0005

degrees

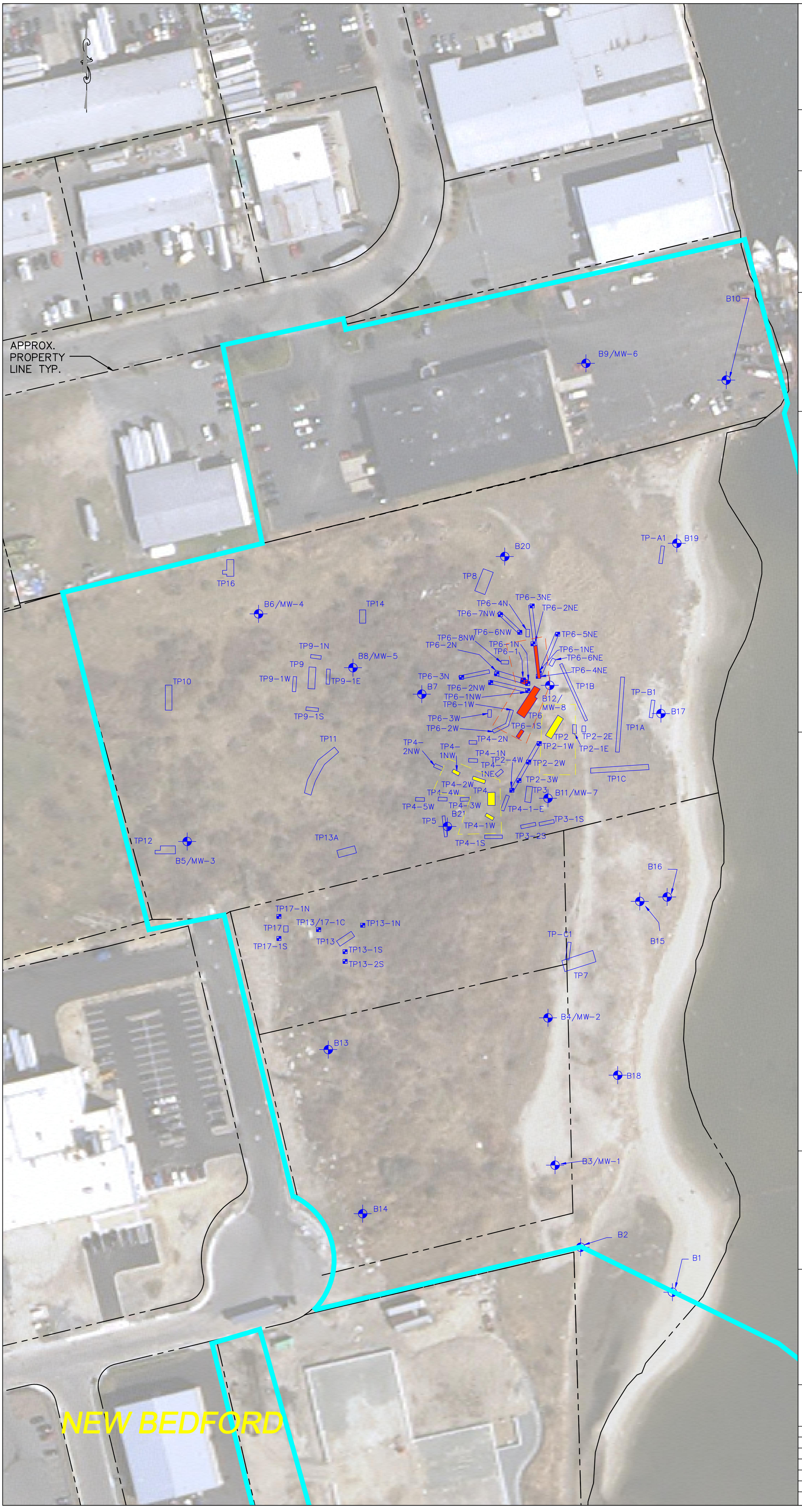
WGS 84

MASSACHUSETTS CLEAN ENERGY COUNSIL

ELECTROMAGNETIC SURVEY- CHANNEL 4
SOUTH TERMINAL LAND EXPANSION AREA
2/23/2011-3/16/2011

6690/OASIS/EM/SOUTH TERMINAL EM2.MAP

APPENDIX 39



Apex Companies, LLC.

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

REVISIONS

#	DATE	DESCRIPTION
1	7/11/11	LAND BORINGS

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A-2011-LB-B13 BEDROCK ELEV=-11.2 — UPLAND BORING SHOWING BEDROCK ELEVATION

B9/MW-6 — BORING/MONITORING WELL LOCATION

OVER WATER GEOTECHNICAL BORING

TP6 — LARGE TEST PIT BOUNDARIES

SMALL TEST PIT LOCATION

PROPOSED EXCAVATION PCB CONCENTRATION > 50 PPM

PROPOSED EXCAVATION EPH/TPH CONCENTRATION > 10,000 PPM

PREPARED FOR:

MASSACHUSETTS CLEAN ENERGY CENTER

DRAWING TITLE:

NEW BEDFORD MARINE COMMERCE TERMINAL AS-BUILT BORING AND TEST PIT LOCATIONS

Scale: 1"=50'

0 25 50 100 150 FEET

Date	10/28/10
Proj. Mgr.	
Design	CWM
Check	JAB
Drawn	GCD
Job. No.	6690
Last Rev.	11/22/10

Drawing No.

FIG. 1

P:\Jobs\6690 NBH_ Phase IV\PLANS\SOUTHTERMINAL_SAMPLING_AND_ANALYSIS_PLAN3-28-11.DWG, 9/23/2011 12:08:20 PM, DWG To PDF.pc3

Table 1
Analytical Testing Summary: Soil
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample ID	PCBs	VOCs	SVOCs	Metals	TPH	MA VPH	MA EPH	TCLP-Pb
TP-1	x			x	x			
TP-2	x			x	x			x
TP-3	x	x	x	x	x	x	x	
TP-4	x			x	x			x
TP-5	x			x	x			x
TP-6	x	x	x	x	x	x	x	
TP-7	x			x	x			
TP-8	x			x	x			
TP-9	x			x	x			
TP-10	x			x	x			
TP-11	x			x	x			
TP-12	x			x	x			x
TP-13	x			x	x			
TP-13A	x			x	x			
TP-14	x			x	x			
TP-16	x			x	x			
TP-17	x			x	x			x
DUPLICATE 1	x	x	x	x	x	x	x	
DUPLICATE 2	x	x	x	x	x	x	x	
TP6-1-N-H	x	x	x				x	
TP6-2-N-M	x	x	x				x	
TP6-3-N-A	x	x	x				x	
TP6-3-N-B	x	x	x				x	
TP6-2-W-A	x	x	x				x	
TP6-2-W-M	x	x	x				x	
TP6-2-W-B	x	x	x				x	
TP6-1-NW-A	x						x	
TP6-1-NW-M	x						x	
TP6-1-NW-B	x						x	
TP6-2-NW-A	x						x	
TP6-2-NW-M	x						x	
TP6-2-NW-B	x						x	
TP6-1-NE-A	x						x	
TP6-1-NE-M	x						x	
TP6-1-NE-B	x						x	
TP6-3-NE-A	x						x	
TP6-3-NE-M	x						x	

Table 1
Analytical Testing Summary: Soil
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample ID	PCBs	VOCs	SVOCs	Metals	TPH	MA VPH	MA EPH	TCLP-Pb
TP6-3-NE-B	x						x	
TP6-5-NE-A	x		x				x	
TP6-5-NE-M	x		x				x	
TP6-5-NE-B	x		x				x	
TP6-7-NW-A	x		x				x	
TP6-7-NW-M	x		x				x	
TP6-7-NW-B	x		x				x	
TP2-1-W-H	x	x	x				x	
TP2-2-W-M	x	x	x				x	
TP2-4-W-A	x	x	x				x	
TP2-4-W-B	x	x	x				x	
TP3-1-S	x		x				x	
TP3-2-S-A	x		x				x	
TP3-2-S-M	x		x				x	
TP3-2-S-B	x	x	x				x	
TP4-1-E	x	x	x				x	
TP4-1-S-A	x		x				x	
TP4-1-S-M	x		x				x	
TP4-1-S-B	x		x				x	
TP4-1-W-A	x		x				x	
TP4-1-W-M	x		x				x	
TP4-1-W-B	x		x				x	
TP4-2-W	x		x				x	
TP-9-1-E	x							
TP-9-1-W	x							
TP-9-1-N	x							
TP-9-1-S	x							
TP13-1-S	x							
TP13-2-S-A	x							
TP13-2-S-M	x							
TP13-2-S-B	x							
TP13/17-1-C-A	x							
TP13/17-1-C-M	x							
TP13/17-1-C-B	x							
TP13-1-N-A	x							
TP13-1-N-M	x							
TP13-1-N-B	x							

Table 1
Analytical Testing Summary: Soil
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample ID	PCBs	VOCs	SVOCs	Metals	TPH	MA VPH	MA EPH	TCLP-Pb
TP17-1-N-A	x							
TP17-1-N-M	x							
TP17-1-N-B	x							
TP17-1-S-A	x							
TP17-1-S-M	x							
TP17-1-S-B	x							
B-3/MW-1	x			x				
B-4/MW-2	x			x				
B-5/MW-3	x			x				
B-6/MW-4	x			x				
B-7	x			x				
B-8/MW-5	x			x				x
B-9/MW-6	x			x				
B-11/MW-7	x	x		x		x	x	
B-12/MW-8A	x	x		x		x	x	
B-12/MW-8B	x	x		x		x	x	
TP4-2NW-A	x							
TP4-2NW-M	x							
TP4-2NW-B	x							
TP4-1N-A	x							
TP4-1N-M	x							
TP4-1N-B	x							
TP4-2N-A	x							
TP4-2N-M	x							
TP4-2N-B	x							
TP4-1NE-A	x							
TP4-1NE-M	x							
TP4-1NE-B	x							
TP4-3W-A	x							
TP4-3W-M	x							
TP4-3W-B	x							
TP4-4W-A	x							
TP4-4W-M	x							
TP4-4W-B	x							
TP4-5W-A	x							
TP4-5W-M	x							
TP4-5W-B	x							

Table 1
Analytical Testing Summary: Soil
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample ID	PCBs	VOCs	SVOCs	Metals	TPH	MA VPH	MA EPH	TCLP-Pb
TP4-1NW-A	x							
TP4-1NW-M	x							
TP4-1NW-B	x							
TP2-1E-A	x							
TP2-1E-M	x							
TP2-1E-B	x							
TP6-1S							x	
TP63W							x	
TP6-8NW							x	
TP6-4N							x	
TP6-6NE							x	
TP2-1E							x	
TP2-2E							x	
TP4-1NE							x	

Table 2
Analytical Testing Summary: Groundwater
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample ID	PCBs	VOCs	SVOCs	Metals	TPH	VPH	EPH
MW-1	x	x	x	x	x		
MW-2	x	x	x	x	x		
MW-3	x	x	x	x	x		
MW-4	x	x	x	x	x		
MW-5	x	x	x	x	x		
MW-6	x	x	x	x	x		
MW-7	x	x	x	x	x	x	x
MW-8	x	x	x	x	x	x	x

Table 3
PCBs (Aroclors) -
Test Pit Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Aroclor 1016/1242	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1254	Aroclor 1260	Estimate of Total PCBs (Summation of reported Aroclors) (mg/kg)
TP-1	4/25/2011	0.06U	0.06U	0.06U	0.06U	0.086	0.06U	0.086
TP-2	4/25/2011	1.1U	1.1U	1.1U	1.1U	75	1.1U	75
TP-5	4/25/2011	0.31U	0.31U	0.31U	0.31U	0.31U	0.31U	ND
TP-4	4/25/2011	6.2U	6.2U	6.2U	6.2U	610	6.2U	610
TP-3	4/25/2011	0.53J	0.17U	0.17U	0.52J	12.0	0.17U	13.1
TP-7	4/26/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.26	0.0061U	0.26
TP-6	4/26/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.11	0.0067U	0.11
TP-8	4/26/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.014	0.0058U	0.014
TP-9	4/26/2011	0.77U	0.77U	0.77U	0.77U	4.6	0.77U	4.6
TP-11	4/26/2011	0.0054U	0.0054U	0.0054U	0.0054U	0.032	0.0054U	0.032
TP-10	4/27/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.22	0.0058U	0.22
TP-12	4/27/2011	0.0062U	0.0062U	0.0062U	0.0062U	0.11	0.0062U	0.11
TP-13a	4/27/2011	0.012U	0.012U	0.012U	0.012U	0.51	0.012U	0.51
TP-14	4/27/2011	0.0059	0.0059	0.0059	0.0059	0.1	0.0059	0.1
TP-16	4/27/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.03	0.0061U	0.03
TP-17	4/27/2011	0.12U	0.12U	0.12U	0.12U	6.20	0.12U	6.20
TP-13	4/28/2011	0.12U	0.12U	0.12U	0.12U	6.4	0.12U	6.4
DUPLICATE 1*	4/25/2011	0.57U	0.57U	0.57U	0.57U	3.1	0.57U	3.1
DUPLICATE 2**	4/26/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.1	0.0067U	0.1
TP6-1-N-H	7/18/2011	0.0099U	0.0099U	0.0099U	0.0099U	0.019	0.0099U	0.019
TP6-2-N-M	7/18/2011	0.0068U	0.0068U	0.0068U	0.0068U	0.0068U	0.0068U	ND
TP6-3-N-A	7/18/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.540	0.019	0.559
TP6-3-N-B	7/18/2011	0.0062U	0.0062U	0.0062U	0.0062U	0.0062U	0.0062U	ND
TP6-2-W-A	7/19/2011	0.0058U	0.0058U	0.0058U	0.0058U	1.7	0.0058U	1.7
TP6-2-W-M	7/19/2011	0.019U	0.019U	0.019U	0.019U	0.019U	0.019U	ND
TP6-2-W-B	7/19/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.0056U	0.0056U	ND
TP6-1-NW-A	7/22/2011	0.0059U	0.0059U	0.0059U	0.0059U	1.7	0.0059U	1.7
TP6-1-NW-M	7/22/2011	0.0052U	0.0052U	0.0052U	0.0052U	0.28	0.140	0.42
TP6-1-NW-B	7/22/2011	0.006U	0.006U	0.006U	0.006U	0.047	0.006U	0.047
TP6-2-NW-A	7/22/2011	0.015U	0.015U	0.015U	0.015U	2.3	0.094	2.394
TP6-2-NW-M	7/22/2011	0.0054U	0.0054U	0.0054U	0.0054U	0.0054U	0.0054U	ND
TP6-2-NW-B	7/22/2011	0.006U	0.006U	0.006U	0.006U	0.006U	0.006U	ND
TP6-1-NE-A	7/22/2011	0.0051U	0.0051U	0.0051U	0.0051U	0.25	0.0096	0.2596
TP6-1-NE-M	7/22/2011	0.0062U	0.0062U	0.0062U	0.0062U	0.35	0.0062U	0.35
TP6-1-NE-B	7/22/2011	0.0051U	0.0051U	0.0051U	0.0051U	0.028	0.0051U	0.028
TP6-3-NE-A	7/22/2011	0.0055U	0.0055U	0.0055U	0.0055U	0.025	0.0055U	0.025
TP6-3-NE-M	7/22/2011	0.0055U	0.0055U	0.0055U	0.0055U	0.0055U	0.0055U	ND
TP6-3-NE-B	7/22/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.019	0.0058U	0.019
TP6-5-NE-A	7/25/2011	0.0051U	0.0051U	0.0051U	0.0051U	0.0051U	0.0051U	ND
TP6-5-NE-M	7/25/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.042	0.0059U	0.042
TP6-5-NE-B	7/25/2011	0.0066U	0.0066U	0.0066U	0.0066U	0.0066U	0.0066U	ND
TP6-7-NW-A	7/25/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.11	0.0056U	0.11
TP6-7-NW-M	7/25/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	ND
TP6-7-NW-B	7/25/2011	0.0066U	0.0066U	0.0066U	0.0066U	0.0066U	0.0066U	ND
TP2-2-W-H	7/19/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.0058U	0.0058U	ND
TP2-2-W-M	7/19/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.0056U	0.0056U	ND
TP2-4-W-A	7/19/2011	0.0077	0.0055U	0.0055U	0.0055U	0.170	0.012	0.0077
TP2-4-W-B	7/19/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.087	0.0059	0.093
TP3-1-S	7/19/2011	0.0069U	0.0069U	0.0069U	0.0069U	0.0069U	0.0069U	ND
TP3-2-S-A	7/19/2011	0.0058U	0.0058U	0.0058U	0.0058U	1.3	0.06	1.36
TP3-2-S-M	7/19/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.42	0.019	0.439
TP3-2-S-B	7/19/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	ND
TP4-1-E	7/19/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.57	0.0067U	0.57
TP4-1-S-A	7/20/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.360	0.041	0.401
TP4-1-S-M	7/20/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.0059	0.0056U	0.0059
TP4-1-S-B	7/20/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	ND

Table 3
PCBs (Aroclors) -
Test Pit Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Aroclor 1016/1242	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1254	Aroclor 1260	Estimate of Total PCBs (Summation of reported Aroclors) (mg/kg)
TP4-1-W-A	7/20/2011	3.1U	3.1U	3.1U	3.1U	630	11	641
TP4-1-W-M	7/20/2011	2.9U	2.9U	2.9U	2.9U	970	19	989
TP4-1-W-B	7/20/2011	0.006U	0.006U	0.006U	0.023	0.170	0.006U	0.193
TP4-2-W	7/20/2011	12U	12U	12U	12U	480	12U	480
TP-9-1-E	7/20/2011	0.0092U	0.0092U	0.0092U	0.0092U	0.014	0.0092U	0.014
TP-9-1-W	7/20/2011	0.0075U	0.0075U	0.0075U	0.017	0.069	0.0075U	0.086
TP-9-1-N	7/20/2011	0.0097U	0.0097U	0.0097U	0.0097U	0.0097U	0.0097U	ND
TP-9-1-S	7/20/2011	0.0096U	0.0096U	0.0096U	0.0096U	0.0096U	0.0096U	ND
TP13-1-S	7/21/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.730	0.069	0.799
TP13-2-S-A	7/21/2011	0.0053U	0.0053U	0.0053U	0.0053U	0.0099	0.0053U	0.0099
TP13-2-S-M	7/21/2011	0.013	0.0065U	0.0065U	0.033	0.86	0.086	0.992
TP13-2-S-B	7/21/2011	0.0074U	0.0074U	0.0074U	0.0074U	0.0074U	0.0074U	ND
TP13/17-1-C-A	7/21/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.78	0.072	0.852
TP13/17-1-C-M	7/21/2011	0.0094U	0.0094U	0.0094U	0.0094U	0.0094U	0.0094U	ND
TP13/17-1-C-B	7/21/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.0068	0.0061U	0.0068
TP13-1-N-A	7/21/2011	0.0059	0.0058U	0.0058U	0.0058U	2.1	0.0058U	2.1059
TP13-1-N-M	7/21/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.260	0.0067U	0.26
TP13-1-N-B	7/21/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.0077	0.0067U	0.0077
TP17-1-N-A	7/21/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.62	0.034	0.654
TP17-1-N-M	7/21/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.0061U	0.0061U	ND
TP17-1-N-B	7/21/2011	0.0078U	0.0078U	0.0078U	0.0078U	0.0078U	0.0078U	ND
TP17-1-S-A	7/21/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.54	0.031	0.571
TP17-1-S-M	7/21/2011	0.0067U	0.0067U	0.0067U	0.0067U	0.06	0.0067U	0.06
TP17-1-S-B	7/21/2011	0.0061U	0.0061U	0.0061U	0.0061U	0.0061U	0.0061U	ND
B-3/MW-1	5/2/2011	0.0052U	0.0052U	0.0052U	0.0052U	0.030	0.0052U	0.03
B-4/MW-2	5/3/2011	0.0054U	0.0054U	0.0054U	0.0054U	0.480	0.013J	0.493
B-5/MW-3	5/4/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.0057U	0.0057U	ND
B-6/MW-4	5/5/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.040	0.0057U	0.04
B-7	5/6/2011	0.0053U	0.0053U	0.0053U	0.0053U	0.060	0.0053U	0.06
B-8/MW-5	5/6/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.020	0.0057U	0.02
B-9/MW-6	5/9/2011	0.0053U	0.0053U	0.0053U	0.0053U	0.020	0.0053U	0.02
B-11/MW-7	5/12/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.0057U	0.0057U	ND
B-12/MW-8A	5/13/2011	0.011U	0.011U	0.011U	0.011U	0.011U	0.011U	ND
B-12/MW-8B	5/13/2011	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	0.0059U	ND
TP4-2NW-A	8/11/2011	0.0054U	0.0054U	0.0054U	0.0054U	1.10	0.039	1.14
TP4-2NW-M	8/11/2011	0.019U	0.019U	0.019U	0.019U	0.02	0.019U	0.02
TP4-2NW-B	8/11/2011	0.006U	0.006U	0.006U	0.006U	0.006U	0.006U	ND
TP4-1N-A	8/11/2011	0.0055U	0.0055U	0.0055U	0.0055U	0.93	0.041	0.971
TP4-1N-M	8/11/2011	0.12U	0.12U	0.12U	0.12U	0.12U	0.12U	ND
TP4-1N-B	8/11/2011	0.0063U	0.0063U	0.0063U	0.0063U	0.0063U	0.0063U	ND
TP4-2N-A	8/11/2011	0.0053U	0.0053U	0.0053U	0.0053U	0.01	0.0053U	0.01
TP4-2N-M	8/11/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.01	0.0056U	0.01
TP4-2N-B	8/11/2011	0.017U	0.017U	0.017U	0.017U	0.017U	0.017U	ND
TP4-1NE-A	8/11/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.09	0.0056U	0.09
TP4-1NE-M	8/11/2011	0.19U	0.19U	0.19U	0.19U	0.19U	0.19U	ND
TP4-1NE-B	8/11/2011	0.066U	0.066U	0.066U	0.066U	0.066U	0.066U	ND
TP4-3W-A	8/11/2011	0.055U	0.055U	0.055U	0.055U	4.10	0.16	4.26
TP4-3W-M	8/11/2011	0.0057U	0.0057U	0.0057U	0.0057U	0.47	0.024	0.494
TP4-3W-B	8/11/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.01	0.0056U	0.01
TP4-4W-A	8/11/2011	0.0058U	0.0058U	0.0058U	0.0058U	0.03	0.0058U	0.03
TP4-4W-M	8/11/2011	0.059U	0.059U	0.059U	0.059U	0.059U	0.059U	ND
TP4-4W-B	8/11/2011	0.011U	0.011U	0.011U	0.011U	0.011U	0.011U	ND
TP4-5W-A	8/11/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.33	0.0056U	0.33
TP4-5W-M	8/11/2011	0.07U	0.07U	0.07U	0.07U	0.38	0.07U	0.38
TP4-5W-B	8/11/2011	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	ND

Table 3
PCBs (Aroclors) -
Test Pit Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Aroclor 1016/1242	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1254	Aroclor 1260	Estimate of Total PCBs (Summation of reported Aroclors) (mg/kg)
TP4-1NW-A	8/11/2011	0.0058U	0.0058U	0.0058U	0.0058U	110.00	0.0058U	110
TP4-1NW-M	8/11/2011	0.095U	0.095U	0.095U	0.095U	0.15	0.095U	0.15
TP4-1NW-B	8/11/2011	0.0055U	0.0055U	0.0055U	0.0055U	1.30	0.067	1.367
TP2-1E-A	8/11/2011	0.0052U	0.0052U	0.0052U	0.0052U	0.01	0.0052U	0.01
TP2-1E-M	8/11/2011	0.0054U	0.0054U	0.0054U	0.0054U	0.01	0.0054U	0.01
TP2-1E-B	8/11/2011	0.0056U	0.0056U	0.0056U	0.0056U	0.01	0.0056U	0.01
MCP Upper Concentration Limits (U		NP	NP	NP	NP	NP	NP	100
MCP S-3/GW-2		NP	NP	NP	NP	NP	NP	3
MCP S-3/GW-3		NP	NP	NP	NP	NP	NP	3
Reporting Category - RCS-2		NP	NP	NP	NP	NP	NP	3

Notes:

U = Concentration is below the laboratory's method detection limit. One half of the method detection limit is utilized in the summation.

*Duplicate 1 is a duplicate sample of sample TP-3.

**Duplicate 2 is a duplicate sample of sample TP-6.

NP = Not Promulgated

ND = Analyzed Aroclors were non-detected.

J = Estimated value.

Exceedance of MCP Reporting Category and/or Standard, which also exceeds EPA's unrestricted use standard of 1 ppm.

Exceedance of EPA's unrestricted use Standard in High Occupancy Use Areas (e.g., residential) of 1 ppm, but not its respective MCP Reporting Category and/or Standard.

NOTE: EPA Standard for Low Occupancy Use Areas (e.g., commercial) is less than or equal to 25 ppm (and greater than 1 ppm).

A = Shallow Sample

M = Middle Sample

B = Bottom

Table 4
Volatile Organic Compounds
Soil Analytical Data
South Terminal CDF, New Bedford, Massachusetts
concentration in ppm (mg/kg)

Sample Name	Collection Date	**Volatile Organics** (mg/kg)													
		Tetrachloroethene	Benzene	Toluene	Ethylbenzene	p/m-Xylene	o-Xylene	n-Butylbenzene	sec-Butylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene
B-11/MW-7	5/12/2011	0.1U	0.1U	0.16U	1.1	0.76	0.32	0.1U	0.1U	0.1U	0.1U	12.0	0.1U	0.41U	0.440
B-12/MW-8 (A)	5/13/2011	0.5U	6.6	0.74U	7.6	10	7.2	0.5U	0.5U	3.2	1.8	36.0	0.5U	2U	3.2
B-12/MW-8 (B)	5/13/2011	0.083U	0.52	0.12U	0.78	0.8	0.58	0.083U	0.083U	0.42	0.22	4.6	0.083U	0.33U	0.350
TP-3	4/25/2011	0.089U	0.089U	0.130U	0.089U	0.180U	0.180U	0.089U	0.089U	0.089U	0.089U	1.5	0.089U	0.350U	0.350U
Duplicate 1*	4/25/2011	0.082U	0.082U	0.120U	0.082U	0.160U	0.160U	0.082U	0.082U	0.082U	0.089	1.5	0.082U	0.330U	0.330U
TP-6	4/26/2011	4.0U	4.0U	10	2.2	20	8.1	4.0U	4.0U	5.9	4.2	180	4.0U	16.0U	16.0U
Duplicate 2**	4/26/2011	0.820U	0.820U	2.2	5.8	5.4	2.2	0.820U	0.820U	1.8	1.4	64	0.820U	3.3U	3.3U
TP6-1-N-H	7/18/2011	6.6U	6.6U	9.9U	39	15	18	6.6U	6.6U	38	43	470	6.6U	26.0U	40
TP6-2-N-M	7/18/2011	0.13U	0.13U	0.19U	0.13U	0.25U	0.25U	0.13U	0.13U	0.13U	0.13U	0.51U	0.13U	0.51U	0.51U
TP6-3-N-A	7/18/2011	0.13U	0.0013U	0.002U	0.0013U	0.0026U	0.0026U	0.0013U	0.0013U	0.0013U	0.0013U	0.0053U	0.0013U	0.0053U	0.0053U
TP6-3-N-B	7/18/2011	0.00095U	0.00095U	0.0014U	0.00095U	0.0019U	0.0019U	0.00095U	0.00095U	0.00095U	0.00095U	0.0038U	0.00095U	0.0038U	0.0038U
TP6-2-W-A	7/19/2011	0.0025U	0.0025U	0.0038U	0.0025U	0.005U	0.005U	0.0025U	0.0025U	0.0025U	0.0025U	0.01U	0.0025U	0.01U	0.01U
TP6-2-W-M	7/19/2011	.720U	2.1	1.1U	5.6	4.3	2.0	0.720U	0.720U	0.720U	0.720U	2.9U	0.720U	2.9U	2.9U
TP6-2-W-B	7/19/2011	0.087U	0.087U	0.130U	0.087U	0.170U	0.170U	0.087U	0.087U	0.087U	0.087U	0.45	0.087U	0.35U	0.35U
TP2-1-W-H	7/19/2011	0.30	0.38	0.32	4.6	5.4	2.8	1.3	0.1	1.50	1.30	340	0.77	4.70	8.80
TP2-2-W-M	7/19/2011	1.8U	1.8U	2.8U	2.9	3.7U	3.7U	1.8U	1.8U	1.8U	1.8U	92	1.8U	7.4U	7.4U
TP2-4-W-A	7/19/2011	0.0018U	0.0016U	0.0023U	0.0016U	0.0031U	0.0031U	0.0016U	0.0016U	0.0016U	0.0016U	0.0062U	0.160U	0.0062U	0.0062U
TP2-4-W-B	7/19/2011	0.0019U	0.0019U	0.0028U	0.0019U	0.0037U	0.0037U	0.0019U	0.0019U	0.0019U	0.0019U	0.0075U	0.160U	0.0075U	0.0075U
TP4-1-E	7/19/2011	0.160U	3.3	0.36	0.160U	0.320U	0.320U	0.160U	0.160U	0.160U	0.160U	0.630U	0.160U	0.630U	0.630U

MCP Upper Concentration Limit (UCL):	10000	9,000	10,000	10,000	10,000	NP	NP	NP	NP	10,000	NP	NP	NP
MCP S-1/GW-3	30	30	500	500	500	NP	NP	NP	NP	500	NP	NP	NP
MCP S-3/GW-3	1000	900	3,000	3,000	3,000	NP	NP	NP	NP	3,000	NP	NP	NP
Reporting Category - RCS-2	10	200	1,000	1,000	300	NP	NP	10,000	NP	40	NP	100	10,000

Notes:
Only detected compounds are reported in the table. Please refer to Appendix _ for a complete listing of analytes.
U = Concentration is below the laboratory's method detection limit.
NP = Not Promulgated
*Duplicate 1 is a duplicate sample of sample TP-3.
**Duplicate 2 is a duplicate sample of sample TP-6.
- Exceedance of Reporting Category and/or Standard
Testing results for trip blanks analyzed during the testing program were all non-detect (ND).
Acetone and Carbon disulfide detected in TP6-N-B at low ppb levels considered an artifact of laboratory.

Table 5
13 Priority Pollutant Metals Soil
Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	13 Priority Pollutant Metals (mg/kg)													
		Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	TCLP lead (mg/l)
B-3/MW-1	5/2/2011	0.034U	0.86	0.126	0.064	3.27	4.8	4.4	0.012U	2.17	0.162	0.035	0.111	13.8	N/A
B-4/MW-2	5/3/2011	0.033U	0.78	0.081	0.075	3.58	4.3	14.9	0.012U	3.62	0.095	0.033U	0.032U	15.9	N/A
B-5/MW-3	5/4/2011	0.0900	4.11	0.298	0.079	6.48	13.0	77.2	0.061	5.25	0.434	0.094	0.104	37.3	N/A
B-6/MW-4	5/5/2011	0.2840	1.25	0.166	0.071	7.72	14.0	95.2	0.027	5.36	0.318	0.033	0.056	55.7	N/A
B-7	5/6/2011	0.035U	0.68	0.196	0.047	6.60	6.8	15.2	0.012U	4.61	0.203	0.035U	0.078U	19.0	N/A
B-8/MW-5	5/6/2011	0.0400	1.32	0.270	0.409	6.19	10.1	161.0	0.028	4.07	0.334	0.039	0.086U	126.0	0.6
B-9/MW-6	5/9/2011	0.034U	1.01	0.143	0.056	13.60	12.1	4.8	0.013U	10.40	0.117	0.034U	0.032U	18.8	N/A
B-11/MW-7	5/12/2011	0.037U	1.00	0.194	0.040	6.04	3.4	3.3	0.014U	3.38	0.279	0.037U	0.082	10.1	N/A
B-12/MW-8 (A)	5/13/2011	0.1060	3.95	0.317	0.257	8.20	3.6	4.0	0.025U	4.37	2.530	0.065U	0.219	8.0	N/A
B-12/MW-8 (B)	5/13/2011	0.0560	1.78	0.251	0.037U	9.02	2.9	4.6	0.013	4.99	0.481	0.038U	0.045	13.0	N/A
TP-1	4/25/2011	0.039U	1.66	0.124	0.066	4.08	13.8	11.7	0.073	2.92	0.273	0.074	0.085	17.4	NA
TP-2	4/25/2011	0.126	1.67	0.138	0.269	4.87	12.5	126	0.151	6.01	0.253	0.078	0.053	132	0.56
TP-5	4/25/2011	0.472	6.37	0.202	0.570	5.80	21.9	580	0.134	5.95	0.549	0.149	0.127	200	18
TP-4	4/25/2011	0.857	5.35	0.672	3.68	11.3	110	252	0.084	11.0	0.936	0.166	0.201	240	0.5U
TP-3	4/25/2011	0.037U	1.20	0.230	0.034U	8.92	6.04	4.41	0.013U	5.84	0.249	0.038	0.037	15.9	NA
TP-7	4/26/2011	0.064	2.20	0.230	0.072	6.30	22.4	55.6	0.100	5.02	0.429	0.097	0.037U	34.5	NA
TP-6	4/26/2011	0.195	5.10	0.232	0.186	3.96	44.0	74.5	0.050	7.29	0.800	0.087	0.206	27.8	NA
TP-8	4/26/2011	0.033U	0.484	0.061	0.031U	2.04	3.55	1.96	0.014U	1.34	0.129	0.033U	0.031U	4.39	NA
TP-9	4/26/2011	0.354	5.53	0.236	0.218	6.45	71.8	30.2	0.021	5.79	2.44	0.120	0.138	78.8	NA
TP-11	4/26/2011	0.162	0.641	0.090	0.072	2.90	5.03	16.2	0.012U	2.08	0.248	0.033U	0.039	12.8	NA
TP-10	4/27/2011	0.164	1.57	0.221	0.101	8.12	17.6	60.4	0.022	3.29	0.574	0.081	0.047	31.0	NA
TP-12	4/27/2011	0.186	7.46	0.451	0.237	5.92	37.7	164	0.290	7.92	1.42	0.122	0.297	85.5	0.5U
TP-13A	4/27/2011	0.156	2.76	0.211	0.149	5.9	9.97	50.2	0.0	3.9	0.794	0.039U	0.089	35.2	NA
TP-14	4/27/2011	0.103	2.68	0.204	0.064	5.15	19.2	26.9	0.067	7.99	0.528	0.045	0.076	21.1	NA
TP-16	4/27/2011	0.110	1.58	0.217	0.055	5.72	6.53	10.2	0.016	3.82	0.517	0.049	0.060	28.0	NA
TP-17	4/27/2011	1.88	5.08	0.361	0.879	10.2	82.5	561	0.426	8.52	0.920	0.239	0.150	230	0.5U
TP-13	4/28/2011	0.168	2.63	0.238	0.101	6.10	11.1	34.0	0.020	4.04	0.828	0.043	0.090	27.3	NA
DUPLICATE-1	4/25/2011	0.032U	1.04	0.211	0.046	8.3	6.40	7.63	0.013U	5.5	0.256	0.032U	0.047	17.8	NA
DUPLICATE-2	4/26/2011	0.133	4.06	0.176	0.105	4.57	40.2	68.1	0.045	4.76	0.907	0.071	0.120	38.7	N/A
MCP Upper Concentration Limit (UCL)		300	200	2000	300	2000	NP	3000	300	7000	8000	2000	800	10000	NP
MCP S-3/GW-2		30	20	200	30	200	NP	300	30	700	800	200	80	5000	NP
MCP S-3/GW-3		30	20	200	30	200	NP	300	30	700	800	200	80	5000	NP
Reporting Category - RCS-2		30	20	200	30	200	10000	300	30	700	800	200	60	3000	NP

Notes:
U = below quntitation limit
N/A = Not Analyzed
NP = Not Promulgated
Exceedance of MCP Reporting Category and/or Standard
A = Shallow Sample
M = Middle Sample
B = Bottom

Table 6
Total Petroleum Hydrocarbons, MA VPH and MA EPH
Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Total Petroleum Hydrocarbons	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	C5-C8 Aliphatics, Adjusted	C9-C12 Aliphatics, Adjusted	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	C11-C22 Aromatics, Adjusted	Naphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)Pyrene	Dibenzo(a,h)anthracene	Benzo(ghi)perylene
B-3/MW-1	5/2/2011	33.9U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-4/MW-2	5/3/2011	33.8U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-5/MW-3	5/4/2011	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-6/MW-4	5/5/2011	208	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-7	5/6/2011	36.3U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-8/MW-5	5/6/2011	791	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-9/MW-6	5/9/2011	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-11/MW-7	5/12/2011	38.4U	4.34U	13	7	4.34U	4.34U	8.17U	8.17U	17	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-12/MW-8 (A)	5/13/2011	562	14.4U	66	31	14.4U	19	14.4U	16	127	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-12/MW-8 (B)	5/13/2011	117	4.97U	10	6	4.97U	4.97U	8.09U	8.09U	50	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-1	4/25/2011	48.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-2	4/25/2011	2180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-5	4/25/2011	253	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-4	4/25/2011	524	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-3	4/25/2011	449	21.8U	85.4	55.2	21.8U	30.2	37.9	15.4	244	195	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-7	4/26/2011	1730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-6	4/26/2011	5900	153U	342	239	153U	153U	76.0	47.3U	2490	1750	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-8	4/26/2011	36.5U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-9	4/26/2011	52.9U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-11	4/26/2011	134	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-10	4/27/2011	59.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-12	4/27/2011	124	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-13A	4/27/2011	247	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-14	4/27/2011	37.2U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-16	4/27/2011	38.8U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-17	4/27/2011	365	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP-13	4/28/2011	45.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUPLICATE 1	4/25/2011	650	34.8	205	67.9	29.4	103	86.5	28.6	630	493	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUPLICATE 2	4/26/2011	613	46.2U	131	90.7	46.2U	46.2U	643	432U	19300	12600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP6-1-N-H	7/18/2011	NA	NA	NA	NA	NA	NA	643U	643U	20600	17800	343	152	32.2U	410	528	850	154	73.6	157	50.6	60.1	32.2U	32.2U	34.3	32.2U	32.2U	32.2U
TP6-2-N-M	7/18/2011	NA	NA	NA	NA	NA	NA	1070	970	1100	1100	0.428U	1.28	0.648	0.428U	0.428U	2.04	0.428U	0.561	0.428U	0.428U	0.428U	0.428U	0.428U	0.428U	0.428U	0.428U	0.428U
TP6-3-N-A	7/18/2011	NA	NA	NA	NA	NA	NA	7.54U	7.54U	30	22.2	0.377U	0.377U	0.377U	0.377U	0.377U	1.2	0.377U	1.2	1.31	0.535	0.829	0.544	0.5	0.576	0.432	0.377U	0.669
TP6-3-N-B	7/18/2011	NA	NA	NA	NA	NA	NA	7.42U	7.42U	7.42U	7.42U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U	0.371U
TP6-2-W-A	7/19/2011	NA	NA	NA	NA	NA	NA	36.9U	54.8	322	253	1.85U	1.85U	1.85U	1.85U	1.85U	3.11	1.85U	10.6	13.5	7.26	8.3	5.68	4.62	7.38	4.15	1.85U	4.81
TP6-2-W-M	7/19/2011	NA	NA	NA	NA	NA	NA	25.4U	29.4	112	90.8	1.27U	1.27U	1.27U	1.27U	1.27U	2.33	1.27U	1.94	4.06	1.71	1.8	1.4	1.4	2.16	1.27U	1.27U	4.15
TP6-2-W-B	7/19/2011	NA	NA	NA	NA	NA	NA	7.18U	7.18U	56.1	38.9	0.359U	0.411	0.359U	1.13	0.757	4.57	1	1.54	2.99	0.908	0.867	0.515	0.468	0.978	0.424	0.359U	0.644
TP2-1-W-H	7/19/2011	NA	NA	NA	NA	NA	NA	130	286	2840	1870	75.4	65.7	9.58	68.9	36.4	166	40.2	70.5	147	48.1	48.3	29.6	31.2	62.7	26.7	5.76U	38.7

Table 6
Total Petroleum Hydrocarbons, MA VPH and MA EPH
Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Total Petroleum Hydrocarbons	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	C5-C8 Aliphatics, Adjusted	C9-C12 Aliphatics, Adjusted	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	C11-C22 Aromatics, Adjusted	Naphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)Pyrene	Dibenzo(a,h)anthracene	Benzo(ghi)perylene
TP2-1-W-M	7/19/2011	NA	NA	NA	NA	NA	NA	84.6	44	837	558	35.1	29.6	2.35	15.6	10.9	49.8	11.8	18	37	10.3	10.6	7.18	8.06	13.8	7.29	2.25	9.78
TP2-4-W-A	7/19/2011	NA	NA	NA	NA	NA	NA	7.57U	65.9	47.9	47	0.378U	0.378U	0.378U	0.378U	0.378U	0.378U	0.378U	0.454	0.43	0.378U	0.378U	0.378U	0.378U	0.378U	0.378U	0.378U	0.378U
TP2-4-W-B	7/19/2011	NA	NA	NA	NA	NA	NA	7.8U	12.4	88.9	66.3	0.39U	0.39U	0.39U	0.39U	0.39U	1.79	0.39U	3.09	3.85	1.79	2.17	1.79	1.5	2.21	1.75	0.39U	2.65
TP4-1-E	7/19/2011	NA	NA	NA	NA	NA	NA	15.5	10.3	63.9	61.6	0.466	0.424U	0.424U	0.424U	0.424U	0.574	0.424U	0.424U	0.452	0.424U	0.784	0.424U	0.424U	0.424U	0.424U	0.424U	0.424U
TP3-1-S	7/19/2011	NA	NA	NA	NA	NA	NA	9.24U	9.24U	42.5	25.8	0.462U	0.462U	0.462U	0.462U	0.462U	2.42	0.462U	3.17	3	1.27	1.52	1.23	1.02	1.3	0.914	0.462U	0.907
TP3-2-S-A	7/19/2011	NA	NA	NA	NA	NA	NA	38.3U	135	558	392	1.91U	1.91U	1.91U	1.91U	1.91U	19.8	3.96	31	26.7	13	14.7	12.8	11.2	14.4	9.28	1.91U	9.61
TP3-2-S-M	7/19/2011	NA	NA	NA	NA	NA	NA	6.83U	7.8	34.8	25.5	0.341U	0.341U	0.341U	0.341U	0.341U	0.981	0.341U	1.93	1.71	0.833	0.902	0.583	0.341U	0.921	0.681	0.341U	0.751
TP3-2-S-B	7/19/2011	NA	NA	NA	NA	NA	NA	6.98U	6.98U	6.98U	6.98U	0.626	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U	0.349U
TP4-1-S-A	7/20/2011	NA	NA	NA	NA	NA	NA	7.32U	7.32U	34.9	24.2	0.366U	0.366U	0.366U	0.366U	0.366U	0.775	0.366U	1.5	1.86	0.886	1.07	0.912	0.781	1	0.726	0.366U	1.16
TP4-1-S-M	7/20/2011	NA	NA	NA	NA	NA	NA	14.3U	14.3U	252	163	0.715U	0.715U	0.715U	0.715U	0.715U	5.71	0.959	11.7	19.6	7.44	8.75	7.14	6.79	7.95	5.22	1.58	6.41
TP4-1-S-B	7/20/2011	NA	NA	NA	NA	NA	NA	7.22U	7.22U	7.43	7.43	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U	0.361U
TP4-1-W-A	7/20/2011	NA	NA	NA	NA	NA	NA	38U	38U	321	216	1.9U	1.9U	1.9U	1.9U	1.9U	11.5	2.09	16.8	18.2	8.08	9.02	8.23	7.92	9.24	6.4	1.9U	6.95
TP4-1-W-M	7/20/2011	NA	NA	NA	NA	NA	NA	20.6	25.4	310	217	1.84	0.997	1.16	0.751U	0.751U	5.2	1.15	9.21	17.5	7.03	8.67	7.15	7.38	10.2	6.21	1.95	7.96
TP4-1-W-B	7/20/2011	NA	NA	NA	NA	NA	NA	7.32U	7.32U	48.7	37.1	0.366U	0.366U	0.366U	0.366U	0.366U	1.01	0.366U	1.65	1.71	0.814	1.03	1.01	0.657	1.21	1.01	0.366U	1.45
TP4-2-W	7/20/2011	NA	NA	NA	NA	NA	NA	12.6	18	175	147	0.386U	0.386U	1.09	0.386U	0.386U	0.721	0.386U	2.41	2.74	1.26	2.21	2.46	1.81	3.07	3.92	0.705	6.32
TP6-1-NW-A	7/22/2011	NA	NA	NA	NA	NA	NA	6.58U	6.58U	9.53	7.64	0.329U	0.329U	0.329U	0.329U	0.329U	0.329U	0.329U	0.463	0.589	0.329U	0.337	0.329U	0.329U	0.493	0.329U	0.329U	0.329U
TP6-1-NW-M	7/22/2011	NA	NA	NA	NA	NA	NA	7.29U	7.29U	7.29U	7.29U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U	0.365U
TP6-1-NW-B	7/22/2011	NA	NA	NA	NA	NA	NA	18.3U	36	46.1	44.7	1.4	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U	0.916U
TP6-2-NW-A	7/22/2011	NA	NA	NA	NA	NA	NA	7.09U	10.5	15.3	12.8	0.354U	0.354U	0.354U	0.354U	0.354U	0.354U	0.354U	0.633	0.607	0.354U	0.375	0.354U	0.354U	0.884	0.354U	0.354U	0.354U
TP6-2-NW-M	7/22/2011	NA	NA	NA	NA	NA	NA	7.38U	7.38U	7.38U	7.38U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U
TP6-2-NW-B	7/22/2011	NA	NA	NA	NA	NA	NA	7.37U	7.37U	9.1	9.1	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U	0.369U
TP6-A-NE-A	7/22/2011	NA	NA	NA	NA	NA	NA	6.32U	6.32U	6.32U	6.32U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U	0.316U
TP6-1-NE-M	7/22/2011	NA	NA	NA	NA	NA	NA	1230U	1230U	19700	12300	142	98.5	61.7U	218	212	1620	311	1420	1340	484	490	257	290	318	149	61.7U	118
TP6-1-NE-B	7/22/2011	NA	NA	NA	NA	NA	NA	6.26U	6.26U	94	59.8	0.313U	0.313U	0.313U	0.574	0.528	5.02	0.932	5.74	5.84	2.48	3.11	2.07	2.32	2.47	1.44	0.407	1.23
TP6-3-NW-A	7/22/2011	NA	NA	NA	NA	NA	NA	6.47U	6.47U	6.47U	6.47U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U	0.324U
TP6-3-NE-M	7/22/2011	NA	NA	NA	NA	NA	NA	33.5U	33.5U	375	210	1.89	1.68U	1.68U	3.9	4.26	29.4	7.32	32.8	25.9	11.8	11.8	8.55	7.91	9.67	5.53	1.68U	4.46
TP6-3-NE-B	7/22/2011	NA	NA	NA	NA	NA	NA	6.94U	6.94U	10.2	6.94U	0.347U	0.347U	0.347U	0.347U	0.347U	0.545	0.347U	0.865	0.72	0.375	0.393	0.347U	0.347U	0.364	0.347U	0.347U	0.347U
TP6-5-NE-A	7/25/2011	NA	NA	NA	NA	NA	NA	6.44U	6.44U	6.44U	6.44U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U	0.322U
TP6-5-NE-M	7/25/2011	NA	NA	NA	NA	NA	NA	14.4U	14.4U	205	107	0.722U	0.722U	0.722U	2.05	2.39	17.4	4.19	19.3	14.8	6.92	7.29	5.44	4.8	5.84	3.73	0.758	3.02
TP6-5-NE-B	7/25/2011	NA	NA	NA	NA	NA	NA	9.18U	69	40.9	38.5	0.459U	0.459U	0.459U	0.459U	0.459U	0.459U	0.459U	0.682	0.808	0.459U	0.467	0.459U	0.459U	0.469	0.459U	0.459U	0.459U
TP6-7-NW-A	7/25/2011	NA	NA	NA	NA	NA	NA	286U	472	1690	913	18.6	14.3U	14.3U	20.1	20.5	153	35.7	151	118	51.1	50.6	37.8	35.6	41	27.3	14.3U	21.7
TP6-7-NW-M	7/25/2011	NA	NA	NA	NA	NA	NA	8.86U	8.86U	12.6	9.34	0.443U	0.443U	0.443U	0.443U	0.443U	0.475	0.443U	0.869	0.837	0.443U	0.443U	0.443U	0.443U	0.469	0.443U	0.443U	0.635
TP6-7-NW-B	7/25/2011	NA	NA	NA	NA	NA	NA	7.13U	7.13U	7.22	7.22	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U	0.357U
TP6-1S	8/11/2011	NA	NA	NA	NA	NA	NA	283U	283U	13300	10800	555	489	107	230	243	504	85.7	62.9	118	36.8	39.5	14.2U	14.2U	26.7	14.2U	14.2U	14.2U
TP6-3W	8/11/2011	NA	NA	NA	NA	NA	NA	130U	130U	2930	2240	212	130	31.3	58.4	55.1	127	23.8	13.7	25.1	7.96	8.80	6.49U	6.49U	6.49U	6.49U	6.49U	6.49U
TP6-8NW	8/11/2011	NA	NA	NA	NA	NA	NA	7.99U	7.99U	7.99U	7.99U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U	0.399U
TP6-4N	8/11/2011	NA	NA	NA	NA	NA	NA	8.07U	8.07U	152	96.4	0.404U	0.404U	0.404U	0.799	0.893	7.25	1.85	11.6	8.87	4.7	4.84	3.38	2.75	3.99	2.65	0.404U	2.09

Table 6
Total Petroleum Hydrocarbons, MA VPH and MA EPH
Soil Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Sample Name	Collection Date	Total Petroleum Hydrocarbons	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	C5-C8 Aliphatics, Adjusted	C9-C12 Aliphatics, Adjusted	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	C11-C22 Aromatics, Adjusted	Naphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)Pyrene	Dibenzo(a,h)anthracene	Benzo(ghi)perylene
TP6-6NE	8/11/2011	NA	NA	NA	NA	NA	NA	347U	347U	5240	2860	71.1	19.8	17.3U	61.4	78.8	491	126	451	333	162	159	111	94	120	62.2	17.3U	48.9
TP2-1E	8/11/2011	NA	NA	NA	NA	NA	NA	153	142U	3710	2480	219	61.6	8.15	102	64.8	259	56.4	76.7	149	47	45.4	21.8	24.6	50.9	18.6	7.10U	24.4
TP2-2E	8/11/2011	NA	NA	NA	NA	NA	NA	26.1	17.4U	252	194	0.871U	2.43	0.871U	4.75	4.52	20.9	4.6	5.09	8.72	1.6	1.78	0.907	0.871U	1.51	0.871U	0.871U	1.31
TP4-1NE	8/11/2011	NA	NA	NA	NA	NA	NA	8.05U	8.05U	32.4	25.8	0.403U	0.403U	0.403U	0.403U	0.403U	1.12	0.403U	1.5	1.57	0.65	0.709	0.483	0.403U	0.544	0.403U	0.403U	0.403U
MCP Upper Concentration Limit (UCL):		10000	5000	20000	5000	5000	20000	20000	20000	10000	10000	10000	5000	10000	10000	10000	10000	10000	10000	10000	3000	10000	3000	10000	300	3000	300	10000
MCP S-3/GW-2		5000	500	5000	500	500	5000	5000	5000	5000	5000	40	80	600	5000	5000	3000	5000	5000	5000	300	3000	300	3000	30	300	30	5000
MCP S-3/GW-3		5000	500	5000	500	500	5000	5000	5000	5000	5000	3000	500	10	5000	5000	3000	5000	5000	5000	300	3000	300	3000	30	300	30	5000
Reporting Category - RCS-2		3000	500	3000	500	500	3000	3000	5000	3000	3000	40	80	10	3000	3000	1000	3000	3000	3000	40	400	40	400	4	40	4	3000

Notes:
U = below quntitation limit
NA = Not Analyzed
Exceedance of MCP Reporting Category and/or Standard.
NP = Not Promulgated
A = Shallow Sample
M = Middle Sample
B = Bottom

Table 7:
Semi-Volatile Organics
Soil Analytical Data
New Bedford Marine Commerce Terminal, New Bedford, Massachusetts

Sample Name	Collection Date	acenaphthene	fluoranthene	naphthalene	benzo(a)anthracene	benzo(a)pyrene	benzo(b)fluoranthene	benzo(k)fluoranthene	chrysene	acenaphthylene	anthracene	benzo(g,h,i)perylene	fluorene	phenanthrene	dibenz(a,h)anthracene	indeno(1,2,3-cd)pyrene	pyrene	4-chloroaniline	dibenzofuran	2-methylnaphthalene	2,6-dichlorophenol	carbazole
B-3/MW-1	5/2/2011	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.22U	0.37U	0.37U	0.37U	0.37U	0.37U	NA	NA
B-4/MW-2	5/3/2011	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.23U	0.38U	0.38U	0.38U	0.38U	0.38U	NA	NA
B-5/MW-3	5/4/2011	0.96	8.9	0.56	4.6	4.0	5.3	1.9	4.4	0.36U	1.8	2.5	0.72	7.9	0.72	2.7	7.4	0.36U	0.66	0.36U	NA	NA
B-6/MW-4	5/5/2011	1.7U	16	1.7U	7.4	7.2	9.2	3.4	6.7	1.7U	3.1	4.3	1.7U	12	1	4.9	13	1.7U	1.7U	1.7U	NA	NA
B-7	5/6/2011	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.22U	0.37U	0.37U	0.37U	0.37U	0.37U	NA	NA
B-8/MW-5	5/6/2011	1.7U	37	1.7U	18	18	22	8.9	15	3.6	6.5	12	1.7	21	2.4	13	31	1.7U	1.7U	1.7U	NA	NA
B-9/MW-6	5/9/2011	2U	2.6	2U	2U	2U	2U	2U	2U	2U	2U	2U	2U	5.3	1.2U	2U	2U	2U	2U	2U	NA	NA
B-11/MW-7	5/12/2011	0.66	0.41U	6.6	0.41U	0.41U	0.41U	0.41U	0.41U	0.41U	0.41U	0.41U	0.41U	0.41U	0.24U	0.41U	0.41U	0.41U	0.41U	2.1	NA	NA
B-12/MW-8 (A)	5/13/2011	2.6	3.4	18	1.4U	1.4U	1.4	1.4U	1.4	1.4U	1.4U	1.4U	1.4U	5.3	0.84U	1.4U	3.3	1.4U	1.4U	3	NA	NA
B-12/MW-8 (B)	5/13/2011	0.6	2.1	1.8	0.88	0.78	0.97	0.4U	0.96	0.4U	0.51	0.43	0.43	2.9	0.24U	0.43	2.1	0.4U	0.4U	0.4U	NA	NA
TP-1	4/25/2011	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.24U	0.4U	0.4U	0.4U	0.4U	0.4U	NA	NA
TP-2	4/25/2011	2U	38	2U	19	18	21	9.2	17	2U	6.7	11	2.2	26	2.5	12	33	2U	2U	2U	NA	NA
TP-3	4/25/2011	1.6	3	0.88	1.6	1.6	1.2	0.4	1.6	0.39U	1.9	0.92	1.6	8.9	0.23U	0.67	6	0.39U	0.39U	6.1	NA	NA
TP-4	4/25/2011	2.2U	5.2	2.2U	3.2	3.5	4.2	3.2	2.2U	2.2U	2.2U	2.6	2.2U	2.7	2.2U	2.3	6.3	2.2U	2.2U	2.2U	NA	NA
TP-5	4/25/2011	2U	16	2U	6.9	6.5	7.6	2.7	6.7	2U	3.8	4.1	2U	18	1.2U	4	14	2U	2U	2U	NA	NA
TP-6	4/26/2011	110	4.9U	500	60	64	44	14	54	4.9U	83	35	76	390	7	25	150	4.9U	4.9U	300	NA	NA
TP-7	4/26/2011	18U	120	18U	57	51	63	22	58	18U	18	27	18U	60	11U	28	120	18U	18U	18U	NA	NA
TP-8	4/26/2011	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.38U	0.23U	0.38U	0.38U	0.38U	0.38U	0.38U	NA	NA
TP-9	4/26/2011	0.58U	1.1	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.58U	0.35U	0.58U	0.58U	0.58U	0.58U	0.58U	NA	NA
TP-10	4/27/2011	0.38U	0.74	0.38U	0.42	0.38U	0.38U	0.38U	0.52	0.38U	0.38U	0.38U	0.38U	0.81	0.22U	0.38U	1	0.38U	0.38U	0.38U	NA	NA
TP-11	4/26/2011	0.38U	0.38U	0.38U	0.5	0.53	0.61	0.38U	0.49	0.38U	0.38U	0.4	0.38U	0.38U	0.23U	0.38U	1.1	0.38U	0.38U	0.38U	NA	NA
TP-12	4/27/2011	0.43U	0.96	0.43U	0.43	0.47	0.72	0.43U	0.62	0.43U	0.43U	0.43U	0.43U	0.43U	0.26U	0..43	0.88	0.43U	0.43U	0.43U	NA	NA
TP-13	4/28/2011	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.43U	0.26U	0.43U	0.43U	0.43U	0.43U	0.43U	NA	NA
TP-13A	4/27/2011	0.43U	0.91	0.43U	0.47	0.48	0.6	0.43U	0.49	0.43U	0.43U	0.43U	0.43U	0.53	0.26U	0.43U	0.9	0.43U	0.43U	0.43U	NA	NA
TP-14	4/27/2011	0.37U	0.72	0.37U	0.37U	0.37U	0.37	0.37U	0.37U	0.37U	0.37U	0.37U	0.37U	0.43	0.22U	0.37U	0.7	0.37U	0.37U	0.37U	NA	NA
TP-16	4/27/2011	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.4U	0.24U	0.4U	0.4U	0.4U	0.4U	0.4U	NA	NA
TP-17	4/27/2011	0.79U	8.4	0.79U	3.9	3.8	4.7	1.9	3.8	0.79U	1.4	2.4	0.79U	6.1	0.6	2.5	7.5	0.79U	0.79U	0.79U	NA	NA
DUPLICATE 1	4/25/2011	3.6	5.2	2	3.3	3.1	2.6	0.73	3	0.36U	3.6	1.8	3.2	14	0.39	1.3	9.5	0.36U	0.36U	6.8	NA	NA
DUPLICATE 2	4/25/2011	0.87	0.98	3.9	0.69	0.77	0.68	0.41U	0.7	0.41	0.56	0.58	0.52	3.2	0.25U	0.41U	1.9	0.41U	0.41U	1.9	NA	NA
TP2-1-W-H	7/19/2011	110	150	410	120	140	58	72	120	24	60	100	54	290	23	92	320	3U	3U	150	120	3U
TP2-2-W-M	7/19/2011	22	20	65	15	21	8.7	6.7	15	3.1	13	17	8.3	47	1U	13	43	1U	1U	43	31	1U
TP2-4-W-A	7/19/2011	0.06U	0.6	0.06U	0.3	0.3	0.2	0.3	0.4	0.06U	0.06U	0.3	0.06U	0.3	0.06U	0.2	0.6	0.06U	0.06U	0.06U	0.06U	0.06U
TP2-4-W-B	7/19/2011	0.1	3	0.3	1.8	2	1.4	1.2	1.9	0.3	0.4	2.1	0.1	1.7	0.3	1.8	3.4	0.03U	0.07	0.06	0.07	0.1
TP3-1-S	7/19/2011	0.07U	0.3	0.07U	0.2	0.1	0.07U	0.09	0.2	0.07U	0.07U	0.07U	0.07U	0.1	0.07U	0.07U	0.3	0.07U	0.07U	0.07U	0.07U	0.07U
TP3-2-S-A	7/19/2011	0.7	19	0.6	9.8	9.4	8.5	4.7	8.7	0.8	2.4	4.5	0.8	10	1.4	4.1	17	0.06U	0.5	0.2	0.2	1
TP3-2-S-B	7/19/2011	0.03U	0.03U	0.7	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.2	0.03U
TP3-2-S-M	7/19/2011	0.1U	1.2	0.1U	0.5	0.6	0.4	0.5	0.6	0.1U	0.1	0.5	0.1U	0.6	0.2	0.4	1	0.1U	0.1U	0.1U	0.1U	0.1U
TP4-1-E	7/19/2011	1U	1U	2	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	2.2	1U	1U	1U	1U	1U
TP4-1-S-A	7/20/2011	0.08	1.8	0.09	1.1	1.2	0.9	0.8	1.1	0.1	0.2	0.7	0.1	1.1	0.2	0.7	1.8	0.04U	0.04U	0.04U	0.04U	0.1
TP4-1-S-B	7/20/2011	0.1U	0.4	0.1U	0.2	0.4	0.1U	0.1U	0.3	0.1U	0.1U	0.4	0.1U	0.1U	0.1U	0.3	0.5	0.1U	0.1U	0.1U	0.1U	0.1U
TP4-1-S-M	7/20/2011	0.3	9	0.7	7	7.2	5.7	4.4	7.4	0.9	1.1	5.6	0.4	5.4	1.4	5.1	13	0.06U	0.2	0.2	0.2	0.3
TP4-1-W-A	7/20/2011	2.7	26	1.3	14	10	6.5	9	8.8	0.7	5.9	4.5	2.5	23	1.6	4.2	22	0.06U	1.9	0.6	0.6	3
TP4-1-W-B	7/20/2011	0.2U	1	0.2U	0.7	1.7	1	0.6	0.9	0.3	0.2U	2.7	0.2U	0.6	0.3	2.5	1.3	0.2U	0.2U	0.2U	0.2U	0.2U
TP4-1-W-M	7/20/2011	0.2	6.8	1.4	5.3	5.9	4.9	2.8	5.4	1	1.1	3.6	0.3	4.3	1.1	3.2	11	0.06U	0.1	0.4	0.2	0.2
TP4-2-W	7/20/2011	0.2U	1.9	0.2U	1.7	4.7	2.6	1.3	2.1	1	0.5	9.2	0.2U	1	0.9	7.8	3.9	0.2U	0.2U	0.2U	0.2U	0.2U
TP6-1-NE-A	7/22/2011	0.06U	0.2	0.06U	0.08	0.09	0.07	0.07	0.09	0.06U	0.06U	0.06	0.06U	0.07	0.06U	0.06U	0.1	0.06U	0.06U	0.06U	0.06U	0.06U
TP6-1-NE-B	7/22/2011	0.4	3.6	0.2	1.7	1.9	1	1.4	2	0.2U	0.8	1.1	0.5	4.2	0.4	0.9	4	0.2U	0.2U	0.2	0.3	0.2U
TP6-1-NE-M	7/22/2011	200	1800	130	910	720	670	380	850	33	390	420	230	1600	120	380	1700	7U	110	83	73	150
TP6-1-N-H	7/18/2011	320	86	230	60	18	7.7	17	62	22	120	13	79	650	11	7.7	180	3U	3U	39	3U	3U
TP6-1-NW-A	7/22/2011	0.06U	0.3	0.06U	0.2	0.2	0.2	0.2	0.3	0.06U	0.06U	0.2	0.06U	0.1	0.07	0.1	0.3	0.06U	0.06U	0.06U	0.06U	0.06U
TP6-1-NW-B	7/22/2011	0.2U	0.2U	0.4	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	1.4	0.2U
TP6-1-NW-M	7/22/2011	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.2	0.06U	0.06U	0.07	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U	0.06U
TP6-2-N-M	7/18/2011	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U
TP6-2-N-M	7/18/2011	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U	0.8U
TP6-2-NW-A	7/22/2011	0.1U	1.6	0.1U	0.8	0.9	0.6	0.8	0.9	0.1U	0.2	0.5	0.1U	1.1	0.1U	0.4	1.5	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-2-NW-A	7/22/2011	0.1U	1.6	0.1U	0.8	0.9	0.6	0.8	0.9	0.1U	0.2	0.5	0.1U	1.1	0.1U	0.4	1.5	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-2-NW-B	7/22/2011	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U
TP6-2-NW-M	7/22/2011	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-2-W-A	7/19/2011	0.06U	2.5	0.06U	2.8	5.1	2	2.9	3.2	0.3	0.2	4.4	0.06U	0.4	0.8	4	6	0.06U	0.06U	0.06U	0.06U	0.06U
TP6-2-W-B	7/19/2011	1.2	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	0.6U	3.6	0.6U	0.6U	2.3	0.6U	0.6U	0.6U	0.6U	0.6U
TP6-2-W-M	7/19/2011	6U	6U	6U	6U	6U	6U	6U	13	6U	16	6U	6U	6U	6U	6U	6U	6U	6U	6U	6U	6U
TP6-3-N-A	7/18/2011	0.03U	0.3	0.03U	0.2	0.2	0.1	0.2	0.2	0.03U	0.03U	0.2	0.03U	0.2	0.03U	0.2	0.3	0.03U	0.03U	0.03U	0.03U	0.03U
TP6-3-N-B	7/18/2011	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U	0.03U
TP6-3-NE-A	7/22/2011	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-3-NE-B	7/22/2011	12	140	5U	52	59	40	42	53	5U	37	26	16	100	5U	30	100	5U	9.5	5U	5U	5U
TP6-3-NE-M	7/22/2011	0.06U	0.4	0.06U	0.2	0.2	0.1	0.1	0.2	0.06U	0.06U	0.06U	0.06U	0.3	0.06U	0.06U	0.3	0.06U	0.06U	0.06U	0.06U	0.06U
TP6-5-NE-A	7/25/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
TP6-5-NE-B	7/25/2011	0.1U	0.3	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.4	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-5-NE-M	7/25/2011	6.9	60	3U	26	22	16	16	24	3U	13	12	7.4	57	3U	11	49	3U	3U	3U	3U	8.8
TP6-7-NW-A	7/25/2011	1.9	38	1.2	23	16	17	6.3	14	2	5.5	5.5	2.2	22	2	5.4	35	0.06U	1	0.6	0.5	2.2
TP6-7-NW-B	7/25/2011	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
TP6-7-NW-M	7/25/2011	0.4	3.3	0.2	1.5	1.4	1.1	1	1.7	0.07U	0.6	0.7	0.3	3.6	0.2	0.6	3.2	0.07U	0.07U	0.1	0.2	0.3
MCP Upper Concentration Limit (UCL):		10000	10000	10000	3000	300	3000	10000	10000	10000	10000	10000	10000	10000	300	3000	10000	NP	NP	5000	NP	NP

Table 7:
Semi-Volatile Organics
Soil Analytical Data
New Bedford Marine Commerce Terminal, New Bedford, Massachusetts

Sample Name	Collection Date	acenaphthene	fluoranthene	naphthalene	benzo(a)anthracene	benzo(a)pyrene	benzo(b)fluoranthene	benzo(k)fluoranthene	chrysene	acenaphthylene	anthracene	benzo(g,h,i)perylene	fluorene	phenanthrene	dibenz(a,h)anthracene	indeno(1,2,3-cd)pyrene	pyrene	4-chloroaniline	dibenzofuran	2-methylnaphthalene	2,6-dichlorophenol	carbazole
MCP S-3/GW-2		5000	5000	40	300	30	300	3000	3000	600	5000	5000	5000	3000	30	300	5000	NP	NP	80	NP	NP
MCP S-3/GW-3		5000	5000	3000	300	30	300	3000	3000	10	5000	5000	5000	3000	30	300	5000	NP	NP	500	NP	NP
Reporting Category - RCS-2		3000	3000	40	40	4	40	400	400	10	3000	3000	3000	1000	4	40	3000	NP	NP	80	NP	NP

Notes:

U = below quntitation limit
NA = Not Analyzed
- Exceedance of Reporting Category and/or Standard
NP = Not Promulgated
A = Shallow Sample
M = Middle Sample
B = Bottom

Table 8
PCBs (Aroclors) - Groundwater Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

		Concentration of PCBs (µg/L)					
Sample Name	Collection Date	Aroclor 1016/1242	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1254	Aroclor 1260
MW-1	6/28/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-2	6/28/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-3	6/30/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-4	6/30/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-5	6/30/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-6	6/29/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-7	6/29/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MW-8	6/28/2011	0.05U	0.05U	0.05U	0.05U	0.05U	0.05U
MCP Upper Concentration Limits (UCL):		NP	NP	NP	NP	NP	NP
MCP GW-3		NP	NP	NP	NP	NP	NP
Reporting Category - RCGW-2		NP	NP	NP	NP	NP	NP

Notes:
U = Concentration is below the laboratory's method detection limit.
NP = Not Promulgated
ND = Analyzed Aroclors were non-detected.

Table 9
Total Petroleum Hydrocarbons Groundwater Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

Total Petroleum Hydrocarbons, MA VPH and MA EPH (µg/L)								
Sample Name	Collection Date	Total Petroleum Hydrocarbons	C9-C10 Aromatics	C5-C8 Aliphatics, Adjusted	C9-C12 Aliphatics, Adjusted	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics, Adjusted
MW-1	6/28/2011	500U	NA	NA	NA	NA	NA	NA
MW-2	6/28/2011	500U	NA	NA	NA	NA	NA	NA
MW-3	6/30/2011	500U	NA	NA	NA	NA	NA	NA
MW-4	6/30/2011	500U	NA	NA	NA	NA	NA	NA
MW-5	6/30/2011	500U	NA	NA	NA	NA	NA	NA
MW-6	6/30/2011	3350	NA	NA	NA	NA	NA	NA
MW-7	6/29/2011	500U	3730	1250U	2370	100U	100U	2710
MW-8	6/28/2011	500U	50U	50U	50U	100U	100U	148
MCP Upper Concentration Limit (UCL):		50000	100000	100000	100000	100000	100000	100000
MCP Method 1 GW-3		5000	50000	50000	50000	50000	50000	5000
Reporting Category - RCGW-2		5000	7000	3000	5000	5000	50000	5000

U = Concentration is below the laboratory's method detection limit.

Notes:

U = below quntitation limit

NA = Not Analyzed

NP = Not Promulgated

Table 10
Semi-Volatile Organics Groundwater Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

		Volatile Organics (µg/L)						
Sample Name	Collection Date	Benzene	Toluene	Ethylbenzene	p/m-Xylene	o-Xylene	Naphthalene	1,3,5-Trimethylbenzene
MW-1	6/28/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-2	6/28/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-3	6/30/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-4	6/30/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-5	6/30/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-6	6/29/2011	0.5U	1U	1U	2U	1U	2U	2U
MW-7	6/29/2011	370	110	940	560	280	3900	300
MW-8	6/28/2011	0.5U	1U	1U	2U	1U	42	2U
MCP Upper Concentration Limit (UCL):		100000	100000	100000	100000		100000	NP
MCP Method 1 GW-3		10000	40000	5000	5000		20000	NP
Reporting Category - RCGW-2		2000	40000	5000	5000		1000	1000

Notes:
U = Concentration is below the laboratory's method detection limit.
NP = Not Promulgated
Constituent concentration exceeds MCP Reportable Concentration.

Table 11
Semi-Volatile Organics Groundwater Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

		Semivolatile Organics (µg/L)						
Sample Name	Collection Dat	acenaphthene	fluoranthene	naphthalene	fluorene	phenanthrene	pyrene	2-methylnaphthalene
MW-1	6/28/2011	0.55	0.48	0.2U	0.2U	0.2U	0.23	0.2U
MW-2	6/28/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
MW-3	6/30/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
MW-4	6/30/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
MW-5	6/30/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
MW-6	6/29/2011	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U	0.2U
MW-7	6/29/2011	68	10U	700	20	19	10U	150
MW-8	6/28/2011	2.1	3.8	0.2U	0.28	0.28	3.2	0.2U
MCP Upper Concentration Limit (UCL):		60000	2000	100000	400	100000	800	100000
MCP Method 1 GW-3		6000	200	20000	40	10000	20	20000
Reporting Category - RCGW-2		6000	200	1000	40	10000	20	2000

Notes:
U = Concentration is below the labora U = Concentration is below the laboratory's method detection limit.
NP = Not Promulgated
Note: Other analyzed compounds not detected.

Table 12
13 Priority Pollutant Metals Groundwater Analytical Data
New Bedford Marine Commerce Terminal
New Bedford, Massachusetts

		13 Priority Pollutant Metals (mg/L)												
Sample Name	Collection Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
MW-1	6/28/2011	0.001U	0.0011	0.0005U	0.0005U	0.0005U	0.0010	0.0005U	0.0002U	0.0008	0.001	0.0005U	0.0005U	0.0144
MW-2	6/28/2011	0.001U	0.0011	0.0005U	0.0005U	0.0005U	0.0025	0.0016	0.0002U	0.0014	0.001	0.0005U	0.0005U	0.0189
MW-3	6/30/2011	0.0036	0.0006	0.0005U	0.0005U	0.0005U	0.0018	0.0005U	0.0002U	0.0008	0.001	0.0005U	0.0005U	0.0118
MW-4	6/30/2011	0.01U	0.0055	0.005U	0.005U	0.005U	0.0124	0.005U	0.0002U	0.0064	0.024	0.005U	0.005U	0.005U
MW-5	6/30/2011	0.001U	0.0005U	0.0005U	0.0005U	0.0005U	0.0024	0.0005U	0.0002U	0.0021	0.002	0.0005U	0.0005U	0.0116
MW-6	6/29/2011	0.001U	0.0046	0.0005U	0.0005U	0.0005U	0.0009	0.0005U	0.0002U	0.0021	0.002	0.0005U	0.0005U	0.0130
MW-7	6/29/2011	0.001U	0.0013	0.0005U	0.0005U	0.0005U	0.0008	0.0005U	0.0002U	0.0011	0.001	0.0005U	0.0005U	0.0127
MW-8	6/28/2011	0.001U	0.0008	0.0005U	0.0005U	0.0008	0.0005U	0.0005U	0.0002U	0.0008	0.001	0.0005U	0.0005U	0.0090
MCP Upper Concentration Limit (UCL)		80	9	2	0.05	3	NP	0.15	0.2	2	1	1	30	50
MCP Method 1 GW-3		8	0.9	0.2	0.004	0.3	NP	0.01	0.02	0.2	0.1	0.007	3	0.9
Reporting Category - RCGW-2		8	0.9	0.2	0.004	0.3	100	0.01	0.02	0.2	0.1	0.007	3	0.9

Notes:

U = below laboratory's method detection limit

N/A = Not Analyzed

NP = Not Promulgated

Date: 4/25/2011
Time: 7:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 816068
Location: South Terminal Expansion	Y: 2688220
Surface Elev: 7.4 MLLW Total Hole Depth: 5.2 feet	
Excavator Type: Case 590	Test Pit No: TP 1A
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Light brown fine SAND, trace SILT	
0.6 - 0.8	0	Light brown fine to medium SAND	
0.8 - 1.6	0	Light brown SILT	
1.6 - 4.3	0	Gray fine to coarse SAND and SHELL HASH	
4.3 - 5.2	0	Gray fine SAND and SILT	Lab Sample
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/25/2011
Time: 7:00 AM

Project: Phase IV Dredging Project No: 6690.008
Location: South Terminal Expansion
Surface Elev: 8.2 MLLW Total Hole Depth: 5.3 feet
Excavator Type: Case 590
Company: AGM Marine, Tom Wolf, Operator
Log By: GAD

X: 816068
Y: 2688220
Test Pit No: TP 1B
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.3	0	Light brown fine SAND, trace SILT	
1.3 - 1.7	0	Gray fine SAND	
1.7 - 3.5	0	Gray fine to medium SAND	
3.5 - 5.3	0	Light brown fine SAND	Lab Sample
		END TEST PIT	

Comments:

Date: 4/25/2011
Time: 7:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 816068
Location: South Terminal Expansion	Y: 2688220
Surface Elev: 6.9 MLLW Total Hole Depth: 5.1 feet	
Excavator Type: Case 590	Test Pit No: TP 1C
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.7	0	Light brown fine SAND, trace SILT	
0.7 - 2.6	0	Gray fine SAND	
2.6 - 3.2	0	Gray fine to coarse SAND and SHELL HASH	
3.2 - 5.1	0	Gray fine to medium SAND and SHELL HASH	Lab Sample
		END TEST PIT	

Comments:

Date: 4/25/2011
Time: 11:15 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815992
Location: South Terminal Expansion	Y: 2688190
Surface Elev: 7.9 MLLW Total Hole Depth: 3.7 feet	
Excavator Type: Case 590	Test Pit No: TP 2
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 3.7	0	Black SOIL and BRICK/asphalt coated METAL debris		Lab Sample
		END TEST PIT		

Comments:

Date: 4/25/2011
Time: 1:47 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815960
Location: South Terminal Expansion	Y: 2688110
Surface Elev: 7.2 MLLW Total Hole Depth: 5.0 feet	
Excavator Type: Case 590	Test Pit No: TP 3
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.8	0	Black organic SOIL	
0.8 - 2.7	0	Brown fine to medium SAND and organics, some FILL and BRICK debris	
2.7 - 5.0	125	Brown fine to medium SAND and gleyed soil, petroleum/creosote odor	Lab Sample
		END TEST PIT	

Comments:

Date: 4/25/2011
Time: 1:10 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815920
Location: South Terminal Expansion	Y: 2688102
Surface Elev: 7.1 MLLW Total Hole Depth: 3.6 feet	
Excavator Type: Case 590	Test Pit No: TP 4
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Black organic SOIL		
0.5 - 1.2	0	Brown fine to medium SAND and FILL and BRICK debris		Lab Sample
1.2 - 3.6	0	Orange brown fine to coarse GRAVEL		
		END TEST PIT		

Comments:

Date: 4/25/2011
Time: 12:35 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815870
Location: South Terminal Expansion	Y: 2688068
Surface Elev: 5.7 MLLW Total Hole Depth: 3.6 feet	
Excavator Type: Case 590	Test Pit No: TP 5
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.2	0	Black organic SOIL		
1.2 - 2.0	0	Black ASH and CLINKERS		Lab Sample
2.0 - 3.6	0	Orange brown fine to coarse GRAVEL		
		END TEST PIT		

Comments:

TEST PIT LOG

Date: 4/26/2011
Time: 9:00 AM

Project: Phase IV Dredging Project No: 6690.008
Location: South Terminal Expansion
Surface Elev: 7.2 MLLW Total Hole Depth: 5.4 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Tom Wolf, Operator
Log By: GAD

X: 815960
Y: 2688210
Test Pit No: TP 6
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Black organic TOPSOIL		
0.9 - 1.7	0	BRICK debris, some METAL debris		
1.7 - 3.9	0	Black brown, ASH and CLINKERS		
3.9 - 4.1	0	Orange brown, fine SAND and SILT		
4.1 - 5.4	340	Brown, fine to coarse SAND and gleyed SOIL, petroleum or creosote odor		Lab Sample
		END TEST PIT		

Comments:

TEST PIT LOG

Date: 4/26/2011
Time: 7:40 AM

Project: Phase IV Dredging Project No: 6690.008	X: 816015
Location: South Terminal Expansion	Y: 2687925
Surface Elev: 9.8 MLLW Total Hole Depth: 8.2 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 7
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Brown fine SAND and SILT	
0.5 - 1.6	0	Light brown, fine to medium SAND	
1.6 - 2.5	0	Light brown fine to coarse SAND and SHELL HASH	
2.5 - 3.6	0	Gray fine SAND and SILT	
3.6 - 6.0	0	Light brown medium to coarse SAND, trace fine SAND and SHELL HASH, some fine GRAVEL	
6.0 - 6.3	0	BRICK debris and reddish brown coarse SAND	
6.3 - 8.2	0	Black fine SAND and SILT, some SHELL HASH and BRICK debris	Lab Sample
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/26/2011
Time: 11:00 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815913
Location: South Terminal Expansion	Y: 2688350
Surface Elev: 7.3 MLLW Total Hole Depth: 4.7 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 8
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.7	0	Black, organic TOPSOIL		
0.7- 1.3	0	BRICK debris and ASH and CLINKERS		Lab Sample
1.3 - 2.8	0	Orange brown, fine SAND and SILT		
2.8 - 4.7	0	Light brown medium to coarse SAND, trace fine SAND		
4.7	0	BEDROCK		
		END TEST PIT		

Comments:

Date: 4/26/2011
Time: 1:54 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815710
Location: South Terminal Expansion	Y: 2688238
Surface Elev: 8.0 MLLW Total Hole Depth: 7.2 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 9
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.4	0	Black, organic TOPSOIL		
1.4- 4.9	0	Orange brown, medium to coarse SAND and BRICK debris		
4.9 - 5.7	0	ASH and CLINKERS		Lab Sample
5.7 - 6.5	0	Orange brown, fine to medium SAND, trace SILT		
6.5 - 6.8	0	Black, silty SAND		
6.8 - 7.2	0	Green gray, silty SAND		
		END TEST PIT		

Comments:

TEST PIT LOG

Date: 4/27/2011
Time: 8:30 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815555
Location: South Terminal Expansion	Y: 2688223
Surface Elev: 7.6 MLLW Total Hole Depth: 6 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 10
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1	0	Dark brown organic TOPSOIL	
1 - 1.5	0	Orange brown (Fe) organic SOIL	
1.5 - 3	0	Discontinous ASH	
3 - 3.5	0	Black organic fine SAND and SILT	
3.5 - 4.5	0	Brown fine to medium SAND, some SILT	Lab Sample
4.5 - 5	0	BOULDERS - GNEISS	
5 - 6	0	Brown fine to medium SAND	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/26/2011
Time: 3:20 PM

Project: Phase IV Dredging Project No: 6690.008	X: 815720
Location: South Terminal Expansion	Y: 2688140
Surface Elev: 8.3 MLLW Total Hole Depth: 6 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 11
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.7	0	Black organic TOPSOIL, some BRICK debris	
0.7 - 1.8	0	Dark brown organic TOPSOIL, some BRICK debris	
1.8 - 2.7	0	Black ASH and CLINKERS	Lab Sample
2.7 - 3.2	0	Orange brown, medium to coarse SAND	
3.2 - 6	0	Light gray, fine to medium SAND	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/27/2011
Time: 9:30 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815553
Location: South Terminal Expansion	Y: 2688050
Surface Elev: 8.2 MLLW Total Hole Depth: 5.5 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 12
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1	0	Broken pieces of CLAY PIPE and dark brown organic TOPSOIL	
1 - 2	0	ROCK and BRICK debris	
2 - 3	0	Black ASH and CLINKERS	Lab Sample
3 - 4.8	0	Broken pieces of CONCRETE floor slab	
4.8 - 5.5	0	Brown fine to medium SAND, some SILT	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/28/2011
Time: 8:00 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815755
Location: South Terminal Expansion	Y: 2687950
Surface Elev: 6.8 MLLW Total Hole Depth: 4.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 13
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.8	0	Black, organic TOPSOIL, some METAL debris	
0.8 - 1.2	0	Yellow orange, fine to medium SAND	
1.2 - 4.0	0	Brown, fine to medium SAND	Lab Sample
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/27/2011
Time: 11:00 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815757
Location: South Terminal Expansion	Y: 2688049
Surface Elev: 7.8 MLLW Total Hole Depth: 8.5 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 13A
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Dark brown organic TOPSOIL	
0.5 - 2	0	Black ASH and CLINKERS, some BRICK/CONCRETE BLOCK debris and METAL SCRAP	
2 - 2.5	0	Fine GRAVEL, trace - little fine to medium Brown SAND, some SILT, trace black ASH and CLINKERS	
2.5 - 3	0	Brown medium to coarse SAND, some GRAVEL, trace SILT and ASH and CLINKERS	Lab Sample
3 - 3.7	0	Brown fine to coarse SAND and SILT	
3.7 - 8.5	0	Mottled brown and light green fine to coarse SAND and SILT, little fine GRAVEL	
		END TEST PIT	

Comments:

Date: 4/27/2011
Time: 11:57 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.008	X: 815775
Location: South Terminal Expansion	Y: 2688315
Surface Elev: 7.5 MLLW Total Hole Depth: 9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 14
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1	0	Dark brown organic TOPSOIL	
1 - 2.7	0	Light Gray ASH some BOULDERS and BRICK debris	Lab Sample
2.7 - 4.5	0	Black fibrous organic SILT	
4.5 - 6.2	0	Fine GRAVEL, trace - little fine to medium Brown SAND, some SILT	
6.2 - 9	0	Mottled brown and green fine to coarse SAND and SILT	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 4/27/2011
Time: 13:30:00 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815625
Location: South Terminal Expansion	Y: 2688330
Surface Elev: 9.0 MLLW Total Hole Depth: 6 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 16
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1	0	Dark brown organic TOPSOIL		
1 - 3	0	Black ASH		
3 - 4	0	Brown fine to medium SAND, some SILT		Lab Sample
4 - 4.5	0	Black fibrous organic SILT		
4.5 - 6	0	Fine GRAVEL, trace - little fine to medium Brown SAND, some SILT		
		END TEST PIT		

Comments:

TEST PIT LOG

Date: 4/27/2011
Time: 14:45:00 AM

Project: Phase IV Dredging Project No: 6690.008	X: 815688
Location: South Terminal Expansion	Y: 2687960
Surface Elev: 7.2 MLLW Total Hole Depth: 6 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 17
Company: AGM Marine, Tom Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2	0	Dark brown organic TOPSOIL, some BRICK debris		
2 - 4	0	Dark brown organic soil and black ASH and CLINKERS		Lab Sample
4 - 4.5	0	Mottled brown and green medium to coarse SAND and SILT, some black ASH and CLINKERS		
4.5 - 6	0	Fine GRAVEL, trace - little fine to medium Brown SAND, some SILT		
		END TEST PIT		

Comments:

TEST PIT LOG

Date: 7/25/2011
Time: 3:30 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 6.0 MLLW Total Hole Depth: 13.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 816114
Y: 2688385
Test Pit No: TP A1
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Light brown fine SAND, and SILT, trace SHELL HASH.	
0.6 - 2.5	0	Tan fine to medium SAND and SHELL HASH, trace SILT.	
2.5 - 4.2	0	Olive Gray, fine to medium SAND and SILT, trace SHELL HASH.	
4.2 - 8.6	0	Gray fine to medium SAND and SILT, trace SHELL HASH.	
8.6 - 13.0	0	Dark gray fine SAND and SILT, trace SHELL HASH.	
		END TEST PIT	

Comments: Groundwater encountered at 10.5' BSG.

TEST PIT LOG

Date: 7/25/2011
Time: 1:00 PM

Project: Phase IV Dredging Project No: 6690.014	X: 816103
Location: South Terminal Expansion	Y: 2688210
Surface Elev: 7.4 MLLW Total Hole Depth: 12.9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP B1
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.2	0	Light brown fine SAND and SILT, trace SHELL HASH.	
1.2 - 4.5	0	Tan fine to medium SAND and SHELL HASH, trace SILT.	
4.5 - 6.0	0	Olive gray fine SAND and SILT, trace SHELL HASH, trace fine GRAVEL.	
6.0 - 9.0	0	Gray fine to medium SAND and SILT, trace SHELL HASH.	
9.0 - 12.9	0	Dark gray, fine SAND and SILT, trace SHELL HASH.	
		END TEST PIT	

Comments: Groundwater encountered at 10.2' BSG.

TEST PIT LOG

Date: 7/25/2011
Time: 2:30 PM

Project: Phase IV Dredging Project No: 6690.014	X: 816008
Location: South Terminal Expansion	Y: 2687936
Surface Elev: 9.7 MLLW Total Hole Depth: 12.2 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP C1
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.8	0	Light brown fine SAND and SILT, trace SHELL HASH.	
0.8 - 3.6	0	Tan fine to medium SAND and SHELL HASH, trace SILT.	
3.6 - 4.8	0	Olive gray fine SAND and SILT, trace SHELL HASH, trace fine GRAVEL.	
4.8 - 8.6	0	Gray fine to medium SAND and SILT, trace SHELL HASH.	
8.6 - 12.2	0	Dark gray, fine SAND and SILT, trace SHELL HASH.	
		END TEST PIT	

Comments: Groundwater encountered at 5.6' BSG.

Date: 7/18/2011
Time: 11:30 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815957
Location: South Terminal Expansion	Y: 2688243
Surface Elev: 7.5 MLLW Total Hole Depth: 6.5 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 6-1
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Dark brown, organic TOPSOIL.	
0.5 - 2.1	0	Light brown, fine to medium SAND, trace SILT and BRICK DEBRIS.	
2.1 - 3.9	0	Brown ASH and CLINKERS.	
3.9 - 5.0	0	Orange brown fine SAND and SILT.	
5.0 - 6.5	0	Black, fibrous, fine to medium SAND and SILT and organics.	
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
Slight creosote/petroleum odor in sample at 6.5' BSG.

Date: 7/18/2011
Time: 12:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815962
Location: South Terminal Expansion	Y: 2688239
Surface Elev: 7.5 MLLW Total Hole Depth: 5.9 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 6-1N
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Dark brown, organic TOPSOIL.	
0.5 - 2.9	0	Light brown, fine to medium SAND, trace SILT and BRICK DEBRIS, some fine GRAVEL.	
2.9 - 4.0	0	Brown ASH and CLINKERS.	
4.0 - 4.4	0	Orange brown fine SAND and SILT.	
4.4 - 4.9	5	Yellow orange, fine SAND and SILT, trace fine GRAVEL.	
4.9 - 5.9	127	Black, fibrous, fine to medium SAND and SILT and organics.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
Slight creosote/petroleum odor in sample at 4.9' BSG.

Date: 7/18/2011
Time: 12:30 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815927
Location: South Terminal Expansion	Y: 2688250
Surface Elev: 7.3 MLLW Total Hole Depth: 5.4 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 6-2N
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Dark brown, organic TOPSOIL.	
0.5 - 1.2	0	Light brown, fine to medium SAND.	
1.2 - 1.7	0	Light yellow, fine to coarse SAND, trace fine GRAVEL.	
1.7 - 2.9	0	Brown ASH and CLINKERS.	
2.9 - 4.2	0	Light gray, fine to coarse SAND and SILT.	
4.2 - 4.8	0	Light brown, fine to coarse SAND and SILT.	
4.8 - 5.4	15	Black, fibrous, silty PEAT.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.4' BSG.
Slight creosote/petroleum odor in sample at 5.4' BSG.

TEST PIT LOG

Date: 7/18/2011
Time: 1:00 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.2 MLLW Total Hole Depth: 6.5 feet
Excavator Type: Caterpillar B315
Company: CSB Enterprises, Chris Bottiglieri, Operator
Log By: GAD

X: 815918
Y: 2688255
Test Pit No: TP 6-3N
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Dark brown, organic TOPSOIL.		
0.5 - 1.1	0	Light brown, fine to medium SAND.		Lab Sample
1.2 - 1.8	0	Light yellow, fine to coarse SAND, trace fine GRAVEL.		
1.8 - 2.8	0	Brown ASH and CLINKERS.		
2.8 - 3.6	0	Orange brown, fine to coarse SAND and fine GRAVEL.		
3.6 - 4.0	0	Light gray, fine to coarse SAND and fine GRAVEL.		
4.0 - 4.9	0	Light brown, fine to coarse SAND and SILT.		
4.9 - 5.8	0	Black, fibrous, silty PEAT.		
5.8 - 6.5	0	Light gray, clayey SILT.		Lab Sample
		END TEST PIT		

Comments: Groundwater encountered at 5.2' BSG.

TEST PIT LOG

Date: 7/19/2011
Time: 8:00 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.5 MLLW Total Hole Depth: 7.6 feet
Excavator Type: Caterpillar B315
Company: CSB Enterprises, Chris Bottiglieri, Operator
Log By: GAD

X: 815944
Y: 2688209
Test Pit No: TP 6-1W
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.7	0	Dark brown, organic TOPSOIL.	
0.7- 1.7	0	Yellow orange, fine to medium SAND, trace SILT.	
1.7 - 2.2	0	Light brown, fine to coarse SAND and fine GRAVEL.	
2.2 - 3.6	0	Brown ASH and CLINKERS, little BRICK debris.	
3.6 - 4.4	0	Yellow orange, fine to coarse SAND and SILT, some fine GRAVEL.	
4.4 - 4.7	0	Light brown, fine to coarse SAND and SILT.	
4.7 - 5.9	0	Black, fibrous, silty PEAT.	Lab Sample
5.9 - 7.6	0	Light gray, clayey SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 5.1' BSG.
Slight creosote/petroleum odor in sample at 4.7' BSG.

TEST PIT LOG

Date: 7/19/2011
Time: 9:00 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.3 MLLW Total Hole Depth: 7.9 feet
Excavator Type: Caterpillar B315
Company: CSB Enterprises, Chris Bottiglieri, Operator
Log By: GAD

X: 815923
Y: 2688184
Test Pit No: TP 6-2W
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Dark brown, organic TOPSOIL and COBBLES/BRICK debris.	Lab Sample
0.6- 2.0	0	Yellow orange, fine to medium SAND, trace SILT.	
2.0 - 2.2	0	Brown ASH and CLINKERS, little BRICK debris.	Lab Sample
2.2 - 3.5	0	Yellow orange, fine to medium SAND, trace SILT.	
3.5 - 5.4	0	Light brown, fine to coarse SAND and SILT.	
5.4 - 6.2	0	Black, fibrous, silty PEAT.	
6.2 - 7.9	0	Light gray, clayey SILT.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.

Date: 7/19/2011
Time: 10:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815975
Location: South Terminal Expansion	Y: 2688171
Surface Elev: 7.2 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 2-1W
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Black, organic TOPSOIL, some BRICK debris.	
1.0- 3.5	0	Black ASH and CLINKERS.	
3.5 - 4.2	0	Yellow orange, fine to medium SAND, trace SILT and fine GRAVEL.	
4.2 - 5.0	0	Brown to gleyed, fine to coarse SAND and fine GRAVEL.	Lab Sample
5.0 - 6.0	0	Brown, fine to coarse SAND and fine GRAVEL.	
		END TEST PIT	

Comments: Groundwater encountered at 4.5' BSG.

Date: 7/19/2011
Time: 10:30 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815963
Location: South Terminal Expansion	Y: 2688150
Surface Elev: 7.2 MLLW Total Hole Depth: 5.1 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 2-2W
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.1	0	Black, organic TOPSOIL, some BRICK debris.	
1.1- 3.3	0	Black ASH and CLINKERS.	
3.3 - 4.4	0	Yellow orange, fine to medium SAND, trace SILT and fine GRAVEL.	
4.4 - 5.1	0	Brown to gleyed, fine to coarse SAND and fine GRAVEL.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 4.5' BSG.

Date: 7/19/2011
Time: 10:50 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815952
Location: South Terminal Expansion	Y: 2688129
Surface Elev: 7.2 MLLW Total Hole Depth: 5.2 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 2-3W
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.7	0	Black, organic TOPSOIL and fine GRAVEL, some COBBLES.	
1.7- 3.0	0	Yellow orange, fine to medium SAND, trace SILT and fine GRAVEL.	
3.0 - 5.2	0	Brown to gleyed, fine to coarse SAND and fine GRAVEL.	
		END TEST PIT	

Comments: Groundwater encountered at 5.1' BSG.
Slight creosote/petroleum odor in sample at 3.0' BSG.

Date: 7/19/2011
Time: 11:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815944
Location: South Terminal Expansion	Y: 2688118
Surface Elev: 7.3 MLLW Total Hole Depth: 3.3 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 2-4W
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Black, organic TOPSOIL and fine GRAVEL, some COBBLES.	Lab Sample
0.6- 1.6	0	Yellow orange, fine to medium SAND, trace SILT and fine GRAVEL.	
1.6 - 3.3	0	Brown, fine to coarse SAND, some fine GRAVEL.	Lab Sample
3.3	0	Ledge.	
		END TEST PIT	

Comments: Also eastern edge of TP 4.

Date: 7/19/2011
Time: 12:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815940
Location: South Terminal Expansion	Y: 2688112
Surface Elev: 7.4 MLLW Total Hole Depth: 4.4 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 4-1E
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Brown, fine to coarse SAND and fine GRAVEL.	
0.9- 2.5	0	Yellow orange, fine to coarse SAND, trace SILT and fine GRAVEL.	
2.5 - 4.4	0	Black ASH and CLINKERS, little BRICK debris.	Lab Sample
		END TEST PIT	

Comments: Perched groundwater encountered at 4.4' BSG.

Date: 7/19/2011
Time: 1:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815992
Location: South Terminal Expansion	Y: 2688082
Surface Elev: 7.5 MLLW Total Hole Depth: 6.5 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 3-1S
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Black, TOPSOIL.	
0.5- 6.2	0	Black, fine SAND and BRICK/angular ROCK debris.	Lab Sample
6.2 - 6.5	0	Black, fibrous, silty PEAT.	
		END TEST PIT	

Comments:

Date: 7/19/2011
Time: 2:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815971
Location: South Terminal Expansion	Y: 2688079
Surface Elev: 7.5 MLLW Total Hole Depth: 7.3 feet	
Excavator Type: Caterpillar B315	Test Pit No: TP 3-2S
Company: CSB Enterprises, Chris Bottiglieri, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Black, organic TOPSOIL.	
0.9- 1.7	0	Brown ASH and CLINKERS.	Lab Sample
1.7 - 2.9	0	Light brown, fine to coarse SAND.	
2.9 - 4.6	0	Yellow orange, fine to medium SAND, trace SILT.	
4.6 - 5.2	0	Light brown, fine to coarse SAND.	
5.2 - 6.0	0	Black, fibrous, silty PEAT.	Lab Sample
6.0 - 7.3	0	Gray, fine to coarse SAND.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 7.1' BSG.

TEST PIT LOG

Date: 7/20/2011
Time: 10:00 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.4 MLLW Total Hole Depth: 7.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815933
Y: 2688065
Test Pit No: TP 4-1S
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.3	0	CLINKERS, some angular ROCK and BRICK debris.	
0.3- 1.0	0	Light brown, fine to coarse SAND.	Lab Sample
1.0 - 3.3	0	Black ASH and CLINKERS.	Lab Sample
3.3 - 6.1	0	Light brown, fine to coarse SAND, trace SILT.	Lab Sample
6.1 - 7.0	0	Gray, fine to coarse SAND and SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 4.0' BSG.

TEST PIT LOG

Date: 7/20/2011
Time: 11:30 AM

Project: Phase IV Dredging Project No: 6690.014	X: 815923
Location: South Terminal Expansion	Y: 2688086
Surface Elev: 7.2 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 4-1W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 3.8	0	Black, fine to coarse SAND and ASH/CLINKERS/BRICK debris.	Lab Sample
3.8- 4.8	0	Brown, fine to coarse SAND and SILT, trace fine GRAVEL.	Lab Sample
4.8 - 6.0	0	Yellow orange, fine to medium SAND, trace SILT.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 3.6' BSG.

TEST PIT LOG

Date: 7/20/2011
Time: 12:35 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815900
Location: South Terminal Expansion	Y: 2688132
Surface Elev: 7.2 MLLW Total Hole Depth: 2.5 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 4-2W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.4	0	Black, TOPSOIL and BRICK debris.	
0.4- 2.5	0	Black, ASH/CLINKERS/BRICK debris.	Lab Sample
2.5	0	Ledge.	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 7/20/2011
Time: 2:00 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815736
Location: South Terminal Expansion	Y: 2688255
Surface Elev: 7.9 MLLW Total Hole Depth: 7.3 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 9-1E
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Black, organic TOPSOIL and angular ROCK and BRICK debris.	
1.0- 3.6	0	Brown, fine to coarse SAND and fine GRAVEL.	
3.6 - 4.8	0	Yellow orange, fine to medium SAND, trace SILT.	
4.8 - 5.2	0	Black, fibrous, silty PEAT.	Lab Sample
5.2 - 7.3	0	Light gray, fine SAND and clayey SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 7.2' BSG.

TEST PIT LOG

Date: 7/20/2011
Time: 2:20 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815697
Location: South Terminal Expansion	Y: 2688279
Surface Elev: 7.8 MLLW Total Hole Depth: 7.5 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 9-1W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Black, organic TOPSOIL and angular ROCK/BRICK/CLAY pipe debris.	
0.6- 3.2	0	Brown, fine to coarse SAND and fine GRAVEL.	
3.2 - 4.6	0	Yellow orange, fine to medium SAND, trace SILT.	
4.6 - 5.4	0	Black, fibrous, silty, PEAT.	Lab Sample
5.4 - 7.5	0	Light gray, fine SAND and clayey SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 7.0' BSG.

Date: 7/20/2011
Time: 2:30 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815728
Location: South Terminal Expansion	Y: 2688269
Surface Elev: 7.9 MLLW Total Hole Depth: 6.5 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 9-1N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Black, organic TOPSOIL and angular ROCK/BRICK debris.	
0.9- 2.2	0	Brown, fine to coarse SAND and fine GRAVEL and COBBLES.	
2.2 - 3.1	0	Yellow orange, fine to medium SAND, trace SILT.	
3.1 - 4.9	0	Light brown, fine to medium SAND and fine GRAVEL.	
4.9 - 5.8	0	Black, fibrous, silty PEAT.	Lab Sample
5.8 - 6.5	0	Light gray, fine SAND and clayey SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 6.5' BSG.
Cemented rock foundation wall encountered approximately 3.0' BSG on west side of excavation.

Date: 7/20/2011
Time: 3:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815712
Location: South Terminal Expansion	Y: 2688210
Surface Elev: 7.9 MLLW Total Hole Depth: 6.9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 9-1S
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Black, organic TOPSOIL.	
1.0- 2.5	0	Yellow orange, fine to medium SAND and SILT.	
2.5 - 3.0	0	Brown ASH and CLINKERS.	
3.0 - 3.7	0	Light brown, fine to medium SAND and fine GRAVEL.	
3.7 - 4.2	0	Black, fibrous, silty PEAT.	Lab Sample
4.2 - 5.0	0	Light gray, fine SAND and clayey SILT.	
5.0 - 6.9	0	Olive gray, fine SAND and clayey SILT.	
		END TEST PIT	

Comments: Groundwater encountered at 6.9' BSG.

Date: 7/21/2011
Time: 8:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815755
Location: South Terminal Expansion	Y: 2687935
Surface Elev: 7.0 MLLW Total Hole Depth: 3.2 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 13-1S
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Black, organic TOPSOIL, some BRICK and METAL debris.	
0.9- 1.6	0	Brown, fine to medium SAND.	
1.6 - 3.2	0	Black, ASH and CLINKERS, little METAL debris.	Lab Sample
3.2	0	Ledge.	
		END TEST PIT	

Comments:

TEST PIT LOG

Date: 7/21/2011
Time: 8:30 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 6.8 MLLW Total Hole Depth: 6.9 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815755
Y: 2687924
Test Pit No: TP 13-2S
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Yellow orange, fine to medium SAND, trace coarse SAND, fine GRAVEL, SILT.	Lab Sample
0.6- 1.6	0	Gray, manufactured fine to coarse SAND and fine GRAVEL.	
1.6 - 5.0	0	Black ASH and CLINKERS, some BRICK debris.	Lab Sample
5.0 - 6.2	0	Black, fibrous, silty PEAT	Lab Sample
6.2 - 6.9	0	Olive gray, fine SAND and SILT, some fine GRAVEL.	
		END TEST PIT	

Comments: Groundwater encountered at 5.8' BSG.

TEST PIT LOG

Date: 7/21/2011
Time: 9:00 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.4 MLLW Total Hole Depth: 4.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815680
Y: 2687950
Test Pit No: TP 17-1S
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Dark brown, organic TOPSOIL.		Lab Sample
0.9- 2.6	0	Yellow orange, fine to coarse SAND and fine GRAVEL.		
2.6 - 3.4	0	Black ASH and CLINKERS.		Lab Sample
3.4 - 4.0	0	Yellow brown, fine SAND some coarse SAND and fine GRAVEL.		Lab Sample
		END TEST PIT		

Comments: Groundwater encountered at 4.0' BSG.

TEST PIT LOG

Date: 7/21/2011
Time: 9:45 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 6.7 MLLW Total Hole Depth: 6.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X:
Y:
Test Pit No: TP 13/17-1C
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Dark brown, organic TOPSOIL.		Lab Sample
1.0- 3.6	0	Black ASH and CLINKERS.		Lab Sample
3.6 - 6.0	0	Light brown, fine to medium SAND and SILT, some fine GRAVEL and COBBLES.		Lab Sample
		END TEST PIT		

Comments: Groundwater encountered at 5.4' BSG.

Date: 7/21/2011
Time: 10:30 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815775
Location: South Terminal Expansion	Y: 2687965
Surface Elev: 6.7 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 13-1N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.1	0	Dark brown, organic TOPSOIL and BRICK debris.	Lab Sample
1.1- 3.8	0	Black ASH and CLINKERS, some METAL debris.	Lab Sample
3.8 - 4.6	0	Light brown, fine to medium SAND and SILT, some fine GRAVEL and COBBLES.	
4.6 - 5.5	0	Brown, fibrous, silty PEAT.	
5.5 - 6.0	0	Olive gray, fine SAND and SILT and fibrous organics.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.2' BSG.

TEST PIT LOG

Date: 7/21/2011
Time: 11:00 AM

Project: Phase IV Dredging Project No: 6690.014	X:
Location: South Terminal Expansion	Y:
Surface Elev: 7.3 MLLW Total Hole Depth: 4.8 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 17-1N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Dark brown, organic TOPSOIL some BRICK debris.	Lab Sample
1.0- 3.5	0	Yellow orange, fine to coarse SAND and BRICK debris.	
3.5 - 4.1	0	Black ASH/CLINKERS/BRICK debris.	Lab Sample
4.1 - 4.8	0	Light brown, fine to coarse SAND and SILT, some BRICK debris.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 3.8' BSG.

Date: 7/22/2011
Time: 8:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815962
Location: South Terminal Expansion	Y: 2688231
Surface Elev: 7.5 MLLW Total Hole Depth: 4.9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-1NW
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Dark brown, organic TOPSOIL, some BRICK/ROCK debris.	Lab Sample
0.6- 1.6	0	Light brown, fine to medium SAND, trace SILT and BRICK/COBBLES.	
1.6 - 2.0	0	Black ASH and CLINKERS.	
2.0 - 3.9	0	Orange brown, fine SAND and SILT.	Lab Sample
3.9 - 4.9	0	Brown, fibrous, silty PEAT.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 4.4' BSG.

TEST PIT LOG

Date: 7/22/2011
Time: 9:00 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.5 MLLW Total Hole Depth: 9.6 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815712
Y: 2688210
Test Pit No: TP 6-2NW
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Black, organic TOPSOIL and BRICK/ROCK debris.	Lab Sample
1.0- 2.0	0	Yellow orange, fine to coarse SAND, trace SILT and fine GRAVEL.	
2.0 - 3.0	0	Light brown, fine to medium SAND, trace SILT.	
3.0 - 4.6	0	Black ASH and CLINKERS.	Lab Sample
4.6 - 6.0	0	Brown, fine to coarse SAND, some fine GRAVEL and COBBLES.	
6.0 - 7.0	0	Black, fibrous, silty PEAT.	
7.0 - 9.6	0	Olive gray, fine SAND and clayey SILT, trace organics.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.8' BSG.

Date: 7/22/2011
Time: 9:30 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815975
Location: South Terminal Expansion	Y: 2688251
Surface Elev: 7.7 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-1NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.1	0	Light brown, fine to medium SAND, trace SILT.	Lab Sample
2.1- 5.0	0	Black, ASH/CLINKERS and BRICK debris, little METAL debris.	Lab Sample
5.0 - 6.0	0	Olive gray, fine SAND and SILT, trace organics.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.

TEST PIT LOG

Date: 7/22/2011
Time: 10:00 AM

Project: Phase IV Dredging Project No: 6690.014	X: 815968
Location: South Terminal Expansion	Y: 2688284
Surface Elev: 7.7 MLLW Total Hole Depth: 5.6 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-2NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.8	0	Light brown, fine SAND and SILT.		
1.8- 3.8	0	Yellow orange, fine to coarse SAND and SILT and BRICK debris.		
3.8 - 4.6	0	Black ASH and CLINKERS and a layer of asphalt coated roofing felt.		
4.6 - 5.6	0	Olive gray, fine SAND and SILT, little SHELL HASH.		
		END TEST PIT		

Comments: Groundwater encountered at 5.2' BSG.

Date: 7/22/2011
Time: 11:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815967
Location: South Terminal Expansion	Y: 2688327
Surface Elev: 7.8 MLLW Total Hole Depth: 6.3 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-3NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Light brown, fine SAND and SILT.	Lab Sample
0.9- 2.1	0	Light brown, fine to coarse SAND and SILT, some SHELL HASH.	
2.1 - 3.9	0	Yellow orange, fine to coarse SAND and SILT and BRICK/METAL debris.	
3.9 - 5.0	0	Yellow orange, fine to coarse SAND and SILT and BRICK debris.	Lab Sample
5.0 - 6.3	0	Olive gray, fine SAND and SILT and SHELL HASH.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.

Date: 7/22/2011
Time: 12:00 PM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815974
Location: South Terminal Expansion	Y: 2688247
Surface Elev: 7.6 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-4NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.6	0	Light brown, fine SAND and SILT.	
0.6- 2.9	0	Light yellow, fine SAND and SILT.	
2.9 - 5.5	0	Brown, fine to coarse SAND and SILT and BRICK debris, trace SHELL HASH.	
5.5 - 6.0	0	Olive gray, fine SAND and SILT, little SHELL HASH.	
		END TEST PIT	

Comments: Groundwater encountered at 4.6' BSG.
Possible foundation from gas holder encountered at 2.9' BSG. Cemented stone, brick and tar paper.

Date: 7/25/2011
Time: 9:50 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815996
Location: South Terminal Expansion	Y: 2688295
Surface Elev: 8.1 MLLW Total Hole Depth: 5.8 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-5NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.8	0	Light brown, fine SAND and SILT.	Lab Sample
0.8- 4.6	0	Brown, fine SAND and SILT, some SHELL HASH.	Lab Sample
4.6 - 5.8	0	Olive gray, fine SAND and SILT, little SHELL HASH and BRICK debris.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 4.8' BSG.

Date: 7/25/2011
Time: 10:00 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815953
Location: South Terminal Expansion	Y: 2688297
Surface Elev: 7.6 MLLW Total Hole Depth: 5.8 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-6NW
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.9	0	Brown, fine SAND and SILT, some BRICK debris.	
0.9- 5.6	0	Brown, fine to coarse SAND and SILT and BRICK/STONE foundation debris.	
5.6 - 5.8	0	Brown, fine to coarse SAND, some fine GRAVEL.	
		END TEST PIT	

Comments: Groundwater encountered at 5.4' BSG.

Date: 7/25/2011
Time: 10:30 AM

TEST PIT LOG

Project: Phase IV Dredging Project No: 6690.014	X: 815931
Location: South Terminal Expansion	Y: 2688317
Surface Elev: 7.7 MLLW Total Hole Depth: 6.9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP 6-7NW
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 3.6	0	Brown, fine to coarse SAND and SILT and some BRICK debris.	Lab Sample
3.6- 4.6	0	Light yellow, fine SAND and SILT.	
4.6 - 5.5	0	Yellow orange, fine to coarse SAND and SILT.	
5.5 - 5.7	0	Black, fibrous, silty PEAT.	Lab Sample
5.7 - 6.9	0	Olive gray, fine SAND and SILT.	Lab Sample
6.9	0	Ledge.	
		END TEST PIT	

Comments: Groundwater encountered at 6.6' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 10:00 AM

Project: Phase IV Dredging Project No: 6690.014	X: 815891
Location: South Terminal Expansion	Y: 2688108
Surface Elev: 7.3 MLLW Total Hole Depth: 4.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP4-3W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Black, ASH and CLINKERS and wood tree roots.	Lab Sample
0.5 - 2.9	0	Light brown, fine to coarse sand, some fine GRAVEL.	Lab Sample
2.9 - 4.0	0	Green gray, fine to coarse SAND and SILT, trace fine GRAVEL and fine ROOTS.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 4.0' BSG.
Ledge encountered at 1.2' BSG on west side of trench.
6" cast iron pipe encountered 2' BSG, 7.5' from west edge of trench.

TEST PIT LOG

Date: 8/11/2011
Time: 10:30 AM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.4 MLLW Total Hole Depth: 6.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815866
Y: 2688108
Test Pit No: TP4-4W
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Black, organic TOPSOIL.	
0.5 - 1.7	0	Light brown, fine SAND and SILT.	Lab Sample
1.7 - 3.0	0	Dark gray, ASH and CLINKERS.	Lab Sample
3.0 - 5.0	0	Yellow orange, fine to coarse SAND, trace SILT, fine GRAVEL, COBBLES.	
5.0 - 5.9	0	Dark brown, fibrous, silty PEAT.	Lab Sample
5.9 - 6.0	0	Olive gray, fine to coarse SAND and SILT, trace fine GRAVEL and fine ROOTS.	
		END TEST PIT	

Comments: Groundwater encountered at 5.2' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 11:15 AM

Project: Phase IV Dredging Project No: 6690.014	X: 815840
Location: South Terminal Expansion	Y: 2688108
Surface Elev: 7.4 MLLW Total Hole Depth: 4.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP4-5W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)		Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.8	0	Brown fine to coarse SAND and fine to coarse GRAVEL and BRICK debris.		Lab Sample
2.8 - 3.0	0	Dark brown, fine to coarse SAND, trace ROOTS, fine to coarse GRAVEL, COBBLES and BRICK debris.		
3.0 - 3.5	0	Dark gray, ASH and CLINKERS.		Lab Sample
3.5 - 4.0	0	Black, fibrous, silty PEAT.		Lab Sample
		END TEST PIT		

Comments: Groundwater encountered at 3.5' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 1:30 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.3 MLLW Total Hole Depth: 6.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815881
Y: 2688138
Test Pit No: TP4-1NW
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.3	0	Brown, fine to coarse SAND and fine to coarse GRAVEL and TOPSOIL.	Lab Sample
1.3 - 2.5	0	Light brown, fine SAND and SILT.	
2.5 - 4.6	0	Yellow orange, fine to coarse SAND, trace SILT, fine to coarse GRAVEL, COBBLES.	
4.6 - 5.3	0	Dark brown, fibrous, silty PEAT.	Lab Sample
5.3 - 6.0	0	Yellow orange, fine to coarse SAND, trace SILT, fine GRAVEL, COBBLES.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 2:00 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.2 MLLW Total Hole Depth: 6.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815861
Y: 2688144
Test Pit No: TP4-2NW
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 0.5	0	Brown, fine to coarse SAND and fine to coarse GRAVEL and TOPSOIL.	
0.5 - 1.5	0	Brown, fine to coarse SAND and SILT, BRICK debris.	Lab Sample
1.5 - 3.6	0	MORTARED BRICK FOUNDATION.	
3.6 - 4.8	0	Yellow orange, fine to coarse SAND, trace SILT, fine to coarse GRAVEL, COBBLES.	
4.8 - 5.3	0	Dark brown, fibrous, silty PEAT.	Lab Sample
5.3 - 6.0	0	Olive gray, fine to coarse SAND and SILT, trace fine GRAVEL and fine ROOTS	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 2:30 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815900
Location: South Terminal Expansion	Y: 2688152
Surface Elev: 7.2 MLLW Total Hole Depth: 7.4 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP4-1N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.9	0	Brown, organic TOPSOIL.	
1.9 - 3.0	0	Light brown, fine SAND and SILT, trace fine to coarse GRAVEL.	Lab Sample
3.0 - 5.3	0	Yellow orange, fine to coarse SAND, trace SILT, fine to coarse GRAVEL, COBBLES.	
5.3 - 6.6	0	Dark brown, fibrous, silty PEAT.	Lab Sample
6.6 - 7.4	0	Olive gray, fine to coarse SAND and SILT, trace fine GRAVEL and fine ROOTS	Lab Sample
		END TEST PIT	

Comments: No groundwater encountered.

TEST PIT LOG

Date: 8/11/2011
Time: 3:00 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815900
Location: South Terminal Expansion	Y: 2688172
Surface Elev: 7.3 MLLW Total Hole Depth: 5.9 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP4-2N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.3	0	Dark brown, organic TOPSOIL.	
1.3 - 2.6	0	Light brown, fine SAND and SILT, trace fine to coarse GRAVEL, COBBLES	Lab Sample
2.6 - 4.8	0	Yellow orange, fine to coarse SAND, trace SILT, fine to coarse GRAVEL, COBBLES.	Lab Sample
4.8 - 5.9	0	Dark brown, fibrous, silty PEAT to LEDGE.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
Ledge encountered at 5.9' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 3:30 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815930
Location: South Terminal Expansion	Y: 2688138
Surface Elev: 7.2 MLLW Total Hole Depth: 6.3 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP4-1NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Dark brown, organic TOPSOIL, trace fine to coarse GRAVEL.	
1.0- 3.0	0	Light brown, fine SAND and SILT, trace fine to coarse GRAVEL and COBBLES.	Lab Sample
3.0 - 4.5	0	Dark brown, fibrous, silty PEAT.	Lab Sample
4.5 - 6.3	0	Olive gray and gleyed, fine to coarse SAND and SILT, petroleum odor.	Lab Sample
		END TEST PIT	

Comments: No groundwater encountered.
EPH sample collected at 5' to 5.5' BSG.
No gleyed soils below 5.5'.

TEST PIT LOG

Date: 8/11/2011
Time: 4:00 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815953
Location: South Terminal Expansion	Y: 2688182
Surface Elev: 7.5 MLLW Total Hole Depth: 7.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP6-1S
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.0	0	Brown, organic TOPSOIL, trace fine to coarse GRAVEL.	
2.0- 3.4	0	Brown, ASH and CLINKERS.	
3.4 - 4.7	0	Light brown, fine SAND and SILT, trace fine to coarse GRAVEL and COBBLES.	
4.7 - 5.9	0	Yellow orange and gleyed, fine to coarse SAND, heavy petroleum odor.	Lab Sample
5.9 - 7.0	0	Brown, fibrous, silty PEAT.	
		END TEST PIT	

Comments:
Groundwater encountered at 5.4' BSG.
EPH sample collected at 5' to 5.5' BSG.
No gleyed soils below 5.5'.

TEST PIT LOG

Date: 8/11/2011
Time: 4:30 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815919
Location: South Terminal Expansion	Y: 2688205
Surface Elev: 7.4 MLLW Total Hole Depth: 6.7 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP6-3W
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.5	0	Brown, organic TOPSOIL, some fine GRAVEL and COBBLES.	
1.5- 1.8	0	Brown, ASH and CLINKERS.	
1.8 - 3.6	0	Yellow orange, fine to coarse SAND, trace SILT and fine GRAVEL, COBBLES.	
3.6 - 4.5	0	Whitish light gray, SILT.	
4.5 - 6.7	0	Brown, fibrous, silty PEAT.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 6.3' BSG.
EPH sample collected at 5' to 5.5' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 4:50 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.5 MLLW Total Hole Depth: 8.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 815936
Y: 2688263
Test Pit No: TP6-8NW
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.0	0	Brown, organic TOPSOIL, some fine GRAVEL and COBBLES	
2.0- 3.5	0	Brown ASH and CLINKERS	
3.5 - 4.3	0	Yellow orange, fine to coarse SAND, trace SILT and fine to coarse GRAVEL, COBBLES	
4.3 - 6.5	0	Brown, fibrous, silty PEAT.	
6.5 - 8.0	0	Olive gray, fine to coarse SAND and SILT, trace fine ROOTS.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
EPH sample collected at 6.6' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 5:00 AM

Project: Phase IV Dredging Project No: 6690.014	X: 815962
Location: South Terminal Expansion	Y: 2688296
Surface Elev: 7.5 MLLW Total Hole Depth: 6.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP6-4N
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.0	0	Light brown, fine SAND and SILT	
2.0- 3.3	0	Yellow orange, fine to coarse SAND and SILT and BRICK debris	
3.3 - 4.4	0	Black ASH and CLINKERS and a layer of asphalt coated roofing felt	
4.4 - 6.0	0	Olive gray, fine SAND and SILT, little SHELL HASH	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
EPH sample collected at 5' to 5.5' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 5:30 PM

Project: Phase IV Dredging Project No: 6690.014	X: 815990
Location: South Terminal Expansion	Y: 2688263
Surface Elev: 7.7 MLLW Total Hole Depth: 7.2 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP6-6NE
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.5	0	Light brown fine SAND and SILT, trace SHELL HASH	
1.5 - 4.8	0	Tan fine to medium SAND and SHELL HASH, trace SILT and BRICK and FOUNDATION STONE debris.	
4.8 - 6.1	0	Olive gray fine SAND and SILT, trace SHELL HASH, trace fine GRAVEL and METAL debris.	Lab Sample
6.1 - 7.2	0	Gray fine to medium SAND and SILT, trace SHELL HASH	
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
EPH sample collected at 5' to 5.5' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 5:40 PM

Project: Phase IV Dredging Project No: 6690.014	X: 816015
Location: South Terminal Expansion	Y: 2688187
Surface Elev: 7.1 MLLW Total Hole Depth: 5.0 feet	
Excavator Type: Komatsu PC90	Test Pit No: TP2-1E
Company: AGM Marine, Todd Wolf, Operator	Sheet: 1 of 1
Log By: GAD	

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 1.0	0	Tan, fine SAND and SILT, trace SHELL HASH	Lab Sample
1.0- 3.3	0	Tan, fine to coarse SAND and SILT, trace SHELL HASH and fine GRAVEL	Lab Sample
3.3 - 5.0	0	Olive gray, fine to coarse SAND and BRICK debris, some METAL roof material, petroleum odor and sheen noted on water surface.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 4.9' BSG.
EPH sample collected at 5' BSG.

TEST PIT LOG

Date: 8/11/2011
Time: 6:10 PM

Project: Phase IV Dredging Project No: 6690.014
Location: South Terminal Expansion
Surface Elev: 7.0 MLLW Total Hole Depth: 7.0 feet
Excavator Type: Komatsu PC90
Company: AGM Marine, Todd Wolf, Operator
Log By: GAD

X: 816025
Y: 2688187
Test Pit No: TP2-2E
Sheet: 1 of 1

Depth (FT.)	PID/FID (ppm)	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Remarks
0 - 2.0	0	Tan, fine SAND and SILT, trace SHELL HASH.	
2.0- 3.6	0	Tan, fine to coarse SAND and SILT, trace SHELL HASH and fine GRAVEL.	
3.6 - 7.0	0	Olive gray, fine to coarse SAND, gleyed soil and slight petroleum odor noted at 6.5' to 7.0'.	Lab Sample
		END TEST PIT	

Comments: Groundwater encountered at 5.0' BSG.
EPH sample collected at 6.5' to 7.0' BSG.

BORING LOG

Date: 4/27/2011
Time: 9:45 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 816126
Location:	South Terminal Expansion		Y: 2687549
Elevation at grade:	4.5'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -32.0'	Boring No: A-2011-LB-B1
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 12"	2, 3, 5, 9	Light brown fine SAND, trace shell hash.	2.5
4		24" 12"	9,13,11,5	Olive gray, fine SAND and SHELL HASH, trace silt.	0.5
6		24" 8"	12,9,3,3	3"Olive gray, fine SAND and SHELL HASH, trace silt. 5" gray, fine to medium SAND and SHELL HASH, trace silt, trace fine to coarse sand.	-1.5
8		24" 14"	4,16,24,12	4" Gray, fine to medium SAND and SHELL HASH, trace silt, trace coarse sand. 10" Brown fine to medium SAND and fine GRAVEL, trace silt.	-3.5
10		24" 12"	18,15,19,20	3" Gray, medium to coarse SAND and SHELL HASH. 9" Olive gray, fine to coarse SAND, trace fine gravel, trace silt.	-5.5
12		24" 11"	13,30,28,29	2" Olive gray, fine to coarse SAND, trace fine gravel, trace silt. 9" Olive gray, fine to medium SAND.	-7.5
14		24" 8"	68,41,27,31	3" Olive gray, fine to medium SAND. 5" Gray fine to coarse SAND and fine GRAVEL, trace silt.	-9.5
16		24" 6"	14,21,16,20	Gray fine to coarse SAND and SILT, some fine gravel.	-11.5
18		24" 15"	16,22,15,29	8" Gray fine to coarse SAND and SILT, some fine gravel. 2" Black fine to coarse SAND. 5" Blue/gray fine to coarse SAND and SILT, some angular fine gravel.	-13.5
19.42		17" 6"	25,45,100 for 5"	Blue/gray fine to coarse SAND and SILT, some angular fine gravel.	-14.9
20.17		2" 0"	120 for 2"	Obstruction encountered, no recovery, advanced with roller bit to -18.3 MLLW.	-15.7
22.75		2" 2"	100 for 3"	Blue gray, fine to coarse SAND, some angular stone fragments. Obstruction encountered at -18.3 MLLW,	-18.3
26.5				Bedrock encountered at -18.3 MLLW. Advanced roller bit to -22.0 MLLW, cleaned hole and began core run.	-22.0
31.5	34%	5' 4.15'	5,5,6,7,8	Rock Core #1: -22.0 to -27.0, 0.0'-4.15' Intensely to very intensely fractured, dark grey to black, DIABASE, xenoliths of grey, granitic gneiss.	-27.0
36.5	26%	5' 4.6'	8,8,7,6,6	Rock Core #2: -27.0 to -32.0, 0.0'-4.6' Very Intensely fractured, dark grey, DIABASE with xenoliths of grey granitic gneiss.	-32.0

Comments:
Refusal: -18.3' MLLW
Elevation of Bedrock: -18.3' MLLW

BORING LOG

Date: 4/28/2011
Time: 13:25 PM

Project:	Phase IV Dredging	Project No: 6690.008	X: 816022
Location:	South Terminal Expansion		Y: 2687600
Elevation at grade:	5.75'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -20.1' MLLW	Boring No: A-2011-LB-B2
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GCD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 18"	2, 3,6, 5	Olive Gray, fine to medium SAND, trace shell hash.	3.8
4		24" 15"	3,4,6,7	Olive Gray, fine to medium SAND, some shell hash, trace silt,	1.8
6		24" 24"	4,4,7,12	12" Olive Gray, fine to medium SAND, some shell hash, trace silt. 12" Black, fine SAND and SILT, some brick debris.	-0.3
8		24" 18"	8,13,20,14	12" Black, fine SAND and SILT, some brick debris. 6" Dark olive gray, fine to coarse SAND, trace silt, trace fine gravel.	-2.3
8.9		11" 4"	14,100 for 5"	Light brown/olive, fine to coarse SAND, trace silt, trace fine gravel.	-3.2
11				Obstruction encountered at -4.6' MLLW. Cored through boulder to -5.3' MLLW.	-5.3
13		24" 10"	3,14,62,105	Gray, fine to coarse SAND, some fine to coarse gravel, some silt.	-7.3
16		24" 18"	90,95,50,58	Gray, fine to coarse SAND, some fine gravel, little silt.	-10.3
18				Obstruction encountered at -11.3 MLLW. Cored through boulder to -12.3 MLLW.	-12.3
19.5		18" 10"	23,44,100 for 6"	Dark gray, fine to coarse SAND, some fine to coarse gravel, little silt, - TILL.	-13.8
20.85				Obstruction encountered at -13.8' below surface grade. Set casing to -13.8'. Advanced with roller bit to -15.1 MLLW, cleaned hole and began core run.	-15.1
25.85		5' 5'	10,8,8,6,6	Bedrock Core #1 : -15.1' to -20.1' MLLW 0-2.25' Intensely to very intensely fractured pink/gray granite PEGMATITE, 2.25-5.0 Intensely to moderately fractured grey, granitic GNEISS.	-20.1

Comments:
Refusal: -13.8' MLLW
Elevation of Bedrock: -13.8 MLLW

BORING LOG

Date: 5/2/2011
Time: 8:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815993
Location:	South Terminal Expansion		Y: 2687693
Elevation at grade:	8.2'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -17.4 MLLW	Boring No: A-2011-LB-B3/MW-1
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 3"	2,4,2,2	Olive gray, fine to medium SAND and SHELL HASH.	6.2
4		24" 12"	2,3,4,4	Olive gray, fine to medium SAND, trace shell hash.	4.2
6		24" 6"	7,10,9,7	Olive gray, fine to medium SAND, trace shell hash.	2.2
8		24" 8"	7,2,4,9	Olive gray, fine to medium SAND, trace silt.	0.2
10		24" 15"	10,27,33,39	6" Black, fine to coarse SAND and SILT, trace shell hash. 9" Olive gray, fine to coarse SAND and SILT, trace fine gravel.	-1.8
12		24" 16"	33,44,44,37	12" Black, fine to coarse SAND, trace silt, trace fine gravel. 4" Green gray, fine to coarse SAND and SILT, trace fine gravel.	-3.8
14		24" 13"	17,19,46,34	Green gray, fine to coarse SAND and SILT, trace fine gravel.	-5.8
16		24" 12"	33,45,34,41	Green gray, fine to coarse SAND and SILT, trace fine gravel.	-7.8
18		24" 18"	19,39,44,48	Green gray, fine to coarse SAND and SILT, trace fine gravel.	-9.8
19.00				Obstruction encountered at -10.1'. Advanced with roller bit to -10.8' MLLW, cleaned hole and began core run.	-10.8
22.8		3.8' 3.3'	5,4,6	Bedrock Core #1 : -10.8' to -14.6' MLLW 0.0-1.2' Boulder and cobbles, 11" grey fine grained Granite boulder underlain by tan grey granitic gneiss cobbles. 1.2-3.3' Moderately to intensely fractured, grey granitic GNEISS.	-14.6
25.55		2.75 2.75	6,7	Bedrock Core #2 : -14.6 to -17.4 MLLW Moderately to intensely fractured, grey granitic GNEISS.	-17.4

Comments: Groundwater elevation after construction of monitoring well was recorded at -3.47' BSG.
Refusal: -10.8' MLLW
Elevation of Bedrock: -12.0' MLLW

BORING LOG

Date: 5/3/2011
Time: 7:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815985
Location:	South Terminal Expansion		Y: 2687860
Elevation at grade:	9.35	Datum: MLLW	
Casing Type: Steel		Boring Depth: -18.8' MLLW	Boring No: A-2011-LB-B4/MW-2
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 6"	2, 3, 3, 3	Olive gray, fine to medium SAND.	7.4
4		24" 6"	3, 5, 4, 5	Olive gray, fine to medium SAND.	5.4
6		24" 15"	9, 11, 13, 13	4'- 5' Olive gray, fine to medium SAND. 5'- 6' FILL- brick and debris.	3.4
8		24" 13"	12, 9, 6, 7	FILL- brick and debris and fine to coarse SAND, trace silt.	1.4
10		24" 6"	8, 7, 2, 3	FILL- brick and debris.	-0.7
12		24" 18"	4, 20, 23, 31	5" FILL- brick/debris. 13" Olive gray, fine to coarse SAND, trace silt, trace fine gravel.	-2.7
14		24" 12"	24, 62, 55, 34	Olive gray, fine to coarce SAND, trace silt, trace fine gravel.	-4.7
16		24" 11"	20, 22, 45, 34	Olive gray, fine to coarce SAND, trace silt, trace fine gravel.	-6.7
18.15				Obstruction encountered at -8.8' MLLW. Series of Nested Boulders on top of bedrock, roller bit advanced to bedrock elevation.	-8.8
23.15				Bedrock encountered at -12.8' MLLW, advanced with roller bit into bedrock cleaned hole and began core run.	-13.8
28.15	92%	5' 4.9'	6, 6, 7, 7, 7	Rock Core #1: -13.8' to -18.8' MLLW 0.0-4.9' Slightly to moderately fractured, grey granitic GNEISS.	-18.8

Comments: Groundwater elevation after construction of monitoring well was recorded at 5.55 MLLW.
Refusal: -8.8' MLLW
Elevation of Bedrock: -12.8' MLLW

BORING LOG

Date: 5/4/2011
Time: 7:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815576
Location:	South Terminal Expansion		Y: 2688060
Elevation at grade:	8.96	Datum: MLLW	
Casing Type: Steel		Boring Depth: -16.54 MLLW	Boring No: A-2011-LB-B5/MW-3
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 8"	2, 2, 2, 1	Black organic TOPSOIL	6.96
4		24" 12"	2, 4, 4, 4	3" black fine ASH, 9" light brown fine to coarse SAND and SILT, trace fine gravel.	4.96
6		24" 18"	4, 3, 14, 32,	2" black fine ASH, 16" light brown fine to coarse SAND, trace silt, trace fine gravel.	2.96
8		15" 10"	17, 99, 100 for 3"	Light brown fine to coarse SAND and SILT, trace fine gravel.	0.96
8.42		5" 0"	100 for 5"	Obstruction encountered at 0.06' MLLW broke through with roller bit at -0.44' MLLW.	-1.04
12		17" 16"	69, 112, 100 for 5"	10" light brown fine to coarse SAND and fine GRAVEL, trace silt. 6" green gray fine to coarse SAND, trace fine gravel, trace silt.	-3.04
16		24" 18"	20, 40, 42, 31	Green gray fine to coarse SAND, trace fine gravel, trace silt.	-7.04
17.40		15" 12"	19, 39, 100 for 3"	Green gray coarse SAND, trace silt, little fine gravel.	-8.44
19.50				Advanced roller bit through series of nested boulders or highly weathered bedrock, and into competent bedrock, cleaned hole and began core run.	-10.54
25.5	65%	5' 4.42'	7,6,6,6,6	Bedrock Core #1: -11.54 to -16.54 MLLW 0.0-0.75' Intensely to very intensely fractured Grey Granitic GNEISS, 0.75-2.1' Moderately fractured pink grey, Granite PEGMATITE, 2.1-4.42' Moderate to intensely fractured, grey, Granitic Gneiss	-16.54

Comments: Groundwater elevation after construction of monitoring well was recorded at 5.44 MLLW.
Refusal: -8.44 MLLW
Elevation of Bedrock: -10.54' MLLW

BORING LOG

Date: 5/5/2011
Time: 7:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815657
Location	South Terminal Expansion		Y: 2688318
Elevation at grade:	7.45	Datum: MLLW	
Casing Type: Steel		Boring Depth: -18.4 MLLW	Boring No: A-2011-LB-B6/MW-4
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
0.25		3" 3"	100 for 3"	3" Black organic fine to medium SAND Obstruction encountered - advanced with roller bit through 6" concrete/ brick debris.	7.2
4		24" 6"	8, 9, 9, 11	Light brown fine to medium SAND, trace silt, trace fine gravel.	3.5
6		24" 3"	7, 3, 2, 2	Light brown fine to coarse SAND, some silt, trace fine gravel.	1.5
8		24" 6"	1, 1, 12, 14	Light brown fine to coarse SAND, some silt, trace fine gravel.	-0.6
8.33		4" 3"	100 to 4"	Light brown fine to coarse SAND, some silt. Obstruction encountered - advanced roller bit through possible boulders and cobbles.	-0.9
16		24" 15"	16, 47, 44, 26	6" Light brown fine to coarse SAND, some silt. 9" Green gray, fine to coarse SAND some fine gravel, trace silt.	-8.6
18		24" 18"	18, 18, 18, 19	5" Green gray, fine to coarse SAND, some fine gravel, trace silt. 13" Olive Gray, fine to coarse SAND, trace silt.	-10.6
20		24" 18"	29, 64, 52, 48	6" Yellow organic, fine to coarse SAND, trace silt. 12" Olive gray fine to coarse SAND, trace silt and fine gravel.	-12.6
20.8		9" 0"	34, 100 to 3"	Bedrock encountered at -13.4' MLLW	-13.4
25.8		5" 0"	5, 5, 5, 5, 5	Bedrock Core #1: core catcher damaged no recovery	-18.4

Comments: Groundwater elevation after construction of monitoring well was recorded at 3.28 MLLW.
Refusal: -13.4' MLLW
Elevation of Bedrock: -13.4' MLLW

BORING LOG

Date: 5/6/2011
Time: 8:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815842
Location	South Terminal Expansion		Y: 2688227
Elevation at grade:	7.5'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -3.3' MLLW	Boring No: A-2011-LB-B7
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 6"	4, 5, 6, 6	Black Organic, fine SAND.	5.5
4		24" 6"	6, 11, 10, 7,	Yellow/orange, fine to medium SAND, trace fine gravel.	3.5
5.5		18" 6"	5, 5, 6, 100 for 0"	4'-5' yellow/orange, fine to medium SAND, trace fine gravel, 5-5.5' yellow/orange, fine to coarse SAND, trace fine GRAVEL and stone fragments (pink granite). Refusal encounted at 2.0' MLLW.	2
				Bedrock encountered 2.0' MLLW - advanced with roller bit to 1.2, cleaned hole and began core run at 1.2' MLLW.	1.2
10.8	35%	4.5' 4.5'	5, 5, 6, 5, 6	Bedrock Core # 1: 1.2 to -3.3 MLLW - Core catcher damaged during drilling - no recovery.	-3.3

Comments: No monitoring well set.
Refusal: 2.0' MLLW
Elevation of Bedrock: 2.0' MLLW

BORING LOG

Date: 5/6/2011
Time: 11:30 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815764
Location	South Terminal Expansion		Y: 2688257
Elevation at grade:	8.28	Datum: MLLW	
Casing Type: Steel		Boring Depth: -4.12	Boring No: A-2011-LB-B8/ MW-5
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 5"	2, 3, 5, 8	Light brown fine SAND and SILT, some fine to coarse gravel.	6.28
4		24" 15"	6, 7, 10, 8	Top 3" : Light brown fine SAND and SILT, some fine to coarse gravel. 3-12" : Black ash and clinker layer.	4.28
6		24" 8"	8, 3, 3, 3	Top 3" : Coarse SAND (pink granite and gneiss fragments). Bottom 5" : Coarse SAND and light brown SILT.	2.28
7.75		21" 15"	5, 5, 15, 100 to 3"	Coarse SAND and light brown SILT, Refusal encountered at 0.53' MLLW, cleaned hole and began core run at 0.53' MLLW.	0.53
12.75	33%	5' 5'	5, 6, 6, 7, 6	Bedrock Core #1 : 0.53' to -4.47' MLLW Intensely tio very intensely fractured, grey granitic GNEISS.	-4.12

Comments: Groundwater elevation after construction of monitoring well was recorded at 5.18' MLLW
Refusal: 0.53' MLLW
Elevation of Bedrock: 0.53' MLLW

Date: 5/9/2011
Time: 8:45 AM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 816028
Location:	South Terminal Expansion		Y: 2688602
Elevation at grade:	10.77	Datum: MLLW	
Casing Type: Steel		Boring Depth: -30.33' MLLW	Boring No: A-2011-LB-B9/MW-6
Casing Diameter:	4"	Drill Rig: D-120	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2.5		24" 8"	6,12,12,22	Advanced roller bit through 6" Asphalt Surface. 6" yellow/orange, fine to medium SAND, 2" fine GRAVEL FILL.	8.3
4.5		6" 6"	29,100 for 0"	Olive gray, fine to coarse SAND some silt, trace fine gravel. Obstruction encountered - advanced with roller bit from -2.5 to -4'.	6.3
6.5		24" 12"	12,45,40,67	Yellow/orange, fine to coarse SAND, trace fine gravel.	4.3
8.5		24" 6"	47,60,51,55	Yellow/orange, fine to coarse SAND, trace fine gravel.	2.3
11		24" 6"	3,4,5,5	Yellow/orange, fine to coarse SAND and SILT, trace fine gravel.	
13		24" 12"	3,3,9,12	Top 5": Yellow/orange, fine to coarse SAND and SILT. Next 1": Dark gray, fine SAND and SILT. Next 3": Olive gray, fine to medium SAND and SILT, little shell hash	-1.7
15		24" 4"	12,14,15,19	Olive gray, fine to medium SAND and SILT, little shell hash.	
17		24" 6"	5,6,10,22	Olive gray, fine to medium SAND and SILT, little shell hash.	
19		24" 18"	16,20,19,22	Olive gray, fine to medium SAND and SILT, little shell hash, trace fine gravel.	-7.7
21		24" 3"	12,15,26,30	Olive gray, fine to coarse SAND, trace silt, trace shell hash, trace fine gravel.	-9.7
22.5		24" 15"	27,29,33,34	Olive gray, fine to coarse SAND, trace silt, trace shell hash, grades to light gray, fine SAND and SILT.	-11.7
24.5		24" 15"	37,63,81,57	Light gray, fine to coarse SAND and SILT, trace fine gravel, becomes green gray, fine to coarse SAND and SILT with some fine gravel.	-13.7
26.5		24" 12"	29,39,50,54	Green gray, fine to coarse SAND and SILT with some fine gravel.	-15.7
28.5		24' 12"	44,46,46,58	Green gray, fine to coarse SAND and SILT with some fine gravel.	-17.7
30.5		24" 15"	37,53,67,88	Green gray, fine to coarse SAND and SILT with some fine gravel.	-19.7
32.5		24" 12"	35,48,68,73	Olive gray, fine to coarse SAND and SILT with trace fine gravel.	-21.7
33.75		15" 15"	23,38,100 for 3"	Olive gray, fine to coarse SAND and SILT with trace fine gravel. Obstruction encountered at -33.25' below surface grade or -23.0' MLLW.	-23.0
36.1				Advanced with roller bit through nested boulders and cobbles. Encountered competent bedrock at -24.3' MLLW. Cleaned hole and began core run at -25.33' MLLW	-25.3
41.1	75%	5' 4.5'	6,7,7,6,7	Bedrock Core #1 : -25.33' to -30.33' MLLW Intensely to moderately fractured, grey, granitic GNEISS	-30.3

Comments: Groundwater elevation after construction of monitoring well was recorded at 2.89' MLLW
Refusal: -23.0' MLLW
Elevation of Bedrock: -24.33' MLLW

BORING LOG

Date: 5/10/2011
Time: 9:30 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 816187
Location:	South Terminal Expansion		Y: 2688583
Elevation at grade:	8.9'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -65.35 MLLW	Boring No: A-2011-LB-B10
Casing Diameter:	4"	Drill Rig: D-120	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2.50		24" 14"	15,11,19,14	Advanced roller bit through - 6" Asphalt Surface 8" light brown, fine to coarse SAND 6" yellow/orange, fine to medium SAND and SILT.	5.9
7.50		24" 12"	23,41,33,31	Yellow/orange, fine to coarse SAND and SILT.	1.4
12.50		24" 8"	4,5,5,7	Yellow/orange, fine to coarse SAND and SILT.	-3.6
17.50		24" 0"	5,5,2,3	No sample recovered.	-8.6
22.50		24" 15"	12,12,23,31	Light gray, fine to coarse SAND, trace silt, trace fine gravel.	-13.6
27.50		24" 12"	3,6,9,10	Green gray, fine to coarse SAND and SILT.	-18.6
32.50		24" 3"	7,5,5,5	Green gray, fine to coarse SAND and SILT.	-23.6
37.50		24" 12"	60,33,40,4	5": Green gray, fine to coarse SAND and SILT, 7" light brown, fine to coarse SAND and SILT, trace fine gravel.	-28.6
42.50		24" 10"	20,31,12,11	Light brown, fine to coarse SAND and SILT, little fine gravel, trace angular stone fragments.	-33.6
44.25				Bedrock encountered at -34.95' MLLW surface grade. Advanced roller bit into bedrock to -35.35' MLLW, cleaned hole and began core run.	-35.35
49.25	28%	5' 4.35'	6,6,7,7,7	Bedrock Core #1 : -35.35' to -40.35' MLLW Intensely fractured, interbedded grey granitic GNEISS and intensely fractured, moderately weathered grey green DIABASE.	-40.35
54.25	55%	5' 4.75'	6,6,6,7,7	Bedrock Core #2 : -45.35' to -50.35' MLLW Intensely to moderately fractured, fresh to slightly weathered, dark grey to black, DIABASE.	-45.35
59.25	10%	5' 4.42	7,7,8,8,8	Bedrock Core #3 : -45.35' to -50.35' MLLW Intensely fractured, dark grey, DIABASE.	-50.35
64.25	66%	5' 4.8'	7,7,7,8,8	Bedrock Core #4 : -50.35' to -55.35' MLLW Moderately fractured, dark grey, DIABASE with grey granitic gneiss xenoliths.	-55.35
69.25	60%	5' 4.53'	8,8,7,7,7	Bedrock Core #5 : -55.35' to -60.35' MLLW Intensely to moderately fractured, dark grey, DIABASE with grey granitic gneiss xenoliths.	-60.35
74.25		5' 5'	7,7,6,6,6	Bedrock Core #6 : -60.35' to -65.35' MLLW Intensely to moderately fractured, dark grey, DIABASE with grey granitic gneiss xenoliths.	-65.35

Comments:
Refusal: -34.95' MLLW
Elevation of Bedrock: -34.95' MLLW

BORING LOG

Date: 5/12/2011
Time: 8:45 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815960
Location	South Terminal Expansion		Y: 2688110
Elevation at grade:	7.35'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -8.65' MLLW	Boring No: A-2011-LB-B11/MW-7
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 12"	4,5,5,6	Top 1": Black, organic, fine SAND. 3" Light brown, FILL and fine SAND and brick debris. 8" Dark brown, fine to medium SAND and SILT.	5.35
4		24" 4"	5,4,5,3	2" Dark brown, fine to medium SAND and SILT. 2" Red brick debris.	3.35
6		24" 8"	3,1,2,1	Light brown, fine to coarse SAND and SILT, some brick debris.	1.35
8		24" 6"	1,2,1,1	Light brown, fine to coarse SAND and SILT, some brick debris.	-0.65
10		24" 15"	2,3,3,4	Dark brown, fine to coarse SAND and SILT.	-2.65
12		24" 18"	3,2,8,17	1.3' Dark brown, fine to coarse SAND and SILT. 0.2' Green gray, fine to coarse SAND and SILT.	-4.65
14		24" 15"	18,20,17,17	Olive gray, fine to coarse SAND and SILT.	-6.65
16		24" 15"	10,12,22,20	1' Olive gray, fine to coarse SAND and SILT. 0.25' Green gray, fine to coarse dense SAND and SILT.	-8.65
				END OF BORING	

Comments: Groundwater elevation after construction of monitoring well was recorded at 5.10' MLLW.
Refusal: Not encountered
Elevation of Bedrock: Not encountered

BORING LOG

Date: 5/13/2011
Time: 8:30 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815987
Location	South Terminal Expansion		Y: 2688237
Elevation at grade:	8.03'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -7.97' MLLW	Boring No: A-2011-LB-B12/MW-8
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (MLLW)
2		24" 12"	4,4,6,8	Light brown, fine SAND and SILT.	6.03
4		24" 10"	6,8,10,10	Light brown, fine SAND and SILT.	4.03
6		24" 12"	2,5,9,3	0.7' Black, fine to coarse SAND and SILT with some brick debris. 0.3' Tar paper and asphalt debris.	2.03
8		24" 12"	7,5,5,5	Black, fine to coarse SAND and SILT,some brick debris.	0.03
10		24" 12"	1,1,1,2	Black, fibrous PEAT.	-1.97
12		24" 10"	2,1,2,7	1" Black, fibrous PEAT. Dark brown, fine to coarse SAND and SILT.	-3.97
14		24" 10"	7,9,10,16	9" Dark brown, fine to coarse SAND and SILT. 1" Green gray, dense fine SAND and SILT.	-5.97
16		24" 8"	19,26,31,33	Green gray, dense fine SAND and SILT.	-7.97
				END OF BORING	

Comments: Groundwater elevation after construction of monitoring well was recorded at 3.65' MLLW.
Refusal: Not encountered
Elevation of Bedrock: Not encountered

Date: 5/13/2011
Time: 12:45 PM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 815736
Location:	South Terminal Expansion		Y: 2687824
Elevation at grade:	11.3'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -19.5 MLLW	Boring No: A-2011-LB-B13
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 15"	13,15,26,35	6" Light Brown fine SAND and SILT. 9" Cement concrete debris.	9.3
5.65				Obstruction encountered at 7.5' MLLW. Advanced with roller bit to 5.65' MLLW.	5.7
8		24" 12"	14,16,10,6	3" Dark brown, fine to coarse SAND and SILT . 9" Yellow/orange, fine to coarse SAND and SILT, trace fine gravel.	3.3
10		24" 16"	5,8,8,10	6" Yellow/orange, fine to coarse SAND and SILT, trace fine gravel. 10" Black, fine SAND and SILT, becomes light olive gray, fine SAND and SILT, trace coarse sand.	1.3
16.85				Obstruction encountered at -1.3' below surface grade. Advanced with roller bit through series of boulders and cobbles to -5.6' MLLW, cleaned hole and began core run.	-5.6
18.25				Attempted core run but broke through at -7.0' MLLW'.	-7.0
20.25		24" 8"	28,25,26,17	Olive gray, fine to coarse SAND and SILT.	-9.0
23.47				Obstruction Encountered at 22.5' below grade or -11.2' MLLW, advanced with roller bit to -12.2' MLLW, cleaned hole and began core run.	-12.2
27.92	56%	4.45' 4.45'	6,6,6,7,2	Bedrock Core #1 : -12.2' to -16.6' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-16.6
30.77	42%	2.85' 2.85'	6,6,2	Bedrock Core #2 : -16.6' to -19.5' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-19.5

Comments:
Refusal: -11.2' MLLW
Elevation of Bedrock: -11.2' MLLW

Date: 5/16/2011

Time: 12:15 PM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 815960
Location	South Terminal Expansion		Y: 2688110
Elevation at grade:	7.3'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -12.1' MLLW	Boring No: A-2011-LB-B14
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration / Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 10"	18,16,10,19	Dark gray, fine to coarse SAND and SILT.	5.3
7		24" 8"	11,16,13,9	1" Dark gray, fine to coarse SAND and SILT. 7" Dark brown, fine to coarse SAND and SILT, trace fine gravel.	0.3
10.4				Obstruction encountered at -0.8' MLLW. Advanced with roller bit through nested boulders or fractured bedrock, Competent Bedrock encountered -2.1' MLLW, advanced roller bit to -3.1' MLLW cleaned hole and began core run.	-3.1
15.4	69%	5' 4.75'	8,8,9,9,9	Bedrock Core #1 : -3.1' to -8.1' MLLW 0.0-0.67' Intensely to moderately fractured, pink grey, granite PEGMATITE. 0.67-4.75' Intensely to moderately fractured, pink grey, granitic GNEISS.	-8.1
19.40	53%	4' 4'	9,9,9,10	Bedrock Core #2 : -8.1' to -12.1' MLLW 0.0-1.75' Intensely to moderately fractured, pink grey, granitic GNEISS. 1.75-4.0' Intensely to moderately fractured, pink grey, granite PEGMATITE.	-12.10

Comments: Groundwater elevation was recorded at 3.20' BSG.

Refusal: -0.8' MLLW

Elevation of Bedrock: -2.1' MLLW

Date: 5/17/2011

Time: 13:15:00 PM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 816089
Location	South Terminal Expansion		Y: 2687992
Elevation at grade:	8.0'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -25.0' MLLW	Boring No: A-2011-LB-B15
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 6"	WOR, WOR, WOR, WOR	Light brown, fine SAND and SILT.	6.0
6		24" 6"	4,4,7,14	4" Light brown, fine SAND and SILT. 2" Dark gray fine SAND and SILT.	2
11		24" 1"	5,8,8,11	Black, fine SAND and SILT.	-3
16		24' 6"	10,23,24,29	Black, fine SAND and SILT.	-8
24				Obstruction encountered at -10.7' MLLW. Advanced with roller bit through boulders and cobbles to -16.0' MLLW.	-16
26		24" 3"	13,13,10,8	Green gray, fine to coarse SAND and SILT, some fine gravel.	-18
27.95				Bedrock encountered at -19.0' MLLW. Advanced with roller bit to -20.0' MLLW cleaned hole and began core run.	-20.0
32.95	65%	5' 4.3'	7,8,8,8,8	Bedrock Core #1 : -20.0' to -25.0' MLLW 0.0-3.4' Moderately fractured, grey, granit GNEISS, 3.4-4.3' becomes intensely fractured.	-25.0

Comments: Groundwater elevation was recorded at 4.98' BSG.

Refusal: -19.0' MLLW

Elevation of Bedrock: -19.0' MLLW

BORING LOG

Date: 5/18/2011
Time: 12:30 PM

Project:	Phase IV Dredging	Project No: 6690.008	X: 816120
Location	South Terminal Expansion		Y: 2687997
Elevation at grade:	7.0'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -20.3' MLLW	Boring No: A-2011-LB-B16
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 3"	2,2,2,2	Light brown, fine SAND and SILT, trace organics.	5
6		24" 8"	4,5,6,5	3" Light brown, fine SAND and SILT, some shell hash. 5" Olive gray, fine SAND and SILT, trace shell hash.	1
11		24" 5"	5,5,8,16	Olive gray fine SAND and SILT, trace shell hash.	-4
18.77				Obstruction encountered at -7.0' MLLW. Advanced with roller bit through boulders cobbles to -11.77' MLLW.	-11.8
22.27			7,7,7	Core run #1 : -11.8' to -15.3' MLLW. Broke through sand seam, Core barrel jamme cleared barrel, Set 3" casing to -15.3, Granitic GNEISS boulder.	-15.3
22.27				Cleaned and flushed hole with roller bit, and began core run.	
27.27	48%	5' 4.0'	6,6,6,6,5	Core #2 : -15.3' to -20.3' MLLW 0.0-2.4' Moderately fractured grey, granitic GNEISS, 2.4-4.0' Intensely to very intensely fractured grey, granitic GNEISS Orange/brown sand flowing into formation at end of run, possible sand filled seam.	-20.3

Comments:
Refusal: -7.0' MLLW
Elevation of Bedrock: -15.3' MLLW

Date: 5/19/2011

Time: 13:30:00 PM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 816113
Location	South Terminal Expansion		Y: 2688205
Elevation at grade:	7.5'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -27.6' MLLW	Boring No: A-2011-LB-B17
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 3"	1,2,2,2	Light brown, fine SAND and SILT, trace shell hash.	5.5
6		24" 8"	3,5,9,11	7" Light brown, fine to medium SAND and SILT, some shell hash. 1" dark gray fine SAND and SILT.	1.5
11		24" 3"	3,3,9,15	Black, fine to coarse SAND and SILT, some shell hash.	-3.5
14.6				Obstruction encountered at -4.6' MLLW. Advanced with roller bit through series of boulders and cobbles to -7.1' MLLW.	-7.1
18		24" 12"	7,30,30,41	Green gray, fine to coarse SAND and SILT.	-10.5
21		24" 4"	30,67,44,42	Green gray, fine to coarse SAND and SILT, trace fine gravel.	-13.5
26		24" 4"	10,12,16,16	Green gray, fine to coarse SAND and SILT, trace fine gravel.	-18.5
29.75		9" 3"	19,100 for 3"	Green gray, fine to coarse SAND and SILT, trace fine gravel. - Encountered Bedro at -22.3' MLLW, cleaned hole with roller bit, and began coring at -22.6' MLLW	-22.3
35.10	81%	5' 4.3'	6,6,6,6,6	Bedrock Core #1 : -22.6' to -27.6' MLLW Moderately fractured, grey, granitic GNEISS.	-27.6

Comments: Groundwater recorded at 5.05' BSG.

Refusal: -22.3 MLLW

Elevation of Bedrock: -22.3 MLLW

Date: 5/23/2011

Time: 8:30 PM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 816064
Location	South Terminal Expansion		Y: 2687795
Elevation at grade:	8.0'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -17.5' MLLW	Boring No: A-2011-LB-B18
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 4"	2,2,2,3	Light brown, fine SAND and SILT, little shell hash.	6
6		24" 3"	3,4,4,6	Light brown, fine to coarse SAND and SILT, some shell hash.	2
11		24" 5"	3,4,6,11	Black, fine to coarse SAND and SILT, some shell hash.	-3
16		24" 3"	7,15,25,40	Olive gray, fine to coarse SAND and SILT, little fine gravel.	-8
19.0		0" 0"	100 for 0"	Bedrock encountered at -11.0' MLLW , cleaned and flushed hole with roller bit, began core run -12.5' MLLW.	-11.0
25.50		5' 4.55'	6,6,6,6,6	Bedrock Core #1 : -12.5' to -17.5' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-17.50

Comments: Groundwater recorded at 1.60' BSG.

Refusal: -11.0' MLLW

Elevation of Bedrock: -11.0' MLLW

BORING LOG

Date: 5/23/2011
Time: 13:45:00 PM

Project:	Phase IV Dredging	Project No: 6690.008	X: 816131
Location	South Terminal Expansion		Y: 2688398
Elevation at grade:	5.0	Datum: MLLW	
Casing Type: Steel		Boring Depth: -34.9' MLLW	Boring No: A-2011-LB-B19
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 6"	2,3,4,6	Light brown, fine SAND and SILT, trace shell hash.	3.0
6		24" 0"	4,1,1,1	No sample recovered.	-1.0
11		24" 15"	1,2,2,2	10" Black, organic SILT, little shell hash. 5" Olive gray, fine to coarse SAND and SILT, trace shell hash.	-6.0
16		24" 16"	5,30,35,31	2" Dark brown, fine to medium SAND and SILT, some shell hash. 14" Dark brown, SILT, trace fine gravel.	-11.0
20.8		24" 22"	10,35,49,100 for 4"	20" Olive gray, fine to coarse SAND and SILT, trace fine gravel. 2" Yellow/orange, fine to coarse SAND and SILT.	-15.8
27.2				Obstruction encountered at -15.8'MLLW. Advanced with roller bit through series of boulders to -22.2' MLLW.	-22.2
29.0		1.8' 1.8'		Core #1 : -22.2' to -24.0' MLLW. Cored though boulder, entered sand filled seam.	-24.0
34.9				Advanced with roller bit through series of nested bolders or fractured bedrock to competent bedrock at -28.9' MLLW, cleaned hole and began coring at -29.9' MLLW.	-29.9
39.9		5' 4.8'	6,5,6,6,6	Core #2 : -29.9' to -34.9' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-34.9

Comments: Groundwater recorded at 3.30' BSG.
Refusal: -15.8' MLLW
Elevation of Bedrock: -28.9' MLLW

Date: 5/24/2011

Time: 11:05 AM

BORING LOG

Project:	Phase IV Dredging	Project No: 6690.008	X: 815936
Location	South Terminal Expansion		Y: 2688383
Elevation at grade:	8.0'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -9.2' MLLW	Boring No: A-2011-LB-B20
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 6"	1,2,2,3	Brown top soil grades to Light brown, fine SAND and SILT.	6
6		24" 3"	5,5,6,1	Reddish brown, fine to coarse SAND and brick debris, little ash, little clinkers, FILL.	2
10.7		21" 11"	32,28,52, 100 for 3"	Olive gray, fine to coarse SAND and SILT, little fine gravel, little angular granatic gneiss fragments.	-2.7
12.2				Obstruction encountered at -2.7' MLLW. Advanced with roller bit through cobbles or fractured bedrock to competent bedrock at -3.2' MLLW cleaned hole and began co run at -4.2' MLLW.	-4.2
17.20	58%	5' 4.5'	6,6,6,6,6	Bedrock Core #1 : -4.2' to -9.2' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-9.2

Comments:

Refusal: -2.7' MLLW

Elevation of Bedrock: -3.2' MLLW

BORING LOG

Date: 5/25/2011
Time: 10:00 AM

Project:	Phase IV Dredging	Project No: 6690.008	X: 815871
Location	South Terminal Expansion		Y: 2688077
Elevation at grade:	6.8'	Datum: MLLW	
Casing Type: Steel		Boring Depth: -20.5' MLLW	Boring No: A-2011-LB-B21
Casing Diameter:	4"	Drill Rig: ATV	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Norm Stuttard	Log By: GAD	

Depth below surface grade (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	Elevation (Arbitrary)
2		24" 2"	1,2,1,1	Black organic TOPSOIL.	4.8
6		24" 6"	1,1,1,1	2" Light brown, fine to coarse SAND and SILT, trace ASH and CLINKERS, 4" Dark brown, SILT.	0.8
11		24" 6"	12,17,20,28	4" Light gray, fine to coarse SAND and SILT. 2" Dark gray, fine SAND and SILT.	-4.2
16		24" 6"	8,10,10,14	Olive gray, fine to coarse SAND and SILT.	-9.2
21		24" 6"'	12,15,25,61	Yellow/orange, fine to coarse SAND and SILT, trace fine gravel.	-14.2
22.30				Bedrock encountered at -14.5' MLLW. Advanced with roller bit, cleaned hole and began core run at -15.5' MLLW.	-15.50
27.30	63%	5.0' 4.5'	no drill time avaialble	Bedrock Core #1 : -15.5' to -20.5' MLLW Intensely to moderately fractured, grey, granitic GNEISS.	-20.50

Comments:
Refusal: -14.5' MLLW
Elevation of Bedrock: -14.5' MLLW

ANALYTICAL REPORT

Lab Number:	L1105817
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL NEW BEDFORD
Project Number:	6690
Report Date:	05/09/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

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Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1105817-01	TP-1	NEW BEDFORD	04/25/11 07:30
L1105817-02	TP-2	NEW BEDFORD	04/25/11 11:15
L1105817-03	TP-5	NEW BEDFORD	04/25/11 12:35
L1105817-04	TP-4	NEW BEDFORD	04/25/11 13:00
L1105817-05	TP-3	NEW BEDFORD	04/25/11 13:47
L1105817-06	TP-7	NEW BEDFORD	04/26/11 07:40
L1105817-07	TP-6	NEW BEDFORD	04/26/11 09:00
L1105817-08	TP-8	NEW BEDFORD	04/26/11 11:00
L1105817-09	TP-9	NEW BEDFORD	04/26/11 13:54
L1105817-10	TP-11	NEW BEDFORD	04/26/11 15:20
L1105817-11	TP-10	NEW BEDFORD	04/27/11 08:30
L1105817-12	TP-12	NEW BEDFORD	04/27/11 09:30
L1105817-13	TP-13A	NEW BEDFORD	04/27/11 11:00
L1105817-14	TP-14	NEW BEDFORD	04/27/11 11:57
L1105817-15	TP-16	NEW BEDFORD	04/27/11 13:30
L1105817-16	TP-17	NEW BEDFORD	04/27/11 14:45
L1105817-17	TP-13	NEW BEDFORD	04/28/11 08:00
L1105817-18	DUPLICATE 1	NEW BEDFORD	04/25/11 00:00
L1105817-19	DUPLICATE 2	NEW BEDFORD	04/26/11 00:00

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

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Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Volatile Organics
L1105817-05 and -18 have elevated detection limits due to the dilutions required by the elevated concentrations of non-target compounds in the samples.
L1105817-07 and -19 have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.
In reference to question G:
L1105817-05, -09, -18 and -19: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question H:
The initial calibration, associated with L1105817-05, -07, -18 and -19, did not meet the method required

Case Narrative (continued)

minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00392), as well as the average response factor for Chloroethane and 1,4-Dioxane.
The continuing calibration standard, associated with L1105817-05, -07, -18 and -19, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

Semivolatile Organics
L1105817-02 and -07 have elevated detection limits due to the dilutions required by the elevated concentrations of target compounds in the samples.
L1105817-03, -04 and -16 have elevated detection limits due to the dilutions required by the sample matrix (the sample extracts were dark and viscous).
L1105817-06 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix (the sample extract was dark and viscous).
L1105817-07 was re-analyzed on dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound that exceeded the calibration range.
In reference to question G:
L1105817-02 through -04, -06, -07 and -16: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question H:
The surrogate recoveries for L1105817-03 are outside the individual acceptance criteria for 2-Fluorophenol (28%) and Nitrobenzene-d5 (27%), but within the overall method allowances. The results of the original analysis are reported; however, all associated compounds are considered to have a potential bias.
The surrogate recoveries for L1105817-06 are below the acceptance criteria for 2-Fluorophenol, Phenol-d6, Nitrobenzene-d5, 2-Fluorobiphenyl, 4-Terphenyl-d14 and 2,4,6-Tribromophenol (all at 0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis

Case Narrative (continued)

are reported.
The WG465512-2/-3 LCS/LCSD recoveries, associated with L1105817-01 through -12, are below the individual acceptance criteria for Aniline (39%/32%), but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for this compound.
The WG465512-2/-3 LCS/LCSD RPDs, associated with L1105817-01 through -12, are above the acceptance criteria for 2-Chloronaphthalene (39%), 1,2-Dichlorobenzene (32%), 1,4-Dichlorobenzene (31%), Hexachlorobutadiene (31%), Nitrobenzene (32%), Acenaphthylene (34%), 4-Chloroaniline (33%), 2-Methylnaphthalene (42%), Acetophenone (31%) and 2-Methylphenol (32%); however, the individual LCS/LCSD recoveries are within method limits.
The WG465513-2/-3 LCS/LCSD recoveries, associated with L1105817-13 through -19, are below the individual acceptance criteria for Aniline (28%/34%) and 4-Chloroaniline (LCS at 39%), but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for these compounds.

EPH
L1105817-07 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.
L1105817-19 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the target compounds present in the sample.
In reference to question G:
L1105817-07 and -19: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question H:
The surrogate recoveries for the following samples are outside the acceptance criteria for o-Terphenyl; however, the samples were not re-extracted due to coelution with obvious interferences. Copies of the chromatograms are included as an attachment to this report. The results are not considered to be biased.
L1105817-05: 143%

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L1105817-07: 295%

L1105817-18: 288%

The surrogate recoveries for L1105817-19 are below the acceptance criteria for Chloro-Octadecane and o-Terphenyl (both at 0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

VPH

L1105817-05, -07 and -18 exceeded the recommended 1:1 methanol:soil ratio, due to excessive soil in the sample vials.

L1105817-05, -07, -18 and -19 have elevated detection limits due to the dilutions required by the elevated concentrations of target compounds in the samples.

In reference to question G:

L1105817-05, -07 and -19: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The surrogate recoveries for L1105817-05 are outside the acceptance criteria for 2,5-Dibromotoluene-PID (161%) and 2,5-Dibromotoluene-FID (189%); however, the sample was not re-analyzed due to coelution with obvious interferences. Copies of the chromatograms are included as an attachment to this report. The results are not considered to be biased.

The surrogate recoveries for L1105817-07 are below the acceptance criteria for 2,5-Dibromotoluene-PID (0%) and 2,5-Dibromotoluene-FID (0%) due to the dilution required to quantitate the sample. Re-analysis is not required; therefore, the results of the original analysis are reported.

The surrogate recovery for L1105817-18 is outside the acceptance criteria for 2,5-Dibromotoluene-FID (144%); however, the sample was not re-analyzed due to coelution with obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

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In reference to question I:
All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

Metals
In reference to question H:
L1105817-04: The internal standard (IS) responses for Lead and Thallium were outside the acceptance criteria (70-120%); however, the criteria was achieved upon re-analysis on 1:5 dilution. The results of the re-analyses are reported.
The WG465733-4 MS recovery, performed on L1105817-01, is above the acceptance criteria for Antimony (46%); however, the associated LCS recovery was within criteria. No further action was taken.
The WG465733-3 Laboratory Duplicate RPD, performed on L1105817-01, is above the acceptance criteria for Silver (54%); however, the sample and Duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.
The WG465734-3 Laboratory Duplicate RPD, performed on L1105817-01, is outside the acceptance criteria for Mercury (171%). The elevated RPD has been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.
The WG465743-3 Laboratory Duplicate RPDs, performed on L1105817-01, are above the acceptance criteria for Cadmium (34%), Selenium (21%) and Thallium (66%); however, the sample and Duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.
In reference to question I:
All samples were analyzed for a subset of MCP elements per the Chain of Custody.

Non-MCP Related Narratives

TPH
L1105817-02, -07, -18, -19 and the associated WG65572-3 Laboratory Duplicate have elevated detection limits due to the dilutions required by the elevated concentrations of target compounds in the samples.
L1105817-03 has an elevated detection limit due to the dilution required by matrix interferences encountered

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during the concentration of the sample.

L1105817-06 has an elevated detection limit due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the target compounds present in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative

Date: 05/09/11

ORGANICS

VOLATILES

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

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SAMPLE RESULTS

Lab ID:	L1105817-05	D	Date Collected:	04/25/11 13:47
Client ID:	TP-3		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	04/29/11 10:53			
Analyst:	CF			
Percent Solids:	88%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	890	--	2
1,1-Dichloroethane	ND		ug/kg	130	--	2
Chloroform	ND		ug/kg	130	--	2
Carbon tetrachloride	ND		ug/kg	89	--	2
1,2-Dichloropropane	ND		ug/kg	310	--	2
Dibromochloromethane	ND		ug/kg	89	--	2
1,1,2-Trichloroethane	ND		ug/kg	130	--	2
Tetrachloroethene	ND		ug/kg	89	--	2
Chlorobenzene	ND		ug/kg	89	--	2
Trichlorofluoromethane	ND		ug/kg	350	--	2
1,2-Dichloroethane	ND		ug/kg	89	--	2
1,1,1-Trichloroethane	ND		ug/kg	89	--	2
Bromodichloromethane	ND		ug/kg	89	--	2
trans-1,3-Dichloropropene	ND		ug/kg	89	--	2
cis-1,3-Dichloropropene	ND		ug/kg	89	--	2
1,1-Dichloropropene	ND		ug/kg	350	--	2
Bromoform	ND		ug/kg	350	--	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	89	--	2
Benzene	ND		ug/kg	89	--	2
Toluene	ND		ug/kg	130	--	2
Ethylbenzene	ND		ug/kg	89	--	2
Chloromethane	ND		ug/kg	350	--	2
Bromomethane	ND		ug/kg	180	--	2
Vinyl chloride	ND		ug/kg	180	--	2
Chloroethane	ND		ug/kg	180	--	2
1,1-Dichloroethene	ND		ug/kg	89	--	2
trans-1,2-Dichloroethene	ND		ug/kg	130	--	2
Trichloroethene	ND		ug/kg	89	--	2
1,2-Dichlorobenzene	ND		ug/kg	350	--	2
1,3-Dichlorobenzene	ND		ug/kg	350	--	2
1,4-Dichlorobenzene	ND		ug/kg	350	--	2

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SAMPLE RESULTS

Lab ID: L1105817-05 D Date Collected: 04/25/11 13:47

Client ID: TP-3 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	180	--	2
p/m-Xylene	ND		ug/kg	180	--	2
o-Xylene	ND		ug/kg	180	--	2
cis-1,2-Dichloroethene	ND		ug/kg	89	--	2
Dibromomethane	ND		ug/kg	350	--	2
1,2,3-Trichloropropane	ND		ug/kg	350	--	2
Styrene	ND		ug/kg	180	--	2
Dichlorodifluoromethane	ND		ug/kg	890	--	2
Acetone	ND		ug/kg	3200	--	2
Carbon disulfide	ND		ug/kg	350	--	2
2-Butanone	ND		ug/kg	890	--	2
4-Methyl-2-pentanone	ND		ug/kg	890	--	2
2-Hexanone	ND		ug/kg	890	--	2
Bromochloromethane	ND		ug/kg	350	--	2
Tetrahydrofuran	ND		ug/kg	350	--	2
2,2-Dichloropropane	ND		ug/kg	440	--	2
1,2-Dibromoethane	ND		ug/kg	350	--	2
1,3-Dichloropropane	ND		ug/kg	350	--	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	89	--	2
Bromobenzene	ND		ug/kg	440	--	2
n-Butylbenzene	ND		ug/kg	89	--	2
sec-Butylbenzene	ND		ug/kg	89	--	2
tert-Butylbenzene	ND		ug/kg	350	--	2
o-Chlorotoluene	ND		ug/kg	350	--	2
p-Chlorotoluene	ND		ug/kg	350	--	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	350	--	2
Hexachlorobutadiene	ND		ug/kg	350	--	2
Isopropylbenzene	ND		ug/kg	89	--	2
p-Isopropyltoluene	ND		ug/kg	89	--	2
Naphthalene	1500		ug/kg	350	--	2
n-Propylbenzene	ND		ug/kg	89	--	2
1,2,3-Trichlorobenzene	ND		ug/kg	350	--	2
1,2,4-Trichlorobenzene	ND		ug/kg	350	--	2
1,3,5-Trimethylbenzene	ND		ug/kg	350	--	2
1,2,4-Trimethylbenzene	ND		ug/kg	350	--	2
Ethyl ether	ND		ug/kg	440	--	2
Isopropyl Ether	ND		ug/kg	350	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/kg	350	--	2
Tertiary-Amyl Methyl Ether	ND		ug/kg	350	--	2

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SAMPLE RESULTS

Lab ID:	L1105817-05	D	Date Collected:	04/25/11 13:47
Client ID:	TP-3		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	8900	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

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Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07	D	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	04/29/11 12:23			
Analyst:	CF			
Percent Solids:	70%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	40000	--	50
1,1-Dichloroethane	ND		ug/kg	6000	--	50
Chloroform	ND		ug/kg	6000	--	50
Carbon tetrachloride	ND		ug/kg	4000	--	50
1,2-Dichloropropane	ND		ug/kg	14000	--	50
Dibromochloromethane	ND		ug/kg	4000	--	50
1,1,2-Trichloroethane	ND		ug/kg	6000	--	50
Tetrachloroethene	ND		ug/kg	4000	--	50
Chlorobenzene	ND		ug/kg	4000	--	50
Trichlorofluoromethane	ND		ug/kg	16000	--	50
1,2-Dichloroethane	ND		ug/kg	4000	--	50
1,1,1-Trichloroethane	ND		ug/kg	4000	--	50
Bromodichloromethane	ND		ug/kg	4000	--	50
trans-1,3-Dichloropropene	ND		ug/kg	4000	--	50
cis-1,3-Dichloropropene	ND		ug/kg	4000	--	50
1,1-Dichloropropene	ND		ug/kg	16000	--	50
Bromoform	ND		ug/kg	16000	--	50
1,1,2,2-Tetrachloroethane	ND		ug/kg	4000	--	50
Benzene	ND		ug/kg	4000	--	50
Toluene	10000		ug/kg	6000	--	50
Ethylbenzene	22000		ug/kg	4000	--	50
Chloromethane	ND		ug/kg	16000	--	50
Bromomethane	ND		ug/kg	8000	--	50
Vinyl chloride	ND		ug/kg	8000	--	50
Chloroethane	ND		ug/kg	8000	--	50
1,1-Dichloroethene	ND		ug/kg	4000	--	50
trans-1,2-Dichloroethene	ND		ug/kg	6000	--	50
Trichloroethene	ND		ug/kg	4000	--	50
1,2-Dichlorobenzene	ND		ug/kg	16000	--	50
1,3-Dichlorobenzene	ND		ug/kg	16000	--	50
1,4-Dichlorobenzene	ND		ug/kg	16000	--	50

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-07 D Date Collected: 04/26/11 09:00

Client ID: TP-6 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	8000	--	50
p/m-Xylene	20000		ug/kg	8000	--	50
o-Xylene	8100		ug/kg	8000	--	50
cis-1,2-Dichloroethene	ND		ug/kg	4000	--	50
Dibromomethane	ND		ug/kg	16000	--	50
1,2,3-Trichloropropane	ND		ug/kg	16000	--	50
Styrene	ND		ug/kg	8000	--	50
Dichlorodifluoromethane	ND		ug/kg	40000	--	50
Acetone	ND		ug/kg	140000	--	50
Carbon disulfide	ND		ug/kg	16000	--	50
2-Butanone	ND		ug/kg	40000	--	50
4-Methyl-2-pentanone	ND		ug/kg	40000	--	50
2-Hexanone	ND		ug/kg	40000	--	50
Bromochloromethane	ND		ug/kg	16000	--	50
Tetrahydrofuran	ND		ug/kg	16000	--	50
2,2-Dichloropropane	ND		ug/kg	20000	--	50
1,2-Dibromoethane	ND		ug/kg	16000	--	50
1,3-Dichloropropane	ND		ug/kg	16000	--	50
1,1,1,2-Tetrachloroethane	ND		ug/kg	4000	--	50
Bromobenzene	ND		ug/kg	20000	--	50
n-Butylbenzene	ND		ug/kg	4000	--	50
sec-Butylbenzene	ND		ug/kg	4000	--	50
tert-Butylbenzene	ND		ug/kg	16000	--	50
o-Chlorotoluene	ND		ug/kg	16000	--	50
p-Chlorotoluene	ND		ug/kg	16000	--	50
1,2-Dibromo-3-chloropropane	ND		ug/kg	16000	--	50
Hexachlorobutadiene	ND		ug/kg	16000	--	50
Isopropylbenzene	5900		ug/kg	4000	--	50
p-Isopropyltoluene	4200		ug/kg	4000	--	50
Naphthalene	180000		ug/kg	16000	--	50
n-Propylbenzene	ND		ug/kg	4000	--	50
1,2,3-Trichlorobenzene	ND		ug/kg	16000	--	50
1,2,4-Trichlorobenzene	ND		ug/kg	16000	--	50
1,3,5-Trimethylbenzene	ND		ug/kg	16000	--	50
1,2,4-Trimethylbenzene	ND		ug/kg	16000	--	50
Ethyl ether	ND		ug/kg	20000	--	50
Isopropyl Ether	ND		ug/kg	16000	--	50
Ethyl-Tert-Butyl-Ether	ND		ug/kg	16000	--	50
Tertiary-Amyl Methyl Ether	ND		ug/kg	16000	--	50

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SAMPLE RESULTS

Lab ID:	L1105817-07	D	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	400000	--	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

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SAMPLE RESULTS

Lab ID:	L1105817-18	D	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	04/29/11 12:49			
Analyst:	CF			
Percent Solids:	88%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	820	--	2
1,1-Dichloroethane	ND		ug/kg	120	--	2
Chloroform	ND		ug/kg	120	--	2
Carbon tetrachloride	ND		ug/kg	82	--	2
1,2-Dichloropropane	ND		ug/kg	280	--	2
Dibromochloromethane	ND		ug/kg	82	--	2
1,1,2-Trichloroethane	ND		ug/kg	120	--	2
Tetrachloroethene	ND		ug/kg	82	--	2
Chlorobenzene	ND		ug/kg	82	--	2
Trichlorofluoromethane	ND		ug/kg	330	--	2
1,2-Dichloroethane	ND		ug/kg	82	--	2
1,1,1-Trichloroethane	ND		ug/kg	82	--	2
Bromodichloromethane	ND		ug/kg	82	--	2
trans-1,3-Dichloropropene	ND		ug/kg	82	--	2
cis-1,3-Dichloropropene	ND		ug/kg	82	--	2
1,1-Dichloropropene	ND		ug/kg	330	--	2
Bromoform	ND		ug/kg	330	--	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	82	--	2
Benzene	ND		ug/kg	82	--	2
Toluene	ND		ug/kg	120	--	2
Ethylbenzene	ND		ug/kg	82	--	2
Chloromethane	ND		ug/kg	330	--	2
Bromomethane	ND		ug/kg	160	--	2
Vinyl chloride	ND		ug/kg	160	--	2
Chloroethane	ND		ug/kg	160	--	2
1,1-Dichloroethene	ND		ug/kg	82	--	2
trans-1,2-Dichloroethene	ND		ug/kg	120	--	2
Trichloroethene	ND		ug/kg	82	--	2
1,2-Dichlorobenzene	ND		ug/kg	330	--	2
1,3-Dichlorobenzene	ND		ug/kg	330	--	2
1,4-Dichlorobenzene	ND		ug/kg	330	--	2

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-18 D Date Collected: 04/25/11 00:00

Client ID: DUPLICATE 1 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	160	--	2
p/m-Xylene	ND		ug/kg	160	--	2
o-Xylene	ND		ug/kg	160	--	2
cis-1,2-Dichloroethene	ND		ug/kg	82	--	2
Dibromomethane	ND		ug/kg	330	--	2
1,2,3-Trichloropropane	ND		ug/kg	330	--	2
Styrene	ND		ug/kg	160	--	2
Dichlorodifluoromethane	ND		ug/kg	820	--	2
Acetone	ND		ug/kg	2900	--	2
Carbon disulfide	ND		ug/kg	330	--	2
2-Butanone	ND		ug/kg	820	--	2
4-Methyl-2-pentanone	ND		ug/kg	820	--	2
2-Hexanone	ND		ug/kg	820	--	2
Bromochloromethane	ND		ug/kg	330	--	2
Tetrahydrofuran	ND		ug/kg	330	--	2
2,2-Dichloropropane	ND		ug/kg	410	--	2
1,2-Dibromoethane	ND		ug/kg	330	--	2
1,3-Dichloropropane	ND		ug/kg	330	--	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	82	--	2
Bromobenzene	ND		ug/kg	410	--	2
n-Butylbenzene	ND		ug/kg	82	--	2
sec-Butylbenzene	ND		ug/kg	82	--	2
tert-Butylbenzene	ND		ug/kg	330	--	2
o-Chlorotoluene	ND		ug/kg	330	--	2
p-Chlorotoluene	ND		ug/kg	330	--	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	330	--	2
Hexachlorobutadiene	ND		ug/kg	330	--	2
Isopropylbenzene	ND		ug/kg	82	--	2
p-Isopropyltoluene	89		ug/kg	82	--	2
Naphthalene	1500		ug/kg	330	--	2
n-Propylbenzene	ND		ug/kg	82	--	2
1,2,3-Trichlorobenzene	ND		ug/kg	330	--	2
1,2,4-Trichlorobenzene	ND		ug/kg	330	--	2
1,3,5-Trimethylbenzene	ND		ug/kg	330	--	2
1,2,4-Trimethylbenzene	ND		ug/kg	330	--	2
Ethyl ether	ND		ug/kg	410	--	2
Isopropyl Ether	ND		ug/kg	330	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/kg	330	--	2
Tertiary-Amyl Methyl Ether	ND		ug/kg	330	--	2

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-18	D	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	8200	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	D	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	04/29/11 13:16			
Analyst:	CF			
Percent Solids:	79%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	8200	--	10
1,1-Dichloroethane	ND		ug/kg	1200	--	10
Chloroform	ND		ug/kg	1200	--	10
Carbon tetrachloride	ND		ug/kg	820	--	10
1,2-Dichloropropane	ND		ug/kg	2800	--	10
Dibromochloromethane	ND		ug/kg	820	--	10
1,1,2-Trichloroethane	ND		ug/kg	1200	--	10
Tetrachloroethene	ND		ug/kg	820	--	10
Chlorobenzene	ND		ug/kg	820	--	10
Trichlorofluoromethane	ND		ug/kg	3300	--	10
1,2-Dichloroethane	ND		ug/kg	820	--	10
1,1,1-Trichloroethane	ND		ug/kg	820	--	10
Bromodichloromethane	ND		ug/kg	820	--	10
trans-1,3-Dichloropropene	ND		ug/kg	820	--	10
cis-1,3-Dichloropropene	ND		ug/kg	820	--	10
1,1-Dichloropropene	ND		ug/kg	3300	--	10
Bromoform	ND		ug/kg	3300	--	10
1,1,2,2-Tetrachloroethane	ND		ug/kg	820	--	10
Benzene	ND		ug/kg	820	--	10
Toluene	2200		ug/kg	1200	--	10
Ethylbenzene	5800		ug/kg	820	--	10
Chloromethane	ND		ug/kg	3300	--	10
Bromomethane	ND		ug/kg	1600	--	10
Vinyl chloride	ND		ug/kg	1600	--	10
Chloroethane	ND		ug/kg	1600	--	10
1,1-Dichloroethene	ND		ug/kg	820	--	10
trans-1,2-Dichloroethene	ND		ug/kg	1200	--	10
Trichloroethene	ND		ug/kg	820	--	10
1,2-Dichlorobenzene	ND		ug/kg	3300	--	10
1,3-Dichlorobenzene	ND		ug/kg	3300	--	10
1,4-Dichlorobenzene	ND		ug/kg	3300	--	10

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-19 D Date Collected: 04/26/11 00:00
Client ID: DUPLICATE 2 Date Received: 04/28/11
Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	1600	--	10
p/m-Xylene	5400		ug/kg	1600	--	10
o-Xylene	2200		ug/kg	1600	--	10
cis-1,2-Dichloroethene	ND		ug/kg	820	--	10
Dibromomethane	ND		ug/kg	3300	--	10
1,2,3-Trichloropropane	ND		ug/kg	3300	--	10
Styrene	ND		ug/kg	1600	--	10
Dichlorodifluoromethane	ND		ug/kg	8200	--	10
Acetone	ND		ug/kg	29000	--	10
Carbon disulfide	ND		ug/kg	3300	--	10
2-Butanone	ND		ug/kg	8200	--	10
4-Methyl-2-pentanone	ND		ug/kg	8200	--	10
2-Hexanone	ND		ug/kg	8200	--	10
Bromochloromethane	ND		ug/kg	3300	--	10
Tetrahydrofuran	ND		ug/kg	3300	--	10
2,2-Dichloropropane	ND		ug/kg	4100	--	10
1,2-Dibromoethane	ND		ug/kg	3300	--	10
1,3-Dichloropropane	ND		ug/kg	3300	--	10
1,1,1,2-Tetrachloroethane	ND		ug/kg	820	--	10
Bromobenzene	ND		ug/kg	4100	--	10
n-Butylbenzene	ND		ug/kg	820	--	10
sec-Butylbenzene	ND		ug/kg	820	--	10
tert-Butylbenzene	ND		ug/kg	3300	--	10
o-Chlorotoluene	ND		ug/kg	3300	--	10
p-Chlorotoluene	ND		ug/kg	3300	--	10
1,2-Dibromo-3-chloropropane	ND		ug/kg	3300	--	10
Hexachlorobutadiene	ND		ug/kg	3300	--	10
Isopropylbenzene	1800		ug/kg	820	--	10
p-Isopropyltoluene	1400		ug/kg	820	--	10
Naphthalene	64000		ug/kg	3300	--	10
n-Propylbenzene	ND		ug/kg	820	--	10
1,2,3-Trichlorobenzene	ND		ug/kg	3300	--	10
1,2,4-Trichlorobenzene	ND		ug/kg	3300	--	10
1,3,5-Trimethylbenzene	ND		ug/kg	3300	--	10
1,2,4-Trimethylbenzene	ND		ug/kg	3300	--	10
Ethyl ether	ND		ug/kg	4100	--	10
Isopropyl Ether	ND		ug/kg	3300	--	10
Ethyl-Tert-Butyl-Ether	ND		ug/kg	3300	--	10
Tertiary-Amyl Methyl Ether	ND		ug/kg	3300	--	10

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	D	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	82000	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 04/29/11 07:47
Analyst: CF

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s): 05,07,18-19 Batch: WG465517-3					
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 04/29/11 07:47
Analyst: CF

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s): 05,07,18-19 Batch: WG465517-3					
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
2-Butanone	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 04/29/11 07:47
Analyst: CF

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 5035 High - Westborough Lab for sample(s): 05,07,18-19 Batch: WG465517-3					
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Ethyl ether	ND		ug/kg	250	--
Isopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 05,07,18-19 Batch: WG465517-1 WG465517-2								
Methylene chloride	98		100		70-130	2		20
1,1-Dichloroethane	100		101		70-130	1		20
Chloroform	105		103		70-130	2		20
Carbon tetrachloride	108		110		70-130	2		20
1,2-Dichloropropane	104		103		70-130	1		20
Dibromochloromethane	103		103		70-130	0		20
1,1,2-Trichloroethane	99		101		70-130	2		20
Tetrachloroethene	105		108		70-130	3		20
Chlorobenzene	98		98		70-130	0		20
Trichlorofluoromethane	122		126		70-130	3		20
1,2-Dichloroethane	105		103		70-130	2		20
1,1,1-Trichloroethane	104		104		70-130	0		20
Bromodichloromethane	102		103		70-130	1		20
trans-1,3-Dichloropropene	99		99		70-130	0		20
cis-1,3-Dichloropropene	99		98		70-130	1		20
1,1-Dichloropropene	101		102		70-130	1		20
Bromoform	103		101		70-130	2		20
1,1,2,2-Tetrachloroethane	96		95		70-130	1		20
Benzene	101		101		70-130	0		20
Toluene	96		98		70-130	2		20
Ethylbenzene	99		100		70-130	1		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 05,07,18-19 Batch: WG465517-1 WG465517-2								
Chloromethane	93		93		70-130	0		20
Bromomethane	84		84		70-130	0		20
Vinyl chloride	98		99		70-130	1		20
Chloroethane	108		113		70-130	5		20
1,1-Dichloroethene	102		105		70-130	3		20
trans-1,2-Dichloroethene	99		101		70-130	2		20
Trichloroethene	103		104		70-130	1		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	100		100		70-130	0		20
Methyl tert butyl ether	98		96		70-130	2		20
p/m-Xylene	101		102		70-130	1		20
o-Xylene	102		103		70-130	1		20
cis-1,2-Dichloroethene	103		104		70-130	1		20
Dibromomethane	107		108		70-130	1		20
1,2,3-Trichloropropane	101		99		70-130	2		20
Styrene	100		101		70-130	1		20
Dichlorodifluoromethane	89		92		70-130	3		20
Acetone	97		98		70-130	1		20
Carbon disulfide	79		81		70-130	3		20
2-Butanone	95		93		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 05,07,18-19 Batch: WG465517-1 WG465517-2								
4-Methyl-2-pentanone	91		87		70-130	4		20
2-Hexanone	91		91		70-130	0		20
Bromochloromethane	108		108		70-130	0		20
Tetrahydrofuran	101		98		70-130	3		20
2,2-Dichloropropane	103		105		70-130	2		20
1,2-Dibromoethane	100		98		70-130	2		20
1,3-Dichloropropane	98		101		70-130	3		20
1,1,1,2-Tetrachloroethane	105		105		70-130	0		20
Bromobenzene	100		99		70-130	1		20
n-Butylbenzene	99		100		70-130	1		20
sec-Butylbenzene	99		100		70-130	1		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	98		99		70-130	1		20
p-Chlorotoluene	97		98		70-130	1		20
1,2-Dibromo-3-chloropropane	92		88		70-130	4		20
Hexachlorobutadiene	96		98		70-130	2		20
Isopropylbenzene	99		99		70-130	0		20
p-Isopropyltoluene	103		103		70-130	0		20
Naphthalene	98		93		70-130	5		20
n-Propylbenzene	100		101		70-130	1		20
1,2,3-Trichlorobenzene	103		101		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 5035 High - Westborough Lab Associated sample(s): 05,07,18-19 Batch: WG465517-1 WG465517-2								
1,2,4-Trichlorobenzene	102		103		70-130	1		20
1,3,5-Trimethylbenzene	99		100		70-130	1		20
1,2,4-Trimethylbenzene	100		101		70-130	1		20
Ethyl ether	107		108		70-130	1		20
Isopropyl Ether	120		118		70-130	2		20
Ethyl-Tert-Butyl-Ether	113		112		70-130	1		20
Tertiary-Amyl Methyl Ether	113		112		70-130	1		20
1,4-Dioxane	102		96		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	103		101		70-130

SEMIVOLATILES

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-01	Date Collected:	04/25/11 07:30
Client ID:	TP-1	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/03/11 18:45		
Analyst:	JB		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	400	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	400	--	1
Hexachlorobenzene	ND		ug/kg	400	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	400	--	1
2-Chloronaphthalene	ND		ug/kg	400	--	1
1,2-Dichlorobenzene	ND		ug/kg	400	--	1
1,3-Dichlorobenzene	ND		ug/kg	400	--	1
1,4-Dichlorobenzene	ND		ug/kg	400	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	810	--	1
2,4-Dinitrotoluene	ND		ug/kg	400	--	1
2,6-Dinitrotoluene	ND		ug/kg	400	--	1
Azobenzene	ND		ug/kg	400	--	1
Fluoranthene	ND		ug/kg	400	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	400	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	400	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	400	--	1
Hexachlorobutadiene	ND		ug/kg	810	--	1
Hexachloroethane	ND		ug/kg	400	--	1
Isophorone	ND		ug/kg	400	--	1
Naphthalene	ND		ug/kg	400	--	1
Nitrobenzene	ND		ug/kg	400	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	810	--	1
Butyl benzyl phthalate	ND		ug/kg	400	--	1
Di-n-butylphthalate	ND		ug/kg	400	--	1
Di-n-octylphthalate	ND		ug/kg	400	--	1
Diethyl phthalate	ND		ug/kg	400	--	1
Dimethyl phthalate	ND		ug/kg	400	--	1
Benzo(a)anthracene	ND		ug/kg	400	--	1
Benzo(a)pyrene	ND		ug/kg	400	--	1
Benzo(b)fluoranthene	ND		ug/kg	400	--	1
Benzo(k)fluoranthene	ND		ug/kg	400	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-01 Date Collected: 04/25/11 07:30

Client ID: TP-1 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	400	--	1
Acenaphthylene	ND		ug/kg	400	--	1
Anthracene	ND		ug/kg	400	--	1
Benzo(ghi)perylene	ND		ug/kg	400	--	1
Fluorene	ND		ug/kg	400	--	1
Phenanthrene	ND		ug/kg	400	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	240	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	400	--	1
Pyrene	ND		ug/kg	400	--	1
Aniline	ND		ug/kg	810	--	1
4-Chloroaniline	ND		ug/kg	400	--	1
Dibenzofuran	ND		ug/kg	400	--	1
2-Methylnaphthalene	ND		ug/kg	400	--	1
Acetophenone	ND		ug/kg	810	--	1
2,4,6-Trichlorophenol	ND		ug/kg	400	--	1
2-Chlorophenol	ND		ug/kg	480	--	1
2,4-Dichlorophenol	ND		ug/kg	810	--	1
2,4-Dimethylphenol	ND		ug/kg	400	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	810	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	570	--	1
2-Methylphenol	ND		ug/kg	480	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	480	--	1
2,4,5-Trichlorophenol	ND		ug/kg	400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	69		30-130
Phenol-d6	74		30-130
Nitrobenzene-d5	69		30-130
2-Fluorobiphenyl	68		30-130
2,4,6-Tribromophenol	76		30-130
4-Terphenyl-d14	73		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-02	D	Date Collected:	04/25/11 11:15
Client ID:	TP-2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/03/11 18:10			
Analyst:	JB			
Percent Solids:	85%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	2000	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	2000	--	5
Hexachlorobenzene	ND		ug/kg	2000	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	2000	--	5
2-Chloronaphthalene	ND		ug/kg	2000	--	5
1,2-Dichlorobenzene	ND		ug/kg	2000	--	5
1,3-Dichlorobenzene	ND		ug/kg	2000	--	5
1,4-Dichlorobenzene	ND		ug/kg	2000	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	4000	--	5
2,4-Dinitrotoluene	ND		ug/kg	2000	--	5
2,6-Dinitrotoluene	ND		ug/kg	2000	--	5
Azobenzene	ND		ug/kg	2000	--	5
Fluoranthene	38000		ug/kg	2000	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	2000	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	2000	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	2000	--	5
Hexachlorobutadiene	ND		ug/kg	4000	--	5
Hexachloroethane	ND		ug/kg	2000	--	5
Isophorone	ND		ug/kg	2000	--	5
Naphthalene	ND		ug/kg	2000	--	5
Nitrobenzene	ND		ug/kg	2000	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	4000	--	5
Butyl benzyl phthalate	ND		ug/kg	2000	--	5
Di-n-butylphthalate	ND		ug/kg	2000	--	5
Di-n-octylphthalate	ND		ug/kg	2000	--	5
Diethyl phthalate	ND		ug/kg	2000	--	5
Dimethyl phthalate	ND		ug/kg	2000	--	5
Benzo(a)anthracene	19000		ug/kg	2000	--	5
Benzo(a)pyrene	18000		ug/kg	2000	--	5
Benzo(b)fluoranthene	21000		ug/kg	2000	--	5
Benzo(k)fluoranthene	9200		ug/kg	2000	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-02 D Date Collected: 04/25/11 11:15

Client ID: TP-2 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	17000		ug/kg	2000	--	5
Acenaphthylene	ND		ug/kg	2000	--	5
Anthracene	6700		ug/kg	2000	--	5
Benzo(ghi)perylene	11000		ug/kg	2000	--	5
Fluorene	2200		ug/kg	2000	--	5
Phenanthrene	26000		ug/kg	2000	--	5
Dibenzo(a,h)anthracene	2500		ug/kg	1200	--	5
Indeno(1,2,3-cd)Pyrene	12000		ug/kg	2000	--	5
Pyrene	33000		ug/kg	2000	--	5
Aniline	ND		ug/kg	4000	--	5
4-Chloroaniline	ND		ug/kg	2000	--	5
Dibenzofuran	ND		ug/kg	2000	--	5
2-Methylnaphthalene	ND		ug/kg	2000	--	5
Acetophenone	ND		ug/kg	4000	--	5
2,4,6-Trichlorophenol	ND		ug/kg	2000	--	5
2-Chlorophenol	ND		ug/kg	2400	--	5
2,4-Dichlorophenol	ND		ug/kg	4000	--	5
2,4-Dimethylphenol	ND		ug/kg	2000	--	5
2-Nitrophenol	ND		ug/kg	7900	--	5
4-Nitrophenol	ND		ug/kg	4000	--	5
2,4-Dinitrophenol	ND		ug/kg	7900	--	5
Pentachlorophenol	ND		ug/kg	7900	--	5
Phenol	ND		ug/kg	2800	--	5
2-Methylphenol	ND		ug/kg	2400	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2400	--	5
2,4,5-Trichlorophenol	ND		ug/kg	2000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		30-130
Phenol-d6	64		30-130
Nitrobenzene-d5	48		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	94		30-130
4-Terphenyl-d14	94		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-03	D	Date Collected:	04/25/11 12:35
Client ID:	TP-5		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/03/11 18:33			
Analyst:	JB			
Percent Solids:	84%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	2000	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	2000	--	5
Hexachlorobenzene	ND		ug/kg	2000	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	2000	--	5
2-Chloronaphthalene	ND		ug/kg	2000	--	5
1,2-Dichlorobenzene	ND		ug/kg	2000	--	5
1,3-Dichlorobenzene	ND		ug/kg	2000	--	5
1,4-Dichlorobenzene	ND		ug/kg	2000	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	4100	--	5
2,4-Dinitrotoluene	ND		ug/kg	2000	--	5
2,6-Dinitrotoluene	ND		ug/kg	2000	--	5
Azobenzene	ND		ug/kg	2000	--	5
Fluoranthene	16000		ug/kg	2000	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	2000	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	2000	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	2000	--	5
Hexachlorobutadiene	ND		ug/kg	4100	--	5
Hexachloroethane	ND		ug/kg	2000	--	5
Isophorone	ND		ug/kg	2000	--	5
Naphthalene	ND		ug/kg	2000	--	5
Nitrobenzene	ND		ug/kg	2000	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	4100	--	5
Butyl benzyl phthalate	ND		ug/kg	2000	--	5
Di-n-butylphthalate	ND		ug/kg	2000	--	5
Di-n-octylphthalate	ND		ug/kg	2000	--	5
Diethyl phthalate	ND		ug/kg	2000	--	5
Dimethyl phthalate	ND		ug/kg	2000	--	5
Benzo(a)anthracene	6900		ug/kg	2000	--	5
Benzo(a)pyrene	6500		ug/kg	2000	--	5
Benzo(b)fluoranthene	7600		ug/kg	2000	--	5
Benzo(k)fluoranthene	2700		ug/kg	2000	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-03 D Date Collected: 04/25/11 12:35

Client ID: TP-5 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	6700		ug/kg	2000	--	5
Acenaphthylene	ND		ug/kg	2000	--	5
Anthracene	3800		ug/kg	2000	--	5
Benzo(ghi)perylene	4100		ug/kg	2000	--	5
Fluorene	ND		ug/kg	2000	--	5
Phenanthrene	18000		ug/kg	2000	--	5
Dibenzo(a,h)anthracene	ND		ug/kg	1200	--	5
Indeno(1,2,3-cd)Pyrene	4000		ug/kg	2000	--	5
Pyrene	14000		ug/kg	2000	--	5
Aniline	ND		ug/kg	4100	--	5
4-Chloroaniline	ND		ug/kg	2000	--	5
Dibenzofuran	ND		ug/kg	2000	--	5
2-Methylnaphthalene	ND		ug/kg	2000	--	5
Acetophenone	ND		ug/kg	4100	--	5
2,4,6-Trichlorophenol	ND		ug/kg	2000	--	5
2-Chlorophenol	ND		ug/kg	2400	--	5
2,4-Dichlorophenol	ND		ug/kg	4100	--	5
2,4-Dimethylphenol	ND		ug/kg	2000	--	5
2-Nitrophenol	ND		ug/kg	8200	--	5
4-Nitrophenol	ND		ug/kg	4100	--	5
2,4-Dinitrophenol	ND		ug/kg	8200	--	5
Pentachlorophenol	ND		ug/kg	8200	--	5
Phenol	ND		ug/kg	2900	--	5
2-Methylphenol	ND		ug/kg	2400	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2400	--	5
2,4,5-Trichlorophenol	ND		ug/kg	2000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**28**	Q	30-130
Phenol-d6	34		30-130
Nitrobenzene-d5	**27**	Q	30-130
2-Fluorobiphenyl	36		30-130
2,4,6-Tribromophenol	54		30-130
4-Terphenyl-d14	49		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-04	D	Date Collected:	04/25/11 13:00
Client ID:	TP-4		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/03/11 18:57			
Analyst:	JB			
Percent Solids:	79%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	2200	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	2200	--	5
Hexachlorobenzene	ND		ug/kg	2200	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	2200	--	5
2-Chloronaphthalene	ND		ug/kg	2200	--	5
1,2-Dichlorobenzene	ND		ug/kg	2200	--	5
1,3-Dichlorobenzene	ND		ug/kg	2200	--	5
1,4-Dichlorobenzene	ND		ug/kg	2200	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	4300	--	5
2,4-Dinitrotoluene	ND		ug/kg	2200	--	5
2,6-Dinitrotoluene	ND		ug/kg	2200	--	5
Azobenzene	ND		ug/kg	2200	--	5
Fluoranthene	5200		ug/kg	2200	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	2200	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	2200	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	2200	--	5
Hexachlorobutadiene	ND		ug/kg	4300	--	5
Hexachloroethane	ND		ug/kg	2200	--	5
Isophorone	ND		ug/kg	2200	--	5
Naphthalene	ND		ug/kg	2200	--	5
Nitrobenzene	ND		ug/kg	2200	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	4300	--	5
Butyl benzyl phthalate	ND		ug/kg	2200	--	5
Di-n-butylphthalate	ND		ug/kg	2200	--	5
Di-n-octylphthalate	ND		ug/kg	2200	--	5
Diethyl phthalate	ND		ug/kg	2200	--	5
Dimethyl phthalate	ND		ug/kg	2200	--	5
Benzo(a)anthracene	3200		ug/kg	2200	--	5
Benzo(a)pyrene	3500		ug/kg	2200	--	5
Benzo(b)fluoranthene	4200		ug/kg	2200	--	5
Benzo(k)fluoranthene	ND		ug/kg	2200	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-04 D Date Collected: 04/25/11 13:00

Client ID: TP-4 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	3200		ug/kg	2200	--	5
Acenaphthylene	ND		ug/kg	2200	--	5
Anthracene	ND		ug/kg	2200	--	5
Benzo(ghi)perylene	2600		ug/kg	2200	--	5
Fluorene	ND		ug/kg	2200	--	5
Phenanthrene	2700		ug/kg	2200	--	5
Dibenzo(a,h)anthracene	ND		ug/kg	1300	--	5
Indeno(1,2,3-cd)Pyrene	2300		ug/kg	2200	--	5
Pyrene	6300		ug/kg	2200	--	5
Aniline	ND		ug/kg	4300	--	5
4-Chloroaniline	ND		ug/kg	2200	--	5
Dibenzofuran	ND		ug/kg	2200	--	5
2-Methylnaphthalene	ND		ug/kg	2200	--	5
Acetophenone	ND		ug/kg	4300	--	5
2,4,6-Trichlorophenol	ND		ug/kg	2200	--	5
2-Chlorophenol	ND		ug/kg	2600	--	5
2,4-Dichlorophenol	ND		ug/kg	4300	--	5
2,4-Dimethylphenol	ND		ug/kg	2200	--	5
2-Nitrophenol	ND		ug/kg	8600	--	5
4-Nitrophenol	ND		ug/kg	4300	--	5
2,4-Dinitrophenol	ND		ug/kg	8600	--	5
Pentachlorophenol	ND		ug/kg	8600	--	5
Phenol	ND		ug/kg	3000	--	5
2-Methylphenol	ND		ug/kg	2600	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2600	--	5
2,4,5-Trichlorophenol	ND		ug/kg	2200	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		30-130
Phenol-d6	57		30-130
Nitrobenzene-d5	49		30-130
2-Fluorobiphenyl	58		30-130
2,4,6-Tribromophenol	86		30-130
4-Terphenyl-d14	77		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-05	Date Collected:	04/25/11 13:47
Client ID:	TP-3	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/04/11 11:43		
Analyst:	JB		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	1600		ug/kg	390	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	390	--	1
Hexachlorobenzene	ND		ug/kg	390	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	390	--	1
2-Chloronaphthalene	ND		ug/kg	390	--	1
1,2-Dichlorobenzene	ND		ug/kg	390	--	1
1,3-Dichlorobenzene	ND		ug/kg	390	--	1
1,4-Dichlorobenzene	ND		ug/kg	390	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	780	--	1
2,4-Dinitrotoluene	ND		ug/kg	390	--	1
2,6-Dinitrotoluene	ND		ug/kg	390	--	1
Azobenzene	ND		ug/kg	390	--	1
Fluoranthene	3000		ug/kg	390	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	390	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	390	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	390	--	1
Hexachlorobutadiene	ND		ug/kg	780	--	1
Hexachloroethane	ND		ug/kg	390	--	1
Isophorone	ND		ug/kg	390	--	1
Naphthalene	880		ug/kg	390	--	1
Nitrobenzene	ND		ug/kg	390	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	780	--	1
Butyl benzyl phthalate	ND		ug/kg	390	--	1
Di-n-butylphthalate	ND		ug/kg	390	--	1
Di-n-octylphthalate	ND		ug/kg	390	--	1
Diethyl phthalate	ND		ug/kg	390	--	1
Dimethyl phthalate	ND		ug/kg	390	--	1
Benzo(a)anthracene	1600		ug/kg	390	--	1
Benzo(a)pyrene	1600		ug/kg	390	--	1
Benzo(b)fluoranthene	1200		ug/kg	390	--	1
Benzo(k)fluoranthene	400		ug/kg	390	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-05 Date Collected: 04/25/11 13:47

Client ID: TP-3 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	1600		ug/kg	390	--	1
Acenaphthylene	ND		ug/kg	390	--	1
Anthracene	1900		ug/kg	390	--	1
Benzo(ghi)perylene	920		ug/kg	390	--	1
Fluorene	1600		ug/kg	390	--	1
Phenanthrene	8900		ug/kg	390	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	230	--	1
Indeno(1,2,3-cd)Pyrene	670		ug/kg	390	--	1
Pyrene	6000		ug/kg	390	--	1
Aniline	ND		ug/kg	780	--	1
4-Chloroaniline	ND		ug/kg	390	--	1
Dibenzofuran	ND		ug/kg	390	--	1
2-Methylnaphthalene	3100		ug/kg	390	--	1
Acetophenone	ND		ug/kg	780	--	1
2,4,6-Trichlorophenol	ND		ug/kg	390	--	1
2-Chlorophenol	ND		ug/kg	470	--	1
2,4-Dichlorophenol	ND		ug/kg	780	--	1
2,4-Dimethylphenol	ND		ug/kg	390	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	780	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	540	--	1
2-Methylphenol	ND		ug/kg	470	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	470	--	1
2,4,5-Trichlorophenol	ND		ug/kg	390	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	65		30-130
Phenol-d6	67		30-130
Nitrobenzene-d5	68		30-130
2-Fluorobiphenyl	71		30-130
2,4,6-Tribromophenol	77		30-130
4-Terphenyl-d14	80		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-06	D	Date Collected:	04/26/11 07:40
Client ID:	TP-7		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/05/11 08:47			
Analyst:	JB			
Percent Solids:	78%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	18000	--	40
1,2,4-Trichlorobenzene	ND		ug/kg	18000	--	40
Hexachlorobenzene	ND		ug/kg	18000	--	40
Bis(2-chloroethyl)ether	ND		ug/kg	18000	--	40
2-Chloronaphthalene	ND		ug/kg	18000	--	40
1,2-Dichlorobenzene	ND		ug/kg	18000	--	40
1,3-Dichlorobenzene	ND		ug/kg	18000	--	40
1,4-Dichlorobenzene	ND		ug/kg	18000	--	40
3,3'-Dichlorobenzidine	ND		ug/kg	35000	--	40
2,4-Dinitrotoluene	ND		ug/kg	18000	--	40
2,6-Dinitrotoluene	ND		ug/kg	18000	--	40
Azobenzene	ND		ug/kg	18000	--	40
Fluoranthene	120000		ug/kg	18000	--	40
4-Bromophenyl phenyl ether	ND		ug/kg	18000	--	40
Bis(2-chloroisopropyl)ether	ND		ug/kg	18000	--	40
Bis(2-chloroethoxy)methane	ND		ug/kg	18000	--	40
Hexachlorobutadiene	ND		ug/kg	35000	--	40
Hexachloroethane	ND		ug/kg	18000	--	40
Isophorone	ND		ug/kg	18000	--	40
Naphthalene	ND		ug/kg	18000	--	40
Nitrobenzene	ND		ug/kg	18000	--	40
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	35000	--	40
Butyl benzyl phthalate	ND		ug/kg	18000	--	40
Di-n-butylphthalate	ND		ug/kg	18000	--	40
Di-n-octylphthalate	ND		ug/kg	18000	--	40
Diethyl phthalate	ND		ug/kg	18000	--	40
Dimethyl phthalate	ND		ug/kg	18000	--	40
Benzo(a)anthracene	57000		ug/kg	18000	--	40
Benzo(a)pyrene	51000		ug/kg	18000	--	40
Benzo(b)fluoranthene	63000		ug/kg	18000	--	40
Benzo(k)fluoranthene	22000		ug/kg	18000	--	40

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-06 D Date Collected: 04/26/11 07:40

Client ID: TP-7 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	58000		ug/kg	18000	--	40
Acenaphthylene	ND		ug/kg	18000	--	40
Anthracene	18000		ug/kg	18000	--	40
Benzo(ghi)perylene	27000		ug/kg	18000	--	40
Fluorene	ND		ug/kg	18000	--	40
Phenanthrene	60000		ug/kg	18000	--	40
Dibenzo(a,h)anthracene	ND		ug/kg	11000	--	40
Indeno(1,2,3-cd)Pyrene	28000		ug/kg	18000	--	40
Pyrene	120000		ug/kg	18000	--	40
Aniline	ND		ug/kg	35000	--	40
4-Chloroaniline	ND		ug/kg	18000	--	40
Dibenzofuran	ND		ug/kg	18000	--	40
2-Methylnaphthalene	ND		ug/kg	18000	--	40
Acetophenone	ND		ug/kg	35000	--	40
2,4,6-Trichlorophenol	ND		ug/kg	18000	--	40
2-Chlorophenol	ND		ug/kg	21000	--	40
2,4-Dichlorophenol	ND		ug/kg	35000	--	40
2,4-Dimethylphenol	ND		ug/kg	18000	--	40
2-Nitrophenol	ND		ug/kg	71000	--	40
4-Nitrophenol	ND		ug/kg	35000	--	40
2,4-Dinitrophenol	ND		ug/kg	71000	--	40
Pentachlorophenol	ND		ug/kg	71000	--	40
Phenol	ND		ug/kg	25000	--	40
2-Methylphenol	ND		ug/kg	21000	--	40
3-Methylphenol/4-Methylphenol	ND		ug/kg	21000	--	40
2,4,5-Trichlorophenol	ND		ug/kg	18000	--	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**0**	Q	30-130
Phenol-d6	**0**	Q	30-130
Nitrobenzene-d5	**0**	Q	30-130
2-Fluorobiphenyl	**0**	Q	30-130
2,4,6-Tribromophenol	**0**	Q	30-130
4-Terphenyl-d14	**0**	Q	30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07	D2	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/05/11 11:09			
Analyst:	JB			
Percent Solids:	70%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Naphthalene	500000		ug/kg	24000	--	50
Phenanthrene	390000		ug/kg	24000	--	50
2-Methylnaphthalene	300000		ug/kg	24000	--	50

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07	D	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:25
Analytical Date:	05/05/11 09:11			
Analyst:	JB			
Percent Solids:	70%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	110000		ug/kg	4900	--	10
1,2,4-Trichlorobenzene	ND		ug/kg	4900	--	10
Hexachlorobenzene	ND		ug/kg	4900	--	10
Bis(2-chloroethyl)ether	ND		ug/kg	4900	--	10
2-Chloronaphthalene	ND		ug/kg	4900	--	10
1,2-Dichlorobenzene	ND		ug/kg	4900	--	10
1,3-Dichlorobenzene	ND		ug/kg	4900	--	10
1,4-Dichlorobenzene	ND		ug/kg	4900	--	10
3,3'-Dichlorobenzidine	ND		ug/kg	9800	--	10
2,4-Dinitrotoluene	ND		ug/kg	4900	--	10
2,6-Dinitrotoluene	ND		ug/kg	4900	--	10
Azobenzene	ND		ug/kg	4900	--	10
Fluoranthene	ND		ug/kg	4900	--	10
4-Bromophenyl phenyl ether	ND		ug/kg	4900	--	10
Bis(2-chloroisopropyl)ether	ND		ug/kg	4900	--	10
Bis(2-chloroethoxy)methane	ND		ug/kg	4900	--	10
Hexachlorobutadiene	ND		ug/kg	9800	--	10
Hexachloroethane	ND		ug/kg	4900	--	10
Isophorone	ND		ug/kg	4900	--	10
Naphthalene	270000	E	ug/kg	4900	--	10
Nitrobenzene	ND		ug/kg	4900	--	10
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	9800	--	10
Butyl benzyl phthalate	ND		ug/kg	4900	--	10
Di-n-butylphthalate	ND		ug/kg	4900	--	10
Di-n-octylphthalate	ND		ug/kg	4900	--	10
Diethyl phthalate	ND		ug/kg	4900	--	10
Dimethyl phthalate	ND		ug/kg	4900	--	10
Benzo(a)anthracene	60000		ug/kg	4900	--	10
Benzo(a)pyrene	64000		ug/kg	4900	--	10
Benzo(b)fluoranthene	44000		ug/kg	4900	--	10
Benzo(k)fluoranthene	14000		ug/kg	4900	--	10

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-07 D Date Collected: 04/26/11 09:00

Client ID: TP-6 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	54000		ug/kg	4900	--	10
Acenaphthylene	ND		ug/kg	4900	--	10
Anthracene	83000		ug/kg	4900	--	10
Benzo(ghi)perylene	35000		ug/kg	4900	--	10
Fluorene	76000		ug/kg	4900	--	10
Phenanthrene	240000	E	ug/kg	4900	--	10
Dibenzo(a,h)anthracene	6900		ug/kg	2900	--	10
Indeno(1,2,3-cd)Pyrene	25000		ug/kg	4900	--	10
Pyrene	150000		ug/kg	4900	--	10
Aniline	ND		ug/kg	9800	--	10
4-Chloroaniline	ND		ug/kg	4900	--	10
Dibenzofuran	ND		ug/kg	4900	--	10
2-Methylnaphthalene	230000	E	ug/kg	4900	--	10
Acetophenone	ND		ug/kg	9800	--	10
2,4,6-Trichlorophenol	ND		ug/kg	4900	--	10
2-Chlorophenol	ND		ug/kg	5800	--	10
2,4-Dichlorophenol	ND		ug/kg	9800	--	10
2,4-Dimethylphenol	ND		ug/kg	4900	--	10
2-Nitrophenol	ND		ug/kg	20000	--	10
4-Nitrophenol	ND		ug/kg	9800	--	10
2,4-Dinitrophenol	ND		ug/kg	20000	--	10
Pentachlorophenol	ND		ug/kg	20000	--	10
Phenol	ND		ug/kg	6800	--	10
2-Methylphenol	ND		ug/kg	5800	--	10
3-Methylphenol/4-Methylphenol	ND		ug/kg	5800	--	10
2,4,5-Trichlorophenol	ND		ug/kg	4900	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		30-130
Phenol-d6	69		30-130
Nitrobenzene-d5	80		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	91		30-130
4-Terphenyl-d14	104		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-08	Date Collected:	04/26/11 11:00
Client ID:	TP-8	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/04/11 12:59		
Analyst:	JB		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	380	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	380	--	1
Hexachlorobenzene	ND		ug/kg	380	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	380	--	1
2-Chloronaphthalene	ND		ug/kg	380	--	1
1,2-Dichlorobenzene	ND		ug/kg	380	--	1
1,3-Dichlorobenzene	ND		ug/kg	380	--	1
1,4-Dichlorobenzene	ND		ug/kg	380	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	750	--	1
2,4-Dinitrotoluene	ND		ug/kg	380	--	1
2,6-Dinitrotoluene	ND		ug/kg	380	--	1
Azobenzene	ND		ug/kg	380	--	1
Fluoranthene	ND		ug/kg	380	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	380	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	380	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	380	--	1
Hexachlorobutadiene	ND		ug/kg	750	--	1
Hexachloroethane	ND		ug/kg	380	--	1
Isophorone	ND		ug/kg	380	--	1
Naphthalene	ND		ug/kg	380	--	1
Nitrobenzene	ND		ug/kg	380	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	750	--	1
Butyl benzyl phthalate	ND		ug/kg	380	--	1
Di-n-butylphthalate	ND		ug/kg	380	--	1
Di-n-octylphthalate	ND		ug/kg	380	--	1
Diethyl phthalate	ND		ug/kg	380	--	1
Dimethyl phthalate	ND		ug/kg	380	--	1
Benzo(a)anthracene	ND		ug/kg	380	--	1
Benzo(a)pyrene	ND		ug/kg	380	--	1
Benzo(b)fluoranthene	ND		ug/kg	380	--	1
Benzo(k)fluoranthene	ND		ug/kg	380	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-08 Date Collected: 04/26/11 11:00

Client ID: TP-8 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	380	--	1
Acenaphthylene	ND		ug/kg	380	--	1
Anthracene	ND		ug/kg	380	--	1
Benzo(ghi)perylene	ND		ug/kg	380	--	1
Fluorene	ND		ug/kg	380	--	1
Phenanthrene	ND		ug/kg	380	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	230	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	380	--	1
Pyrene	ND		ug/kg	380	--	1
Aniline	ND		ug/kg	750	--	1
4-Chloroaniline	ND		ug/kg	380	--	1
Dibenzofuran	ND		ug/kg	380	--	1
2-Methylnaphthalene	ND		ug/kg	380	--	1
Acetophenone	ND		ug/kg	750	--	1
2,4,6-Trichlorophenol	ND		ug/kg	380	--	1
2-Chlorophenol	ND		ug/kg	450	--	1
2,4-Dichlorophenol	ND		ug/kg	750	--	1
2,4-Dimethylphenol	ND		ug/kg	380	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	750	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	530	--	1
2-Methylphenol	ND		ug/kg	450	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	450	--	1
2,4,5-Trichlorophenol	ND		ug/kg	380	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		30-130
Phenol-d6	63		30-130
Nitrobenzene-d5	60		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	80		30-130
4-Terphenyl-d14	82		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-09	Date Collected:	04/26/11 13:54
Client ID:	TP-9	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/04/11 13:25		
Analyst:	JB		
Percent Solids:	60%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	580	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	580	--	1
Hexachlorobenzene	ND		ug/kg	580	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	580	--	1
2-Chloronaphthalene	ND		ug/kg	580	--	1
1,2-Dichlorobenzene	ND		ug/kg	580	--	1
1,3-Dichlorobenzene	ND		ug/kg	580	--	1
1,4-Dichlorobenzene	ND		ug/kg	580	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	1200	--	1
2,4-Dinitrotoluene	ND		ug/kg	580	--	1
2,6-Dinitrotoluene	ND		ug/kg	580	--	1
Azobenzene	ND		ug/kg	580	--	1
Fluoranthene	ND		ug/kg	580	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	580	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	580	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	580	--	1
Hexachlorobutadiene	ND		ug/kg	1200	--	1
Hexachloroethane	ND		ug/kg	580	--	1
Isophorone	ND		ug/kg	580	--	1
Naphthalene	ND		ug/kg	580	--	1
Nitrobenzene	ND		ug/kg	580	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	1200	--	1
Butyl benzyl phthalate	ND		ug/kg	580	--	1
Di-n-butylphthalate	ND		ug/kg	580	--	1
Di-n-octylphthalate	ND		ug/kg	580	--	1
Diethyl phthalate	ND		ug/kg	580	--	1
Dimethyl phthalate	ND		ug/kg	580	--	1
Benzo(a)anthracene	ND		ug/kg	580	--	1
Benzo(a)pyrene	ND		ug/kg	580	--	1
Benzo(b)fluoranthene	ND		ug/kg	580	--	1
Benzo(k)fluoranthene	ND		ug/kg	580	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-09 Date Collected: 04/26/11 13:54

Client ID: TP-9 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	580	--	1
Acenaphthylene	ND		ug/kg	580	--	1
Anthracene	ND		ug/kg	580	--	1
Benzo(ghi)perylene	ND		ug/kg	580	--	1
Fluorene	ND		ug/kg	580	--	1
Phenanthrene	ND		ug/kg	580	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	350	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	580	--	1
Pyrene	ND		ug/kg	580	--	1
Aniline	ND		ug/kg	1200	--	1
4-Chloroaniline	ND		ug/kg	580	--	1
Dibenzofuran	ND		ug/kg	580	--	1
2-Methylnaphthalene	ND		ug/kg	580	--	1
Acetophenone	ND		ug/kg	1200	--	1
2,4,6-Trichlorophenol	ND		ug/kg	580	--	1
2-Chlorophenol	ND		ug/kg	700	--	1
2,4-Dichlorophenol	ND		ug/kg	1200	--	1
2,4-Dimethylphenol	ND		ug/kg	580	--	1
2-Nitrophenol	ND		ug/kg	2300	--	1
4-Nitrophenol	ND		ug/kg	1200	--	1
2,4-Dinitrophenol	ND		ug/kg	2300	--	1
Pentachlorophenol	ND		ug/kg	2300	--	1
Phenol	ND		ug/kg	820	--	1
2-Methylphenol	ND		ug/kg	700	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	700	--	1
2,4,5-Trichlorophenol	ND		ug/kg	580	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		30-130
Phenol-d6	76		30-130
Nitrobenzene-d5	74		30-130
2-Fluorobiphenyl	81		30-130
2,4,6-Tribromophenol	76		30-130
4-Terphenyl-d14	76		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-10	Date Collected:	04/26/11 15:20
Client ID:	TP-11	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/04/11 18:43		
Analyst:	JB		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	380	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	380	--	1
Hexachlorobenzene	ND		ug/kg	380	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	380	--	1
2-Chloronaphthalene	ND		ug/kg	380	--	1
1,2-Dichlorobenzene	ND		ug/kg	380	--	1
1,3-Dichlorobenzene	ND		ug/kg	380	--	1
1,4-Dichlorobenzene	ND		ug/kg	380	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	760	--	1
2,4-Dinitrotoluene	ND		ug/kg	380	--	1
2,6-Dinitrotoluene	ND		ug/kg	380	--	1
Azobenzene	ND		ug/kg	380	--	1
Fluoranthene	1100		ug/kg	380	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	380	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	380	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	380	--	1
Hexachlorobutadiene	ND		ug/kg	760	--	1
Hexachloroethane	ND		ug/kg	380	--	1
Isophorone	ND		ug/kg	380	--	1
Naphthalene	ND		ug/kg	380	--	1
Nitrobenzene	ND		ug/kg	380	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	760	--	1
Butyl benzyl phthalate	ND		ug/kg	380	--	1
Di-n-butylphthalate	ND		ug/kg	380	--	1
Di-n-octylphthalate	ND		ug/kg	380	--	1
Diethyl phthalate	ND		ug/kg	380	--	1
Dimethyl phthalate	ND		ug/kg	380	--	1
Benzo(a)anthracene	500		ug/kg	380	--	1
Benzo(a)pyrene	530		ug/kg	380	--	1
Benzo(b)fluoranthene	610		ug/kg	380	--	1
Benzo(k)fluoranthene	ND		ug/kg	380	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-10 Date Collected: 04/26/11 15:20

Client ID: TP-11 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	490		ug/kg	380	--	1
Acenaphthylene	ND		ug/kg	380	--	1
Anthracene	ND		ug/kg	380	--	1
Benzo(ghi)perylene	400		ug/kg	380	--	1
Fluorene	ND		ug/kg	380	--	1
Phenanthrene	ND		ug/kg	380	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	230	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	380	--	1
Pyrene	1100		ug/kg	380	--	1
Aniline	ND		ug/kg	760	--	1
4-Chloroaniline	ND		ug/kg	380	--	1
Dibenzofuran	ND		ug/kg	380	--	1
2-Methylnaphthalene	ND		ug/kg	380	--	1
Acetophenone	ND		ug/kg	760	--	1
2,4,6-Trichlorophenol	ND		ug/kg	380	--	1
2-Chlorophenol	ND		ug/kg	450	--	1
2,4-Dichlorophenol	ND		ug/kg	760	--	1
2,4-Dimethylphenol	ND		ug/kg	380	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	760	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	530	--	1
2-Methylphenol	ND		ug/kg	450	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	450	--	1
2,4,5-Trichlorophenol	ND		ug/kg	380	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		30-130
Phenol-d6	66		30-130
Nitrobenzene-d5	63		30-130
2-Fluorobiphenyl	70		30-130
2,4,6-Tribromophenol	75		30-130
4-Terphenyl-d14	80		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-11	Date Collected:	04/27/11 08:30
Client ID:	TP-10	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:25
Analytical Date:	05/04/11 19:08		
Analyst:	JB		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	380	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	380	--	1
Hexachlorobenzene	ND		ug/kg	380	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	380	--	1
2-Chloronaphthalene	ND		ug/kg	380	--	1
1,2-Dichlorobenzene	ND		ug/kg	380	--	1
1,3-Dichlorobenzene	ND		ug/kg	380	--	1
1,4-Dichlorobenzene	ND		ug/kg	380	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	750	--	1
2,4-Dinitrotoluene	ND		ug/kg	380	--	1
2,6-Dinitrotoluene	ND		ug/kg	380	--	1
Azobenzene	ND		ug/kg	380	--	1
Fluoranthene	740		ug/kg	380	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	380	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	380	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	380	--	1
Hexachlorobutadiene	ND		ug/kg	750	--	1
Hexachloroethane	ND		ug/kg	380	--	1
Isophorone	ND		ug/kg	380	--	1
Naphthalene	ND		ug/kg	380	--	1
Nitrobenzene	ND		ug/kg	380	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	750	--	1
Butyl benzyl phthalate	ND		ug/kg	380	--	1
Di-n-butylphthalate	ND		ug/kg	380	--	1
Di-n-octylphthalate	ND		ug/kg	380	--	1
Diethyl phthalate	ND		ug/kg	380	--	1
Dimethyl phthalate	ND		ug/kg	380	--	1
Benzo(a)anthracene	420		ug/kg	380	--	1
Benzo(a)pyrene	ND		ug/kg	380	--	1
Benzo(b)fluoranthene	ND		ug/kg	380	--	1
Benzo(k)fluoranthene	ND		ug/kg	380	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-11 Date Collected: 04/27/11 08:30

Client ID: TP-10 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	520		ug/kg	380	--	1
Acenaphthylene	ND		ug/kg	380	--	1
Anthracene	ND		ug/kg	380	--	1
Benzo(ghi)perylene	ND		ug/kg	380	--	1
Fluorene	ND		ug/kg	380	--	1
Phenanthrene	810		ug/kg	380	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	380	--	1
Pyrene	1000		ug/kg	380	--	1
Aniline	ND		ug/kg	750	--	1
4-Chloroaniline	ND		ug/kg	380	--	1
Dibenzofuran	ND		ug/kg	380	--	1
2-Methylnaphthalene	ND		ug/kg	380	--	1
Acetophenone	ND		ug/kg	750	--	1
2,4,6-Trichlorophenol	ND		ug/kg	380	--	1
2-Chlorophenol	ND		ug/kg	450	--	1
2,4-Dichlorophenol	ND		ug/kg	750	--	1
2,4-Dimethylphenol	ND		ug/kg	380	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	750	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	520	--	1
2-Methylphenol	ND		ug/kg	450	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	450	--	1
2,4,5-Trichlorophenol	ND		ug/kg	380	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		30-130
Phenol-d6	50		30-130
Nitrobenzene-d5	44		30-130
2-Fluorobiphenyl	55		30-130
2,4,6-Tribromophenol	73		30-130
4-Terphenyl-d14	69		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-12	Date Collected:	04/27/11 09:30
Client ID:	TP-12	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 12:33
Analytical Date:	05/04/11 19:34		
Analyst:	JB		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	430	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	430	--	1
Hexachlorobenzene	ND		ug/kg	430	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	430	--	1
2-Chloronaphthalene	ND		ug/kg	430	--	1
1,2-Dichlorobenzene	ND		ug/kg	430	--	1
1,3-Dichlorobenzene	ND		ug/kg	430	--	1
1,4-Dichlorobenzene	ND		ug/kg	430	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	870	--	1
2,4-Dinitrotoluene	ND		ug/kg	430	--	1
2,6-Dinitrotoluene	ND		ug/kg	430	--	1
Azobenzene	ND		ug/kg	430	--	1
Fluoranthene	960		ug/kg	430	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	430	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	430	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	430	--	1
Hexachlorobutadiene	ND		ug/kg	870	--	1
Hexachloroethane	ND		ug/kg	430	--	1
Isophorone	ND		ug/kg	430	--	1
Naphthalene	ND		ug/kg	430	--	1
Nitrobenzene	ND		ug/kg	430	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	870	--	1
Butyl benzyl phthalate	ND		ug/kg	430	--	1
Di-n-butylphthalate	ND		ug/kg	430	--	1
Di-n-octylphthalate	ND		ug/kg	430	--	1
Diethyl phthalate	ND		ug/kg	430	--	1
Dimethyl phthalate	ND		ug/kg	430	--	1
Benzo(a)anthracene	430		ug/kg	430	--	1
Benzo(a)pyrene	470		ug/kg	430	--	1
Benzo(b)fluoranthene	720		ug/kg	430	--	1
Benzo(k)fluoranthene	ND		ug/kg	430	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-12 Date Collected: 04/27/11 09:30

Client ID: TP-12 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	620		ug/kg	430	--	1
Acenaphthylene	ND		ug/kg	430	--	1
Anthracene	ND		ug/kg	430	--	1
Benzo(ghi)perylene	ND		ug/kg	430	--	1
Fluorene	ND		ug/kg	430	--	1
Phenanthrene	ND		ug/kg	430	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	260	--	1
Indeno(1,2,3-cd)Pyrene	430		ug/kg	430	--	1
Pyrene	880		ug/kg	430	--	1
Aniline	ND		ug/kg	870	--	1
4-Chloroaniline	ND		ug/kg	430	--	1
Dibenzofuran	ND		ug/kg	430	--	1
2-Methylnaphthalene	ND		ug/kg	430	--	1
Acetophenone	ND		ug/kg	870	--	1
2,4,6-Trichlorophenol	ND		ug/kg	430	--	1
2-Chlorophenol	ND		ug/kg	520	--	1
2,4-Dichlorophenol	ND		ug/kg	870	--	1
2,4-Dimethylphenol	ND		ug/kg	430	--	1
2-Nitrophenol	ND		ug/kg	1700	--	1
4-Nitrophenol	ND		ug/kg	870	--	1
2,4-Dinitrophenol	ND		ug/kg	1700	--	1
Pentachlorophenol	ND		ug/kg	1700	--	1
Phenol	ND		ug/kg	610	--	1
2-Methylphenol	ND		ug/kg	520	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	520	--	1
2,4,5-Trichlorophenol	ND		ug/kg	430	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		30-130
Phenol-d6	65		30-130
Nitrobenzene-d5	66		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	62		30-130
4-Terphenyl-d14	65		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-13	Date Collected:	04/27/11 11:00
Client ID:	TP-13A	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 02:04		
Analyst:	JB		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	430	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	430	--	1
Hexachlorobenzene	ND		ug/kg	430	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	430	--	1
2-Chloronaphthalene	ND		ug/kg	430	--	1
1,2-Dichlorobenzene	ND		ug/kg	430	--	1
1,3-Dichlorobenzene	ND		ug/kg	430	--	1
1,4-Dichlorobenzene	ND		ug/kg	430	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	860	--	1
2,4-Dinitrotoluene	ND		ug/kg	430	--	1
2,6-Dinitrotoluene	ND		ug/kg	430	--	1
Azobenzene	ND		ug/kg	430	--	1
Fluoranthene	910		ug/kg	430	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	430	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	430	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	430	--	1
Hexachlorobutadiene	ND		ug/kg	860	--	1
Hexachloroethane	ND		ug/kg	430	--	1
Isophorone	ND		ug/kg	430	--	1
Naphthalene	ND		ug/kg	430	--	1
Nitrobenzene	ND		ug/kg	430	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	860	--	1
Butyl benzyl phthalate	ND		ug/kg	430	--	1
Di-n-butylphthalate	ND		ug/kg	430	--	1
Di-n-octylphthalate	ND		ug/kg	430	--	1
Diethyl phthalate	ND		ug/kg	430	--	1
Dimethyl phthalate	ND		ug/kg	430	--	1
Benzo(a)anthracene	470		ug/kg	430	--	1
Benzo(a)pyrene	480		ug/kg	430	--	1
Benzo(b)fluoranthene	600		ug/kg	430	--	1
Benzo(k)fluoranthene	ND		ug/kg	430	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-13 Date Collected: 04/27/11 11:00

Client ID: TP-13A Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	490		ug/kg	430	--	1
Acenaphthylene	ND		ug/kg	430	--	1
Anthracene	ND		ug/kg	430	--	1
Benzo(ghi)perylene	ND		ug/kg	430	--	1
Fluorene	ND		ug/kg	430	--	1
Phenanthrene	530		ug/kg	430	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	260	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	430	--	1
Pyrene	900		ug/kg	430	--	1
Aniline	ND		ug/kg	860	--	1
4-Chloroaniline	ND		ug/kg	430	--	1
Dibenzofuran	ND		ug/kg	430	--	1
2-Methylnaphthalene	ND		ug/kg	430	--	1
Acetophenone	ND		ug/kg	860	--	1
2,4,6-Trichlorophenol	ND		ug/kg	430	--	1
2-Chlorophenol	ND		ug/kg	520	--	1
2,4-Dichlorophenol	ND		ug/kg	860	--	1
2,4-Dimethylphenol	ND		ug/kg	430	--	1
2-Nitrophenol	ND		ug/kg	1700	--	1
4-Nitrophenol	ND		ug/kg	860	--	1
2,4-Dinitrophenol	ND		ug/kg	1700	--	1
Pentachlorophenol	ND		ug/kg	1700	--	1
Phenol	ND		ug/kg	600	--	1
2-Methylphenol	ND		ug/kg	520	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	520	--	1
2,4,5-Trichlorophenol	ND		ug/kg	430	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	65		30-130
Phenol-d6	72		30-130
Nitrobenzene-d5	68		30-130
2-Fluorobiphenyl	55		30-130
2,4,6-Tribromophenol	83		30-130
4-Terphenyl-d14	51		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-14	Date Collected:	04/27/11 11:57
Client ID:	TP-14	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 02:28		
Analyst:	JB		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	370	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	370	--	1
Hexachlorobenzene	ND		ug/kg	370	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	370	--	1
2-Chloronaphthalene	ND		ug/kg	370	--	1
1,2-Dichlorobenzene	ND		ug/kg	370	--	1
1,3-Dichlorobenzene	ND		ug/kg	370	--	1
1,4-Dichlorobenzene	ND		ug/kg	370	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	740	--	1
2,4-Dinitrotoluene	ND		ug/kg	370	--	1
2,6-Dinitrotoluene	ND		ug/kg	370	--	1
Azobenzene	ND		ug/kg	370	--	1
Fluoranthene	720		ug/kg	370	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	370	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	370	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	370	--	1
Hexachlorobutadiene	ND		ug/kg	740	--	1
Hexachloroethane	ND		ug/kg	370	--	1
Isophorone	ND		ug/kg	370	--	1
Naphthalene	ND		ug/kg	370	--	1
Nitrobenzene	ND		ug/kg	370	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	740	--	1
Butyl benzyl phthalate	ND		ug/kg	370	--	1
Di-n-butylphthalate	ND		ug/kg	370	--	1
Di-n-octylphthalate	ND		ug/kg	370	--	1
Diethyl phthalate	ND		ug/kg	370	--	1
Dimethyl phthalate	ND		ug/kg	370	--	1
Benzo(a)anthracene	ND		ug/kg	370	--	1
Benzo(a)pyrene	ND		ug/kg	370	--	1
Benzo(b)fluoranthene	370		ug/kg	370	--	1
Benzo(k)fluoranthene	ND		ug/kg	370	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-14 Date Collected: 04/27/11 11:57

Client ID: TP-14 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	370	--	1
Acenaphthylene	ND		ug/kg	370	--	1
Anthracene	ND		ug/kg	370	--	1
Benzo(ghi)perylene	ND		ug/kg	370	--	1
Fluorene	ND		ug/kg	370	--	1
Phenanthrene	430		ug/kg	370	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	370	--	1
Pyrene	700		ug/kg	370	--	1
Aniline	ND		ug/kg	740	--	1
4-Chloroaniline	ND		ug/kg	370	--	1
Dibenzofuran	ND		ug/kg	370	--	1
2-Methylnaphthalene	ND		ug/kg	370	--	1
Acetophenone	ND		ug/kg	740	--	1
2,4,6-Trichlorophenol	ND		ug/kg	370	--	1
2-Chlorophenol	ND		ug/kg	440	--	1
2,4-Dichlorophenol	ND		ug/kg	740	--	1
2,4-Dimethylphenol	ND		ug/kg	370	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	740	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	520	--	1
2-Methylphenol	ND		ug/kg	440	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	440	--	1
2,4,5-Trichlorophenol	ND		ug/kg	370	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		30-130
Phenol-d6	62		30-130
Nitrobenzene-d5	63		30-130
2-Fluorobiphenyl	56		30-130
2,4,6-Tribromophenol	72		30-130
4-Terphenyl-d14	59		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-15	Date Collected:	04/27/11 13:30
Client ID:	TP-16	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 02:51		
Analyst:	JB		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	400	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	400	--	1
Hexachlorobenzene	ND		ug/kg	400	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	400	--	1
2-Chloronaphthalene	ND		ug/kg	400	--	1
1,2-Dichlorobenzene	ND		ug/kg	400	--	1
1,3-Dichlorobenzene	ND		ug/kg	400	--	1
1,4-Dichlorobenzene	ND		ug/kg	400	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	800	--	1
2,4-Dinitrotoluene	ND		ug/kg	400	--	1
2,6-Dinitrotoluene	ND		ug/kg	400	--	1
Azobenzene	ND		ug/kg	400	--	1
Fluoranthene	ND		ug/kg	400	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	400	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	400	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	400	--	1
Hexachlorobutadiene	ND		ug/kg	800	--	1
Hexachloroethane	ND		ug/kg	400	--	1
Isophorone	ND		ug/kg	400	--	1
Naphthalene	ND		ug/kg	400	--	1
Nitrobenzene	ND		ug/kg	400	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	800	--	1
Butyl benzyl phthalate	ND		ug/kg	400	--	1
Di-n-butylphthalate	ND		ug/kg	400	--	1
Di-n-octylphthalate	ND		ug/kg	400	--	1
Diethyl phthalate	ND		ug/kg	400	--	1
Dimethyl phthalate	ND		ug/kg	400	--	1
Benzo(a)anthracene	ND		ug/kg	400	--	1
Benzo(a)pyrene	ND		ug/kg	400	--	1
Benzo(b)fluoranthene	ND		ug/kg	400	--	1
Benzo(k)fluoranthene	ND		ug/kg	400	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-15 Date Collected: 04/27/11 13:30

Client ID: TP-16 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	400	--	1
Acenaphthylene	ND		ug/kg	400	--	1
Anthracene	ND		ug/kg	400	--	1
Benzo(ghi)perylene	ND		ug/kg	400	--	1
Fluorene	ND		ug/kg	400	--	1
Phenanthrene	ND		ug/kg	400	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	240	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	400	--	1
Pyrene	ND		ug/kg	400	--	1
Aniline	ND		ug/kg	800	--	1
4-Chloroaniline	ND		ug/kg	400	--	1
Dibenzofuran	ND		ug/kg	400	--	1
2-Methylnaphthalene	ND		ug/kg	400	--	1
Acetophenone	ND		ug/kg	800	--	1
2,4,6-Trichlorophenol	ND		ug/kg	400	--	1
2-Chlorophenol	ND		ug/kg	480	--	1
2,4-Dichlorophenol	ND		ug/kg	800	--	1
2,4-Dimethylphenol	ND		ug/kg	400	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	800	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	560	--	1
2-Methylphenol	ND		ug/kg	480	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	480	--	1
2,4,5-Trichlorophenol	ND		ug/kg	400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		30-130
Phenol-d6	68		30-130
Nitrobenzene-d5	70		30-130
2-Fluorobiphenyl	60		30-130
2,4,6-Tribromophenol	51		30-130
4-Terphenyl-d14	58		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-16	D	Date Collected:	04/27/11 14:45
Client ID:	TP-17		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 03:15			
Analyst:	JB			
Percent Solids:	81%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	790	--	2
1,2,4-Trichlorobenzene	ND		ug/kg	790	--	2
Hexachlorobenzene	ND		ug/kg	790	--	2
Bis(2-chloroethyl)ether	ND		ug/kg	790	--	2
2-Chloronaphthalene	ND		ug/kg	790	--	2
1,2-Dichlorobenzene	ND		ug/kg	790	--	2
1,3-Dichlorobenzene	ND		ug/kg	790	--	2
1,4-Dichlorobenzene	ND		ug/kg	790	--	2
3,3'-Dichlorobenzidine	ND		ug/kg	1600	--	2
2,4-Dinitrotoluene	ND		ug/kg	790	--	2
2,6-Dinitrotoluene	ND		ug/kg	790	--	2
Azobenzene	ND		ug/kg	790	--	2
Fluoranthene	8400		ug/kg	790	--	2
4-Bromophenyl phenyl ether	ND		ug/kg	790	--	2
Bis(2-chloroisopropyl)ether	ND		ug/kg	790	--	2
Bis(2-chloroethoxy)methane	ND		ug/kg	790	--	2
Hexachlorobutadiene	ND		ug/kg	1600	--	2
Hexachloroethane	ND		ug/kg	790	--	2
Isophorone	ND		ug/kg	790	--	2
Naphthalene	ND		ug/kg	790	--	2
Nitrobenzene	ND		ug/kg	790	--	2
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	1600	--	2
Butyl benzyl phthalate	ND		ug/kg	790	--	2
Di-n-butylphthalate	ND		ug/kg	790	--	2
Di-n-octylphthalate	ND		ug/kg	790	--	2
Diethyl phthalate	ND		ug/kg	790	--	2
Dimethyl phthalate	ND		ug/kg	790	--	2
Benzo(a)anthracene	3900		ug/kg	790	--	2
Benzo(a)pyrene	3800		ug/kg	790	--	2
Benzo(b)fluoranthene	4700		ug/kg	790	--	2
Benzo(k)fluoranthene	1900		ug/kg	790	--	2

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-16 D Date Collected: 04/27/11 14:45

Client ID: TP-17 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	3800		ug/kg	790	--	2
Acenaphthylene	ND		ug/kg	790	--	2
Anthracene	1400		ug/kg	790	--	2
Benzo(ghi)perylene	2400		ug/kg	790	--	2
Fluorene	ND		ug/kg	790	--	2
Phenanthrene	6100		ug/kg	790	--	2
Dibenzo(a,h)anthracene	600		ug/kg	470	--	2
Indeno(1,2,3-cd)Pyrene	2500		ug/kg	790	--	2
Pyrene	7500		ug/kg	790	--	2
Aniline	ND		ug/kg	1600	--	2
4-Chloroaniline	ND		ug/kg	790	--	2
Dibenzofuran	ND		ug/kg	790	--	2
2-Methylnaphthalene	ND		ug/kg	790	--	2
Acetophenone	ND		ug/kg	1600	--	2
2,4,6-Trichlorophenol	ND		ug/kg	790	--	2
2-Chlorophenol	ND		ug/kg	940	--	2
2,4-Dichlorophenol	ND		ug/kg	1600	--	2
2,4-Dimethylphenol	ND		ug/kg	790	--	2
2-Nitrophenol	ND		ug/kg	3200	--	2
4-Nitrophenol	ND		ug/kg	1600	--	2
2,4-Dinitrophenol	ND		ug/kg	3200	--	2
Pentachlorophenol	ND		ug/kg	3200	--	2
Phenol	ND		ug/kg	1100	--	2
2-Methylphenol	ND		ug/kg	940	--	2
3-Methylphenol/4-Methylphenol	ND		ug/kg	940	--	2
2,4,5-Trichlorophenol	ND		ug/kg	790	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		30-130
Phenol-d6	75		30-130
Nitrobenzene-d5	69		30-130
2-Fluorobiphenyl	65		30-130
2,4,6-Tribromophenol	88		30-130
4-Terphenyl-d14	61		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-17	Date Collected:	04/28/11 08:00
Client ID:	TP-13	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 03:38		
Analyst:	JB		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	430	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	430	--	1
Hexachlorobenzene	ND		ug/kg	430	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	430	--	1
2-Chloronaphthalene	ND		ug/kg	430	--	1
1,2-Dichlorobenzene	ND		ug/kg	430	--	1
1,3-Dichlorobenzene	ND		ug/kg	430	--	1
1,4-Dichlorobenzene	ND		ug/kg	430	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	860	--	1
2,4-Dinitrotoluene	ND		ug/kg	430	--	1
2,6-Dinitrotoluene	ND		ug/kg	430	--	1
Azobenzene	ND		ug/kg	430	--	1
Fluoranthene	ND		ug/kg	430	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	430	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	430	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	430	--	1
Hexachlorobutadiene	ND		ug/kg	860	--	1
Hexachloroethane	ND		ug/kg	430	--	1
Isophorone	ND		ug/kg	430	--	1
Naphthalene	ND		ug/kg	430	--	1
Nitrobenzene	ND		ug/kg	430	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	860	--	1
Butyl benzyl phthalate	ND		ug/kg	430	--	1
Di-n-butylphthalate	ND		ug/kg	430	--	1
Di-n-octylphthalate	ND		ug/kg	430	--	1
Diethyl phthalate	ND		ug/kg	430	--	1
Dimethyl phthalate	ND		ug/kg	430	--	1
Benzo(a)anthracene	ND		ug/kg	430	--	1
Benzo(a)pyrene	ND		ug/kg	430	--	1
Benzo(b)fluoranthene	ND		ug/kg	430	--	1
Benzo(k)fluoranthene	ND		ug/kg	430	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-17 Date Collected: 04/28/11 08:00

Client ID: TP-13 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	430	--	1
Acenaphthylene	ND		ug/kg	430	--	1
Anthracene	ND		ug/kg	430	--	1
Benzo(ghi)perylene	ND		ug/kg	430	--	1
Fluorene	ND		ug/kg	430	--	1
Phenanthrene	ND		ug/kg	430	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	260	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	430	--	1
Pyrene	ND		ug/kg	430	--	1
Aniline	ND		ug/kg	860	--	1
4-Chloroaniline	ND		ug/kg	430	--	1
Dibenzofuran	ND		ug/kg	430	--	1
2-Methylnaphthalene	ND		ug/kg	430	--	1
Acetophenone	ND		ug/kg	860	--	1
2,4,6-Trichlorophenol	ND		ug/kg	430	--	1
2-Chlorophenol	ND		ug/kg	520	--	1
2,4-Dichlorophenol	ND		ug/kg	860	--	1
2,4-Dimethylphenol	ND		ug/kg	430	--	1
2-Nitrophenol	ND		ug/kg	1700	--	1
4-Nitrophenol	ND		ug/kg	860	--	1
2,4-Dinitrophenol	ND		ug/kg	1700	--	1
Pentachlorophenol	ND		ug/kg	1700	--	1
Phenol	ND		ug/kg	600	--	1
2-Methylphenol	ND		ug/kg	520	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	520	--	1
2,4,5-Trichlorophenol	ND		ug/kg	430	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		30-130
Phenol-d6	65		30-130
Nitrobenzene-d5	65		30-130
2-Fluorobiphenyl	54		30-130
2,4,6-Tribromophenol	64		30-130
4-Terphenyl-d14	53		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-18	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 04:02		
Analyst:	JB		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	3600		ug/kg	360	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	360	--	1
Hexachlorobenzene	ND		ug/kg	360	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	360	--	1
2-Chloronaphthalene	ND		ug/kg	360	--	1
1,2-Dichlorobenzene	ND		ug/kg	360	--	1
1,3-Dichlorobenzene	ND		ug/kg	360	--	1
1,4-Dichlorobenzene	ND		ug/kg	360	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	720	--	1
2,4-Dinitrotoluene	ND		ug/kg	360	--	1
2,6-Dinitrotoluene	ND		ug/kg	360	--	1
Azobenzene	ND		ug/kg	360	--	1
Fluoranthene	5200		ug/kg	360	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	360	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	360	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	360	--	1
Hexachlorobutadiene	ND		ug/kg	720	--	1
Hexachloroethane	ND		ug/kg	360	--	1
Isophorone	ND		ug/kg	360	--	1
Naphthalene	2000		ug/kg	360	--	1
Nitrobenzene	ND		ug/kg	360	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	720	--	1
Butyl benzyl phthalate	ND		ug/kg	360	--	1
Di-n-butylphthalate	ND		ug/kg	360	--	1
Di-n-octylphthalate	ND		ug/kg	360	--	1
Diethyl phthalate	ND		ug/kg	360	--	1
Dimethyl phthalate	ND		ug/kg	360	--	1
Benzo(a)anthracene	3300		ug/kg	360	--	1
Benzo(a)pyrene	3100		ug/kg	360	--	1
Benzo(b)fluoranthene	2600		ug/kg	360	--	1
Benzo(k)fluoranthene	730		ug/kg	360	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-18 Date Collected: 04/25/11 00:00

Client ID: DUPLICATE 1 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	3000		ug/kg	360	--	1
Acenaphthylene	ND		ug/kg	360	--	1
Anthracene	3600		ug/kg	360	--	1
Benzo(ghi)perylene	1800		ug/kg	360	--	1
Fluorene	3200		ug/kg	360	--	1
Phenanthrene	14000		ug/kg	360	--	1
Dibenzo(a,h)anthracene	390		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	1300		ug/kg	360	--	1
Pyrene	9500		ug/kg	360	--	1
Aniline	ND		ug/kg	720	--	1
4-Chloroaniline	ND		ug/kg	360	--	1
Dibenzofuran	ND		ug/kg	360	--	1
2-Methylnaphthalene	6800		ug/kg	360	--	1
Acetophenone	ND		ug/kg	720	--	1
2,4,6-Trichlorophenol	ND		ug/kg	360	--	1
2-Chlorophenol	ND		ug/kg	440	--	1
2,4-Dichlorophenol	ND		ug/kg	720	--	1
2,4-Dimethylphenol	ND		ug/kg	360	--	1
2-Nitrophenol	ND		ug/kg	1400	--	1
4-Nitrophenol	ND		ug/kg	720	--	1
2,4-Dinitrophenol	ND		ug/kg	1400	--	1
Pentachlorophenol	ND		ug/kg	1400	--	1
Phenol	ND		ug/kg	510	--	1
2-Methylphenol	ND		ug/kg	440	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	440	--	1
2,4,5-Trichlorophenol	ND		ug/kg	360	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		30-130
Phenol-d6	61		30-130
Nitrobenzene-d5	58		30-130
2-Fluorobiphenyl	58		30-130
2,4,6-Tribromophenol	64		30-130
4-Terphenyl-d14	72		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	04/30/11 10:29
Analytical Date:	05/03/11 04:25		
Analyst:	JB		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	870		ug/kg	410	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	410	--	1
Hexachlorobenzene	ND		ug/kg	410	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	410	--	1
2-Chloronaphthalene	ND		ug/kg	410	--	1
1,2-Dichlorobenzene	ND		ug/kg	410	--	1
1,3-Dichlorobenzene	ND		ug/kg	410	--	1
1,4-Dichlorobenzene	ND		ug/kg	410	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	830	--	1
2,4-Dinitrotoluene	ND		ug/kg	410	--	1
2,6-Dinitrotoluene	ND		ug/kg	410	--	1
Azobenzene	ND		ug/kg	410	--	1
Fluoranthene	980		ug/kg	410	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	410	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	410	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	410	--	1
Hexachlorobutadiene	ND		ug/kg	830	--	1
Hexachloroethane	ND		ug/kg	410	--	1
Isophorone	ND		ug/kg	410	--	1
Naphthalene	3900		ug/kg	410	--	1
Nitrobenzene	ND		ug/kg	410	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	830	--	1
Butyl benzyl phthalate	ND		ug/kg	410	--	1
Di-n-butylphthalate	ND		ug/kg	410	--	1
Di-n-octylphthalate	ND		ug/kg	410	--	1
Diethyl phthalate	ND		ug/kg	410	--	1
Dimethyl phthalate	ND		ug/kg	410	--	1
Benzo(a)anthracene	690		ug/kg	410	--	1
Benzo(a)pyrene	770		ug/kg	410	--	1
Benzo(b)fluoranthene	680		ug/kg	410	--	1
Benzo(k)fluoranthene	ND		ug/kg	410	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-19 Date Collected: 04/26/11 00:00

Client ID: DUPLICATE 2 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	700		ug/kg	410	--	1
Acenaphthylene	410		ug/kg	410	--	1
Anthracene	560		ug/kg	410	--	1
Benzo(ghi)perylene	580		ug/kg	410	--	1
Fluorene	520		ug/kg	410	--	1
Phenanthrene	3200		ug/kg	410	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	250	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	410	--	1
Pyrene	1900		ug/kg	410	--	1
Aniline	ND		ug/kg	830	--	1
4-Chloroaniline	ND		ug/kg	410	--	1
Dibenzofuran	ND		ug/kg	410	--	1
2-Methylnaphthalene	1900		ug/kg	410	--	1
Acetophenone	ND		ug/kg	830	--	1
2,4,6-Trichlorophenol	ND		ug/kg	410	--	1
2-Chlorophenol	ND		ug/kg	500	--	1
2,4-Dichlorophenol	ND		ug/kg	830	--	1
2,4-Dimethylphenol	ND		ug/kg	410	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	830	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	580	--	1
2-Methylphenol	ND		ug/kg	500	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	500	--	1
2,4,5-Trichlorophenol	ND		ug/kg	410	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		30-130
Phenol-d6	54		30-130
Nitrobenzene-d5	51		30-130
2-Fluorobiphenyl	43		30-130
2,4,6-Tribromophenol	70		30-130
4-Terphenyl-d14	60		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/03/11 08:32
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-12 Batch: WG465512-1					
Acenaphthene	ND		ug/kg	320	--
1,2,4-Trichlorobenzene	ND		ug/kg	320	--
Hexachlorobenzene	ND		ug/kg	320	--
Bis(2-chloroethyl)ether	ND		ug/kg	320	--
2-Chloronaphthalene	ND		ug/kg	320	--
1,2-Dichlorobenzene	ND		ug/kg	320	--
1,3-Dichlorobenzene	ND		ug/kg	320	--
1,4-Dichlorobenzene	ND		ug/kg	320	--
3,3'-Dichlorobenzidine	ND		ug/kg	640	--
2,4-Dinitrotoluene	ND		ug/kg	320	--
2,6-Dinitrotoluene	ND		ug/kg	320	--
Azobenzene	ND		ug/kg	320	--
Fluoranthene	ND		ug/kg	320	--
4-Bromophenyl phenyl ether	ND		ug/kg	320	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	320	--
Bis(2-chloroethoxy)methane	ND		ug/kg	320	--
Hexachlorobutadiene	ND		ug/kg	640	--
Hexachloroethane	ND		ug/kg	320	--
Isophorone	ND		ug/kg	320	--
Naphthalene	ND		ug/kg	320	--
Nitrobenzene	ND		ug/kg	320	--
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	640	--
Butyl benzyl phthalate	ND		ug/kg	320	--
Di-n-butylphthalate	ND		ug/kg	320	--
Di-n-octylphthalate	ND		ug/kg	320	--
Diethyl phthalate	ND		ug/kg	320	--
Dimethyl phthalate	ND		ug/kg	320	--
Benzo(a)anthracene	ND		ug/kg	320	--
Benzo(a)pyrene	ND		ug/kg	320	--
Benzo(b)fluoranthene	ND		ug/kg	320	--
Benzo(k)fluoranthene	ND		ug/kg	320	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/03/11 08:32
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-12 Batch: WG465512-1					
Chrysene	ND		ug/kg	320	--
Acenaphthylene	ND		ug/kg	320	--
Anthracene	ND		ug/kg	320	--
Benzo(ghi)perylene	ND		ug/kg	320	--
Fluorene	ND		ug/kg	320	--
Phenanthrene	ND		ug/kg	320	--
Dibenzo(a,h)anthracene	ND		ug/kg	190	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	320	--
Pyrene	ND		ug/kg	320	--
Aniline	ND		ug/kg	640	--
4-Chloroaniline	ND		ug/kg	320	--
Dibenzofuran	ND		ug/kg	320	--
2-Methylnaphthalene	ND		ug/kg	320	--
Acetophenone	ND		ug/kg	640	--
2,4,6-Trichlorophenol	ND		ug/kg	320	--
2-Chlorophenol	ND		ug/kg	380	--
2,4-Dichlorophenol	ND		ug/kg	640	--
2,4-Dimethylphenol	ND		ug/kg	320	--
2-Nitrophenol	ND		ug/kg	1300	--
4-Nitrophenol	ND		ug/kg	640	--
2,4-Dinitrophenol	ND		ug/kg	1300	--
Pentachlorophenol	ND		ug/kg	1300	--
Phenol	ND		ug/kg	450	--
2-Methylphenol	ND		ug/kg	380	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	380	--
2,4,5-Trichlorophenol	ND		ug/kg	320	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/03/11 08:32
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-12 Batch: WG465512-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		30-130
Phenol-d6	53		30-130
Nitrobenzene-d5	47		30-130
2-Fluorobiphenyl	55		30-130
2,4,6-Tribromophenol	69		30-130
4-Terphenyl-d14	91		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/02/11 21:21
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:29

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 13-19 Batch: WG465513-1					
Acenaphthene	ND		ug/kg	330	--
1,2,4-Trichlorobenzene	ND		ug/kg	330	--
Hexachlorobenzene	ND		ug/kg	330	--
Bis(2-chloroethyl)ether	ND		ug/kg	330	--
2-Chloronaphthalene	ND		ug/kg	330	--
1,2-Dichlorobenzene	ND		ug/kg	330	--
1,3-Dichlorobenzene	ND		ug/kg	330	--
1,4-Dichlorobenzene	ND		ug/kg	330	--
3,3'-Dichlorobenzidine	ND		ug/kg	660	--
2,4-Dinitrotoluene	ND		ug/kg	330	--
2,6-Dinitrotoluene	ND		ug/kg	330	--
Azobenzene	ND		ug/kg	330	--
Fluoranthene	ND		ug/kg	330	--
4-Bromophenyl phenyl ether	ND		ug/kg	330	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	330	--
Bis(2-chloroethoxy)methane	ND		ug/kg	330	--
Hexachlorobutadiene	ND		ug/kg	660	--
Hexachloroethane	ND		ug/kg	330	--
Isophorone	ND		ug/kg	330	--
Naphthalene	ND		ug/kg	330	--
Nitrobenzene	ND		ug/kg	330	--
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	660	--
Butyl benzyl phthalate	ND		ug/kg	330	--
Di-n-butylphthalate	ND		ug/kg	330	--
Di-n-octylphthalate	ND		ug/kg	330	--
Diethyl phthalate	ND		ug/kg	330	--
Dimethyl phthalate	ND		ug/kg	330	--
Benzo(a)anthracene	ND		ug/kg	330	--
Benzo(a)pyrene	ND		ug/kg	330	--
Benzo(b)fluoranthene	ND		ug/kg	330	--
Benzo(k)fluoranthene	ND		ug/kg	330	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/02/11 21:21
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:29

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 13-19 Batch: WG465513-1					
Chrysene	ND		ug/kg	330	--
Acenaphthylene	ND		ug/kg	330	--
Anthracene	ND		ug/kg	330	--
Benzo(ghi)perylene	ND		ug/kg	330	--
Fluorene	ND		ug/kg	330	--
Phenanthrene	ND		ug/kg	330	--
Dibenzo(a,h)anthracene	ND		ug/kg	200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	330	--
Pyrene	ND		ug/kg	330	--
Aniline	ND		ug/kg	660	--
4-Chloroaniline	ND		ug/kg	330	--
Dibenzofuran	ND		ug/kg	330	--
2-Methylnaphthalene	ND		ug/kg	330	--
Acetophenone	ND		ug/kg	660	--
2,4,6-Trichlorophenol	ND		ug/kg	330	--
2-Chlorophenol	ND		ug/kg	400	--
2,4-Dichlorophenol	ND		ug/kg	660	--
2,4-Dimethylphenol	ND		ug/kg	330	--
2-Nitrophenol	ND		ug/kg	1300	--
4-Nitrophenol	ND		ug/kg	660	--
2,4-Dinitrophenol	ND		ug/kg	1300	--
Pentachlorophenol	ND		ug/kg	1300	--
Phenol	ND		ug/kg	470	--
2-Methylphenol	ND		ug/kg	400	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	400	--
2,4,5-Trichlorophenol	ND		ug/kg	330	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/02/11 21:21
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 04/30/11 10:29

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 13-19 Batch: WG465513-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		30-130
Phenol-d6	52		30-130
Nitrobenzene-d5	49		30-130
2-Fluorobiphenyl	52		30-130
2,4,6-Tribromophenol	61		30-130
4-Terphenyl-d14	64		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-12 Batch: WG465512-2 WG465512-3								
Acenaphthene	67		62		40-140	8		30
1,2,4-Trichlorobenzene	70		53		40-140	28		30
Hexachlorobenzene	82		80		40-140	2		30
Bis(2-chloroethyl)ether	62		52		40-140	18		30
2-Chloronaphthalene	113		76		40-140	**39**	Q	30
1,2-Dichlorobenzene	76		55		40-140	**32**	Q	30
1,3-Dichlorobenzene	65		52		40-140	22		30
1,4-Dichlorobenzene	71		52		40-140	**31**	Q	30
3,3'-Dichlorobenzidine	67		56		40-140	18		30
2,4-Dinitrotoluene	83		86		40-140	4		30
2,6-Dinitrotoluene	111		84		40-140	28		30
Azobenzene	71		67		40-140	6		30
Fluoranthene	79		81		40-140	3		30
4-Bromophenyl phenyl ether	84		81		40-140	4		30
Bis(2-chloroisopropyl)ether	69		54		40-140	24		30
Bis(2-chloroethoxy)methane	71		56		40-140	24		30
Hexachlorobutadiene	82		60		40-140	**31**	Q	30
Hexachloroethane	69		53		40-140	26		30
Isophorone	76		59		40-140	25		30
Naphthalene	72		58		40-140	22		30
Nitrobenzene	80		58		40-140	**32**	Q	30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-12 Batch: WG465512-2 WG465512-3								
Bis(2-Ethylhexyl)phthalate	72		77		40-140	7		30
Butyl benzyl phthalate	83		86		40-140	4		30
Di-n-butylphthalate	82		88		40-140	7		30
Di-n-octylphthalate	84		81		40-140	4		30
Diethyl phthalate	77		77		40-140	0		30
Dimethyl phthalate	82		78		40-140	5		30
Benzo(a)anthracene	73		74		40-140	1		30
Benzo(a)pyrene	70		69		40-140	1		30
Benzo(b)fluoranthene	80		78		40-140	3		30
Benzo(k)fluoranthene	76		77		40-140	1		30
Chrysene	74		77		40-140	4		30
Acenaphthylene	99		70		40-140	**34**	Q	30
Anthracene	74		76		40-140	3		30
Benzo(ghi)perylene	64		78		40-140	20		30
Fluorene	73		69		40-140	6		30
Phenanthrene	80		82		40-140	2		30
Dibenzo(a,h)anthracene	62		82		40-140	28		30
Indeno(1,2,3-cd)Pyrene	63		82		40-140	26		30
Pyrene	77		82		40-140	6		30
Aniline	**39**	Q	**32**	Q	40-140	20		30
4-Chloroaniline	56		40		40-140	**33**	Q	30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-12 Batch: WG465512-2 WG465512-3								
Dibenzofuran	72		69		40-140	4		30
2-Methylnaphthalene	90		59		40-140	**42**	Q	30
Acetophenone	92		67		40-140	**31**	Q	30
2,4,6-Trichlorophenol	110		83		30-130	28		30
2-Chlorophenol	72		61		30-130	17		30
2,4-Dichlorophenol	92		68		30-130	30		30
2,4-Dimethylphenol	85		68		30-130	22		30
2-Nitrophenol	84		62		30-130	30		30
4-Nitrophenol	87		90		30-130	3		30
2,4-Dinitrophenol	54		53		30-130	2		30
Pentachlorophenol	72		86		30-130	18		30
Phenol	66		60		30-130	10		30
2-Methylphenol	86		62		30-130	**32**	Q	30
3-Methylphenol/4-Methylphenol	83		62		30-130	29		30
2,4,5-Trichlorophenol	110		89		30-130	21		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-12 Batch: WG465512-2 WG465512-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	73		60		30-130
Phenol-d6	69		63		30-130
Nitrobenzene-d5	80		59		30-130
2-Fluorobiphenyl	98		64		30-130
2,4,6-Tribromophenol	76		85		30-130
4-Terphenyl-d14	82		84		30-130

MCP Semivolatile Organics - Westborough Lab Associated sample(s): 13-19 Batch: WG465513-2 WG465513-3								
Acenaphthene	70		75		40-140	7		30
1,2,4-Trichlorobenzene	65		72		40-140	10		30
Hexachlorobenzene	74		80		40-140	8		30
Bis(2-chloroethyl)ether	65		74		40-140	13		30
2-Chloronaphthalene	82		88		40-140	7		30
1,2-Dichlorobenzene	65		75		40-140	14		30
1,3-Dichlorobenzene	64		73		40-140	13		30
1,4-Dichlorobenzene	66		73		40-140	10		30
3,3'-Dichlorobenzidine	50		58		40-140	15		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 13-19 Batch: WG465513-2 WG465513-3								
2,4-Dinitrotoluene	89		94		40-140	5		30
2,6-Dinitrotoluene	74		79		40-140	7		30
Azobenzene	74		79		40-140	7		30
Fluoranthene	81		87		40-140	7		30
4-Bromophenyl phenyl ether	80		83		40-140	4		30
Bis(2-chloroisopropyl)ether	61		72		40-140	17		30
Bis(2-chloroethoxy)methane	64		72		40-140	12		30
Hexachlorobutadiene	76		84		40-140	10		30
Hexachloroethane	67		78		40-140	15		30
Isophorone	65		75		40-140	14		30
Naphthalene	68		74		40-140	8		30
Nitrobenzene	73		81		40-140	10		30
Bis(2-Ethylhexyl)phthalate	101		110		40-140	9		30
Butyl benzyl phthalate	106		114		40-140	7		30
Di-n-butylphthalate	96		102		40-140	6		30
Di-n-octylphthalate	92		100		40-140	8		30
Diethyl phthalate	82		88		40-140	7		30
Dimethyl phthalate	81		85		40-140	5		30
Benzo(a)anthracene	75		83		40-140	10		30
Benzo(a)pyrene	72		78		40-140	8		30
Benzo(b)fluoranthene	85		92		40-140	8		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 13-19 Batch: WG465513-2 WG465513-3								
Benzo(k)fluoranthene	78		85		40-140	9		30
Chrysene	74		80		40-140	8		30
Acenaphthylene	72		76		40-140	5		30
Anthracene	77		83		40-140	8		30
Benzo(ghi)perylene	80		89		40-140	11		30
Fluorene	74		78		40-140	5		30
Phenanthrene	81		88		40-140	8		30
Dibenzo(a,h)anthracene	83		91		40-140	9		30
Indeno(1,2,3-cd)Pyrene	81		90		40-140	11		30
Pyrene	78		85		40-140	9		30
Aniline	**28**	Q	**34**	Q	40-140	19		30
4-Chloroaniline	**39**	Q	45		40-140	14		30
Dibenzofuran	82		86		40-140	5		30
2-Methylnaphthalene	65		73		40-140	12		30
Acetophenone	76		87		40-140	13		30
2,4,6-Trichlorophenol	77		83		30-130	8		30
2-Chlorophenol	71		80		30-130	12		30
2,4-Dichlorophenol	77		83		30-130	8		30
2,4-Dimethylphenol	70		80		30-130	13		30
2-Nitrophenol	69		81		30-130	16		30
4-Nitrophenol	93		99		30-130	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 13-19 Batch: WG465513-2 WG465513-3								
2,4-Dinitrophenol	48		55		30-130	14		30
Pentachlorophenol	80		86		30-130	7		30
Phenol	69		76		30-130	10		30
2-Methylphenol	70		78		30-130	11		30
3-Methylphenol/4-Methylphenol	68		76		30-130	11		30
2,4,5-Trichlorophenol	78		86		30-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	71		81		30-130
Phenol-d6	72		80		30-130
Nitrobenzene-d5	68		78		30-130
2-Fluorobiphenyl	70		75		30-130
2,4,6-Tribromophenol	82		90		30-130
4-Terphenyl-d14	81		87		30-130

PETROLEUM HYDROCARBONS

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-01	Date Collected:	04/25/11 07:30
Client ID:	TP-1	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 12:17
Analytical Date:	05/04/11 17:49		
Analyst:	KG		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	48400		ug/kg	38800	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	56		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-02	D	Date Collected:	04/25/11 11:15
Client ID:	TP-2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)		Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 13:53			
Analyst:	MW			
Percent Solids:	85%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	2180000		ug/kg	192000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	76		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-03	Date Collected:	04/25/11 12:35
Client ID:	TP-5	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 06:26		
Analyst:	MW		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	253000		ug/kg	78500	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	73		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-04	Date Collected:	04/25/11 13:00
Client ID:	TP-4	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 07:00		
Analyst:	MW		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	524000		ug/kg	40700	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	76		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-05	Date Collected:	04/25/11 13:47
Client ID:	TP-3	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 04:45		
Analyst:	MW		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	449000		ug/kg	36200	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	75		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-06	D	Date Collected:	04/26/11 07:40
Client ID:	TP-7		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)		Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 17:49			
Analyst:	MW			
Percent Solids:	78%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	1730000		ug/kg	421000	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	66		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07	D	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)		Extraction Date:	05/03/11 06:14
Analytical Date:	05/05/11 11:10			
Analyst:	MW			
Percent Solids:	70%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	5900000		ug/kg	463000	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	67		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-08	Date Collected:	04/26/11 11:00
Client ID:	TP-8	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 00:51		
Analyst:	MW		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	36500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	80		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-09	Date Collected:	04/26/11 13:54
Client ID:	TP-9	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 01:24		
Analyst:	MW		
Percent Solids:	60%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	52900	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-10	Date Collected:	04/26/11 15:20
Client ID:	TP-11	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 05:19		
Analyst:	MW		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	134000		ug/kg	35300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	72		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-11	Date Collected:	04/27/11 08:30
Client ID:	TP-10	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 02:31		
Analyst:	MW		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	59100		ug/kg	37000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	80		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-12	Date Collected:	04/27/11 09:30
Client ID:	TP-12	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 06:14
Analytical Date:	05/04/11 03:38		
Analyst:	MW		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	124000		ug/kg	40400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-13	Date Collected:	04/27/11 11:00
Client ID:	TP-13A	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 08:57
Analytical Date:	05/04/11 05:52		
Analyst:	MW		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	247000		ug/kg	39100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	77		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-14	Date Collected:	04/27/11 11:57
Client ID:	TP-14	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 08:57
Analytical Date:	05/04/11 03:05		
Analyst:	MW		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	37200	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	82		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-15	Date Collected:	04/27/11 13:30
Client ID:	TP-16	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 08:57
Analytical Date:	05/04/11 01:58		
Analyst:	MW		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	38800	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-16	Date Collected:	04/27/11 14:45
Client ID:	TP-17	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 08:57
Analytical Date:	05/04/11 08:07		
Analyst:	MW		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	365000		ug/kg	39500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	71		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-17	Date Collected:	04/28/11 08:00
Client ID:	TP-13	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/03/11 08:57
Analytical Date:	05/04/11 04:12		
Analyst:	MW		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	45400		ug/kg	40300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	77		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-18	D	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)		Extraction Date:	05/01/11 03:15
Analytical Date:	05/04/11 16:41			
Analyst:	KG			
Percent Solids:	88%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	630000		ug/kg	178000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	67		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	D	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)		Extraction Date:	05/01/11 03:15
Analytical Date:	05/05/11 14:54			
Analyst:	KG			
Percent Solids:	79%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	613000		ug/kg	200000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	79		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 05/02/11 16:42
Analyst: KG

Extraction Method: EPA 3546
Extraction Date: 05/01/11 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 18-19 Batch: WG465572-1					
TPH	ND		ug/kg	33300	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 05/03/11 23:10
Analyst: MW

Extraction Method: EPA 3546
Extraction Date: 05/03/11 06:14

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 02-17 Batch: WG465819-1					
TPH	ND		ug/kg	33300	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	97		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 05/04/11 14:40
Analyst: KG

Extraction Method: EPA 3546
Extraction Date: 05/03/11 12:17

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 01 Batch: WG465906-1					
TPH	ND		ug/kg	33900	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 18-19 Batch: WG465572-2								
TPH	62		-		40-140	-		

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	76				40-140

Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 02-17 Batch: WG465819-2								
TPH	64		-		40-140	-		

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	70				40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01 Batch: WG465906-2								
TPH	81		-		40-140	-		

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	80				40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 18-19 QC Batch ID: WG465572-3 QC Sample: L1105817-18 Client ID: DUPLICATE 1						
TPH	630000	713000	ug/kg	12		40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	67		70		40-140

Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 02-17 QC Batch ID: WG465819-4 QC Sample: L1105817-08 Client ID: TP-8						
TPH	ND		ND	ug/kg	NC	40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	80		68		40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01 QC Batch ID: WG465906-3 QC Sample: L1105817-01 Client ID: TP-1					
TPH	48400	ND	ug/kg	NC	40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	56		65		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-05	Date Collected:	04/25/11 13:47
Client ID:	TP-3	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	04/29/11 10:59
Analytical Date:	05/03/11 02:47	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	05/02/11
Percent Solids:	88%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	37.9		mg/kg	7.90	--	1
C19-C36 Aliphatics	15.4		mg/kg	7.90	--	1
C11-C22 Aromatics	244		mg/kg	7.90	--	1
C11-C22 Aromatics, Adjusted	195		mg/kg	7.90	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	79		40-140
o-Terphenyl	**143**	Q	40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	72		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-05 D	Date Collected:	04/25/11 13:47
Client ID:	TP-3	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	05/03/11 21:14		
Analyst:	TB		
Percent Solids:	88%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1:1.6

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	21.8	--	10
C9-C12 Aliphatics	85.4		mg/kg	21.8	--	10
C9-C10 Aromatics	55.2		mg/kg	21.8	--	10
C5-C8 Aliphatics, Adjusted	ND		mg/kg	21.8	--	10
C9-C12 Aliphatics, Adjusted	30.2		mg/kg	21.8	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	**161**	Q	70-130
2,5-Dibromotoluene-FID	**189**	Q	70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07 D	Date Collected:	04/26/11 09:00
Client ID:	TP-6	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	05/04/11 01:29		
Analyst:	TB		
Percent Solids:	70%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1:1.4

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	153	--	40
C9-C12 Aliphatics	342		mg/kg	153	--	40
C9-C10 Aromatics	239		mg/kg	153	--	40
C5-C8 Aliphatics, Adjusted	ND		mg/kg	153	--	40
C9-C12 Aliphatics, Adjusted	ND		mg/kg	153	--	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	0	Q	70-130
2,5-Dibromotoluene-FID	0	Q	70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-07	D	Date Collected:	04/26/11 09:00
Client ID:	TP-6		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	05/06/11 12:49
Analytical Date:	05/09/11 13:24		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	05/07/11
Percent Solids:	70%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	76.0		mg/kg	47.3	--	5
C19-C36 Aliphatics	ND		mg/kg	47.3	--	5
C11-C22 Aromatics	2490		mg/kg	47.3	--	5
C11-C22 Aromatics, Adjusted	1750		mg/kg	47.3	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	83		40-140
o-Terphenyl	**295**	Q	40-140
2-Fluorobiphenyl	131		40-140
2-Bromonaphthalene	125		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-18	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1	Date Received:	04/28/11
Sample Location:	NEW BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	04/29/11 10:59
Analytical Date:	05/03/11 02:16	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	05/02/11
Percent Solids:	88%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	86.5		mg/kg	7.16	--	1
C19-C36 Aliphatics	28.6		mg/kg	7.16	--	1
C11-C22 Aromatics	630		mg/kg	7.16	--	1
C11-C22 Aromatics, Adjusted	493		mg/kg	7.16	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	**288**	Q	40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	85		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-18	D	Date Collected:	04/25/11 00:00
Client ID:	DUPLICATE 1		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	100,VPH-04-1.1			
Analytical Date:	05/05/11 00:58			
Analyst:	TT			
Percent Solids:	88%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1:1.8

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	34.8		mg/kg	10.3	--	5
C9-C12 Aliphatics	205		mg/kg	10.3	--	5
C9-C10 Aromatics	67.9		mg/kg	10.3	--	5
C5-C8 Aliphatics, Adjusted	29.4		mg/kg	10.3	--	5
C9-C12 Aliphatics, Adjusted	103		mg/kg	10.3	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	125		70-130
2,5-Dibromotoluene-FID	**144**	Q	70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	D	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	100,VPH-04-1.1			
Analytical Date:	05/03/11 22:56			
Analyst:	TB			
Percent Solids:	79%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	46.2	--	10
C9-C12 Aliphatics	131		mg/kg	46.2	--	10
C9-C10 Aromatics	90.7		mg/kg	46.2	--	10
C5-C8 Aliphatics, Adjusted	ND		mg/kg	46.2	--	10
C9-C12 Aliphatics, Adjusted	ND		mg/kg	46.2	--	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	107		70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID:	L1105817-19	D	Date Collected:	04/26/11 00:00
Client ID:	DUPLICATE 2		Date Received:	04/28/11
Sample Location:	NEW BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	04/29/11 10:59
Analytical Date:	05/03/11 16:41		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	05/02/11
Percent Solids:	79%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	643		mg/kg	432	--	50
C19-C36 Aliphatics	ND		mg/kg	432	--	50
C11-C22 Aromatics	19300		mg/kg	432	--	50
C11-C22 Aromatics, Adjusted	12600		mg/kg	432	--	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	68		40-140
2-Bromonaphthalene	64		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 05/02/11 10:37
Analyst: NH

Extraction Method: EPA 3546
Extraction Date: 04/29/11 10:59
Cleanup Method1: EPH-04-1
Cleanup Date1: 05/02/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 05,18-19 Batch: WG465354-1					
C9-C18 Aliphatics	ND		mg/kg	6.66	--
C19-C36 Aliphatics	ND		mg/kg	6.66	--
C11-C22 Aromatics	ND		mg/kg	6.66	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.66	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	49		40-140
o-Terphenyl	51		40-140
2-Fluorobiphenyl	58		40-140
2-Bromonaphthalene	60		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 05/03/11 11:15
Analyst: TB

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 05,07,19 Batch: WG465872-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	84		70-130
2,5-Dibromotoluene-FID	95		70-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 05/04/11 12:14
Analyst: TT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 18 Batch: WG466081-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	96		70-130
2,5-Dibromotoluene-FID	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05,18-19 Batch: WG465354-2 WG465354-3								
C9-C18 Aliphatics	53		58		40-140	9		25
C19-C36 Aliphatics	70		74		40-140	6		25
C11-C22 Aromatics	75		69		40-140	8		25
Naphthalene	62		64		40-140	3		25
2-Methylnaphthalene	68		69		40-140	1		25
Acenaphthylene	56		57		40-140	2		25
Acenaphthene	66		66		40-140	0		25
Fluorene	67		64		40-140	5		25
Phenanthrene	71		68		40-140	4		25
Anthracene	68		66		40-140	3		25
Fluoranthene	77		72		40-140	7		25
Pyrene	77		74		40-140	4		25
Benzo(a)anthracene	72		68		40-140	6		25
Chrysene	77		72		40-140	7		25
Benzo(b)fluoranthene	76		73		40-140	4		25
Benzo(k)fluoranthene	81		73		40-140	10		25
Benzo(a)pyrene	65		64		40-140	2		25
Indeno(1,2,3-cd)Pyrene	77		72		40-140	7		25
Dibenzo(a,h)anthracene	68		65		40-140	5		25
Benzo(ghi)perylene	76		72		40-140	5		25
Nonane (C9)	45		50		30-140	11		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05,18-19 Batch: WG465354-2 WG465354-3								
Decane (C10)	53		59		40-140	11		25
Dodecane (C12)	57		62		40-140	8		25
Tetradecane (C14)	58		63		40-140	8		25
Hexadecane (C16)	62		67		40-140	8		25
Octadecane (C18)	67		72		40-140	7		25
Nonadecane (C19)	69		75		40-140	8		25
Eicosane (C20)	70		75		40-140	7		25
Docosane (C22)	71		76		40-140	7		25
Tetracosane (C24)	72		76		40-140	5		25
Hexacosane (C26)	72		76		40-140	5		25
Octacosane (C28)	70		74		40-140	6		25
Triacontane (C30)	73		76		40-140	4		25
Hexatriacontane (C36)	76		78		40-140	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	55		69		40-140
o-Terphenyl	76		70		40-140
2-Fluorobiphenyl	72		65		40-140
2-Bromonaphthalene	72		69		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05,07,19 Batch: WG465872-1 WG465872-2								
C5-C8 Aliphatics	77		89		70-130	15		25
C9-C12 Aliphatics	81		90		70-130	10		25
C9-C10 Aromatics	78		89		70-130	13		25
Benzene	77		86		70-130	12		25
Toluene	77		88		70-130	13		25
Ethylbenzene	75		86		70-130	14		25
p/m-Xylene	79		90		70-130	14		25
o-Xylene	77		88		70-130	14		25
Methyl tert butyl ether	82		97		70-130	17		25
Naphthalene	82		98		70-130	17		25
1,2,4-Trimethylbenzene	78		89		70-130	13		25
Pentane	71		81		70-130	13		25
2-Methylpentane	77		88		70-130	14		25
2,2,4-Trimethylpentane	80		96		70-130	18		25
n-Nonane	82		94		30-130	13		25
n-Decane	79		86		70-130	8		25
n-Butylcyclohexane	84		95		70-130	12		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1105817

Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05,07,19 Batch: WG465872-1 WG465872-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	80		91		70-130
2,5-Dibromotoluene-FID	90		105		70-130

Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 18 Batch: WG466081-1 WG466081-2								
C5-C8 Aliphatics	93		89		70-130	5		25
C9-C12 Aliphatics	89		90		70-130	1		25
C9-C10 Aromatics	89		90		70-130	1		25
Benzene	87		89		70-130	2		25
Toluene	89		90		70-130	2		25
Ethylbenzene	91		92		70-130	1		25
p/m-Xylene	91		91		70-130	0		25
o-Xylene	87		87		70-130	0		25
Methyl tert butyl ether	75		82		70-130	8		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 18 Batch: WG466081-1 WG466081-2								
Naphthalene	86		94		70-130	9		25
1,2,4-Trimethylbenzene	89		90		70-130	1		25
Pentane	108		119		70-130	10		25
2-Methylpentane	89		92		70-130	3		25
2,2,4-Trimethylpentane	91		96		70-130	5		25
n-Nonane	91		94		30-130	3		25
n-Decane	85		85		70-130	0		25
n-Butylcyclohexane	90		93		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	80		85		70-130
2,5-Dibromotoluene-FID	81		89		70-130

METALS

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-01 Date Collected: 04/25/11 07:30

Client ID: TP-1 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:08	EPA 3050B	1,6020A	EM
Arsenic, Total	1.66		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Beryllium, Total	0.124		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Cadmium, Total	0.066		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Chromium, Total	4.08		mg/kg	0.151	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Copper, Total	13.8		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Lead, Total	11.7		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Mercury, Total	0.073		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 12:54	EPA 7474	1,7474	JK
Nickel, Total	2.92		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Selenium, Total	0.273		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 13:57	EPA 3050B	1,6020A	EM
Silver, Total	0.074		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:08	EPA 3050B	1,6020A	EM
Thallium, Total	0.085		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM
Zinc, Total	17.4		mg/kg	0.755	--	2	05/02/11 17:30	05/04/11 12:06	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-02 Date Collected: 04/25/11 11:15

Client ID: TP-2 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.126		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:10	EPA 3050B	1,6020A	EM
Arsenic, Total	1.67		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Beryllium, Total	0.138		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Cadmium, Total	0.269		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Chromium, Total	4.87		mg/kg	0.146	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Copper, Total	12.5		mg/kg	0.073	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Lead, Total	126		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Mercury, Total	0.151		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 13:06	EPA 7474	1,7474	JK
Nickel, Total	6.01		mg/kg	0.073	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Selenium, Total	0.253		mg/kg	0.073	--	2	05/02/11 17:30	05/04/11 13:59	EPA 3050B	1,6020A	EM
Silver, Total	0.078		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:10	EPA 3050B	1,6020A	EM
Thallium, Total	0.053		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM
Zinc, Total	132		mg/kg	0.731	--	2	05/02/11 17:30	05/04/11 12:15	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-03 Date Collected: 04/25/11 12:35

Client ID: TP-5 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.472		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:13	EPA 3050B	1,6020A	EM
Arsenic, Total	6.37		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Beryllium, Total	0.202		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Cadmium, Total	0.570		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Chromium, Total	5.80		mg/kg	0.158	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Copper, Total	21.9		mg/kg	0.079	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Lead, Total	580		mg/kg	0.099	--	5	05/02/11 17:30	05/04/11 12:49	EPA 3050B	1,6020A	EM
Mercury, Total	0.134		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:09	EPA 7474	1,7474	JK
Nickel, Total	5.95		mg/kg	0.079	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Selenium, Total	0.549		mg/kg	0.079	--	2	05/02/11 17:30	05/04/11 14:02	EPA 3050B	1,6020A	EM
Silver, Total	0.149		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:13	EPA 3050B	1,6020A	EM
Thallium, Total	0.127		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM
Zinc, Total	200		mg/kg	0.788	--	2	05/02/11 17:30	05/04/11 12:16	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-04 Date Collected: 04/25/11 13:00

Client ID: TP-4 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.857		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:13	EPA 3050B	1,6020A	EM
Arsenic, Total	5.35		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Beryllium, Total	0.672		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Cadmium, Total	3.68		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Chromium, Total	11.3		mg/kg	0.161	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Copper, Total	110		mg/kg	0.081	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Lead, Total	252		mg/kg	0.101	--	5	05/02/11 17:30	05/04/11 12:50	EPA 3050B	1,6020A	EM
Mercury, Total	0.084		mg/kg	0.015	--	5	05/02/11 17:30	05/04/11 13:11	EPA 7474	1,7474	JK
Nickel, Total	11.0		mg/kg	0.081	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM
Selenium, Total	0.936		mg/kg	0.081	--	2	05/02/11 17:30	05/04/11 14:02	EPA 3050B	1,6020A	EM
Silver, Total	0.166		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:13	EPA 3050B	1,6020A	EM
Thallium, Total	0.201		mg/kg	0.101	--	5	05/02/11 17:30	05/04/11 12:50	EPA 3050B	1,6020A	EM
Zinc, Total	240		mg/kg	0.806	--	2	05/02/11 17:30	05/04/11 12:17	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-05 Date Collected: 04/25/11 13:47

Client ID: TP-3 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:14	EPA 3050B	1,6020A	EM
Arsenic, Total	1.20		mg/kg	0.034	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Beryllium, Total	0.230		mg/kg	0.034	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.034	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Chromium, Total	8.92		mg/kg	0.136	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Copper, Total	6.04		mg/kg	0.068	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Lead, Total	4.41		mg/kg	0.034	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 13:14	EPA 7474	1,7474	JK
Nickel, Total	5.84		mg/kg	0.068	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Selenium, Total	0.249		mg/kg	0.068	--	2	05/02/11 17:30	05/04/11 14:03	EPA 3050B	1,6020A	EM
Silver, Total	0.038		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:14	EPA 3050B	1,6020A	EM
Thallium, Total	0.037		mg/kg	0.034	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM
Zinc, Total	15.9		mg/kg	0.680	--	2	05/02/11 17:30	05/04/11 12:19	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-06 Date Collected: 04/26/11 07:40

Client ID: TP-7 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.064		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:15	EPA 3050B	1,6020A	EM
Arsenic, Total	2.20		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Beryllium, Total	0.230		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Cadmium, Total	0.072		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Chromium, Total	6.30		mg/kg	0.147	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Copper, Total	22.4		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Lead, Total	55.6		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Mercury, Total	0.100		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:23	EPA 7474	1,7474	JK
Nickel, Total	5.02		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Selenium, Total	0.429		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 14:04	EPA 3050B	1,6020A	EM
Silver, Total	0.097		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:15	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM
Zinc, Total	34.5		mg/kg	0.737	--	2	05/02/11 17:30	05/04/11 12:20	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-07 Date Collected: 04/26/11 09:00

Client ID: TP-6 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.195		mg/kg	0.047	--	2	05/02/11 17:30	05/05/11 09:15	EPA 3050B	1,6020A	EM
Arsenic, Total	5.10		mg/kg	0.045	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Beryllium, Total	0.232		mg/kg	0.045	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Cadmium, Total	0.186		mg/kg	0.045	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Chromium, Total	3.96		mg/kg	0.181	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Copper, Total	44.0		mg/kg	0.090	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Lead, Total	74.5		mg/kg	0.045	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Mercury, Total	0.050		mg/kg	0.015	--	5	05/02/11 17:30	05/04/11 13:25	EPA 7474	1,7474	JK
Nickel, Total	7.29		mg/kg	0.090	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Selenium, Total	0.800		mg/kg	0.090	--	2	05/02/11 17:30	05/04/11 14:04	EPA 3050B	1,6020A	EM
Silver, Total	0.087		mg/kg	0.047	--	2	05/02/11 17:30	05/05/11 09:15	EPA 3050B	1,6020A	EM
Thallium, Total	0.206		mg/kg	0.045	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM
Zinc, Total	27.8		mg/kg	0.904	--	2	05/02/11 17:30	05/04/11 12:22	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-08 Date Collected: 04/26/11 11:00

Client ID: TP-8 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.033	--	2	05/02/11 17:30	05/05/11 09:16	EPA 3050B	1,6020A	EM
Arsenic, Total	0.484		mg/kg	0.031	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Beryllium, Total	0.061		mg/kg	0.031	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.031	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Chromium, Total	2.04		mg/kg	0.125	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Copper, Total	3.55		mg/kg	0.062	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Lead, Total	1.96		mg/kg	0.031	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:28	EPA 7474	1,7474	JK
Nickel, Total	1.34		mg/kg	0.062	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Selenium, Total	0.129		mg/kg	0.062	--	2	05/02/11 17:30	05/04/11 14:05	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.033	--	2	05/02/11 17:30	05/05/11 09:16	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.031	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM
Zinc, Total	4.39		mg/kg	0.624	--	2	05/02/11 17:30	05/04/11 12:23	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-09 Date Collected: 04/26/11 13:54

Client ID: TP-9 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.354		mg/kg	0.051	--	2	05/02/11 17:30	05/05/11 09:17	EPA 3050B	1,6020A	EM
Arsenic, Total	5.53		mg/kg	0.049	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Beryllium, Total	0.236		mg/kg	0.049	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Cadmium, Total	0.218		mg/kg	0.049	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Chromium, Total	6.45		mg/kg	0.196	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Copper, Total	71.8		mg/kg	0.098	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Lead, Total	30.2		mg/kg	0.049	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Mercury, Total	0.021		mg/kg	0.018	--	5	05/02/11 17:30	05/04/11 13:31	EPA 7474	1,7474	JK
Nickel, Total	5.79		mg/kg	0.098	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Selenium, Total	2.44		mg/kg	0.098	--	2	05/02/11 17:30	05/04/11 14:06	EPA 3050B	1,6020A	EM
Silver, Total	0.120		mg/kg	0.051	--	2	05/02/11 17:30	05/05/11 09:17	EPA 3050B	1,6020A	EM
Thallium, Total	0.138		mg/kg	0.049	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM
Zinc, Total	78.8		mg/kg	0.980	--	2	05/02/11 17:30	05/04/11 12:24	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-10
Client ID: TP-11
Sample Location: NEW BEDFORD
Matrix: Soil
Percent Solids: 91%

Date Collected: 04/26/11 15:20
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.162		mg/kg	0.033	--	2	05/02/11 17:30	05/05/11 09:18	EPA 3050B	1,6020A	EM
Arsenic, Total	0.641		mg/kg	0.032	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Beryllium, Total	0.090		mg/kg	0.032	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Cadmium, Total	0.072		mg/kg	0.032	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Chromium, Total	2.90		mg/kg	0.126	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Copper, Total	5.03		mg/kg	0.063	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Lead, Total	16.2		mg/kg	0.032	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.012	--	5	05/02/11 17:30	05/04/11 13:33	EPA 7474	1,7474	JK
Nickel, Total	2.08		mg/kg	0.063	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Selenium, Total	0.248		mg/kg	0.063	--	2	05/02/11 17:30	05/04/11 14:07	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.033	--	2	05/02/11 17:30	05/05/11 09:18	EPA 3050B	1,6020A	EM
Thallium, Total	0.039		mg/kg	0.032	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM
Zinc, Total	12.8		mg/kg	0.632	--	2	05/02/11 17:30	05/04/11 12:26	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD
Lab Number: L1105817
Project Number: 6690
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-11
Client ID: TP-10
Sample Location: NEW BEDFORD
Matrix: Soil
Percent Solids: 85%

Date Collected: 04/27/11 08:30
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.164		mg/kg	0.038	--	2	05/02/11 17:30	05/05/11 09:18	EPA 3050B	1,6020A	EM
Arsenic, Total	1.57		mg/kg	0.033	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Beryllium, Total	0.221		mg/kg	0.033	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Cadmium, Total	0.101		mg/kg	0.033	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Chromium, Total	8.12		mg/kg	0.134	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Copper, Total	17.6		mg/kg	0.067	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Lead, Total	60.4		mg/kg	0.033	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Mercury, Total	0.022		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 13:36	EPA 7474	1,7474	JK
Nickel, Total	3.29		mg/kg	0.067	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Selenium, Total	0.574		mg/kg	0.067	--	2	05/02/11 17:30	05/04/11 14:07	EPA 3050B	1,6020A	EM
Silver, Total	0.081		mg/kg	0.038	--	2	05/02/11 17:30	05/05/11 09:18	EPA 3050B	1,6020A	EM
Thallium, Total	0.047		mg/kg	0.033	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM
Zinc, Total	31.0		mg/kg	0.668	--	2	05/02/11 17:30	05/04/11 12:27	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-12 Date Collected: 04/27/11 09:30

Client ID: TP-12 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.186		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:19	EPA 3050B	1,6020A	EM
Arsenic, Total	7.46		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Beryllium, Total	0.451		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Cadmium, Total	0.237		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Chromium, Total	5.92		mg/kg	0.160	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Copper, Total	37.7		mg/kg	0.080	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Lead, Total	164		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Mercury, Total	0.290		mg/kg	0.016	--	5	05/02/11 17:30	05/04/11 13:38	EPA 7474	1,7474	JK
Nickel, Total	7.92		mg/kg	0.080	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Selenium, Total	1.42		mg/kg	0.080	--	2	05/02/11 17:30	05/04/11 14:08	EPA 3050B	1,6020A	EM
Silver, Total	0.122		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:19	EPA 3050B	1,6020A	EM
Thallium, Total	0.297		mg/kg	0.040	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM
Zinc, Total	85.5		mg/kg	0.801	--	2	05/02/11 17:30	05/04/11 12:31	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-13 Date Collected: 04/27/11 11:00

Client ID: TP-13A Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.156		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:21	EPA 3050B	1,6020A	EM
Arsenic, Total	2.76		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Beryllium, Total	0.211		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Cadmium, Total	0.149		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Chromium, Total	5.86		mg/kg	0.148	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Copper, Total	9.97		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Lead, Total	50.2		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Mercury, Total	0.025		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:41	EPA 7474	1,7474	JK
Nickel, Total	3.88		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Selenium, Total	0.794		mg/kg	0.074	--	2	05/02/11 17:30	05/04/11 14:10	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.039	--	2	05/02/11 17:30	05/05/11 09:21	EPA 3050B	1,6020A	EM
Thallium, Total	0.089		mg/kg	0.037	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM
Zinc, Total	35.2		mg/kg	0.739	--	2	05/02/11 17:30	05/04/11 12:32	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-14 Date Collected: 04/27/11 11:57

Client ID: TP-14 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.103		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:22	EPA 3050B	1,6020A	EM
Arsenic, Total	2.68		mg/kg	0.036	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Beryllium, Total	0.204		mg/kg	0.036	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Cadmium, Total	0.064		mg/kg	0.036	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Chromium, Total	5.15		mg/kg	0.144	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Copper, Total	19.2		mg/kg	0.072	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Lead, Total	26.9		mg/kg	0.036	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Mercury, Total	0.067		mg/kg	0.012	--	5	05/02/11 17:30	05/04/11 13:44	EPA 7474	1,7474	JK
Nickel, Total	7.99		mg/kg	0.072	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Selenium, Total	0.528		mg/kg	0.072	--	2	05/02/11 17:30	05/04/11 14:11	EPA 3050B	1,6020A	EM
Silver, Total	0.045		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:22	EPA 3050B	1,6020A	EM
Thallium, Total	0.076		mg/kg	0.036	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM
Zinc, Total	21.1		mg/kg	0.719	--	2	05/02/11 17:30	05/04/11 12:34	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-15 Date Collected: 04/27/11 13:30

Client ID: TP-16 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.110		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:22	EPA 3050B	1,6020A	EM
Arsenic, Total	1.58		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Beryllium, Total	0.217		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Cadmium, Total	0.055		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Chromium, Total	5.72		mg/kg	0.157	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Copper, Total	6.53		mg/kg	0.078	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Lead, Total	10.2		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Mercury, Total	0.016		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:47	EPA 7474	1,7474	JK
Nickel, Total	3.82		mg/kg	0.078	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Selenium, Total	0.517		mg/kg	0.078	--	2	05/02/11 17:30	05/04/11 14:12	EPA 3050B	1,6020A	EM
Silver, Total	0.049		mg/kg	0.037	--	2	05/02/11 17:30	05/05/11 09:22	EPA 3050B	1,6020A	EM
Thallium, Total	0.060		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM
Zinc, Total	28.0		mg/kg	0.783	--	2	05/02/11 17:30	05/04/11 12:35	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-16 Date Collected: 04/27/11 14:45

Client ID: TP-17 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	1.88		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:23	EPA 3050B	1,6020A	EM
Arsenic, Total	5.08		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Beryllium, Total	0.361		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Cadmium, Total	0.879		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Chromium, Total	10.2		mg/kg	0.152	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Copper, Total	82.5		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Lead, Total	561		mg/kg	0.095	--	5	05/02/11 17:30	05/04/11 12:52	EPA 3050B	1,6020A	EM
Mercury, Total	0.426		mg/kg	0.015	--	5	05/02/11 17:30	05/04/11 13:56	EPA 7474	1,7474	JK
Nickel, Total	8.52		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Selenium, Total	0.920		mg/kg	0.076	--	2	05/02/11 17:30	05/04/11 14:12	EPA 3050B	1,6020A	EM
Silver, Total	0.239		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:23	EPA 3050B	1,6020A	EM
Thallium, Total	0.150		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM
Zinc, Total	230		mg/kg	0.762	--	2	05/02/11 17:30	05/04/11 12:37	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-17 Date Collected: 04/28/11 08:00

Client ID: TP-13 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.168		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:24	EPA 3050B	1,6020A	EM
Arsenic, Total	2.63		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Beryllium, Total	0.238		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Cadmium, Total	0.101		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Chromium, Total	6.10		mg/kg	0.154	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Copper, Total	11.1		mg/kg	0.077	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Lead, Total	34.0		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Mercury, Total	0.020		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 13:58	EPA 7474	1,7474	JK
Nickel, Total	4.04		mg/kg	0.077	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Selenium, Total	0.828		mg/kg	0.077	--	2	05/02/11 17:30	05/04/11 14:13	EPA 3050B	1,6020A	EM
Silver, Total	0.043		mg/kg	0.040	--	2	05/02/11 17:30	05/05/11 09:24	EPA 3050B	1,6020A	EM
Thallium, Total	0.090		mg/kg	0.039	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM
Zinc, Total	27.3		mg/kg	0.772	--	2	05/02/11 17:30	05/04/11 12:38	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-18 Date Collected: 04/25/11 00:00

Client ID: DUPLICATE 1 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.032	--	2	05/02/11 17:30	05/05/11 09:25	EPA 3050B	1,6020A	EM
Arsenic, Total	1.04		mg/kg	0.035	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Beryllium, Total	0.211		mg/kg	0.035	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Cadmium, Total	0.046		mg/kg	0.035	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Chromium, Total	8.32		mg/kg	0.138	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Copper, Total	6.40		mg/kg	0.069	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Lead, Total	7.63		mg/kg	0.035	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 14:01	EPA 7474	1,7474	JK
Nickel, Total	5.50		mg/kg	0.069	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Selenium, Total	0.256		mg/kg	0.069	--	2	05/02/11 17:30	05/04/11 14:14	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.032	--	2	05/02/11 17:30	05/05/11 09:25	EPA 3050B	1,6020A	EM
Thallium, Total	0.047		mg/kg	0.035	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM
Zinc, Total	17.8		mg/kg	0.693	--	2	05/02/11 17:30	05/04/11 12:39	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-19 Date Collected: 04/26/11 00:00

Client ID: DUPLICATE 2 Date Received: 04/28/11

Sample Location: NEW BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.133		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:25	EPA 3050B	1,6020A	EM
Arsenic, Total	4.06		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Beryllium, Total	0.176		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Cadmium, Total	0.105		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Chromium, Total	4.57		mg/kg	0.151	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Copper, Total	40.2		mg/kg	0.075	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Lead, Total	68.1		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Mercury, Total	0.045		mg/kg	0.014	--	5	05/02/11 17:30	05/04/11 14:04	EPA 7474	1,7474	JK
Nickel, Total	4.76		mg/kg	0.075	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Selenium, Total	0.907		mg/kg	0.075	--	2	05/02/11 17:30	05/04/11 14:14	EPA 3050B	1,6020A	EM
Silver, Total	0.071		mg/kg	0.036	--	2	05/02/11 17:30	05/05/11 09:25	EPA 3050B	1,6020A	EM
Thallium, Total	0.120		mg/kg	0.038	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM
Zinc, Total	38.7		mg/kg	0.753	--	2	05/02/11 17:30	05/04/11 12:41	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817

Project Number: 6690 **Report Date:** 05/09/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-19 Batch: WG465733-1										
Antimony, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/05/11 09:06	1,6020A	EM
Silver, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/05/11 09:06	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-19 Batch: WG465734-1										
Mercury, Total	ND		mg/kg	0.013	--	5	05/02/11 17:30	05/04/11 12:48	1,7474	JK

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-19 Batch: WG465743-1										
Arsenic, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Beryllium, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Chromium, Total	ND		mg/kg	0.200	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Copper, Total	ND		mg/kg	0.100	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Lead, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Nickel, Total	ND		mg/kg	0.100	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Selenium, Total	ND		mg/kg	0.100	--	2	05/02/11 17:30	05/04/11 13:55	1,6020A	EM
Thallium, Total	ND		mg/kg	0.050	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM
Zinc, Total	ND		mg/kg	1.00	--	2	05/02/11 17:30	05/04/11 12:04	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 Batch: WG465733-2 SRM Lot Number: S3SPIKE								
Antimony, Total	106		-		80-120	-		20
Silver, Total	104		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 Batch: WG465734-2 SRM Lot Number: HPHGAF								
Mercury, Total	93		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 Batch: WG465743-2 SRM Lot Number: S1SPIKE								
Arsenic, Total	97		-		80-120	-		20
Beryllium, Total	94		-		80-120	-		20
Cadmium, Total	97		-		80-120	-		20
Chromium, Total	102		-		80-120	-		20
Copper, Total	99		-		80-120	-		20
Lead, Total	103		-		80-120	-		20
Nickel, Total	100		-		80-120	-		20
Selenium, Total	102		-		80-120	-		20
Thallium, Total	105		-		80-120	-		20
Zinc, Total	90		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465733-4 QC Sample: L1105817-01 Client ID: TP-1												
Antimony, Total	ND	1.48	0.687	**46**	Q	-	-		75-125	-		20
Silver, Total	0.074	1.48	1.50	96		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465734-4 QC Sample: L1105817-01 Client ID: TP-1												
Mercury, Total	0.073	1.27	1.33	98		-	-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465743-4 QC Sample: L1105817-01 Client ID: TP-1												
Arsenic, Total	1.66	154	156	100		-	-		75-125	-		20
Beryllium, Total	0.124	77	72.8	94		-	-		75-125	-		20
Cadmium, Total	0.066	77	74.7	97		-	-		75-125	-		20
Chromium, Total	4.08	154	163	103		-	-		75-125	-		20
Copper, Total	13.8	154	166	99		-	-		75-125	-		20
Lead, Total	11.7	154	154	92		-	-		75-125	-		20
Nickel, Total	2.92	154	155	99		-	-		75-125	-		20
Selenium, Total	0.273	154	167	108		-	-		75-125	-		20
Thallium, Total	0.085	154	142	92		-	-		75-125	-		20
Zinc, Total	17.4	154	168	98		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465733-3 QC Sample: L1105817-01 Client ID: TP-1						
Antimony, Total	ND	ND	mg/kg	NC		20
Silver, Total	0.074	0.043	mg/kg	**54**		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465734-3 QC Sample: L1105817-01 Client ID: TP-1						
Mercury, Total	0.073	0.950	mg/kg	**171**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465743-3 QC Sample: L1105817-01 Client ID: TP-1						
Arsenic, Total	1.66	1.62	mg/kg	2		20
Beryllium, Total	0.124	0.121	mg/kg	2		20
Cadmium, Total	0.066	0.046	mg/kg	**34**		20
Chromium, Total	4.08	4.10	mg/kg	0		20
Copper, Total	13.8	12.0	mg/kg	14		20
Lead, Total	11.7	12.2	mg/kg	4		20
Nickel, Total	2.92	3.02	mg/kg	3		20
Thallium, Total	0.085	0.043	mg/kg	**66**		20
Zinc, Total	17.4	17.3	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465743-3 QC Sample: L1105817-01 Client ID: TP-1						
Selenium, Total	0.273	0.222	mg/kg	**21**		20

Lab Serial Dilution Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-19 QC Batch ID: WG465743-5 QC Sample: L1105817-01 Client ID: TP-1						
Arsenic, Total	1.66	1.54	mg/kg	7		10
Chromium, Total	4.08	4.06	mg/kg	0		10
Copper, Total	13.8	14.3	mg/kg	4		10
Lead, Total	11.7	12.8	mg/kg	9		10
Nickel, Total	2.92	2.94	mg/kg	1		10

INORGANICS
&
MISCELLANEOUS

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-01
Client ID: TP-1
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 07:30
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-02
Client ID: TP-2
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 11:15
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-03
Client ID: TP-5
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 12:35
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-04
Client ID: TP-4
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 13:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-05
Client ID: TP-3
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 13:47
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-06
Client ID: TP-7
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 07:40
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-07
Client ID: TP-6
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 09:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-08
Client ID: TP-8
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 11:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-09
Client ID: TP-9
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 13:54
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-10
Client ID: TP-11
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 15:20
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-11
Client ID: TP-10
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 08:30
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-12
Client ID: TP-12
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 09:30
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-13
Client ID: TP-13A
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 11:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-14
Client ID: TP-14
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 11:57
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-15
Client ID: TP-16
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 13:30
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-16
Client ID: TP-17
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/27/11 14:45
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-17
Client ID: TP-13
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/28/11 08:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-18
Client ID: DUPLICATE 1
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/25/11 00:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

SAMPLE RESULTS

Lab ID: L1105817-19
Client ID: DUPLICATE 2
Sample Location: NEW BEDFORD
Matrix: Soil

Date Collected: 04/26/11 00:00
Date Received: 04/28/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79		%	0.10	NA	1	-	05/03/11 10:47	30,2540G	MF

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-19 QC Batch ID: WG465894-1 QC Sample: L1105817-01 Client ID: TP-1						
Solids, Total	86	84	%	2		20

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: 04/28/2011 21:33

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-01A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-01B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-02A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-02B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-03A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-03B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-04A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-04B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-05A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-05B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-05C	Vial MeOH preserved	A	N/A	2	Y	Absent	VPH-10(28)
L1105817-05D	Vial MeOH preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-05E	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-05F	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-06A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-06B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-07A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-07B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-07C	Vial MeOH preserved	A	N/A	2	Y	Absent	VPH-10(28)
L1105817-07D	Vial MeOH preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-07E	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-07F	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-08A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-08B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-09A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-09B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-10A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-10B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-11A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-11B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-12A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-12B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-13A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-13B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-14A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
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Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-14B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-15A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-15B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-16A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-16B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-17A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1105817
Report Date: 05/09/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-17B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-18A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-18B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-18C	Vial MeOH preserved	A	N/A	2	Y	Absent	VPH-10(28)
L1105817-18D	Vial MeOH preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-18E	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-18F	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-19A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1105817-19B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1105817-19C	Vial MeOH preserved	A	N/A	2	Y	Absent	VPH-10(28)

*Values in parentheses indicate holding time in days

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Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1105817-19D	Vial MeOH preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-19E	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)
L1105817-19F	Vial water preserved	A	N/A	2	Y	Absent	MCP-8260HLW-10(14)

Container Comments

L1105817-05C

L1105817-07C

L1105817-18C

L1105817-19C

*Values in parentheses indicate holding time in days

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1105817
Project Number:	6690	**Report Date:**	05/09/11

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1105817
Project Number:	6690	**Report Date:**	05/09/11

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1105817
Project Number: 6690 **Report Date:** 05/09/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised February 23, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **EPA 8260B:** Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline. **EPA 350.1** for Ammonia in a Soil matrix.

Certificate/Approval Program Summary

Last revised March 23, 2011 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: EPA 1311, 3050, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570B, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C.)

Biological Tissue (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C.)

Air & Emissions (EPA TO-15.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA, 245.1, 245.7, 1631E, 180.1, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B. Organic Parameters: EPA 8081, 8082, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 3060A, 6020A, 7470A, 7471A, 9040B, 9045C, 7196A. Organic Parameters: SW-846 3540C, 3580, 3630C, 3640A, 3660B, 3665A, 5035, 8260B, 8270C, 8015D, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, SM2320B, EPA 200.8, SM2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 7470A, 9040B, 6020, 9010B, 9014 Organic Parameters: SW-846 3510C, 3580A, 5030B, 5035L, 5035H, 3630C, 3640C, 3660B, 3665A, 8015B 8081A, 8082, 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9040B, 9045C, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 5030B, 5035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 9014, 9040B, 120.1, SM2510B, 4500CN-E, 4500H-B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, 8082, 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 6020, 7196A, 3060A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 1312, 3050B, 3580, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

Washington State Department of Ecology Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 2510B, EPA 120.1, 180.1, 1631E, 245.7.)

Solid & Chemical Materials (Inorganic Parameters: EPA 9040, 9060, 6020, 7470, 7471, 7474. Organic Parameters: EPA 8081, 8082, 8015 Mod, 8270, 8260.)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 5030B, 8260B, 8270C, 8270C-ALK-PAH, 8082, 8081A, 8015D-SHC.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 5035A, 8260B, 8270C, 8270-ALK-PAH, 8082, 8081A, 8015D-SHC, 8015-DRO.

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl. **TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: L1105817

Client Information

Client: APEX Co., LLC

Address: 184 High St, Ste 502, Boston, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Location: NEW BEDFORD

Project #: 6690

Project Manager: CHRT MYERS

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/5/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING

Filtration ☐ Done ☒ Not needed ☐ Lab to do

Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP EPH (CARBON RANGES ONLY)	TPP13 METALS (EPA 6020A *)	SVOCs EPA (8270C)	VOCs (8260) MADEP VPH (CARBON RANGES)	Sample Specific Comments	TOTAL # BOTTLES
05817.1	TP-1	4/25/11	7:30	S	GAD	X		X	X			2
2	TP-2	4/25/11	11:15	S	GAD	X		X	X			2
3	TP-5	4/25/11	12:35	S	GAD	X		X	X			2
4	TP-4	4/25/11	13:00	S	GAD	X		X	X			2
5	TP-3	4/25/11	13:47	S	GAD	X	X	X	X	X X	PETROLEUM ODOR	6
6	TP-7	4/26/11	7:40	S	GAD	X		X	X			2
7	TP-6	4/26/11	9:00	S	GAD	X	X	X	X	X X	PETROLEUM ODOR	6
8	TP-8	4/26/11	11:00	S	GAD	X		X	X			2
9	TP-9	4/26/11	13:54	S	GAD	X		X	X			2
10	TP-~~10~~ 11 GAD	4/26/11	15:20	S	GAD	X		X	X			2
	Container Type					A	A	A	A	V V		
	Preservative					A	A	A	A	F F		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	4/28/11 15:00	R Gillett	4/28/11 1500
R Gillett	4/28/11 1625	[illegible]	4/28/11 1625
[illegible]	4/28/11 1715	[illegible]	4/28/11 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:05091119:41

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: 2110581 7

Client Information

Client: APEX Co, LLC

Address: 184 HIGH ST., STE 502 BOSTON, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Location: NEW BEDFORD

Project #: 6690

Project Manager: CHRT MYERS

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/5/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add' Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE.

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP EPH (CARBON RANGES ONLY)	TPP13 METALS (EPA 6010B)	SVOCs (EPA 8270C)	VOCs (8260 MADEP VPH) (CARBON RANGES ONLY)								Sample Specific Comments	TOTAL # BOTTLES
05817.11	TP-10	4/27/11	8:30	S	GAD	X		X	X										2
12	TP-12	4/27/11	9:30	S	GAD	X		X	X										2
13	TP-13a	4/27/11	11:00	S	GAD	X		X	X										2
14	TP-14	4/27/11	11:57	S	GAD	X		X	X										2
15	TP-16	4/27/11	13:30	S	GAD	X		X	X										2
16	TP-17	4/27/11	14:45	S	GAD	X		X	X										2
17	TP-13	4/28/11	8:00	S	GAD	X		X	X										2
18	DUPLICATE 1	4/25/11		S	GAD	X	X	X	X	X	X								6
19	DUPLICATE 2	4/26/11		S	GAD	X	X	X	X	X	X								6
					Container Type	A	A	A	A	V	V								
					Preservative	A	A	A	A	F	F								

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
P. Gillett	4/28/11 15:00	P. Gillett	4/28/11 1500
[illegible]	4/28/11 1625	[illegible]	4/28/11 1625
[illegible]	4/28/11 1715	[illegible]	4/28/11 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:05091119:41

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: L1105817

Client Information

Client: APEX CO., LLC
Address: 184 HIGH ST, STE 502, BOSTON, MA 02110
Phone: (617) 728-0070
Fax: (617) 728-0080
Email: cmyers@apexcos.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Location: NEW BEDFORD
Project #: 6690
Project Manager: CHRIS MYERS
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 5/5/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)
* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING
Filtration ☐ Done ☒ Not needed ☐ Lab to do
Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP EPH (CARBON RANGES ONLY)	TPP13 METALS (EPA 6020A *)	SVOCs EPA(8270C)	VOCs (8260)	MADEP VPH (CARBON RANGES)	Sample Specific Comments	Total # Bottles
05817.1	TP-1	4/25/11	7:30	S	GAD	X		X	X				2
2	TP-2	4/25/11	11:15	S	GAD	X		X	X				2
3	TP-5	4/25/11	12:35	S	GAD	X		X	X				2
4	TP-4	4/25/11	13:00	S	GAD	X		X	X				2
5	TP-3	4/25/11	13:47	S	GAD	X	X	X	X	X	X	PETROLEUM ODOR	6
6	TP-7	4/26/11	7:40	S	GAD	X		X	X				2
7	TP-6	4/26/11	9:00	S	GAD	X	X	X	X	X	X	PETROLEUM ODOR	6
8	TP-8	4/26/11	11:00	S	GAD	X		X	X				2
9	TP-9	4/26/11	13:54	S	GAD	X		X	X				2
10	TP-~~8~~ 11 GAD	4/26/11	15:20	S	GAD	X		X	X				2
	Container Type					A	A	A	A	V	V		
	Preservative					A	A	A	A	F	F		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	4/28/11 15:00	R. Gillett	4/28/11 1500
R. Gillett	4/28/11 1625	[illegible]	4/28/11 1625
[illegible]	4/28/11 1715	[illegible]	4/28/11 1715
[illegible]	4/29/11 1315	[illegible]	4/29/11 1315
[illegible]	4/29/11 1650	[illegible]	4/29/11 16:50

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: 211058 17

Client Information

Client: APEX Co, LLC
Address: 184 HIGH St., STE 502
BOSTON, MA 02110
Phone: (617) 728-0070
Fax: (617) 728-0080
Email: cmyers@apexcos.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Location: NEW BEDFORD
Project #: 6690
Project Manager: CHRT MYERS
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 5/5/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL
☒ ADEx ☐ Add' Deliverables

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)
* RUN TCLP IF EXCEEDS 20 TIMES RULE.

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP EPH (CARBON RANGE)	TPP13 METALS (EPA *)	SVOCs (EPA 8270C)	VOCs (8260) MADEP VPH (CARBON RANGES)								Sample Specific Comments	TOTAL # BOTTLES
05817.11	TP-10	4/27/11	8:30	S	GAD	X		X	X										2
12	TP-12	4/27/11	9:30	S	GAD	X		X	X										2
13	TP-13a	4/27/11	11:00	S	GAD	X		X	X										2
14	TP-14	4/27/11	11:57	S	GAD	X		X	X										2
15	TP-16	4/27/11	13:30	S	GAD	X		X	X										2
16	TP-17	4/27/11	14:45	S	GAD	X		X	X										2
17	TP-13	4/28/11	8:00	S	GAD	X		X	X										2
18	DUPLICATE 1	4/25/11		S	GAD	X	X	X	X	X	X								6
19	DUPLICATE 2	4/26/11		S	GAD	X	X	X	X	X	X								6
					Container Type	A	A	A	A	V	V								
					Preservative	A	A	A	A	F	F								

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
P. Gillett	4/28/11 15:00	P. Gillett	4/28/11 1500
T Fleer	4/28/11 1625	T Fleer	4/28/11 1625
T Fleer	4/28/11 1715	T Fleer	4/28/11 1715
T Fleer	4/29/11	T Fleer	4/29/11 1315
T Fleer	4/29/11 1650	T Fleer	4/29/11 1650

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1105817

Instrument ID: Voa100.i Calibration Date: 29-APR-2011 Time: 07:21

Lab File ID: 0429A02 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.17722	.15813	.1	11	20	
chloromethane	.47561	.44373	.1	7	20	
vinyl chloride	.25587	.25059	.1	2	20	
bromomethane	.11538	.09648	.1	16	20	
chloroethane	.09781	.10545	.1	-8	20	F
trichlorofluoromethane	.23634	.28754	.1	-22	20	F
ethyl ether	.11802	.12635	.05	-7	20	
1,1,-dichloroethene	.19082	.19525	.1	-2	20	
carbon disulfide	.6873	.54517	.1	21	20	F
methylene chloride	.22954	.22603	.1	2	20	
acetone	.18532	.17933	.1	3	20	
trans-1,2-dichloroethene	.23214	.23037	.1	1	20	
methyl tert butyl ether	.66033	.64551	.1	2	20	
Diisopropyl Ether	1.1677	1.3971	.05	-20	20	
1,1-dichloroethane	.47925	.48102	.2	0	20	
Ethyl-Tert-Butyl-Ether	.86672	.98052	.05	-13	20	
cis-1,2-dichloroethene	.25182	.25989	.1	-3	20	
2,2-dichloropropane	.3202	.32969	.05	-3	20	
bromochloromethane	.127	.13763	.05	-8	20	
chloroform	.40218	.42153	.2	-5	20	
carbontetrachloride	.3031	.32696	.1	-8	20	
tetrahydrofuran	.18955	.19118	.05	-1	20	
1,1,1-trichloroethane	.35506	.3683	.1	-4	20	
2-butanone	.30979	.29303	.1	5	20	
1,1-dichloropropene	.29417	.29625	.05	-1	20	
benzene	.87858	.88702	.5	-1	20	
Tertiary-Amyl Methyl Ether	.55162	.6243	.05	-13	20	
1,2-dichloroethane	.38882	.40764	.1	-5	20	
trichloroethene	.23493	.24123	.2	-3	20	
dibromomethane	.15392	.16517	.05	-7	20	
1,2-dichloropropane	.27656	.28689	.1	-4	20	
bromodichloromethane	.3088	.31666	.2	-3	20	
1,4-dioxane	.00394	.00401	.05	-2	20	F
cis-1,3-dichloropropene	.36895	.36488	.2	1	20	
toluene	.72557	.69506	.4	4	20	
4-methyl-2-pentanone	.18357	.16732	.1	9	20	
tetrachloroethene	.32182	.33879	.2	-5	20	
trans-1,3-dichloropropene	.44423	.44016	.1	1	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1105817

Instrument ID: Voa100.i Calibration Date: 29-APR-2011 Time: 07:21

Lab File ID: 0429A02 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

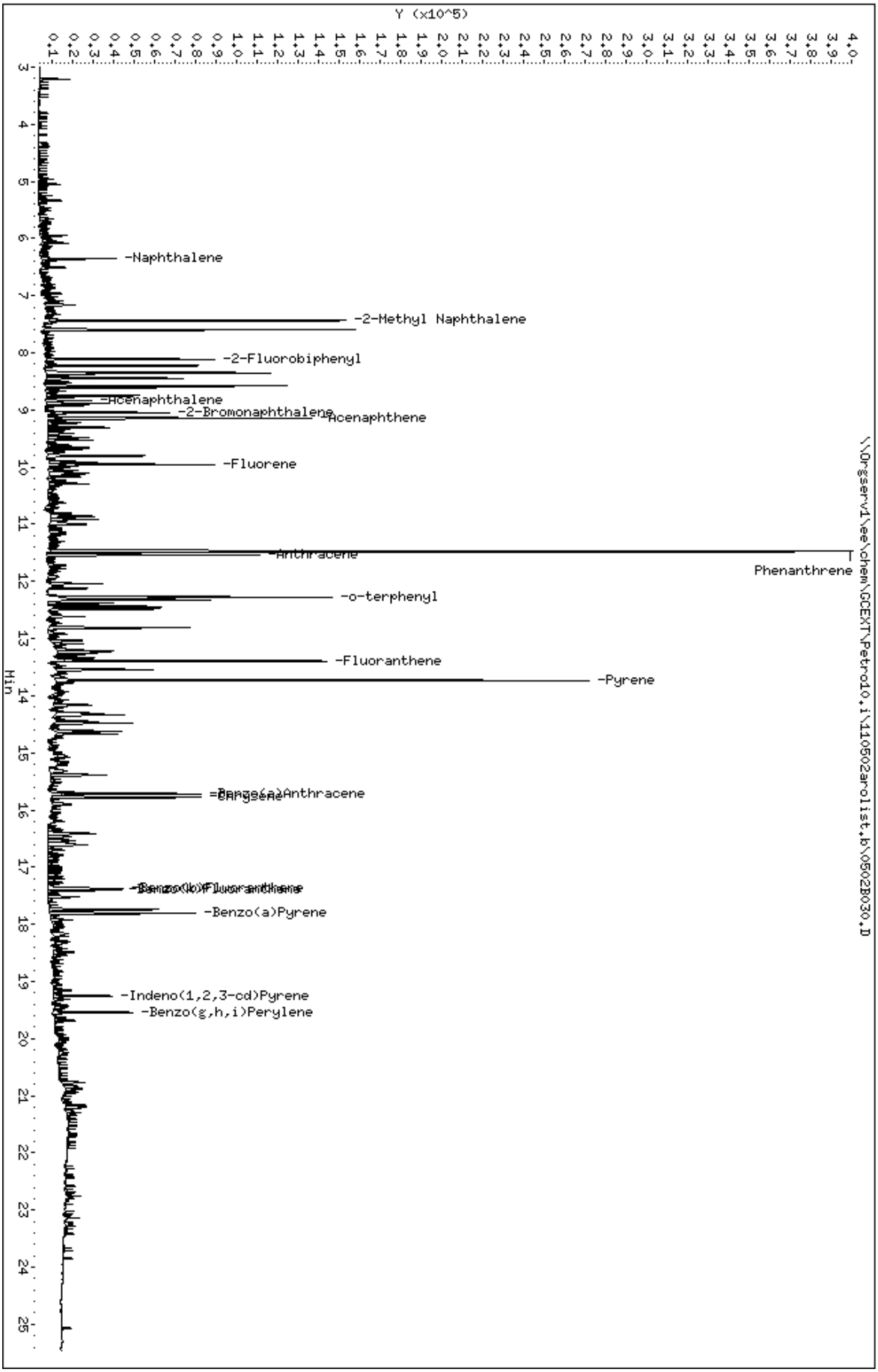
Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
1,1,2-trichloroethane	.22238	.22043	.1	1	20
chlorodibromomethane	.33912	.34915	.1	-3	20
1,3-dichloropropane	.45079	.44419	.05	1	20
1,2-dibromoethane	.30976	.30986	.1	0	20
2-hexanone	.57213	.52319	.1	9	20
chlorobenzene	.82126	.8008	.5	2	20
ethyl benzene	1.3736	1.3561	.1	1	20
1,1,1,2-tetrachloroethane	.30271	.3174	.05	-5	20
p/m xylene	.54299	.54941	.1	-1	20
o xylene	.51795	.53082	.3	-2	20
styrene	.85423	.85846	.3	0	20
bromoform	.40571	.41967	.1	-3	20
isopropylbenzene	2.4838	2.4550	.1	1	20
bromobenzene	.63736	.63768	.05	0	20
n-propylbenzene	2.7978	2.7883	.05	0	20
1,1,2,2,-tetrachloroethane	.70848	.68159	.3	4	20
2-chlorotoluene	1.8188	1.7759	.05	2	20
1,3,5-trimethybenzene	2.0635	2.0388	.05	1	20
1,2,3-trichloropropane	.58959	.59436	.05	-1	20
4-chorotoluene	1.7774	1.7304	.05	3	20
tert-butylbenzene	1.7500	1.7491	.05	0	20
1,2,4-trimethylbenzene	2.1219	2.1226	.05	0	20
sec-butylbenzene	2.6576	2.6301	.05	1	20
p-isopropyltoluene	2.1972	2.2545	.05	-3	20
1,3-dichlorobenzene	1.2512	1.2494	.6	0	20
1,4-dichlorobenzene	1.2928	1.2948	.5	0	20
n-butylbenzene	2.0173	2.0006	.05	1	20
1,2-dichlorobenzene	1.2053	1.1999	.4	0	20
1,2-dibromo-3-chloropropane	.18118	.16633	.05	8	20
hexachlorobutadiene	.40991	.3917	.05	4	20
1,2,4-trichlorobenzene	.86394	.88637	.2	-3	20
naphthalene	2.6062	2.5489	.05	2	20
1,2,3-trichlorobenzene	.80639	.8287	.05	-3	20
dibromofluoromethane	.2574	.26639	.05	-3	30
1,2-dichloroethane-d4	.31692	.3233	.05	-2	30
toluene-d8	1.2413	1.2158	.05	2	30
4-bromofluorobenzene	.89147	.8594	.05	4	30

FORM VII MCP-8260HLW-10

Data File: \\Orgserv1\ee\chem\GCEXT\Petrol0.i\110502arolist.b\0502B030.D
Date : 03-MAY-2011 02:47
Client ID:
Sample Info: 11105817-05,42,

Instrument: Petrol0.i
Operator: nh
Column diameter: 0.53

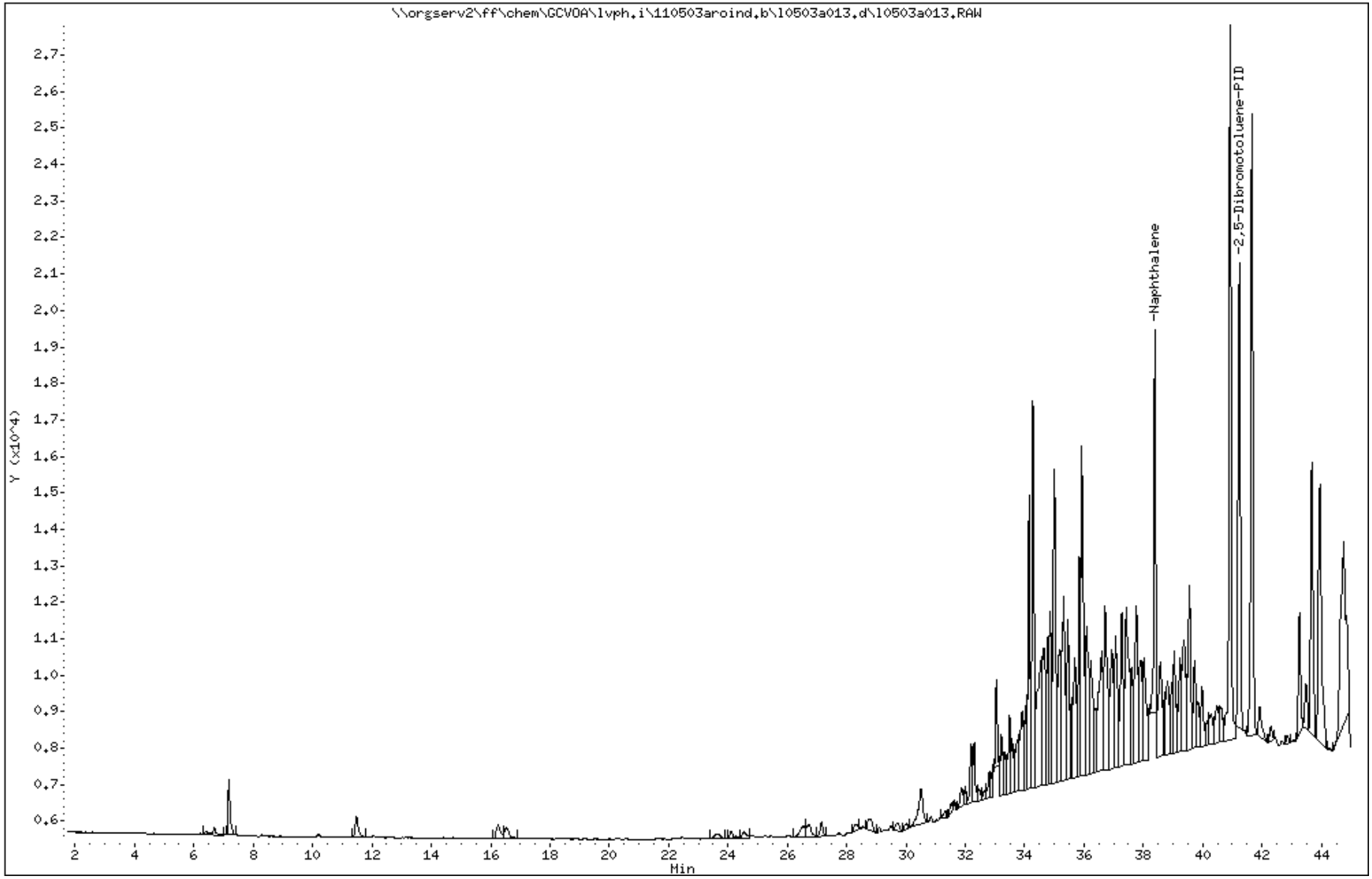
Column phase:



Page 3

Data File: \\orgserv2\ff\chem\GCVOA\lvph.i\110503aroind.b\10503a013.d
Date : 03-MAY-2011 21:14
Client ID:
Sample Info: 11105817-05d,41,16,24.7,.01
Volume Injected (uL): 100.0
Column phase:

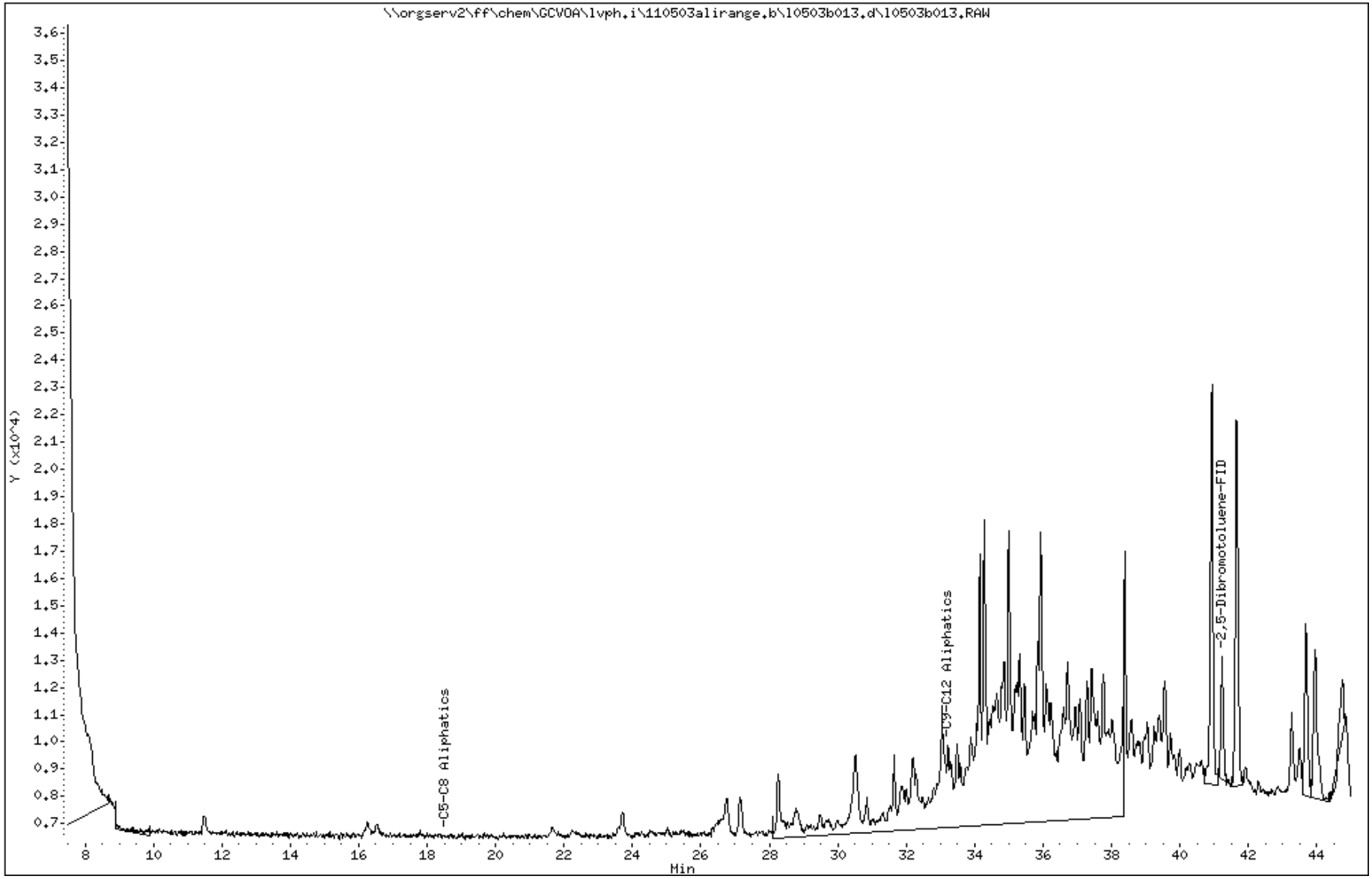
Instrument: lvph.i
Operator: tb
Column diameter: 0.53



Serial_No:05091119:41

Data File: \\orgserv2\ff\chem\GCVOA\lvph.i\110503alirange.b\10503b013.d
Date : 03-MAY-2011 21:14
Client ID:
Sample Info: 11105817-05d,41,16,24.7,.01
Volume Injected (uL): 100.0
Column phase:

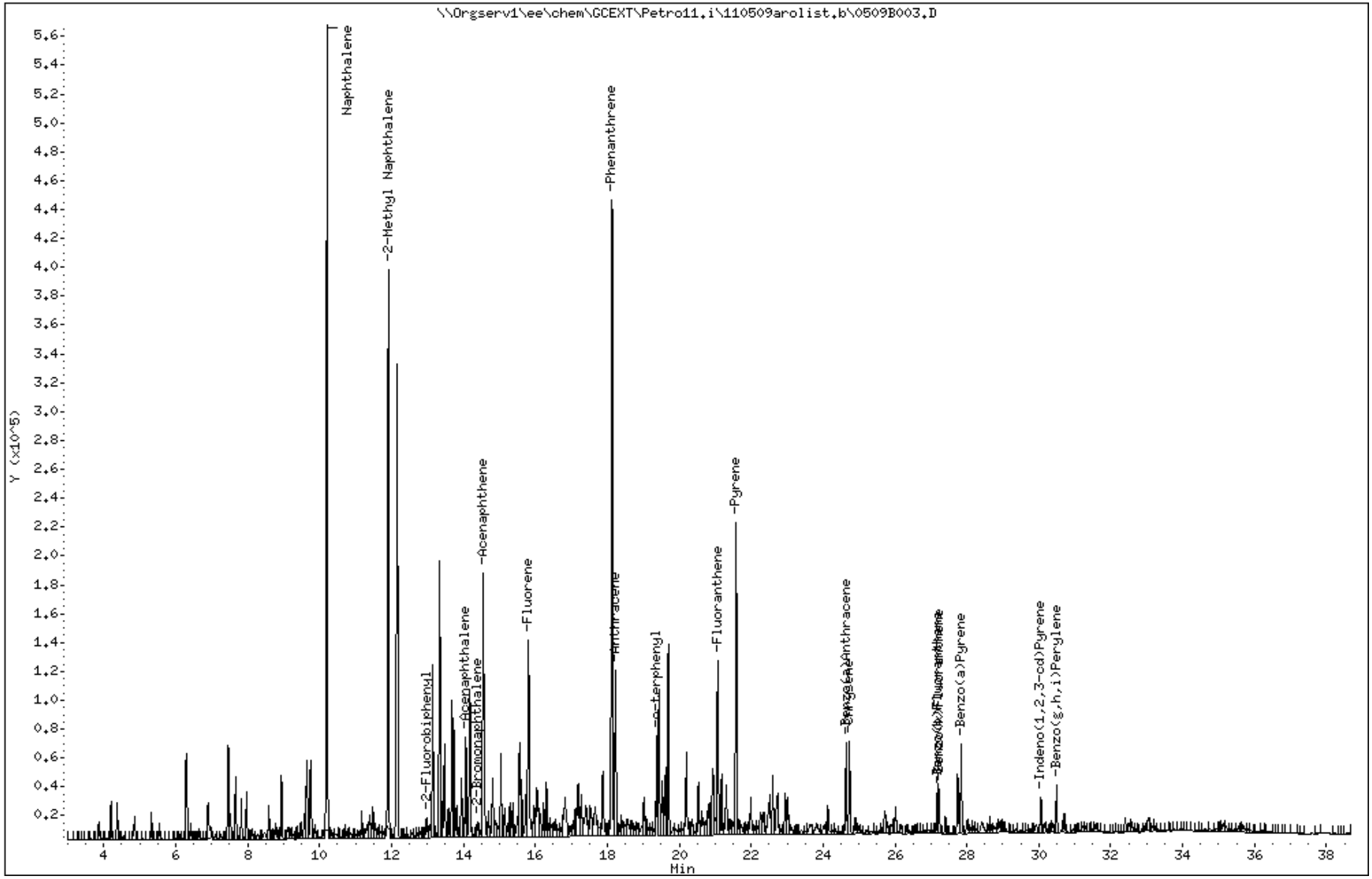
Instrument: lvph.i
Operator: tb
Column diameter: 2.00



Serial_No:05091119:41

Data File: \\Orgserv1\ee\chem\GCEXT\Petro11.i\110509arolist.b\0509B003.D
Date : 09-MAY-2011 13:24
Client ID:
Sample Info: 11105817-07,42, 5x
Purge Volume: 1000.0
Column phase:

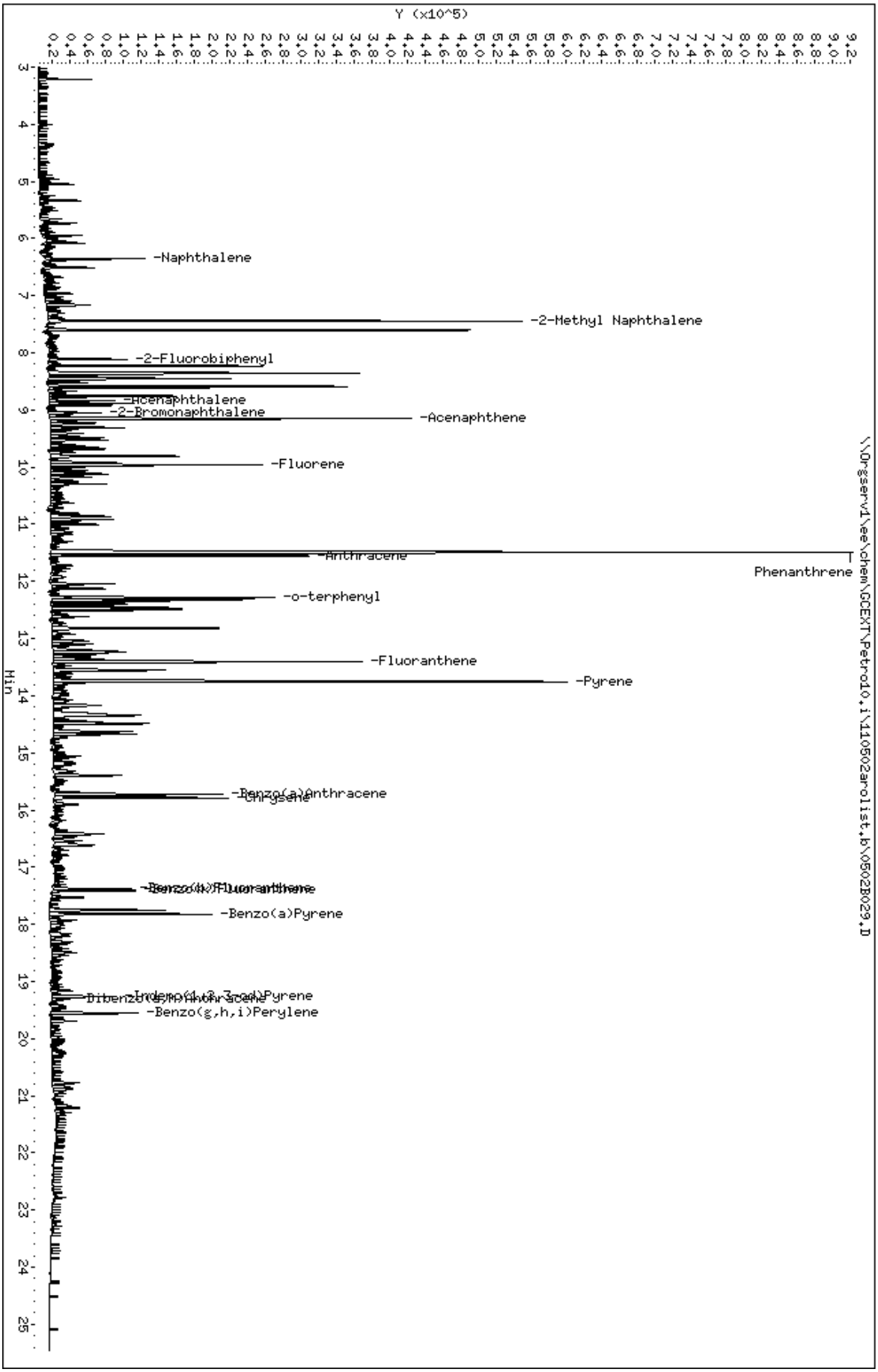
Instrument: Petro11.i
Operator: nh
Column diameter: 0.53



Serial_No:05091119:41

Data File: \\Orgserv1\ee\chem\GCEXT\Petrol0.i\110502arolist.b\0502B029.D
Date : 03-MAY-2011 02:16
Client ID:
Sample Info: 11105817-18.42,
Column phase:

Instrument: Petrol0.i
Operator: nh
Column diameter: 0.53



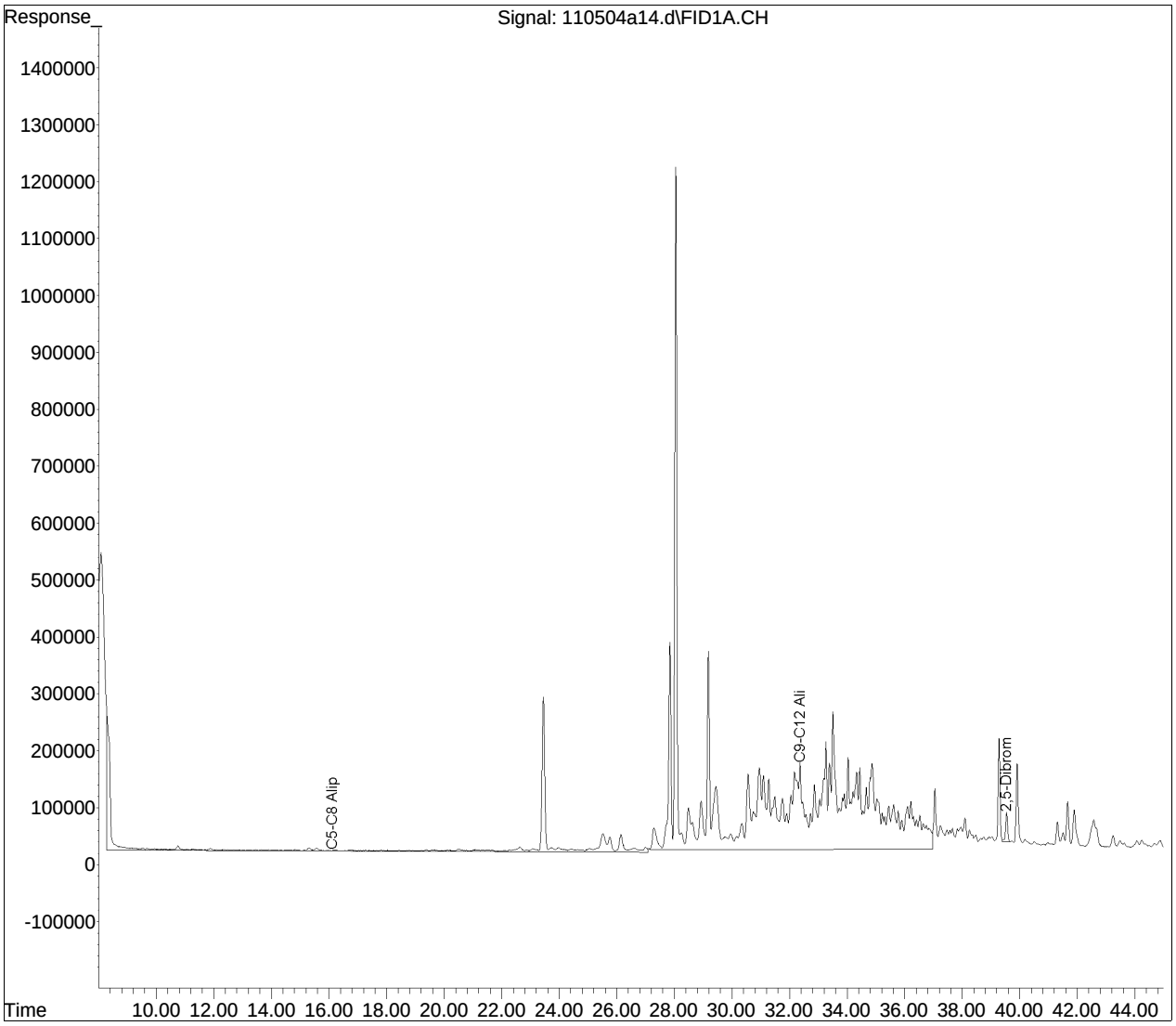
Quantitation Report (QT Reviewed)

Data Path : I:\MVPH\110504ali\
Data File : 110504a14.d
Signal(s) : FID1A.CH
Acq On : 05 May 2011 12:58 am
Operator : mvph:TT
Sample : l1105817-18d,41,16,26.3,.02
Misc : wg466081
ALS Vial : 14 Sample Multiplier: 1

Integration File: events.e
Quant Time: May 05 10:55:11 2011
Quant Method : I:\MVPH\110504ali\vph-ali.m
Quant Title : VPH ALIPHATIC
QLast Update : Mon Apr 04 11:10:30 2011
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



ANALYTICAL REPORT

Lab Number:	L1106422
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL NEW BEDFORD
Project Number:	6690
Report Date:	05/16/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106422
Report Date: 05/16/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1106422-01	TP-2	NEW BEDFORD, MA	04/25/11 11:15
L1106422-02	TP-5	NEW BEDFORD, MA	04/25/11 12:35
L1106422-03	TP-4	NEW BEDFORD, MA	04/25/11 13:00
L1106422-04	TP-12	NEW BEDFORD, MA	04/27/11 09:30
L1106422-05	TP-17	NEW BEDFORD, MA	04/27/11 14:45

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106422

Project Number: 6690 **Report Date:** 05/16/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106422
Project Number: 6690 **Report Date:** 05/16/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 05/16/11

METALS

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

SAMPLE RESULTS

Lab ID:	L1106422-01	Date Collected:	04/25/11 11:15
Client ID:	TP-2	Date Received:	04/28/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/12/11 18:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	0.56		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 18:29	EPA 3015	1,6010B	MG

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

SAMPLE RESULTS

Lab ID:	L1106422-02	Date Collected:	04/25/11 12:35
Client ID:	TP-5	Date Received:	04/28/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/12/11 18:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	18		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 18:32	EPA 3015	1,6010B	MG

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

SAMPLE RESULTS

Lab ID:	L1106422-03	Date Collected:	04/25/11 13:00
Client ID:	TP-4	Date Received:	04/28/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/12/11 18:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	ND		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 18:35	EPA 3015	1,6010B	MG

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

SAMPLE RESULTS

Lab ID:	L1106422-04	Date Collected:	04/27/11 09:30
Client ID:	TP-12	Date Received:	04/28/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/12/11 18:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	ND		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 18:38	EPA 3015	1,6010B	MG

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

SAMPLE RESULTS

Lab ID:	L1106422-05	Date Collected:	04/27/11 14:45
Client ID:	TP-17	Date Received:	04/28/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/12/11 18:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	ND		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 18:41	EPA 3015	1,6010B	MG

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106422

Project Number: 6690 **Report Date:** 05/16/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab for sample(s): 01-05 Batch: WG467805-1										
Lead, TCLP	ND		mg/l	0.50	--	1	05/13/11 14:40	05/13/11 17:56	1,6010B	MG

Prep Information

Digestion Method: EPA 3015

TCLP/SPLP Extraction Date: 05/12/11 18:30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1106422

Report Date: 05/16/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01-05 Batch: WG467805-2								
Lead, TCLP	100		-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106422
Report Date: 05/16/11

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG467805-4 QC Sample: L1106614-01 Client ID: MS Sample												
Lead, TCLP	ND	10	10	100		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106422
Report Date: 05/16/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG467805-3 QC Sample: L1106614-01 Client ID: DUP Sample						
Lead, TCLP	ND	ND	mg/l	NC		20

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106422
Report Date: 05/16/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106422-01A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1106422-01X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)
L1106422-02A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1106422-02X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)
L1106422-03A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1106422-03X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)
L1106422-04A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1106422-04X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)
L1106422-05A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1106422-05X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)

*Values in parentheses indicate holding time in days

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106422
Project Number:	6690	**Report Date:**	05/16/11

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106422
Project Number: 6690 **Report Date:** 05/16/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised February 23, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **EPA 8260B:** Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline. **EPA 350.1** for Ammonia in a Soil matrix.

Serial_No:05161115:16

L1106422

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA TECHNICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: L1105817 LT 5/09/11

Client Information

Client: Apex Co., LLC

Address: 184 High St, Ste 502, Boston, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal New Bedford

Project Location: New Bedford

Project #: 6690

Project Manager: Chart Myers

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/5/11 Time: 5/16/11

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING

Filtration ☐ Done ☒ Not needed ☐ Lab to do

Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	Metals	TPH 13 Aromatics (Connecticut DEP)	SVOCs (EPA 8270)	VOCs (8260)	MADEP VPH (Massachusetts)			TCLP-PB				Sample Specific Comments	TOTAL # BOTTLES
05817 06422 1	TP-1	4/25/11	7:30	S	GAD	X		X	X										2
01 2	TP-2	4/25/11	11:15	S	GAD	X		X	X					X					2
02 3	TP-5	4/25/11	12:35	S	GAD	X		X	X					X					2
03 4	TP-4	4/25/11	13:00	S	GAD	X		X	X					X					2
5	TP-3	4/25/11	13:47	S	GAD	X	X	X	X	X	X							PETROLEUM ODOR	6
6	TP-7	4/26/11	7:40	S	GAD	X		X	X										2
7	TP-6	4/26/11	9:00	S	GAD	X	X	X	X	X	X							PETROLEUM ODOR	6
8	TP-8	4/26/11	11:00	S	GAD	X		X	X										2
9	TP-9	4/26/11	13:54	S	GAD	X		X	X										2
10	TP-~~10~~ 11 GAD	4/26/11	15:20	S	GAD	X		X	X										2
	LT 5/09																		
	Container Type					A	A	A	A	V	V								
	Preservative					A	A	A	A	F	F								

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	4/28/11 15:0	R Gillett	4/28/11 1500
R Gillett	4/28/11 1625	[illegible]	4/28/11 1625
T Hendrickson	4/28/11 1715	[illegible]	4/28/11 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:05161115:16

L1106422

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/28/11

ALPHA Job #: L1105817 ct 5/9/11

Client Information

Client: APEX Co, LLC

Address: 184 HIGH ST., STE 502, BOSTON, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0030

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Location: NEW BEDFORD

Project #: 6690

Project Manager: CHRIS MYERS

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: 5/5/11 Time: 5/6/11

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add' Deliverables

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE.

SAMPLE HANDLING

Filtration: ☐ Done ☒ Not needed ☐ Lab to do

Preservation: ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP CAM (GRAIN RANGES)	TPH 13 METALS (EPA #)	SVOCs (EPA 8270C)	VOCs (8260) MADEP (RANGES)	TCLP-PB	Sample Specific Comments	TOTAL # BOTTLES
05817.11	TP-10	4/27/11	8:30	S	GAD	X		X	X				2
06422. 11	TP-12	4/27/11	9:30	S	GAD	X		X	X		X		2
13	TP-13a	4/27/11	11:00	S	GAD	X		X	X				2
14	TP-14	4/27/11	11:57	S	GAD	X		X	X				2
15	TP-16	4/27/11	13:30	S	GAD	X		X	X				2
05 16	TP-17	4/27/11	14:45	S	GAD	X		X	X		X		2
17	TP-13	4/28/11	8:00	S	GAD	X		X	X				2
18	DUPLICATE 1	4/25/11		S	GAD	X	X	X	X	X	X		6
19	DUPLICATE 2	4/26/11		S	GAD	X	X	X	X	X	X		6
	ct 5/09												

Container Type	A	A	A	A	V	V
Preservative	A	A	A	A	F	F

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
P. Gillett	4/28/11 15:00	P. Gillett	4/28/11 1500
P. Gillett	4/28/11 1625	[illegible]	4/28/11 1625
[illegible]	4/28/11 1715	[illegible]	4/28/11 1715

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 20948
Date Received: 04/29/11
Date Reported: 05/26/11

Project: South Terminal.6690

Attached please find results for analyses performed on samples received on 04/29/11 at 1020.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent, except where noted.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Authorized Signature

Date 5/26/11

Attachment
Report

Lab Number:	20948-001
Sample Designation:	TP-1
Date Sampled:	04/25/11 0730
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.06
Aroclor 1221	U	0.06
Aroclor 1232	U	0.06
Aroclor 1248	U	0.06
Aroclor 1254	0.086	0.06
Aroclor 1260	U	0.06

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	77	30 - 150
decachlorobiphenyl	81	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

ESI

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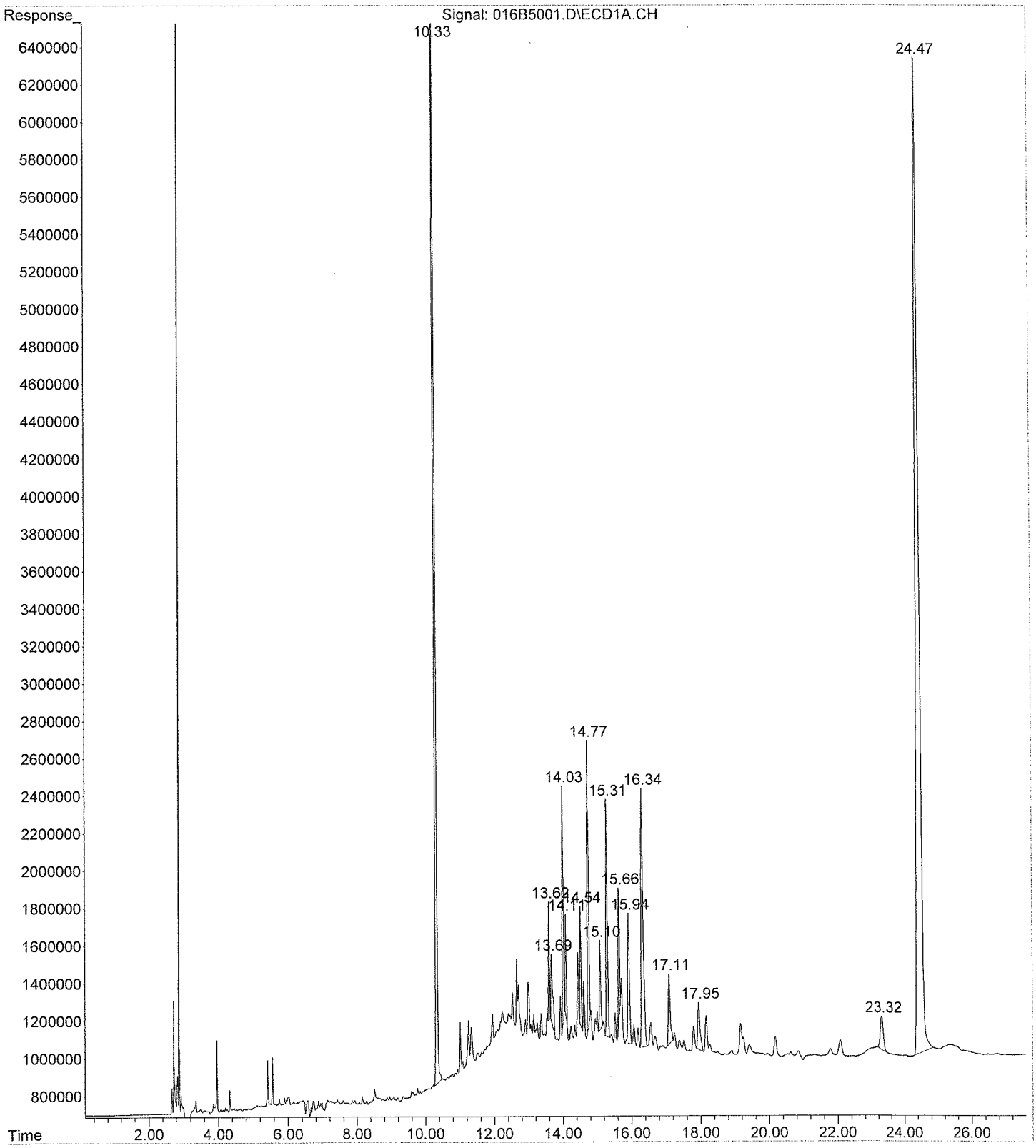
File : C:\DATA2\052311A\016B5001.D
Operator : rdf
Acquired : 24 May 2011 3:33 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-001
Misc Info :
Vial Number: 16



Lab Number:	20948-002
Sample Designation:	TP-2
Date Sampled:	04/25/11 1115
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	200

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	1.1
Aroclor 1221	U	1.1
Aroclor 1232	U	1.1
Aroclor 1248	U	1.1
Aroclor 1254	75	1.1
Aroclor 1260	U	1.1

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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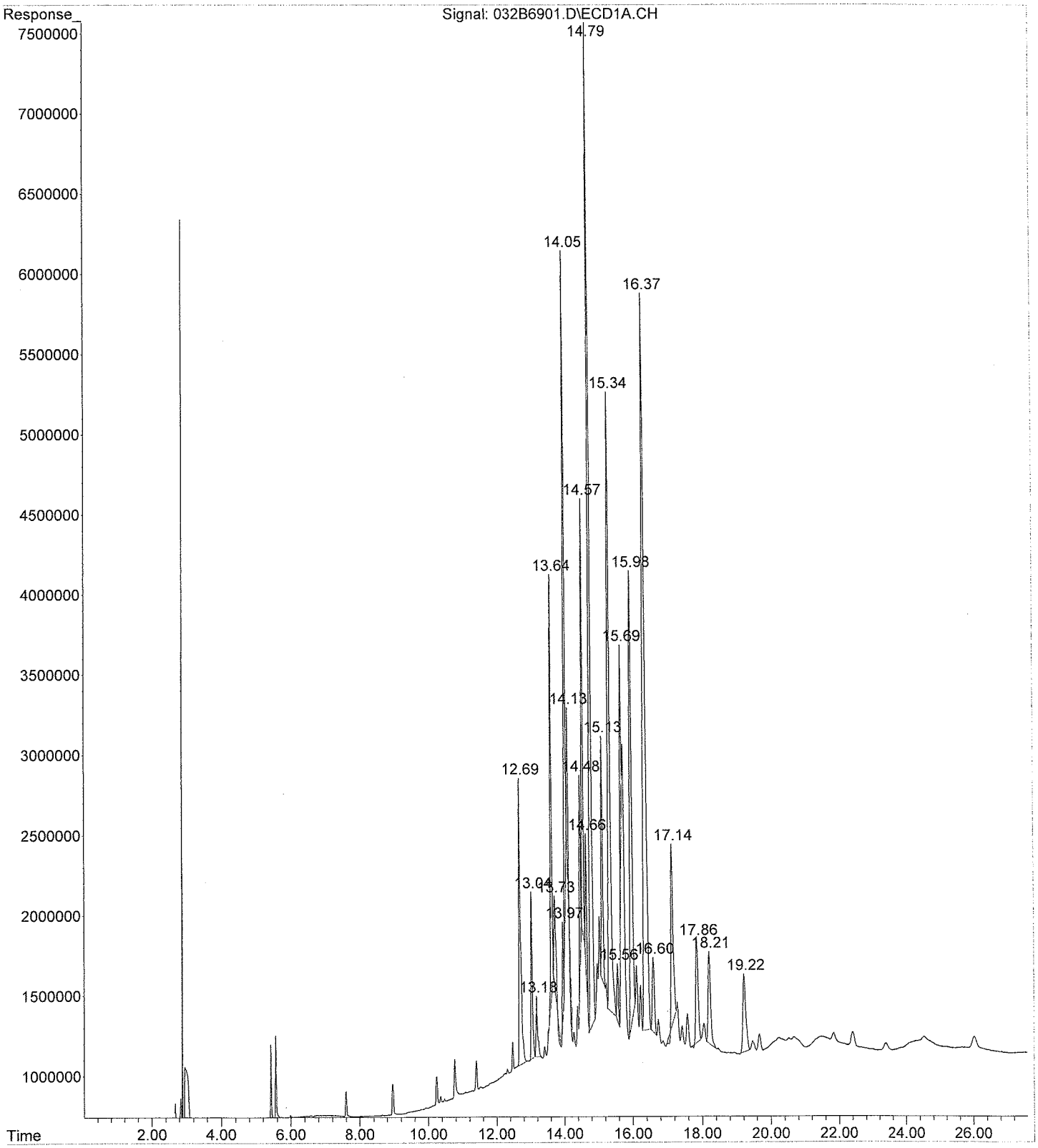
File : C:\DATA2\052311A\032B6901.D
Operator : rdf
Acquired : 25 May 2011 3:24 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-002 L200
Misc Info :
Vial Number: 32



Lab Number:	20948-003
Sample Designation:	TP-5
Date Sampled:	04/25/11 1235
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	50

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.31
Aroclor 1221	U	0.31
Aroclor 1232	U	0.31
Aroclor 1248	U	0.31
Aroclor 1254	15	0.31
Aroclor 1260	U	0.31

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

ESI

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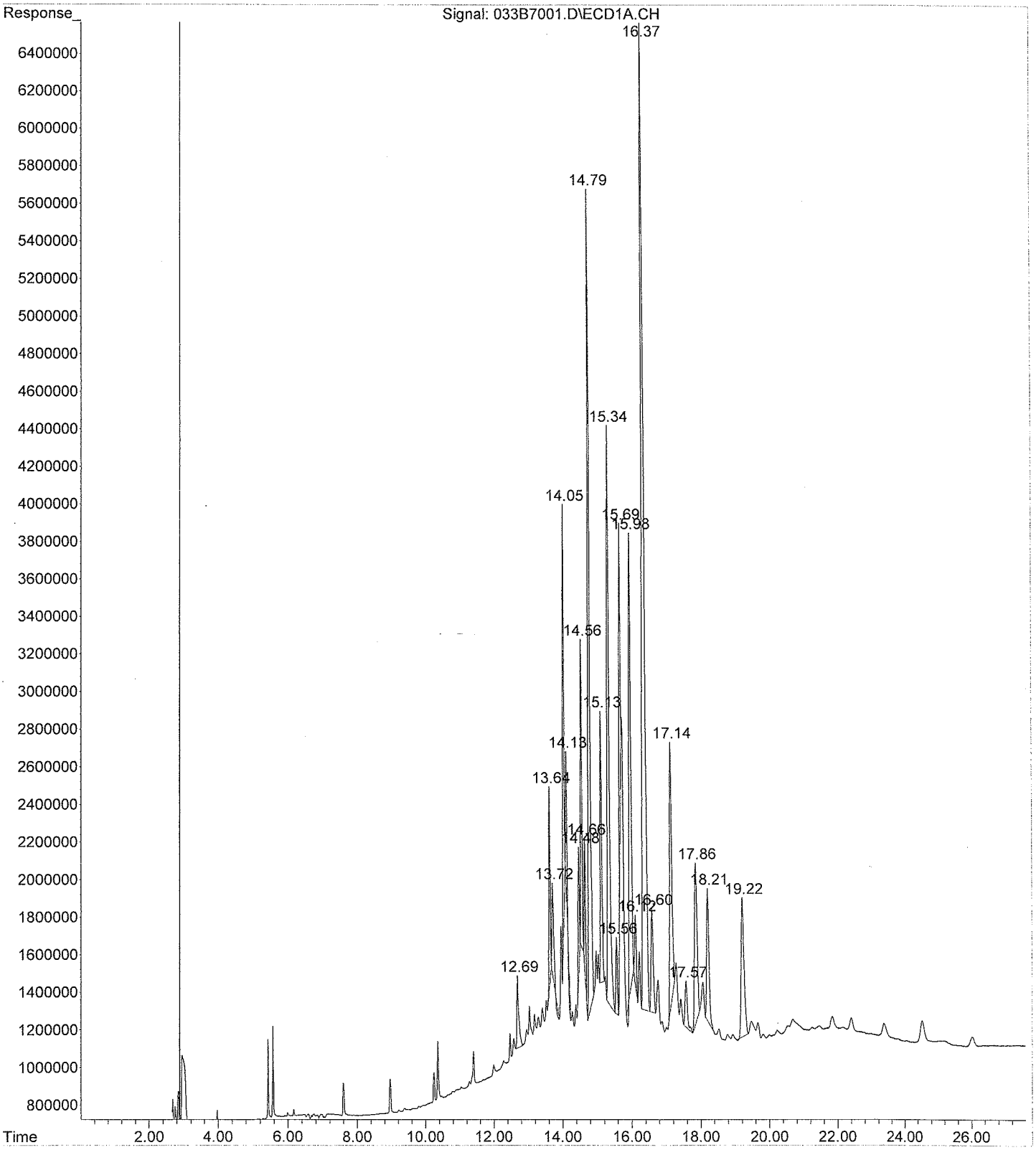
File : C:\DATA2\052311A\033B7001.D
Operator : rdf
Acquired : 25 May 2011 4:01 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-003 L50
Misc Info :
Vial Number: 33



Lab Number:	20948-004
Sample Designation:	TP-4
Date Sampled:	04/25/11 1300
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	81
Final Volume (mL)	1
Dilution Factor:	1000

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	6.2
Aroclor 1221	U	6.2
Aroclor 1232	U	6.2
Aroclor 1248	U	6.2
Aroclor 1254	610	6.2
Aroclor 1260	U	6.2

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.
Some of the GC peaks were above the calibration limit but within the expected linear response range of the system.

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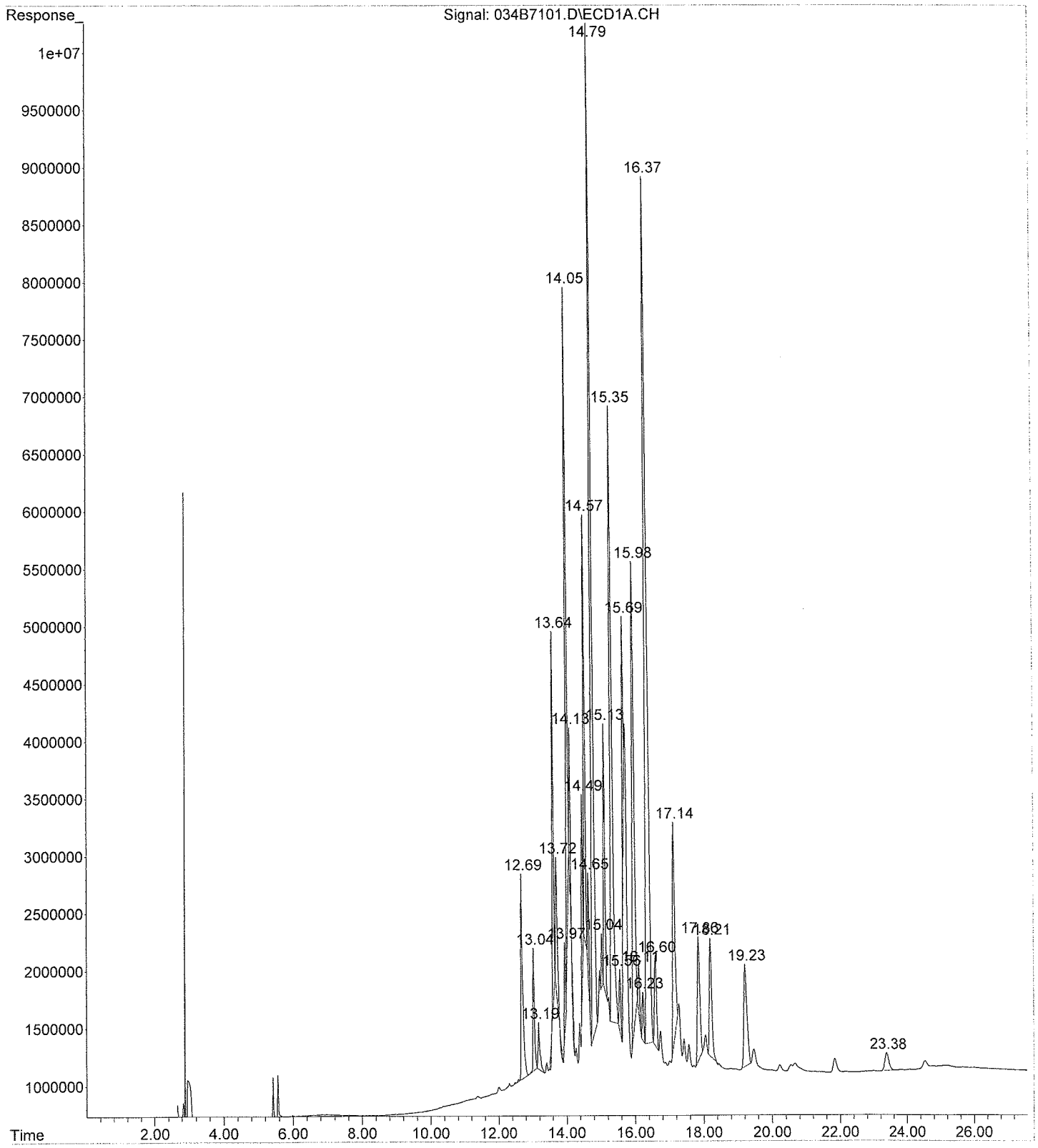
File : C:\DATA2\052311A\034B7101.D
Operator : rdf
Acquired : 25 May 2011 4:38 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-004 L1000
Misc Info :
Vial Number: 34



Lab Number:	20948-005
Sample Designation:	TP-3
Date Sampled:	04/25/11 1347
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	30

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)		Reporting Limit (ug/g)
Aroclor 1016\1242	0.53	J	0.17
Aroclor 1221	U		0.17
Aroclor 1232	U		0.17
Aroclor 1248	0.52	J	0.17
Aroclor 1254	12		0.17
Aroclor 1260	U		0.17

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit
J = Estimated value. This analyte may have been affected by other aroclors in the sample.

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.
Some of the GC peaks were above the calibration limit but within the expected linear response range of the system.

ESI

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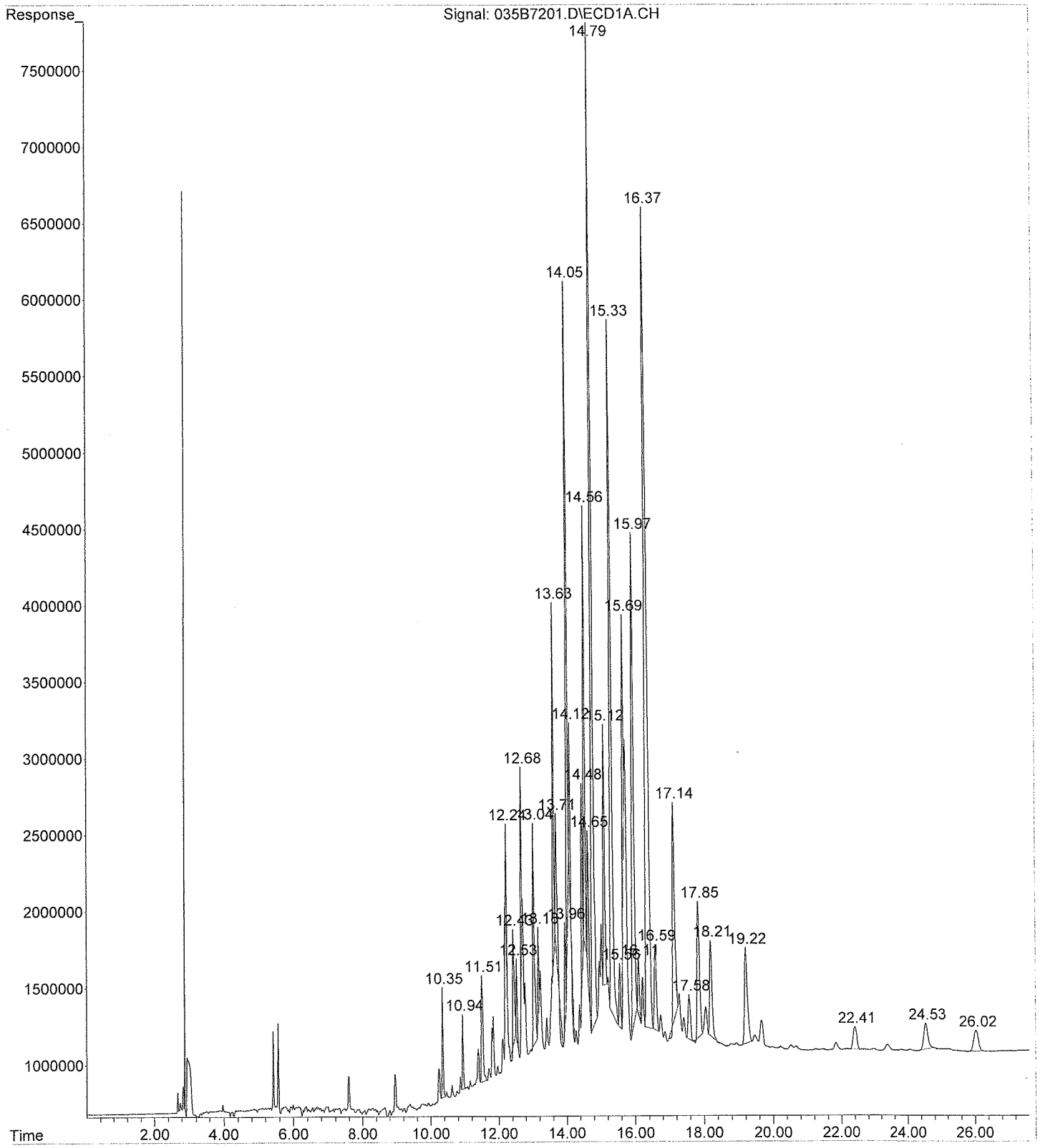
File : C:\DATA2\052311A\035B7201.D
Operator : rdf
Acquired : 25 May 2011 5:15 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-005 L30
Misc Info :
Vial Number: 35



Lab Number:	20948-006
Sample Designation:	TP-7
Date Sampled:	04/26/11 0740
Date Extracted:	05/09/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	0.26	0.0061
Aroclor 1260	U	0.0061

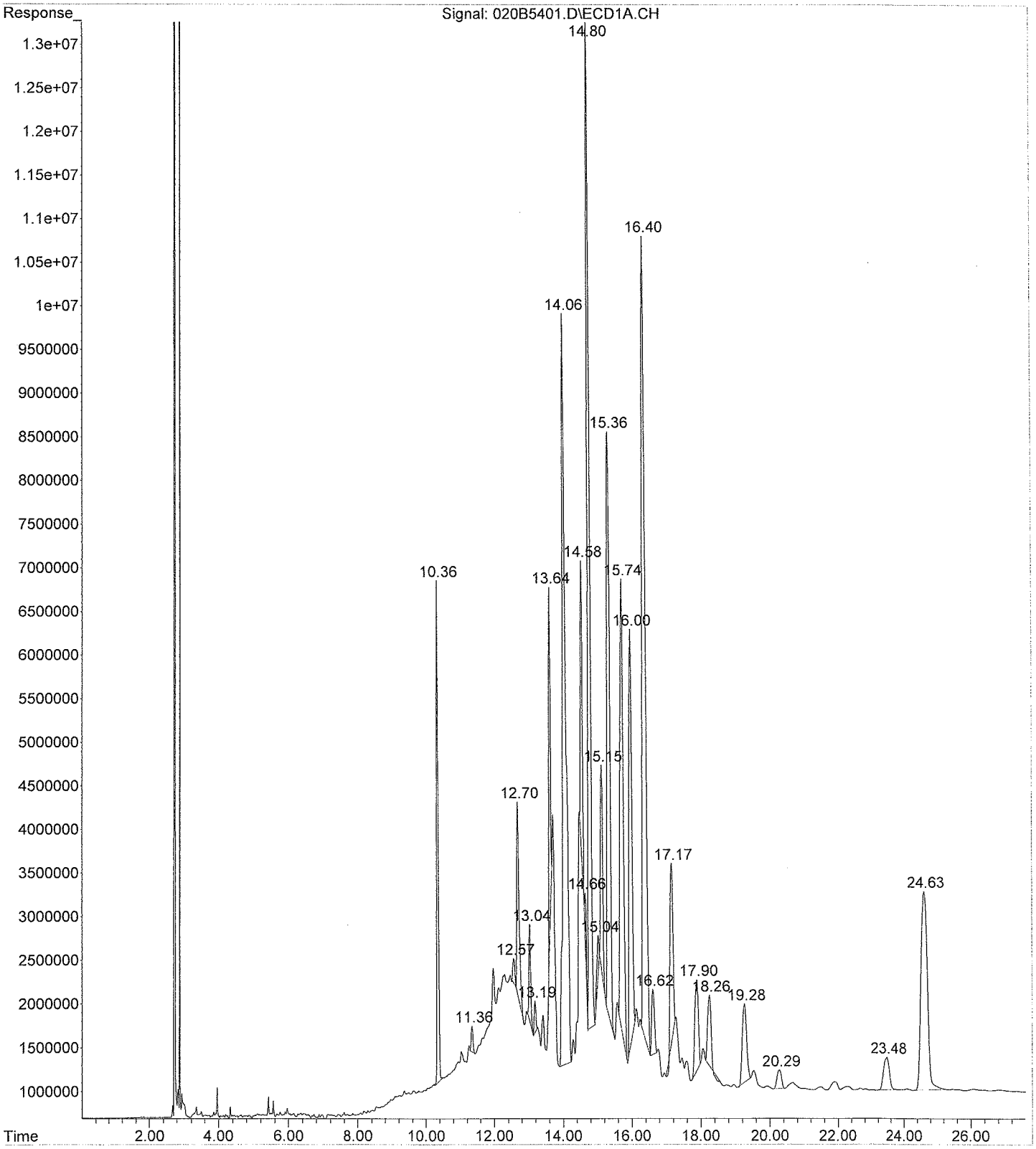
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	77	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052311A\020B5401.D
Operator : rdf
Acquired : 24 May 2011 6:04 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-006
Misc Info :
Vial Number: 20



Lab Number:	20948-007
Sample Designation:	TP-6
Date Sampled:	04/26/11 0900
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	74
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.11	0.0067
Aroclor 1260	U	0.0067

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	80	30 - 150
decachlorobiphenyl	84	30 - 150

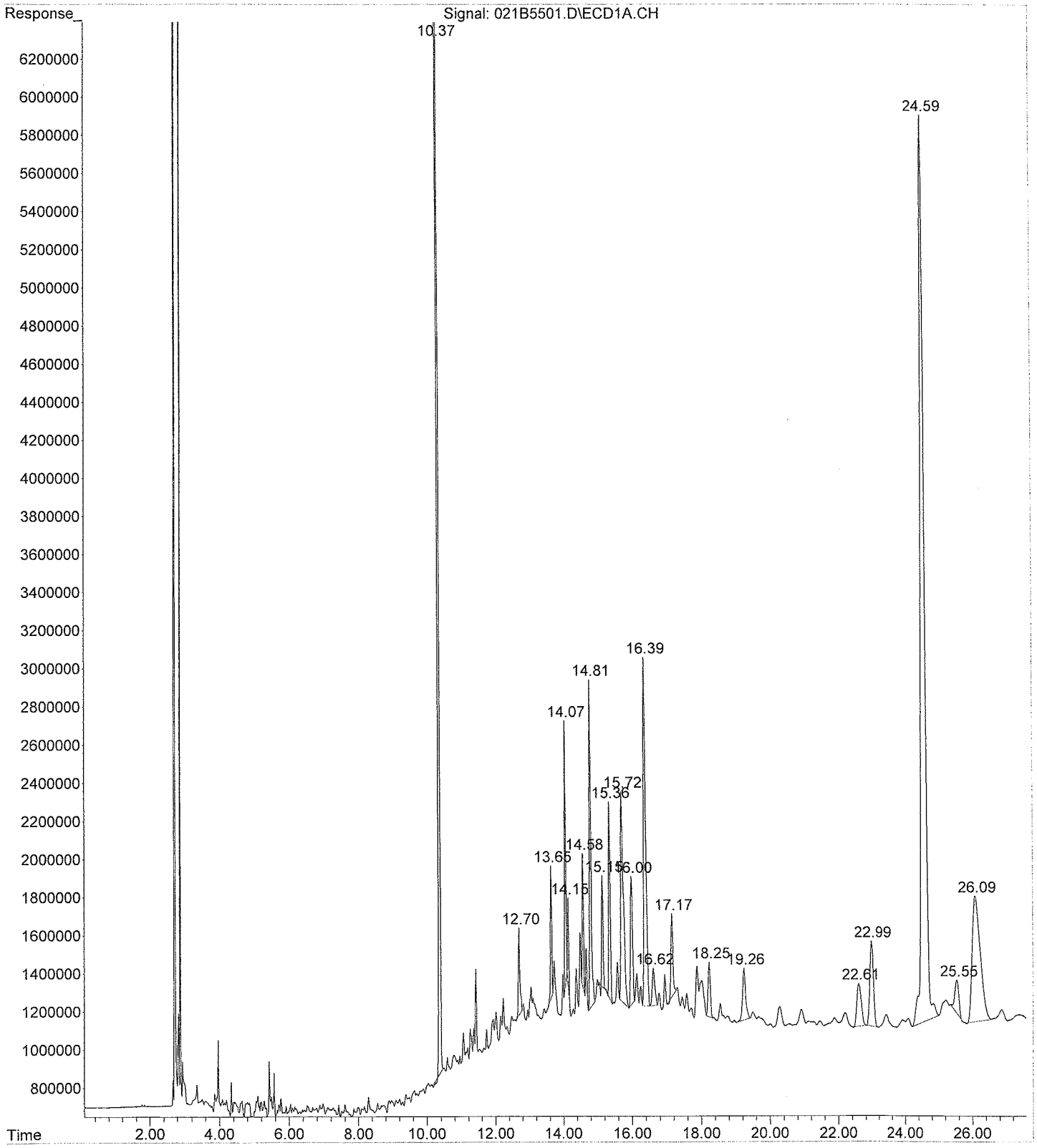
U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052311A\021B5501.D
Operator : rdf
Acquired : 24 May 2011 6:41 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-007
Misc Info :
Vial Number: 21



Lab Number:	20948-008
Sample Designation:	TP-8
Date Sampled:	04/26/11 1100
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	0.014	0.0058
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	66	30 - 150
decachlorobiphenyl	69	30 - 150

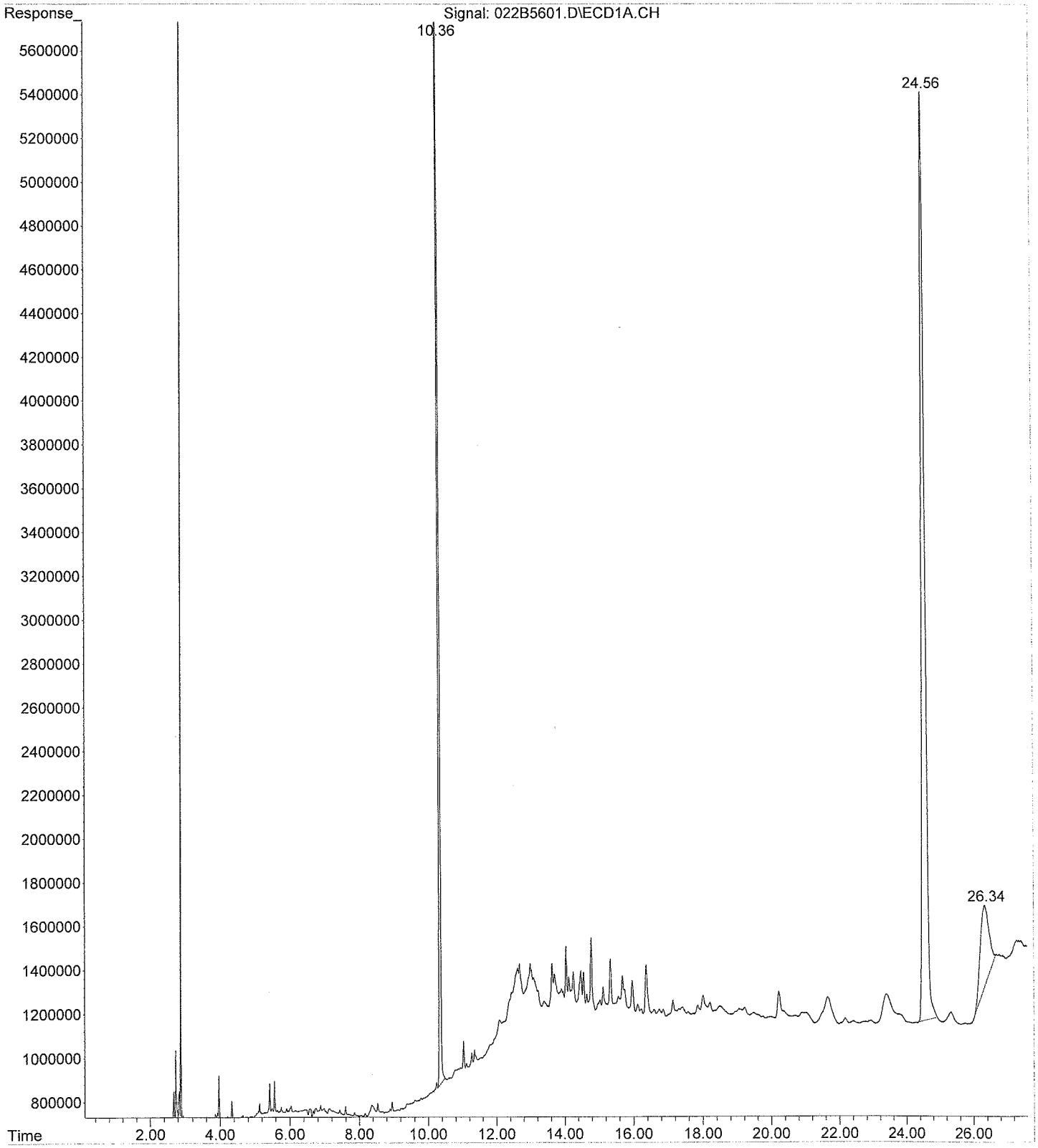
U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052311A\022B5601.D
Operator : rdf
Acquired : 24 May 2011 7:19 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-008
Misc Info :
Vial Number: 22



Lab Number:	20948-009
Sample Designation:	TP-9
Date Sampled:	04/26/11 1354
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	65
Final Volume (mL)	1
Dilution Factor:	10

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.77
Aroclor 1221	U	0.77
Aroclor 1232	U	0.77
Aroclor 1248	U	0.77
Aroclor 1254	4.6	0.77
Aroclor 1260	U	0.77

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	108	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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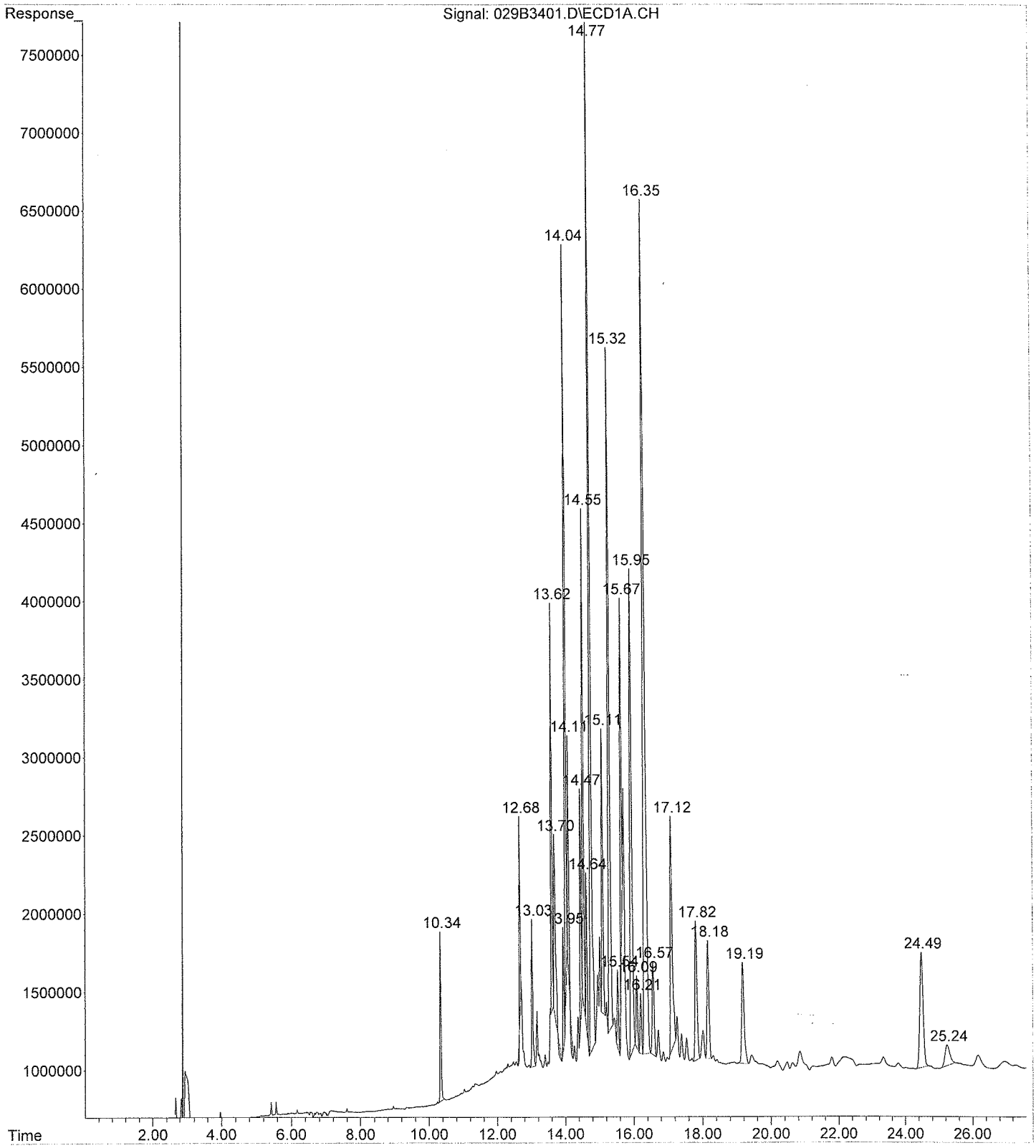
File : C:\DATA2\052311A\029B3401.D
Operator : rdf
Acquired : 24 May 2011 5:38 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-009 L10
Misc Info :
Vial Number: 29



Lab Number:	20948-010
Sample Designation:	TP-11
Date Sampled:	04/26/11 1520
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	93
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

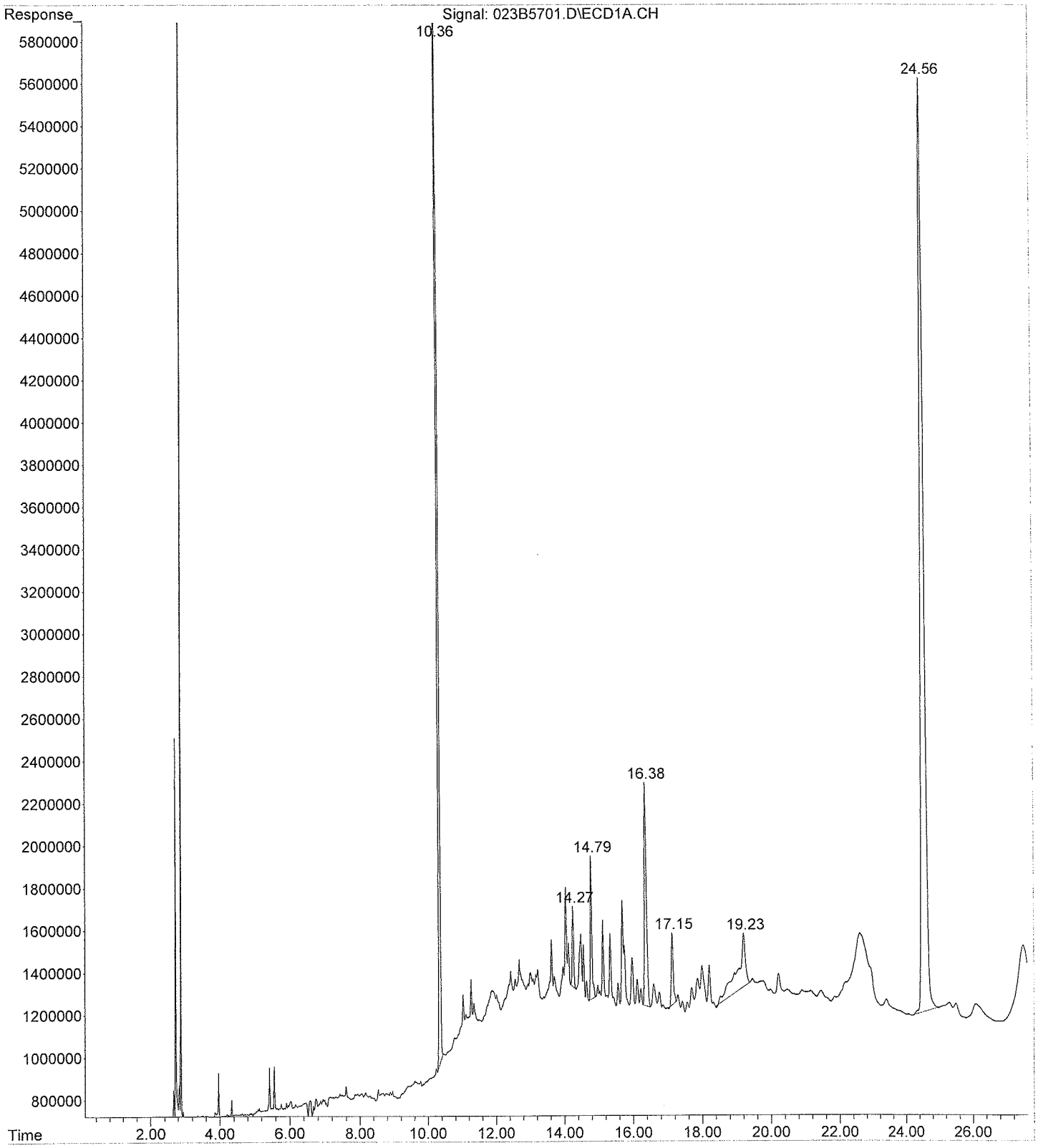
	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0054
Aroclor 1221	U	0.0054
Aroclor 1232	U	0.0054
Aroclor 1248	U	0.0054
Aroclor 1254	0.032	0.0054
Aroclor 1260	U	0.0054

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	76	30 - 150
decachlorobiphenyl	76	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

File : C:\DATA2\052311A\023B5701.D
Operator : rdf
Acquired : 24 May 2011 7:56 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-010
Misc Info :
Vial Number: 23



Lab Number:	20948-011
Sample Designation:	TP-10
Date Sampled:	04/27/11 0830
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	0.22	0.0058
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	78	30 - 150
decachlorobiphenyl	78	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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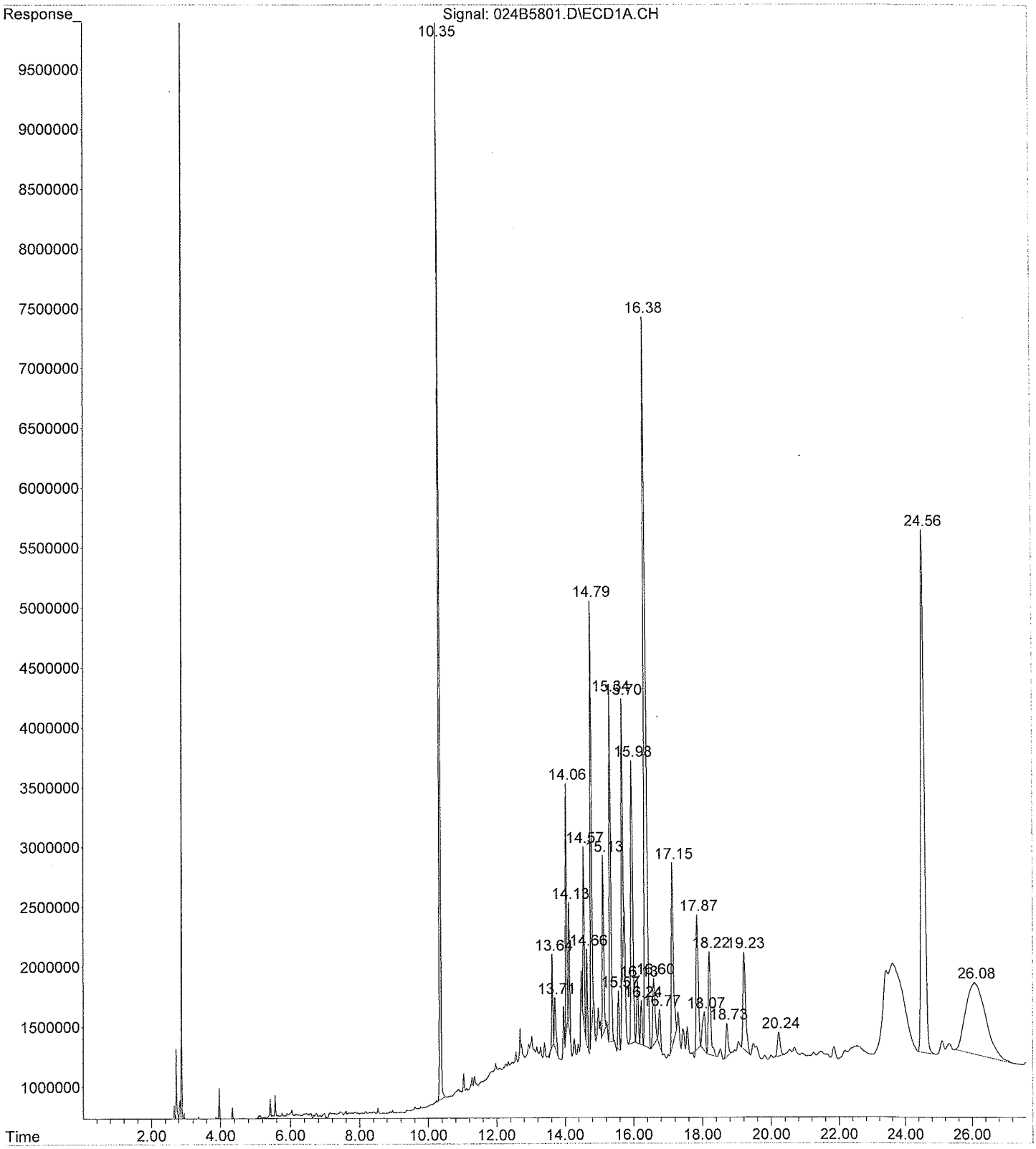
File : C:\DATA2\052311A\024B5801.D
Operator : rdf
Acquired : 24 May 2011 8:34 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-011
Misc Info :
Vial Number: 24



Lab Number:	20948-012
Sample Designation:	TP-12
Date Sampled:	04/27/11 0930
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	80
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0062
Aroclor 1221	U	0.0062
Aroclor 1232	U	0.0062
Aroclor 1248	U	0.0062
Aroclor 1254	0.11	0.0062
Aroclor 1260	U	0.0062

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	77	30 - 150
decachlorobiphenyl	74	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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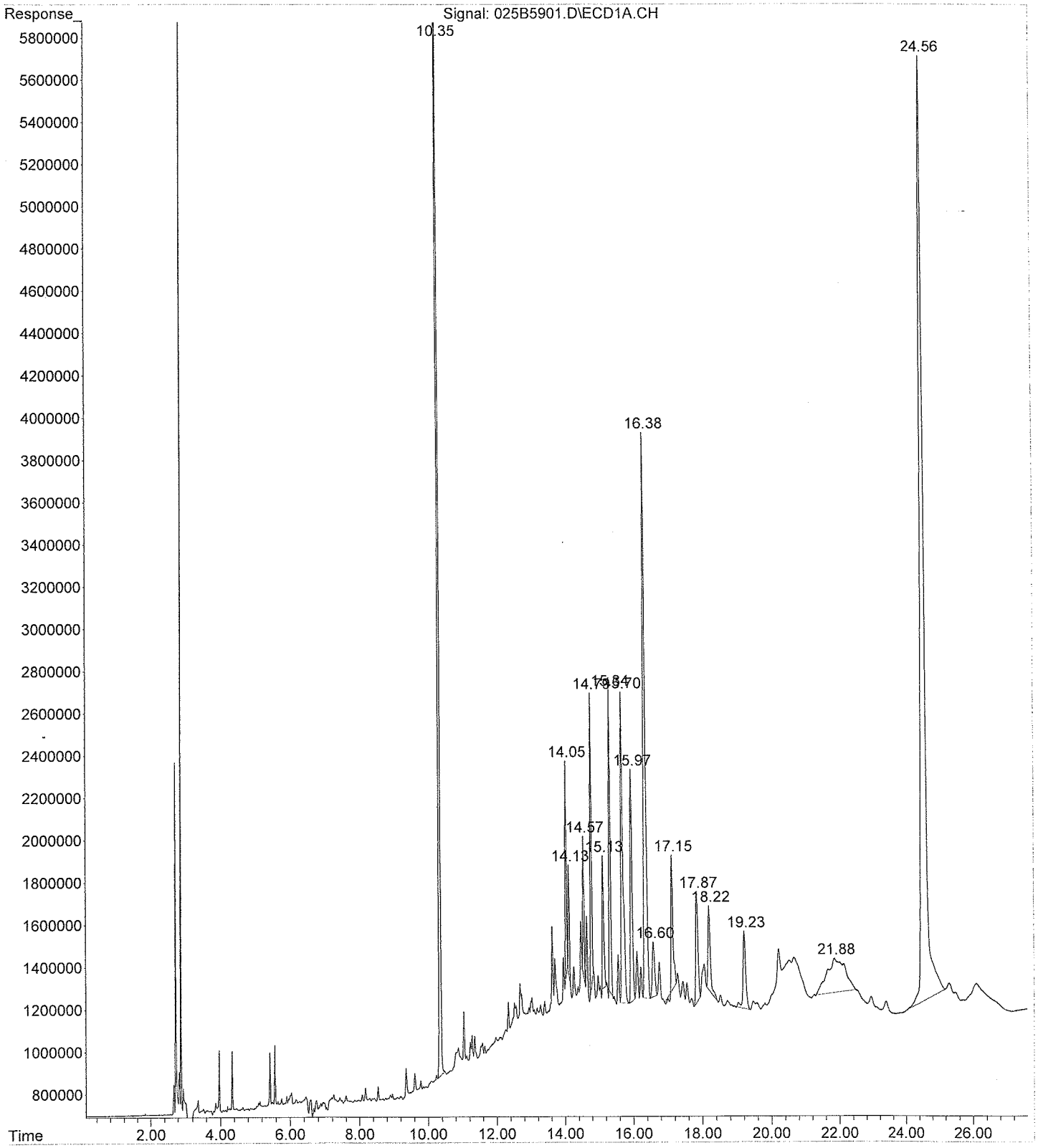
File : C:\DATA2\052311A\025B5901.D
Operator : rdf
Acquired : 24 May 2011 9:11 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-012
Misc Info :
Vial Number: 25



Lab Number:	20948-013
Sample Designation:	TP-13a
Date Sampled:	04/27/11 1100
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	83
Final Volume (mL)	1
Dilution Factor:	2

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.012
Aroclor 1221	U	0.012
Aroclor 1232	U	0.012
Aroclor 1248	U	0.012
Aroclor 1254	0.51	0.012
Aroclor 1260	U	0.012

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	89	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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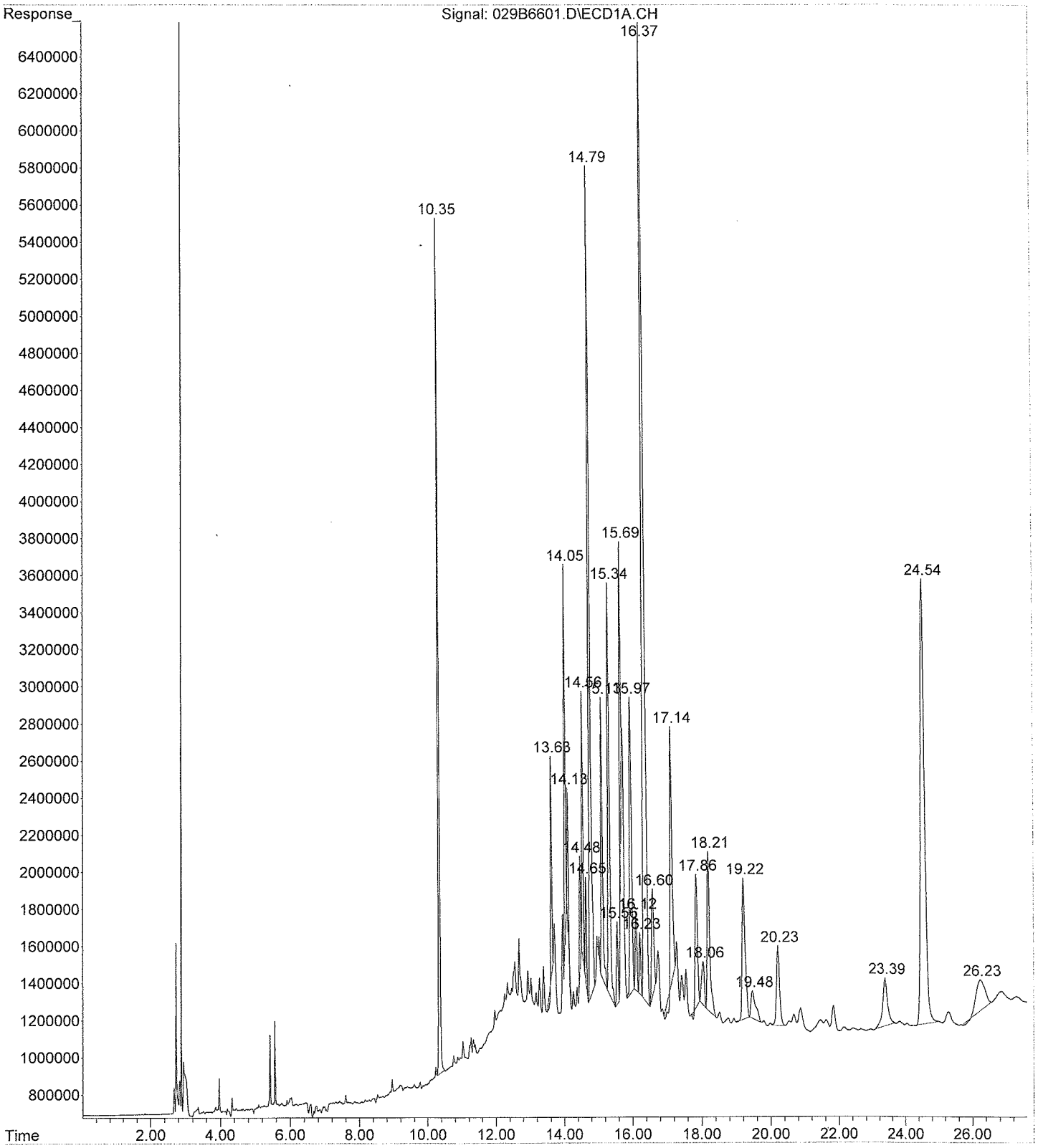
File : C:\DATA2\052311A\029B6601.D
Operator : rdf
Acquired : 25 May 2011 1:32 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-013 L2
Misc Info :
Vial Number: 29



Lab Number:	20948-014
Sample Designation:	TP-14
Date Sampled:	04/27/11 1157
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	0.10	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	75	30 - 150
decachlorobiphenyl	80	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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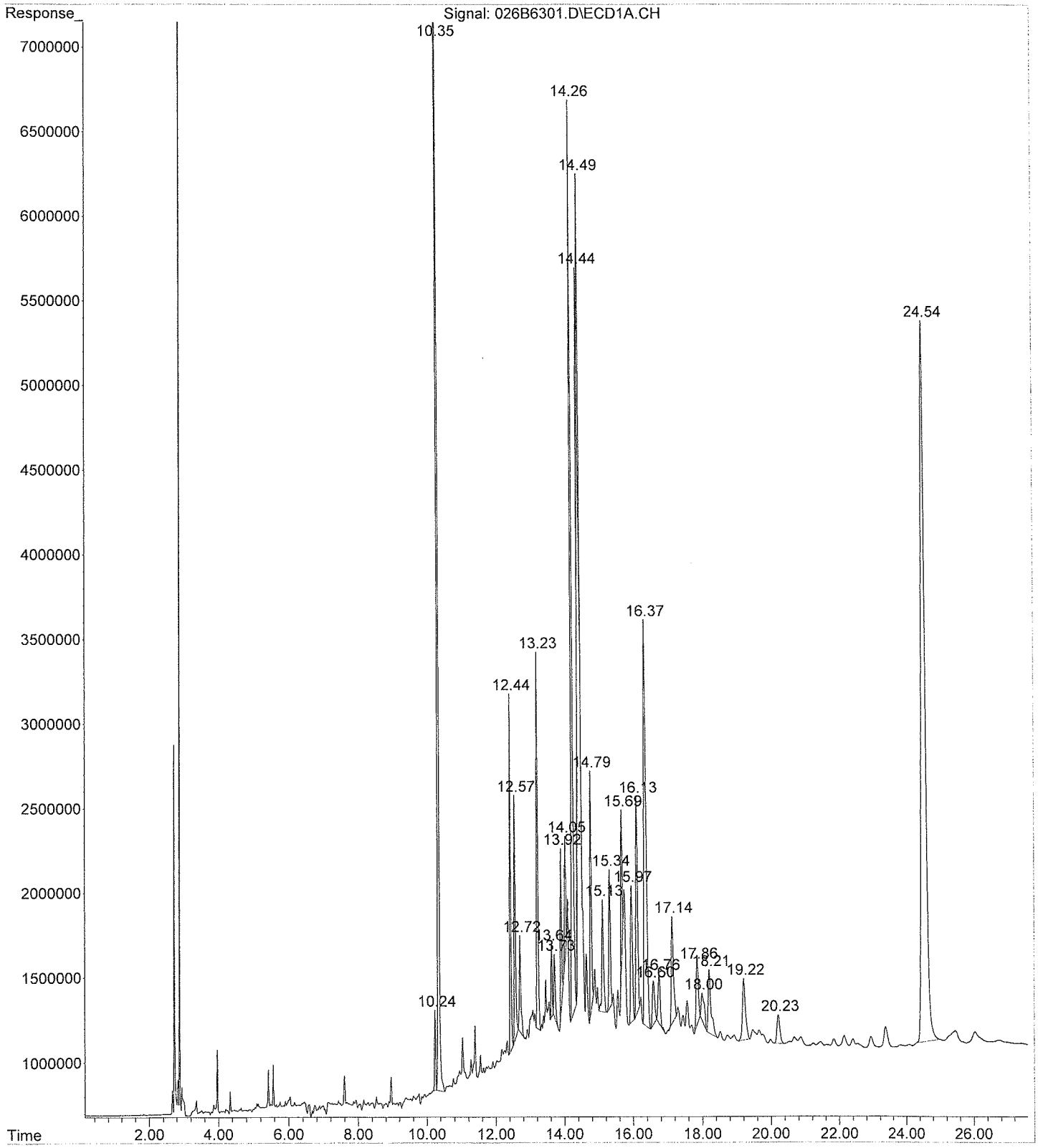
File : C:\DATA2\052311A\026B6301.D
Operator : rdf
Acquired : 24 May 2011 11:41 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-014
Misc Info :
Vial Number: 26



Lab Number:	20948-015
Sample Designation:	TP-16
Date Sampled:	04/27/11 1330
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	0.03	0.0061
Aroclor 1260	U	0.0061

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	81	30 - 150
decachlorobiphenyl	82	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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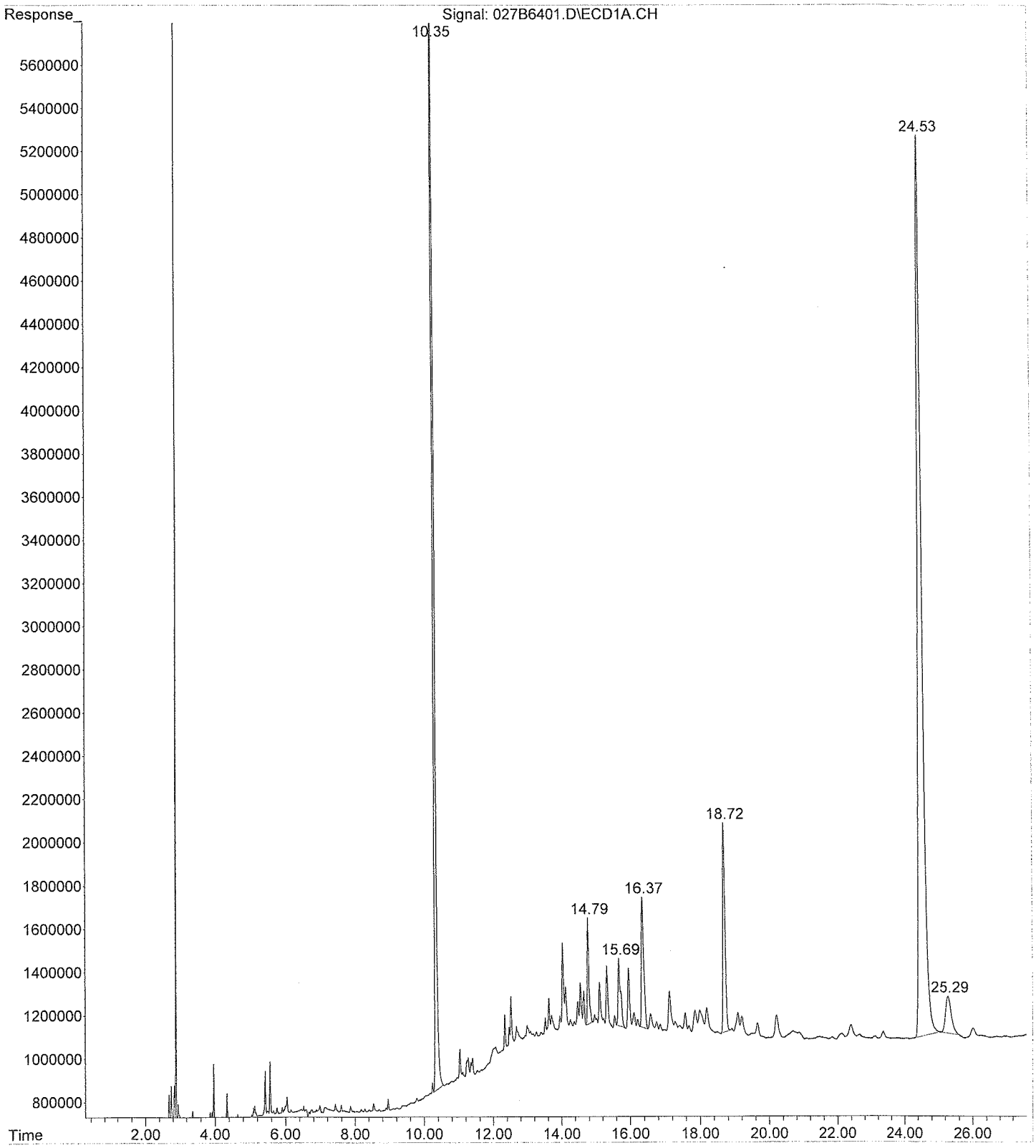
File : C:\DATA2\052311A\027B6401.D
Operator : rdf
Acquired : 25 May 2011 12:18 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-015
Misc Info :
Vial Number: 27



Lab Number:	20948-016
Sample Designation:	TP-17
Date Sampled:	04/27/11 1445
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	83
Final Volume (mL)	1
Dilution Factor:	20

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.12
Aroclor 1221	U	0.12
Aroclor 1232	U	0.12
Aroclor 1248	U	0.12
Aroclor 1254	6.20	0.12
Aroclor 1260	U	0.12

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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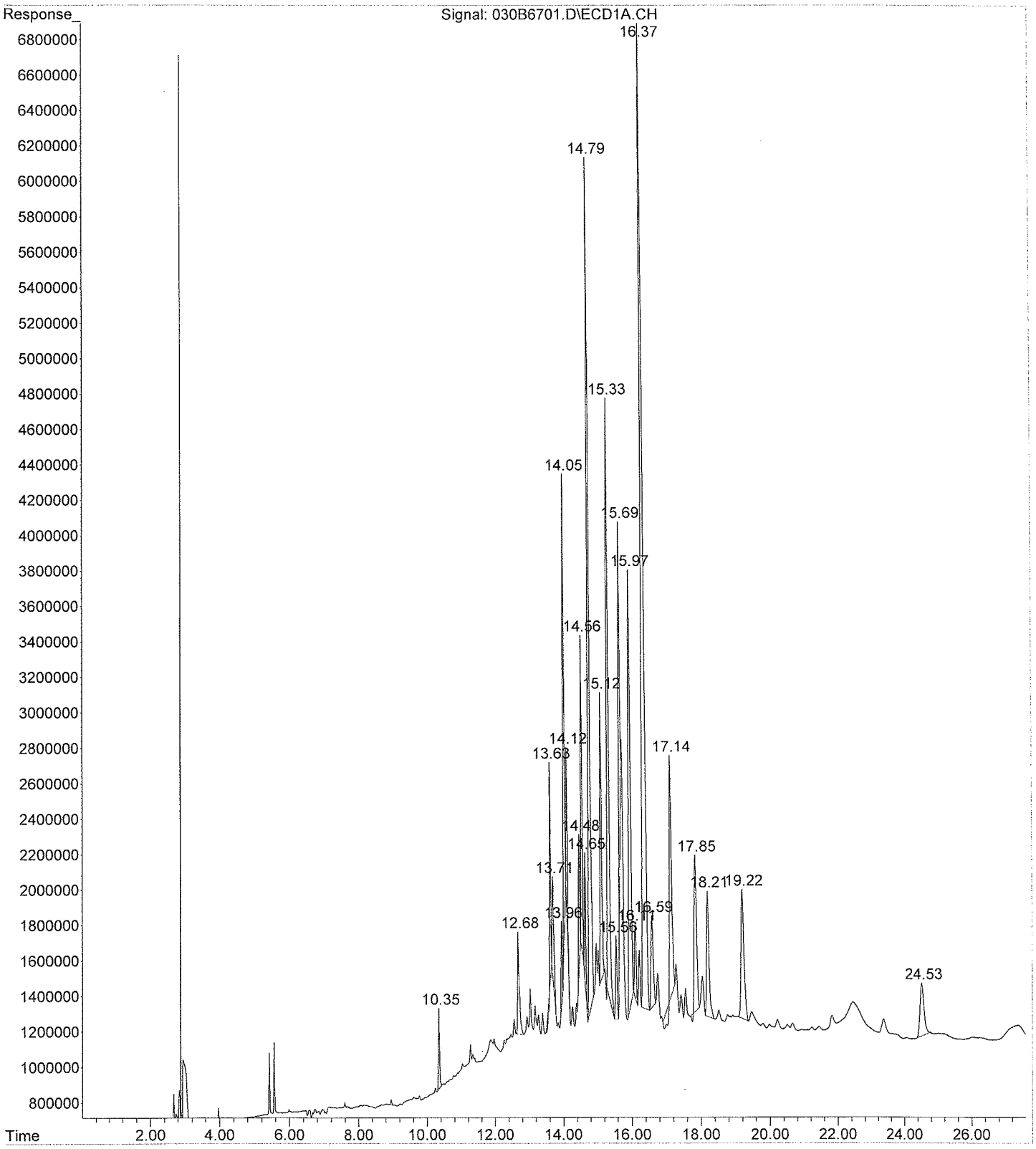
File : C:\DATA2\052311A\030B6701.D
Operator : rdf
Acquired : 25 May 2011 2:10 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-016 L20
Misc Info :
Vial Number: 30



Lab Number:	20948-017
Sample Designation:	TP-13
Date Sampled:	04/28/11 0800
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	20

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.12
Aroclor 1221	U	0.12
Aroclor 1232	U	0.12
Aroclor 1248	U	0.12
Aroclor 1254	6.4	0.12
Aroclor 1260	U	0.12

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted Out	30 - 150
decachlorobiphenyl	Diluted Out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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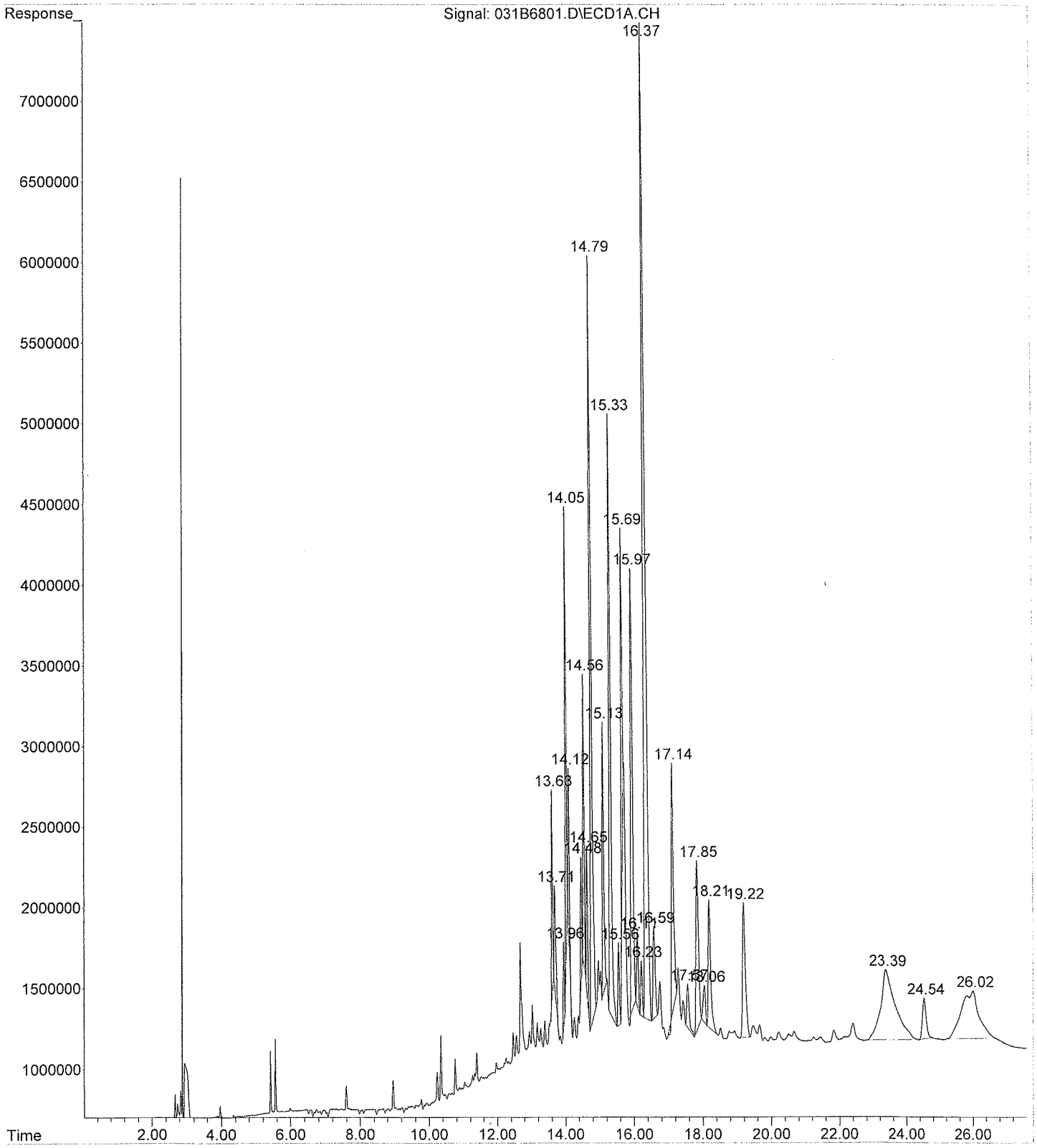
File : C:\DATA2\052311A\031B6801.D
Operator : rdf
Acquired : 25 May 2011 2:47 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-017 L20
Misc Info :
Vial Number: 31



Lab Number:	20948-018
Sample Designation:	DUPLICATE 1
Date Sampled:	04/25/11
Date Extracted:	05/09/11
Date Analyzed:	05/24/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	10

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.57
Aroclor 1221	U	0.57
Aroclor 1232	U	0.57
Aroclor 1248	U	0.57
Aroclor 1254	3.1	0.57
Aroclor 1260	U	0.57

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	70	30 - 150
decachlorobiphenyl	96	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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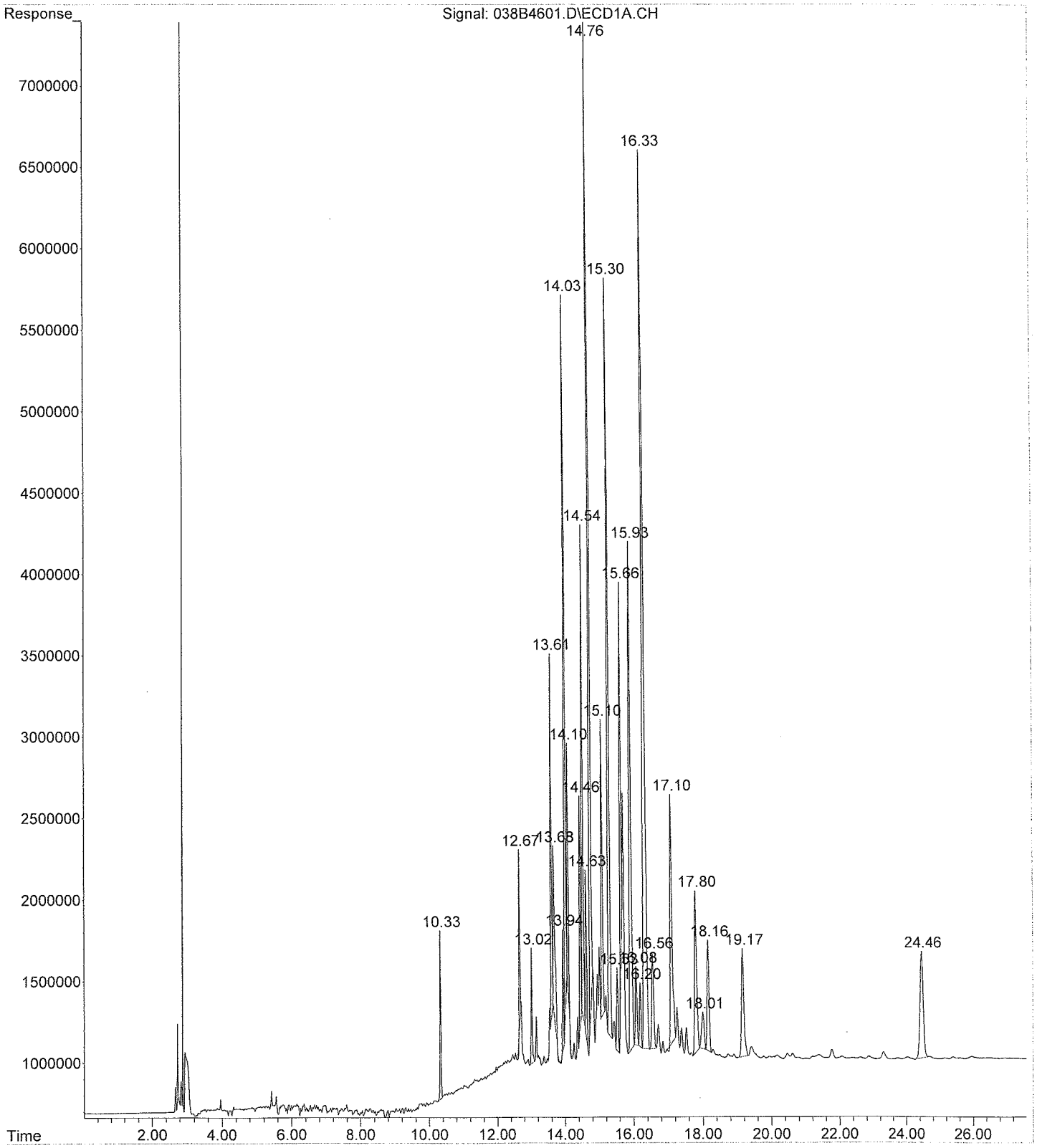
File : C:\DATA2\052311A\038B4601.D
Operator : rdf
Acquired : 24 May 2011 1:04 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-018 L10
Misc Info :
Vial Number: 38



Lab Number:	20948-019
Sample Designation:	DUPLICATE 2
Date Sampled:	04/26/11
Date Extracted:	05/09/11
Date Analyzed:	05/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	74
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.10	0.0067
Aroclor 1260	U	0.0067

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	63	30 - 150
decachlorobiphenyl	72	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. Congeners characteristic of the reported Aroclor were present and used for quantitation. Arochlor identification is tentative.

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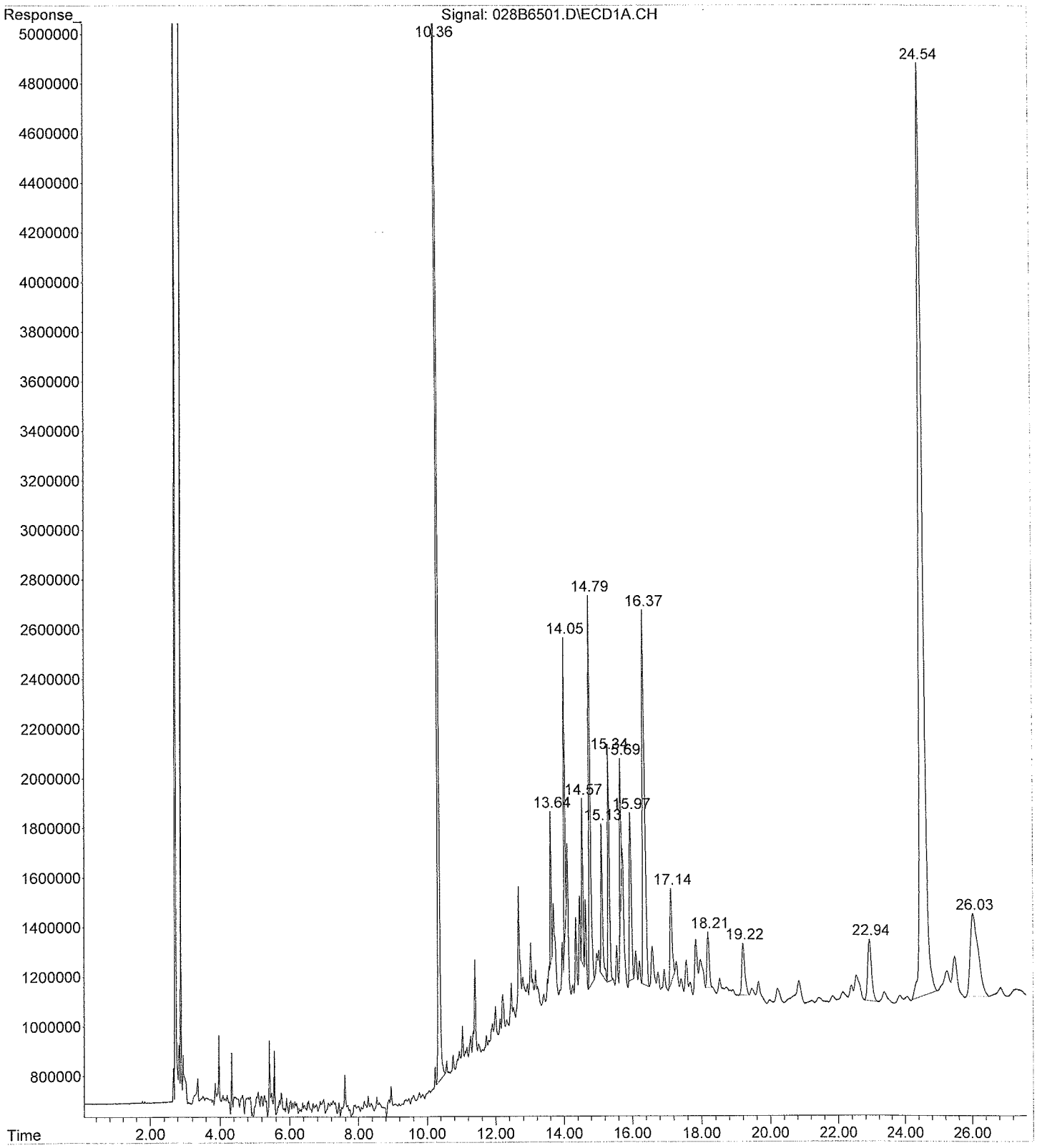
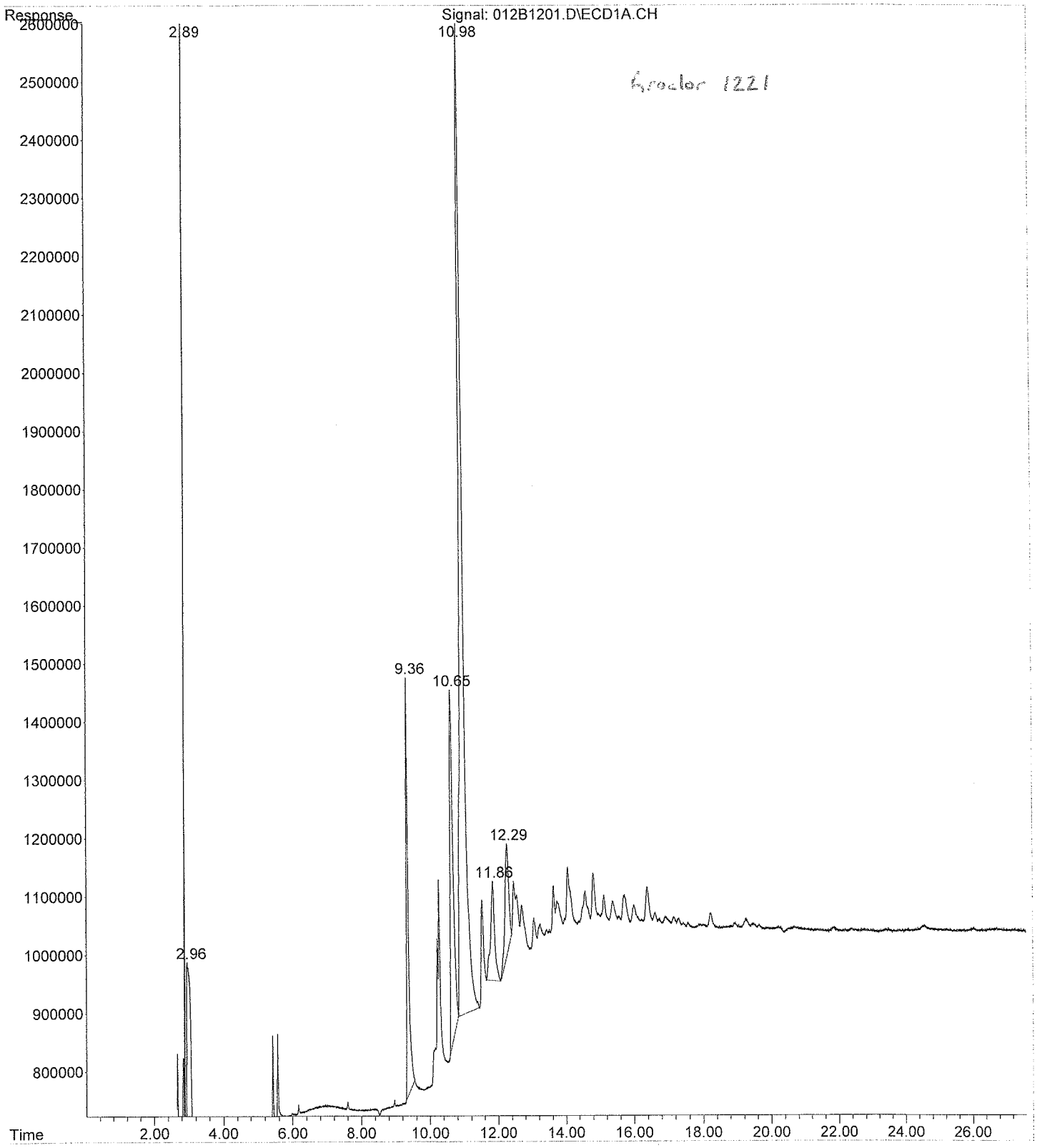
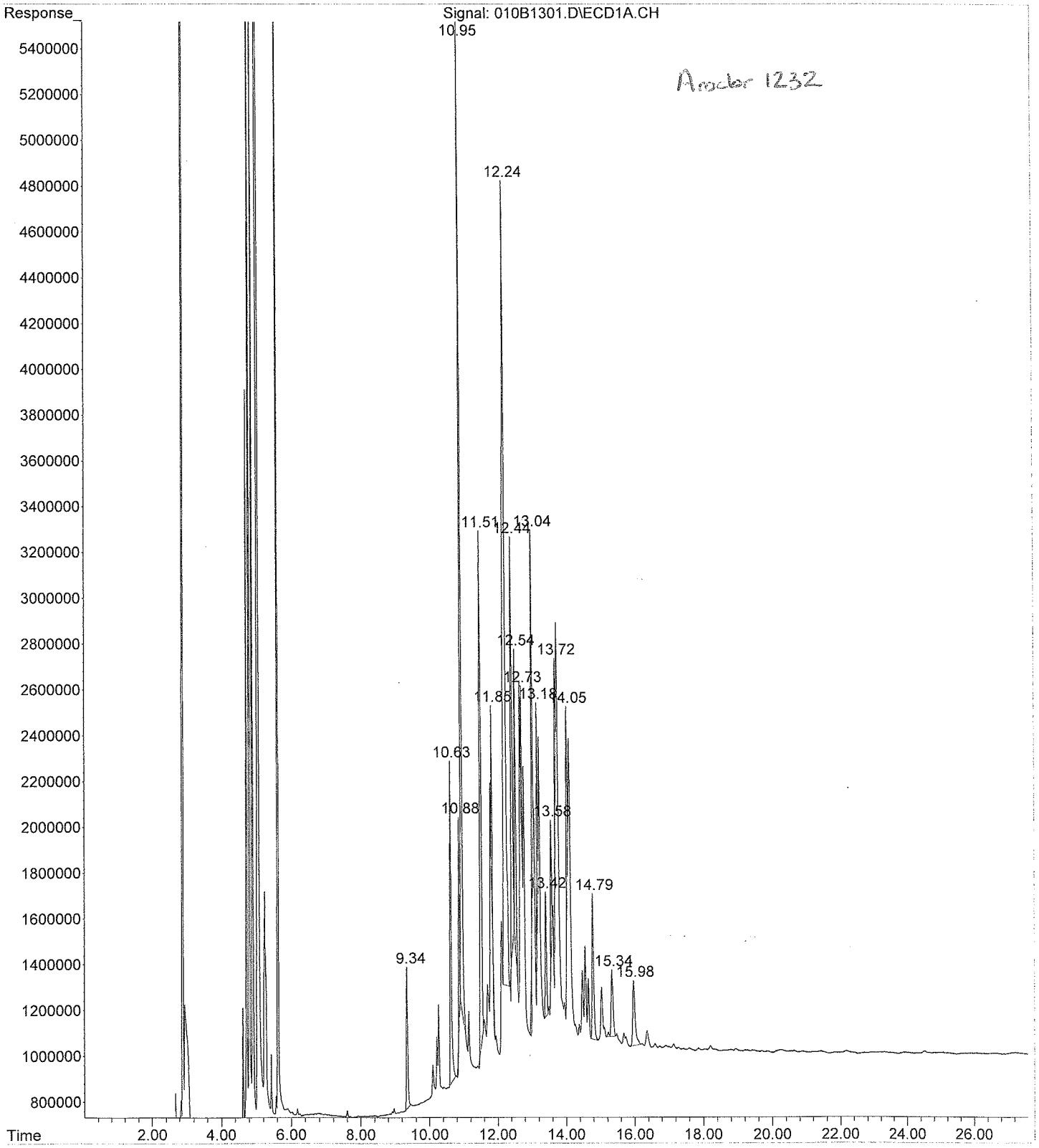
File : C:\DATA2\052311A\028B6501.D
Operator : rdf
Acquired : 25 May 2011 12:55 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20948-019
Misc Info :
Vial Number: 28



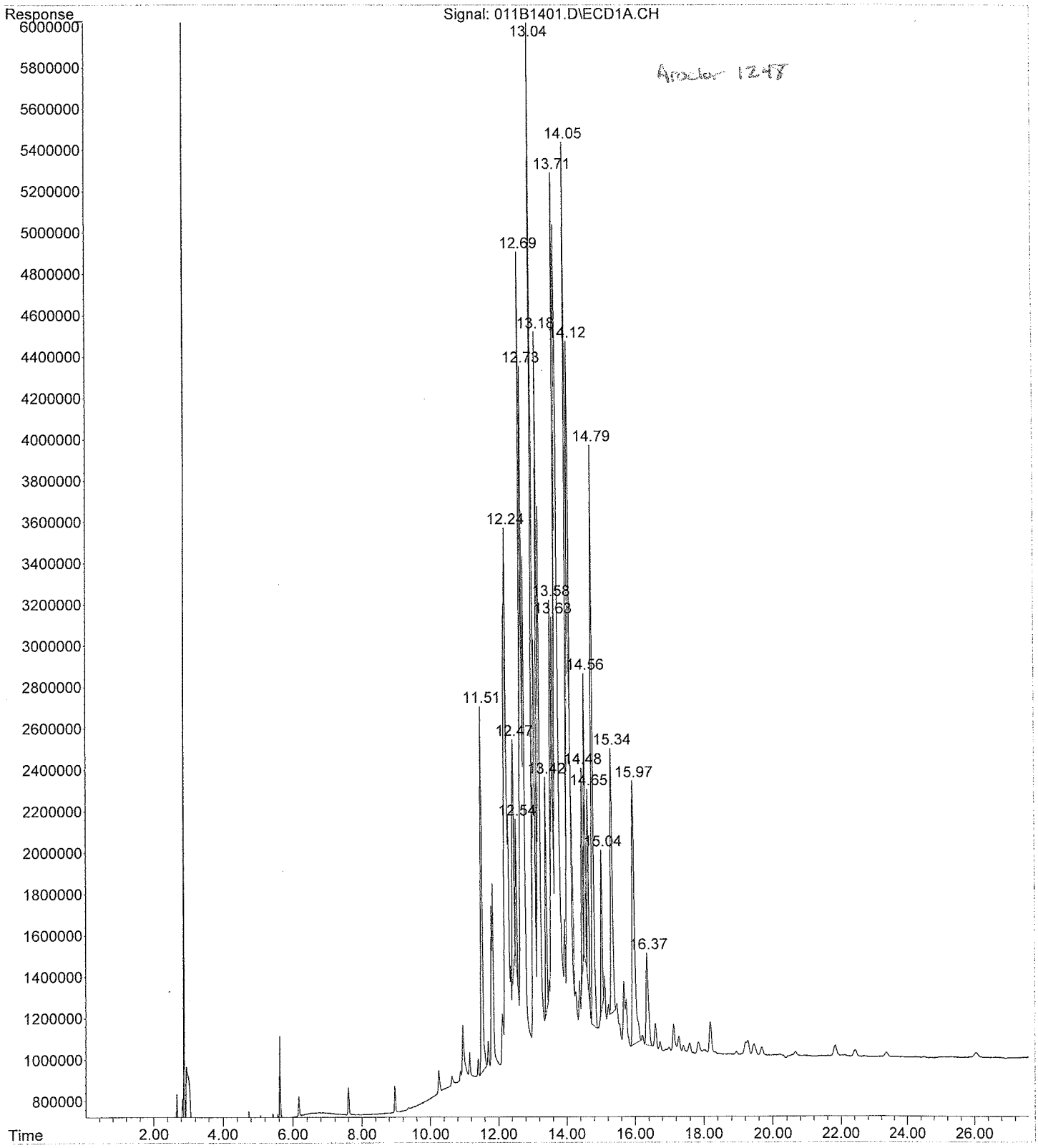
File : C:\DATA2\052511A\012B1201.D
Operator : rdf
Acquired : 25 May 2011 4:42 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1221 1000
Misc Info :
Vial Number: 12



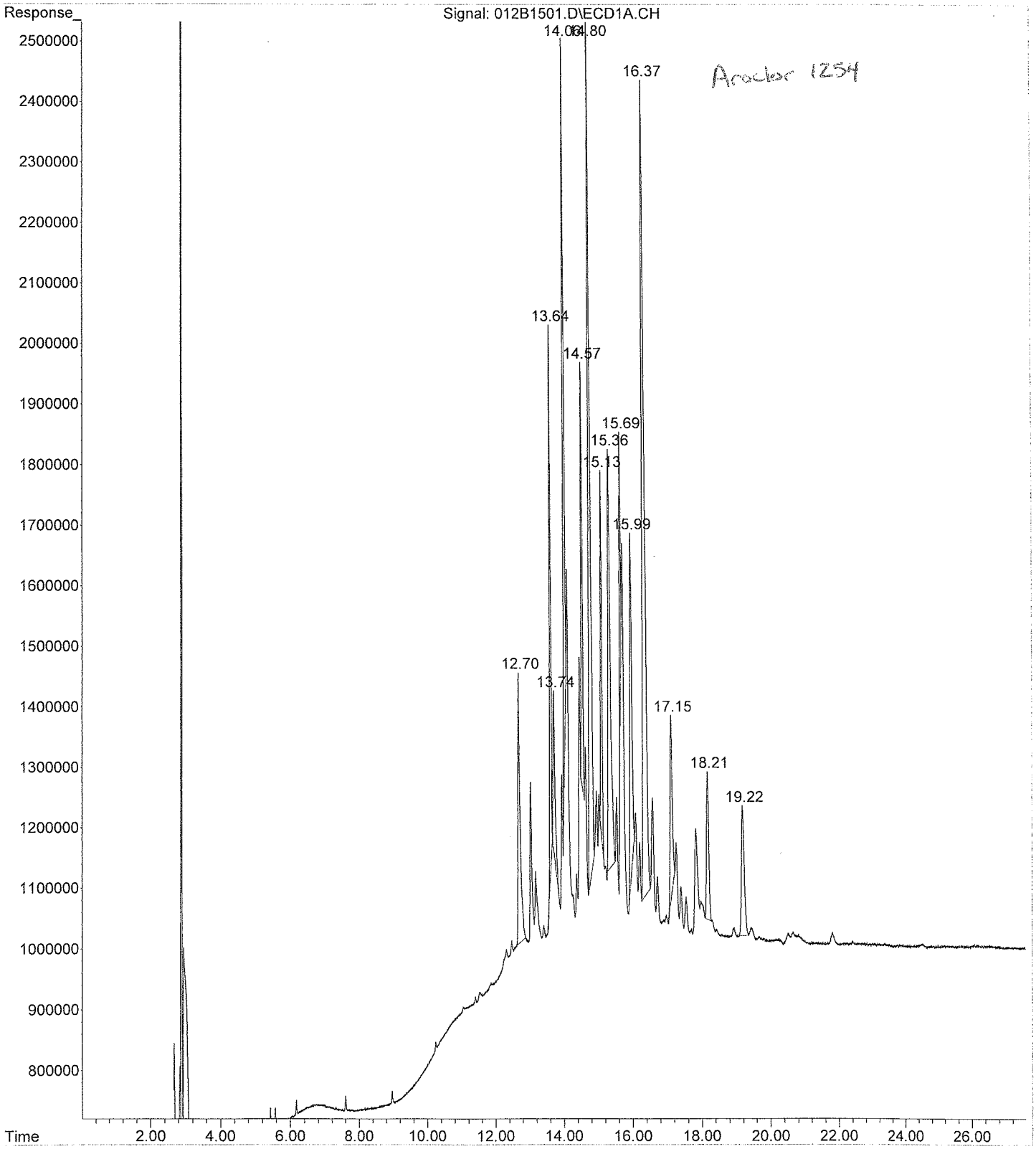
File : C:\DATA2\052311A\010B1301.D
Operator : rdf
Acquired : 23 May 2011 4:43 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1232.1000
Misc Info :
Vial Number: 10



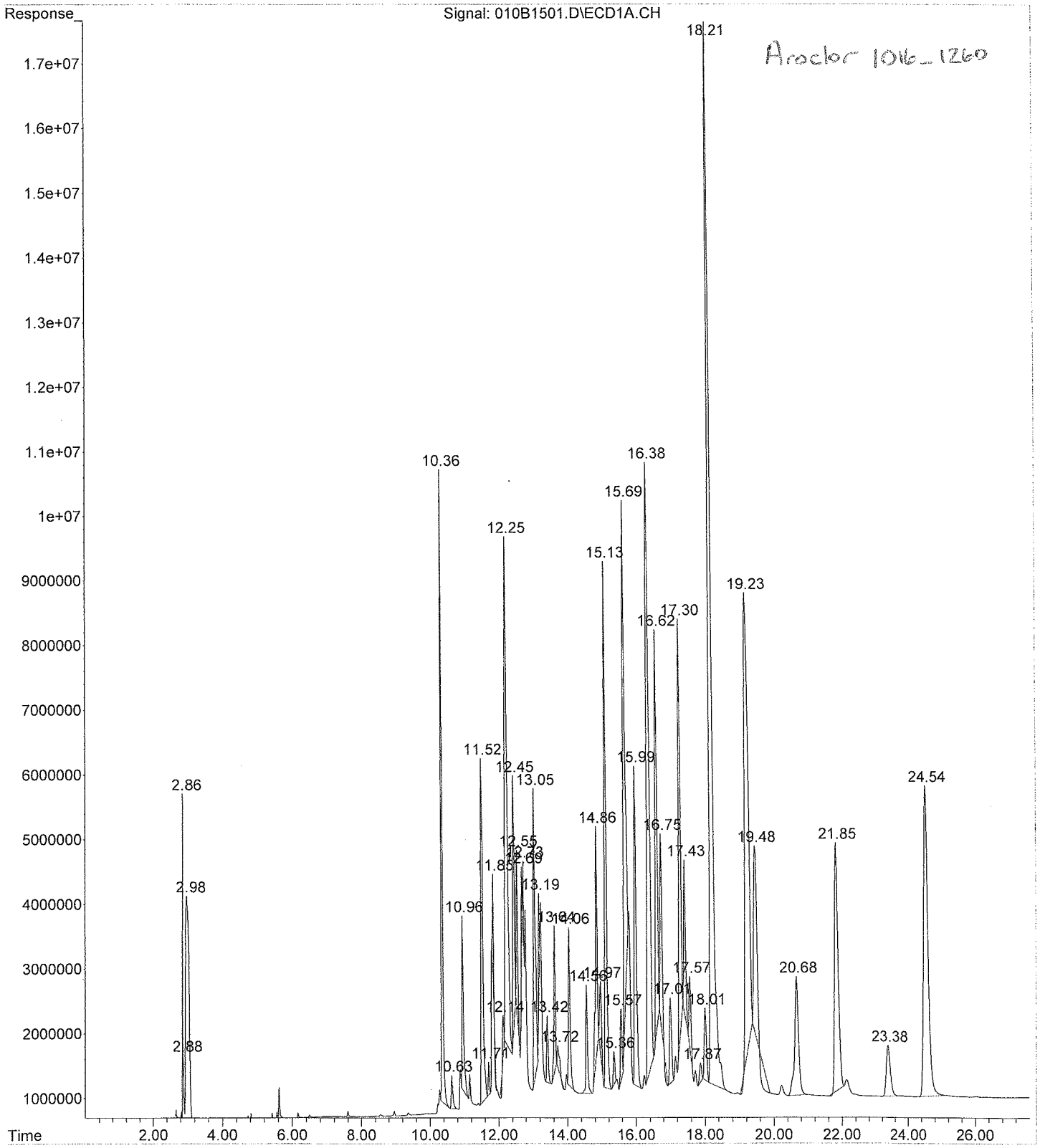
File : C:\DATA2\052311A\011B1401.D
Operator : rdf
Acquired : 23 May 2011 5:20 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1248.1000
Misc Info :
Vial Number: 11



File : C:\DATA2\052311A\012B1501.D
Operator : rdf
Acquired : 23 May 2011 5:57 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1254.1000
Misc Info :
Vial Number: 12



File : C:\DATA2\052511A\010B1501.D
Operator : rdf
Acquired : 25 May 2011 6:32 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1016-1260 1000
Misc Info :
Vial Number: 10



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20948		
SDG No:			
Project:	South Terminal.6690		
Delivered via:	ESI		
Date and Time Received:	04/29/11 1020	Date and TIme Logged into Lab:	04/29/11 1400
Recieved By:	DW	Logged into Lab by:	MES MES
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	12	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP-1	20948-001	S	ARO8082	9oz G	4C	Yes
TP-2	20948-002	S	ARO8082	9oz G	4C	Yes
TP-5	20948-003	S	ARO8082	9oz G	4C	Yes
TP-4	20948-004	S	ARO8082	9oz G	4C	Yes
TP-3	20948-005	S	ARO8082	9oz G	4C	Yes
TP-7	20948-006	S	ARO8082	9oz G	4C	Yes
TP-6	20948-007	S	ARO8082	9oz G	4C	Yes
TP-8	20948-008	S	ARO8082	9oz G	4C	Yes
TP-9	20948-009	S	ARO8082	9oz G	4C	Yes
TP-11	20948-010	S	ARO8082	9oz G	4C	Yes
TP-10	20948-011	S	ARO8082	9oz G	4C	Yes
TP-12	20948-012	S	ARO8082	9oz G	4C	Yes
TP-13a	20948-013	S	ARO8082	9oz G	4C	Yes
TP-14	20948-014	S	ARO8082	9oz G	4C	Yes
TP-16	20948-015	S	ARO8082	9oz G	4C	Yes
TP-17	20948-016	S	ARO8082	9oz G	4C	Yes
TP-13	20948-017	S	ARO8082	9oz G	4C	Yes
DUPLICATE 1	20948-018	S	ARO8082	9oz G	4C	Yes
DUPLICATE 2	20948-019	S	ARO8082	9oz G	4C	Yes

Notes and qualifications:

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Ham[illegible]342-0778 (603) 926-3345 fax (603) 926-3521 www.envirosystems.com

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: [illegible]

CHAIN OF CUSTODY DOCUMENTATION

Client: Area Co. LLC	Contact: Greg Dean	Project Name: Sam Tremonti	Page 1 of 2
Report to: Chet Mayers	Address: 134 High St. Ste 502	Project Number: 6690	
Invoice to: Chet Mayers	Address: Boston, MA 02110	Project Manager: Chet Mayers	
Voice: (617) 728-0070	Fax: (617) 728-0070	email: cmyers@[illegible].com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
	TP-1	4/25/11	7:30	GAD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
	TP-2	4/25/11	11:15	GAD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
	TP-3	4/25/11	12:00	GAD	C	200	G	N/A	S	N	
	TP-5	4/25/11	12:35	GAD	C	200	G	N/A	S	N	
	TP-4	4/25/11	13:00	GAD	C	200	G	N/A	S	N	
	TP-3	4/25/11	13:47	GAD	C	200	G	N/A	S	N	
	TP-7	4/26/11	7:00	GAD	C	200	G	N/A	S	N	
	TP-6	4/26/11	9:00	GAD	C	200	G	N/A	S	N	
	TP-8	4/26/11	11:00	GAD	C	200	G	N/A	S	N	
	TP-9	4/26/11	13:54	GAD	C	200	G	N/A	S	N	
	TP-11	4/26/11	15:20	GAD	C	200	G	N/A	S	N	
	TP-10	4/27/11	8:30	GAD	C	200	G	N/A	S	N	

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Relinquished By: [signature]	Date: 4/29/11	Time: 10:20	Received By: [signature] Date: 5/29/11 Time: 10:20
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: [illegible]

CHAIN OF CUSTODY DOCUMENTATION

Client: Aber Co. LLC	Contact: Greg Dunn	Project Name: South Terminal	Page 2 of 2
Report to: Chet Myers	Address: 184 High St. Ste 502	Project Number: 6690	
Invoice to: Chet Myers	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: (617) 723-0070	Fax: (617) 728-0080	email: cmyers@aprinco.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
[illegible]	TP-12	4/27/11	9:30	GAD	G	200	G	N/A	S	N	PCB Aroclors EPA 8082
[illegible]	TP-13a	4/27/11	11:00	GAD	G	200	G	N/A	S	N	
[illegible]	TP-14	4/27/11	11:57	GAD	G	200	G	N/A	S	N	
[illegible]	TP-16	4/27/11	13:20	GAD	G	200	G	N/A	S	N	
[illegible]	TP-17	4/27/11	14:45	GAD	G	200	G	N/A	S	N	
[illegible]	TP-13	4/28/11	[illegible]	GAD	G	200	G	N/A	S	N	PCB Aroclors EPA 8082
[illegible]	Duplicate 1	4/28/11		GAD	G	200	G	N/A	S	N	
[illegible]	Duplicate 2	4/28/11		GAD	G	200	G	N/A	S	N	

Relinquished By: M. Ogre	Date: 4/29/11 Time: 10:20	Received By: Duhaite	Date: 4/29/11 Time: 10:20
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: [illegible]

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ANALYTICAL REPORT

Lab Number:	L1106586
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL NEW BEDFORD
Project Number:	6690
Report Date:	05/20/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1106586-01	B-3/MW-1	NEW BEDFORD, MA	05/02/11 10:30
L1106586-02	B-4/MW-2	NEW BEDFORD, MA	05/03/11 10:00
L1106586-03	B-5/MW-3	NEW BEDFORD, MA	05/04/11 11:10
L1106586-04	B-6/MW-4	NEW BEDFORD, MA	05/05/11 09:45
L1106586-05	B-7	NEW BEDFORD, MA	05/06/11 09:30
L1106586-06	B-8/MW-5	NEW BEDFORD, MA	05/06/11 13:00
L1106586-07	B-9/MW-6	NEW BEDFORD, MA	05/09/11 11:00

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586
Project Number: 6690 **Report Date:** 05/20/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Semivolatile Organics
L1106586-04 and -07 have elevated detection limits due to the dilutions required by the sample matrices (extracts were dark and viscous).
L1106586-06 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.
In reference to question G:
L1106586-04, -06 and -07: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question H:
The WG467545-2/-3 LCS/LCSD recoveries, associated with L1106586-01, are below the individual

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106586
Project Number:	6690	**Report Date:**	05/20/11

Case Narrative (continued)

acceptance criteria for Aniline (37%/34%), but within the overall method allowances. The results of the associated sample are reported; however, all results are considered to have a potentially low bias for this compound.

The WG467889-2/-3 LCS/LCSD recoveries, associated with L1106586-02 through -07, are below the individual acceptance criteria for Aniline (22%/28%) and 4-Chloroaniline (LCS at 37%), but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for these compounds.

Metals

In reference to question H:

The WG467817-4 MS recovery, performed on L1106586-01, is below the acceptance criteria for Antimony (46%); however, the associated LCS recovery was within criteria. No further action was taken.

The WG467819-3 Laboratory Duplicate RPDs, performed on L1106586-01, are outside the acceptance criteria for Arsenic (30%) and Zinc (43%). The elevated RPDs have been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

The WG467819-3 Laboratory Duplicate RPDs, performed on L1106586-01, are above the acceptance criteria for Beryllium (65%), Selenium (81%) and Thallium (91%); however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPDs are valid.

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

Non-MCP Related Narratives

Petroleum Hydrocarbon Quantitation

L1106586-06 has an elevated detection limit due to the dilution required by the elevated concentration of target compound in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 05/20/11

ORGANICS

SEMIVOLATILES

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-01	Date Collected:	05/02/11 10:30
Client ID:	B-3/MW-1	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/12/11 14:10
Analytical Date:	05/14/11 18:34		
Analyst:	JB		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	370	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	370	--	1
Hexachlorobenzene	ND		ug/kg	370	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	370	--	1
2-Chloronaphthalene	ND		ug/kg	370	--	1
1,2-Dichlorobenzene	ND		ug/kg	370	--	1
1,3-Dichlorobenzene	ND		ug/kg	370	--	1
1,4-Dichlorobenzene	ND		ug/kg	370	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	740	--	1
2,4-Dinitrotoluene	ND		ug/kg	370	--	1
2,6-Dinitrotoluene	ND		ug/kg	370	--	1
Azobenzene	ND		ug/kg	370	--	1
Fluoranthene	ND		ug/kg	370	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	370	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	370	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	370	--	1
Hexachlorobutadiene	ND		ug/kg	740	--	1
Hexachloroethane	ND		ug/kg	370	--	1
Isophorone	ND		ug/kg	370	--	1
Naphthalene	ND		ug/kg	370	--	1
Nitrobenzene	ND		ug/kg	370	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	740	--	1
Butyl benzyl phthalate	ND		ug/kg	370	--	1
Di-n-butylphthalate	ND		ug/kg	370	--	1
Di-n-octylphthalate	ND		ug/kg	370	--	1
Diethyl phthalate	ND		ug/kg	370	--	1
Dimethyl phthalate	ND		ug/kg	370	--	1
Benzo(a)anthracene	ND		ug/kg	370	--	1
Benzo(a)pyrene	ND		ug/kg	370	--	1
Benzo(b)fluoranthene	ND		ug/kg	370	--	1
Benzo(k)fluoranthene	ND		ug/kg	370	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-01	Date Collected:	05/02/11 10:30
Client ID:	B-3/MW-1	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	370	--	1
Acenaphthylene	ND		ug/kg	370	--	1
Anthracene	ND		ug/kg	370	--	1
Benzo(ghi)perylene	ND		ug/kg	370	--	1
Fluorene	ND		ug/kg	370	--	1
Phenanthrene	ND		ug/kg	370	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	370	--	1
Pyrene	ND		ug/kg	370	--	1
Aniline	ND		ug/kg	740	--	1
4-Chloroaniline	ND		ug/kg	370	--	1
Dibenzofuran	ND		ug/kg	370	--	1
2-Methylnaphthalene	ND		ug/kg	370	--	1
Acetophenone	ND		ug/kg	740	--	1
2,4,6-Trichlorophenol	ND		ug/kg	370	--	1
2-Chlorophenol	ND		ug/kg	450	--	1
2,4-Dichlorophenol	ND		ug/kg	740	--	1
2,4-Dimethylphenol	ND		ug/kg	370	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	740	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	520	--	1
2-Methylphenol	ND		ug/kg	450	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	450	--	1
2,4,5-Trichlorophenol	ND		ug/kg	370	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	68		30-130
Phenol-d6	70		30-130
Nitrobenzene-d5	61		30-130
2-Fluorobiphenyl	68		30-130
2,4,6-Tribromophenol	73		30-130
4-Terphenyl-d14	85		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-02	Date Collected:	05/03/11 10:00
Client ID:	B-4/MW-2	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 14:54		
Analyst:	RC		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	380	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	380	--	1
Hexachlorobenzene	ND		ug/kg	380	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	380	--	1
2-Chloronaphthalene	ND		ug/kg	380	--	1
1,2-Dichlorobenzene	ND		ug/kg	380	--	1
1,3-Dichlorobenzene	ND		ug/kg	380	--	1
1,4-Dichlorobenzene	ND		ug/kg	380	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	770	--	1
2,4-Dinitrotoluene	ND		ug/kg	380	--	1
2,6-Dinitrotoluene	ND		ug/kg	380	--	1
Azobenzene	ND		ug/kg	380	--	1
Fluoranthene	ND		ug/kg	380	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	380	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	380	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	380	--	1
Hexachlorobutadiene	ND		ug/kg	770	--	1
Hexachloroethane	ND		ug/kg	380	--	1
Isophorone	ND		ug/kg	380	--	1
Naphthalene	ND		ug/kg	380	--	1
Nitrobenzene	ND		ug/kg	380	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	770	--	1
Butyl benzyl phthalate	ND		ug/kg	380	--	1
Di-n-butylphthalate	ND		ug/kg	380	--	1
Di-n-octylphthalate	ND		ug/kg	380	--	1
Diethyl phthalate	ND		ug/kg	380	--	1
Dimethyl phthalate	ND		ug/kg	380	--	1
Benzo(a)anthracene	ND		ug/kg	380	--	1
Benzo(a)pyrene	ND		ug/kg	380	--	1
Benzo(b)fluoranthene	ND		ug/kg	380	--	1
Benzo(k)fluoranthene	ND		ug/kg	380	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-02 Date Collected: 05/03/11 10:00

Client ID: B-4/MW-2 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	380	--	1
Acenaphthylene	ND		ug/kg	380	--	1
Anthracene	ND		ug/kg	380	--	1
Benzo(ghi)perylene	ND		ug/kg	380	--	1
Fluorene	ND		ug/kg	380	--	1
Phenanthrene	ND		ug/kg	380	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	230	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	380	--	1
Pyrene	ND		ug/kg	380	--	1
Aniline	ND		ug/kg	770	--	1
4-Chloroaniline	ND		ug/kg	380	--	1
Dibenzofuran	ND		ug/kg	380	--	1
2-Methylnaphthalene	ND		ug/kg	380	--	1
Acetophenone	ND		ug/kg	770	--	1
2,4,6-Trichlorophenol	ND		ug/kg	380	--	1
2-Chlorophenol	ND		ug/kg	460	--	1
2,4-Dichlorophenol	ND		ug/kg	770	--	1
2,4-Dimethylphenol	ND		ug/kg	380	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	770	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	540	--	1
2-Methylphenol	ND		ug/kg	460	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	460	--	1
2,4,5-Trichlorophenol	ND		ug/kg	380	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	96		30-130
Phenol-d6	97		30-130
Nitrobenzene-d5	87		30-130
2-Fluorobiphenyl	100		30-130
2,4,6-Tribromophenol	100		30-130
4-Terphenyl-d14	109		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-03	Date Collected:	05/04/11 11:10
Client ID:	B-5/MW-3	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 15:18		
Analyst:	RC		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	960		ug/kg	360	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	360	--	1
Hexachlorobenzene	ND		ug/kg	360	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	360	--	1
2-Chloronaphthalene	ND		ug/kg	360	--	1
1,2-Dichlorobenzene	ND		ug/kg	360	--	1
1,3-Dichlorobenzene	ND		ug/kg	360	--	1
1,4-Dichlorobenzene	ND		ug/kg	360	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	720	--	1
2,4-Dinitrotoluene	ND		ug/kg	360	--	1
2,6-Dinitrotoluene	ND		ug/kg	360	--	1
Azobenzene	ND		ug/kg	360	--	1
Fluoranthene	8900		ug/kg	360	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	360	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	360	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	360	--	1
Hexachlorobutadiene	ND		ug/kg	720	--	1
Hexachloroethane	ND		ug/kg	360	--	1
Isophorone	ND		ug/kg	360	--	1
Naphthalene	560		ug/kg	360	--	1
Nitrobenzene	ND		ug/kg	360	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	720	--	1
Butyl benzyl phthalate	ND		ug/kg	360	--	1
Di-n-butylphthalate	ND		ug/kg	360	--	1
Di-n-octylphthalate	ND		ug/kg	360	--	1
Diethyl phthalate	ND		ug/kg	360	--	1
Dimethyl phthalate	ND		ug/kg	360	--	1
Benzo(a)anthracene	4600		ug/kg	360	--	1
Benzo(a)pyrene	4000		ug/kg	360	--	1
Benzo(b)fluoranthene	5300		ug/kg	360	--	1
Benzo(k)fluoranthene	1900		ug/kg	360	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-03	Date Collected:	05/04/11 11:10
Client ID:	B-5/MW-3	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	4400		ug/kg	360	--	1
Acenaphthylene	ND		ug/kg	360	--	1
Anthracene	1800		ug/kg	360	--	1
Benzo(ghi)perylene	2500		ug/kg	360	--	1
Fluorene	720		ug/kg	360	--	1
Phenanthrene	7900		ug/kg	360	--	1
Dibenzo(a,h)anthracene	720		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	2700		ug/kg	360	--	1
Pyrene	7400		ug/kg	360	--	1
Aniline	ND		ug/kg	720	--	1
4-Chloroaniline	ND		ug/kg	360	--	1
Dibenzofuran	660		ug/kg	360	--	1
2-Methylnaphthalene	ND		ug/kg	360	--	1
Acetophenone	ND		ug/kg	720	--	1
2,4,6-Trichlorophenol	ND		ug/kg	360	--	1
2-Chlorophenol	ND		ug/kg	430	--	1
2,4-Dichlorophenol	ND		ug/kg	720	--	1
2,4-Dimethylphenol	ND		ug/kg	360	--	1
2-Nitrophenol	ND		ug/kg	1400	--	1
4-Nitrophenol	ND		ug/kg	720	--	1
2,4-Dinitrophenol	ND		ug/kg	1400	--	1
Pentachlorophenol	ND		ug/kg	1400	--	1
Phenol	ND		ug/kg	500	--	1
2-Methylphenol	ND		ug/kg	430	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	430	--	1
2,4,5-Trichlorophenol	ND		ug/kg	360	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	88		30-130
Phenol-d6	87		30-130
Nitrobenzene-d5	82		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	92		30-130
4-Terphenyl-d14	104		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-04 D	Date Collected:	05/05/11 09:45
Client ID:	B-6/MW-4	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 15:42		
Analyst:	RC		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	1700	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	1700	--	5
Hexachlorobenzene	ND		ug/kg	1700	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	1700	--	5
2-Chloronaphthalene	ND		ug/kg	1700	--	5
1,2-Dichlorobenzene	ND		ug/kg	1700	--	5
1,3-Dichlorobenzene	ND		ug/kg	1700	--	5
1,4-Dichlorobenzene	ND		ug/kg	1700	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	3400	--	5
2,4-Dinitrotoluene	ND		ug/kg	1700	--	5
2,6-Dinitrotoluene	ND		ug/kg	1700	--	5
Azobenzene	ND		ug/kg	1700	--	5
Fluoranthene	16000		ug/kg	1700	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	1700	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	1700	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	1700	--	5
Hexachlorobutadiene	ND		ug/kg	3400	--	5
Hexachloroethane	ND		ug/kg	1700	--	5
Isophorone	ND		ug/kg	1700	--	5
Naphthalene	ND		ug/kg	1700	--	5
Nitrobenzene	ND		ug/kg	1700	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	3400	--	5
Butyl benzyl phthalate	ND		ug/kg	1700	--	5
Di-n-butylphthalate	ND		ug/kg	1700	--	5
Di-n-octylphthalate	ND		ug/kg	1700	--	5
Diethyl phthalate	ND		ug/kg	1700	--	5
Dimethyl phthalate	ND		ug/kg	1700	--	5
Benzo(a)anthracene	7400		ug/kg	1700	--	5
Benzo(a)pyrene	7200		ug/kg	1700	--	5
Benzo(b)fluoranthene	9200		ug/kg	1700	--	5
Benzo(k)fluoranthene	3400		ug/kg	1700	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-04 D Date Collected: 05/05/11 09:45

Client ID: B-6/MW-4 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	6700		ug/kg	1700	--	5
Acenaphthylene	ND		ug/kg	1700	--	5
Anthracene	3100		ug/kg	1700	--	5
Benzo(ghi)perylene	4300		ug/kg	1700	--	5
Fluorene	ND		ug/kg	1700	--	5
Phenanthrene	12000		ug/kg	1700	--	5
Dibenzo(a,h)anthracene	1000		ug/kg	1000	--	5
Indeno(1,2,3-cd)Pyrene	4900		ug/kg	1700	--	5
Pyrene	13000		ug/kg	1700	--	5
Aniline	ND		ug/kg	3400	--	5
4-Chloroaniline	ND		ug/kg	1700	--	5
Dibenzofuran	ND		ug/kg	1700	--	5
2-Methylnaphthalene	ND		ug/kg	1700	--	5
Acetophenone	ND		ug/kg	3400	--	5
2,4,6-Trichlorophenol	ND		ug/kg	1700	--	5
2-Chlorophenol	ND		ug/kg	2000	--	5
2,4-Dichlorophenol	ND		ug/kg	3400	--	5
2,4-Dimethylphenol	ND		ug/kg	1700	--	5
2-Nitrophenol	ND		ug/kg	6800	--	5
4-Nitrophenol	ND		ug/kg	3400	--	5
2,4-Dinitrophenol	ND		ug/kg	6800	--	5
Pentachlorophenol	ND		ug/kg	6800	--	5
Phenol	ND		ug/kg	2400	--	5
2-Methylphenol	ND		ug/kg	2000	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2000	--	5
2,4,5-Trichlorophenol	ND		ug/kg	1700	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	75		30-130
Phenol-d6	80		30-130
Nitrobenzene-d5	70		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	98		30-130
4-Terphenyl-d14	105		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-05	Date Collected:	05/06/11 09:30
Client ID:	B-7	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 16:06		
Analyst:	RC		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	370	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	370	--	1
Hexachlorobenzene	ND		ug/kg	370	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	370	--	1
2-Chloronaphthalene	ND		ug/kg	370	--	1
1,2-Dichlorobenzene	ND		ug/kg	370	--	1
1,3-Dichlorobenzene	ND		ug/kg	370	--	1
1,4-Dichlorobenzene	ND		ug/kg	370	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	740	--	1
2,4-Dinitrotoluene	ND		ug/kg	370	--	1
2,6-Dinitrotoluene	ND		ug/kg	370	--	1
Azobenzene	ND		ug/kg	370	--	1
Fluoranthene	ND		ug/kg	370	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	370	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	370	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	370	--	1
Hexachlorobutadiene	ND		ug/kg	740	--	1
Hexachloroethane	ND		ug/kg	370	--	1
Isophorone	ND		ug/kg	370	--	1
Naphthalene	ND		ug/kg	370	--	1
Nitrobenzene	ND		ug/kg	370	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	740	--	1
Butyl benzyl phthalate	ND		ug/kg	370	--	1
Di-n-butylphthalate	ND		ug/kg	370	--	1
Di-n-octylphthalate	ND		ug/kg	370	--	1
Diethyl phthalate	ND		ug/kg	370	--	1
Dimethyl phthalate	ND		ug/kg	370	--	1
Benzo(a)anthracene	ND		ug/kg	370	--	1
Benzo(a)pyrene	ND		ug/kg	370	--	1
Benzo(b)fluoranthene	ND		ug/kg	370	--	1
Benzo(k)fluoranthene	ND		ug/kg	370	--	1

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-05	Date Collected:	05/06/11 09:30
Client ID:	B-7	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	370	--	1
Acenaphthylene	ND		ug/kg	370	--	1
Anthracene	ND		ug/kg	370	--	1
Benzo(ghi)perylene	ND		ug/kg	370	--	1
Fluorene	ND		ug/kg	370	--	1
Phenanthrene	ND		ug/kg	370	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	220	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	370	--	1
Pyrene	ND		ug/kg	370	--	1
Aniline	ND		ug/kg	740	--	1
4-Chloroaniline	ND		ug/kg	370	--	1
Dibenzofuran	ND		ug/kg	370	--	1
2-Methylnaphthalene	ND		ug/kg	370	--	1
Acetophenone	ND		ug/kg	740	--	1
2,4,6-Trichlorophenol	ND		ug/kg	370	--	1
2-Chlorophenol	ND		ug/kg	440	--	1
2,4-Dichlorophenol	ND		ug/kg	740	--	1
2,4-Dimethylphenol	ND		ug/kg	370	--	1
2-Nitrophenol	ND		ug/kg	1500	--	1
4-Nitrophenol	ND		ug/kg	740	--	1
2,4-Dinitrophenol	ND		ug/kg	1500	--	1
Pentachlorophenol	ND		ug/kg	1500	--	1
Phenol	ND		ug/kg	510	--	1
2-Methylphenol	ND		ug/kg	440	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	440	--	1
2,4,5-Trichlorophenol	ND		ug/kg	370	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		30-130
Phenol-d6	82		30-130
Nitrobenzene-d5	76		30-130
2-Fluorobiphenyl	86		30-130
2,4,6-Tribromophenol	91		30-130
4-Terphenyl-d14	96		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-06 D	Date Collected:	05/06/11 13:00
Client ID:	B-8/MW-5	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 16:30		
Analyst:	RC		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	1700	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	1700	--	5
Hexachlorobenzene	ND		ug/kg	1700	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	1700	--	5
2-Chloronaphthalene	ND		ug/kg	1700	--	5
1,2-Dichlorobenzene	ND		ug/kg	1700	--	5
1,3-Dichlorobenzene	ND		ug/kg	1700	--	5
1,4-Dichlorobenzene	ND		ug/kg	1700	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	3500	--	5
2,4-Dinitrotoluene	ND		ug/kg	1700	--	5
2,6-Dinitrotoluene	ND		ug/kg	1700	--	5
Azobenzene	ND		ug/kg	1700	--	5
Fluoranthene	37000		ug/kg	1700	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	1700	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	1700	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	1700	--	5
Hexachlorobutadiene	ND		ug/kg	3500	--	5
Hexachloroethane	ND		ug/kg	1700	--	5
Isophorone	ND		ug/kg	1700	--	5
Naphthalene	ND		ug/kg	1700	--	5
Nitrobenzene	ND		ug/kg	1700	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	3500	--	5
Butyl benzyl phthalate	ND		ug/kg	1700	--	5
Di-n-butylphthalate	ND		ug/kg	1700	--	5
Di-n-octylphthalate	ND		ug/kg	1700	--	5
Diethyl phthalate	ND		ug/kg	1700	--	5
Dimethyl phthalate	ND		ug/kg	1700	--	5
Benzo(a)anthracene	18000		ug/kg	1700	--	5
Benzo(a)pyrene	18000		ug/kg	1700	--	5
Benzo(b)fluoranthene	22000		ug/kg	1700	--	5
Benzo(k)fluoranthene	8900		ug/kg	1700	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-06 D Date Collected: 05/06/11 13:00

Client ID: B-8/MW-5 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	15000		ug/kg	1700	--	5
Acenaphthylene	3600		ug/kg	1700	--	5
Anthracene	6500		ug/kg	1700	--	5
Benzo(ghi)perylene	12000		ug/kg	1700	--	5
Fluorene	1700		ug/kg	1700	--	5
Phenanthrene	21000		ug/kg	1700	--	5
Dibenzo(a,h)anthracene	2400		ug/kg	1000	--	5
Indeno(1,2,3-cd)Pyrene	13000		ug/kg	1700	--	5
Pyrene	31000		ug/kg	1700	--	5
Aniline	ND		ug/kg	3500	--	5
4-Chloroaniline	ND		ug/kg	1700	--	5
Dibenzofuran	ND		ug/kg	1700	--	5
2-Methylnaphthalene	ND		ug/kg	1700	--	5
Acetophenone	ND		ug/kg	3500	--	5
2,4,6-Trichlorophenol	ND		ug/kg	1700	--	5
2-Chlorophenol	ND		ug/kg	2100	--	5
2,4-Dichlorophenol	ND		ug/kg	3500	--	5
2,4-Dimethylphenol	ND		ug/kg	1700	--	5
2-Nitrophenol	ND		ug/kg	7000	--	5
4-Nitrophenol	ND		ug/kg	3500	--	5
2,4-Dinitrophenol	ND		ug/kg	7000	--	5
Pentachlorophenol	ND		ug/kg	7000	--	5
Phenol	ND		ug/kg	2400	--	5
2-Methylphenol	ND		ug/kg	2100	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2100	--	5
2,4,5-Trichlorophenol	ND		ug/kg	1700	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	74		30-130
Phenol-d6	77		30-130
Nitrobenzene-d5	68		30-130
2-Fluorobiphenyl	85		30-130
2,4,6-Tribromophenol	85		30-130
4-Terphenyl-d14	92		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-07 D	Date Collected:	05/09/11 11:00
Client ID:	B-9/MW-6	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/14/11 05:23
Analytical Date:	05/17/11 16:54		
Analyst:	RC		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	ND		ug/kg	2000	--	5
1,2,4-Trichlorobenzene	ND		ug/kg	2000	--	5
Hexachlorobenzene	ND		ug/kg	2000	--	5
Bis(2-chloroethyl)ether	ND		ug/kg	2000	--	5
2-Chloronaphthalene	ND		ug/kg	2000	--	5
1,2-Dichlorobenzene	ND		ug/kg	2000	--	5
1,3-Dichlorobenzene	ND		ug/kg	2000	--	5
1,4-Dichlorobenzene	ND		ug/kg	2000	--	5
3,3'-Dichlorobenzidine	ND		ug/kg	4000	--	5
2,4-Dinitrotoluene	ND		ug/kg	2000	--	5
2,6-Dinitrotoluene	ND		ug/kg	2000	--	5
Azobenzene	ND		ug/kg	2000	--	5
Fluoranthene	2600		ug/kg	2000	--	5
4-Bromophenyl phenyl ether	ND		ug/kg	2000	--	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	2000	--	5
Bis(2-chloroethoxy)methane	ND		ug/kg	2000	--	5
Hexachlorobutadiene	ND		ug/kg	4000	--	5
Hexachloroethane	ND		ug/kg	2000	--	5
Isophorone	ND		ug/kg	2000	--	5
Naphthalene	ND		ug/kg	2000	--	5
Nitrobenzene	ND		ug/kg	2000	--	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	4000	--	5
Butyl benzyl phthalate	ND		ug/kg	2000	--	5
Di-n-butylphthalate	ND		ug/kg	2000	--	5
Di-n-octylphthalate	ND		ug/kg	2000	--	5
Diethyl phthalate	ND		ug/kg	2000	--	5
Dimethyl phthalate	ND		ug/kg	2000	--	5
Benzo(a)anthracene	ND		ug/kg	2000	--	5
Benzo(a)pyrene	ND		ug/kg	2000	--	5
Benzo(b)fluoranthene	ND		ug/kg	2000	--	5
Benzo(k)fluoranthene	ND		ug/kg	2000	--	5

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-07 D Date Collected: 05/09/11 11:00

Client ID: B-9/MW-6 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	2000	--	5
Acenaphthylene	ND		ug/kg	2000	--	5
Anthracene	ND		ug/kg	2000	--	5
Benzo(ghi)perylene	ND		ug/kg	2000	--	5
Fluorene	ND		ug/kg	2000	--	5
Phenanthrene	5300		ug/kg	2000	--	5
Dibenzo(a,h)anthracene	ND		ug/kg	1200	--	5
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	2000	--	5
Pyrene	ND		ug/kg	2000	--	5
Aniline	ND		ug/kg	4000	--	5
4-Chloroaniline	ND		ug/kg	2000	--	5
Dibenzofuran	ND		ug/kg	2000	--	5
2-Methylnaphthalene	ND		ug/kg	2000	--	5
Acetophenone	ND		ug/kg	4000	--	5
2,4,6-Trichlorophenol	ND		ug/kg	2000	--	5
2-Chlorophenol	ND		ug/kg	2400	--	5
2,4-Dichlorophenol	ND		ug/kg	4000	--	5
2,4-Dimethylphenol	ND		ug/kg	2000	--	5
2-Nitrophenol	ND		ug/kg	8000	--	5
4-Nitrophenol	ND		ug/kg	4000	--	5
2,4-Dinitrophenol	ND		ug/kg	8000	--	5
Pentachlorophenol	ND		ug/kg	8000	--	5
Phenol	ND		ug/kg	2800	--	5
2-Methylphenol	ND		ug/kg	2400	--	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	2400	--	5
2,4,5-Trichlorophenol	ND		ug/kg	2000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	75		30-130
Phenol-d6	82		30-130
Nitrobenzene-d5	71		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	91		30-130
4-Terphenyl-d14	96		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/14/11 15:26
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 05/12/11 13:32

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG467545-1					
Acenaphthene	ND		ug/kg	340	--
1,2,4-Trichlorobenzene	ND		ug/kg	340	--
Hexachlorobenzene	ND		ug/kg	340	--
Bis(2-chloroethyl)ether	ND		ug/kg	340	--
2-Chloronaphthalene	ND		ug/kg	340	--
1,2-Dichlorobenzene	ND		ug/kg	340	--
1,3-Dichlorobenzene	ND		ug/kg	340	--
1,4-Dichlorobenzene	ND		ug/kg	340	--
3,3'-Dichlorobenzidine	ND		ug/kg	680	--
2,4-Dinitrotoluene	ND		ug/kg	340	--
2,6-Dinitrotoluene	ND		ug/kg	340	--
Azobenzene	ND		ug/kg	340	--
Fluoranthene	ND		ug/kg	340	--
4-Bromophenyl phenyl ether	ND		ug/kg	340	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	340	--
Bis(2-chloroethoxy)methane	ND		ug/kg	340	--
Hexachlorobutadiene	ND		ug/kg	680	--
Hexachloroethane	ND		ug/kg	340	--
Isophorone	ND		ug/kg	340	--
Naphthalene	ND		ug/kg	340	--
Nitrobenzene	ND		ug/kg	340	--
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	680	--
Butyl benzyl phthalate	ND		ug/kg	340	--
Di-n-butylphthalate	ND		ug/kg	340	--
Di-n-octylphthalate	ND		ug/kg	340	--
Diethyl phthalate	ND		ug/kg	340	--
Dimethyl phthalate	ND		ug/kg	340	--
Benzo(a)anthracene	ND		ug/kg	340	--
Benzo(a)pyrene	ND		ug/kg	340	--
Benzo(b)fluoranthene	ND		ug/kg	340	--
Benzo(k)fluoranthene	ND		ug/kg	340	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/14/11 15:26
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 05/12/11 13:32

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG467545-1					
Chrysene	ND		ug/kg	340	--
Acenaphthylene	ND		ug/kg	340	--
Anthracene	ND		ug/kg	340	--
Benzo(ghi)perylene	ND		ug/kg	340	--
Fluorene	ND		ug/kg	340	--
Phenanthrene	ND		ug/kg	340	--
Dibenzo(a,h)anthracene	ND		ug/kg	200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	340	--
Pyrene	ND		ug/kg	340	--
Aniline	ND		ug/kg	680	--
4-Chloroaniline	ND		ug/kg	340	--
Dibenzofuran	ND		ug/kg	340	--
2-Methylnaphthalene	ND		ug/kg	340	--
Acetophenone	ND		ug/kg	680	--
2,4,6-Trichlorophenol	ND		ug/kg	340	--
2-Chlorophenol	ND		ug/kg	410	--
2,4-Dichlorophenol	ND		ug/kg	680	--
2,4-Dimethylphenol	ND		ug/kg	340	--
2-Nitrophenol	ND		ug/kg	1400	--
4-Nitrophenol	ND		ug/kg	680	--
2,4-Dinitrophenol	ND		ug/kg	1400	--
Pentachlorophenol	ND		ug/kg	1400	--
Phenol	ND		ug/kg	480	--
2-Methylphenol	ND		ug/kg	410	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	410	--
2,4,5-Trichlorophenol	ND		ug/kg	340	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/14/11 15:26
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 05/12/11 13:32

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01 Batch: WG467545-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	76		30-130
Phenol-d6	75		30-130
Nitrobenzene-d5	67		30-130
2-Fluorobiphenyl	75		30-130
2,4,6-Tribromophenol	74		30-130
4-Terphenyl-d14	87		30-130

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/17/11 13:19
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/14/11 05:23

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-07 Batch: WG467889-1					
Acenaphthene	ND		ug/kg	330	--
1,2,4-Trichlorobenzene	ND		ug/kg	330	--
Hexachlorobenzene	ND		ug/kg	330	--
Bis(2-chloroethyl)ether	ND		ug/kg	330	--
2-Chloronaphthalene	ND		ug/kg	330	--
1,2-Dichlorobenzene	ND		ug/kg	330	--
1,3-Dichlorobenzene	ND		ug/kg	330	--
1,4-Dichlorobenzene	ND		ug/kg	330	--
3,3'-Dichlorobenzidine	ND		ug/kg	670	--
2,4-Dinitrotoluene	ND		ug/kg	330	--
2,6-Dinitrotoluene	ND		ug/kg	330	--
Azobenzene	ND		ug/kg	330	--
Fluoranthene	ND		ug/kg	330	--
4-Bromophenyl phenyl ether	ND		ug/kg	330	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	330	--
Bis(2-chloroethoxy)methane	ND		ug/kg	330	--
Hexachlorobutadiene	ND		ug/kg	670	--
Hexachloroethane	ND		ug/kg	330	--
Isophorone	ND		ug/kg	330	--
Naphthalene	ND		ug/kg	330	--
Nitrobenzene	ND		ug/kg	330	--
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	670	--
Butyl benzyl phthalate	ND		ug/kg	330	--
Di-n-butylphthalate	ND		ug/kg	330	--
Di-n-octylphthalate	ND		ug/kg	330	--
Diethyl phthalate	ND		ug/kg	330	--
Dimethyl phthalate	ND		ug/kg	330	--
Benzo(a)anthracene	ND		ug/kg	330	--
Benzo(a)pyrene	ND		ug/kg	330	--
Benzo(b)fluoranthene	ND		ug/kg	330	--
Benzo(k)fluoranthene	ND		ug/kg	330	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/17/11 13:19
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/14/11 05:23

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-07 Batch: WG467889-1					
Chrysene	ND		ug/kg	330	--
Acenaphthylene	ND		ug/kg	330	--
Anthracene	ND		ug/kg	330	--
Benzo(ghi)perylene	ND		ug/kg	330	--
Fluorene	ND		ug/kg	330	--
Phenanthrene	ND		ug/kg	330	--
Dibenzo(a,h)anthracene	ND		ug/kg	200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	330	--
Pyrene	ND		ug/kg	330	--
Aniline	ND		ug/kg	670	--
4-Chloroaniline	ND		ug/kg	330	--
Dibenzofuran	ND		ug/kg	330	--
2-Methylnaphthalene	ND		ug/kg	330	--
Acetophenone	ND		ug/kg	670	--
2,4,6-Trichlorophenol	ND		ug/kg	330	--
2-Chlorophenol	ND		ug/kg	400	--
2,4-Dichlorophenol	ND		ug/kg	670	--
2,4-Dimethylphenol	ND		ug/kg	330	--
2-Nitrophenol	ND		ug/kg	1300	--
4-Nitrophenol	ND		ug/kg	670	--
2,4-Dinitrophenol	ND		ug/kg	1300	--
Pentachlorophenol	ND		ug/kg	1300	--
Phenol	ND		ug/kg	470	--
2-Methylphenol	ND		ug/kg	400	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	400	--
2,4,5-Trichlorophenol	ND		ug/kg	330	--

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/17/11 13:19
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/14/11 05:23

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-07 Batch: WG467889-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		30-130
Phenol-d6	42		30-130
Nitrobenzene-d5	37		30-130
2-Fluorobiphenyl	42		30-130
2,4,6-Tribromophenol	41		30-130
4-Terphenyl-d14	53		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG467545-2 WG467545-3								
Acenaphthene	84		82		40-140	2		30
1,2,4-Trichlorobenzene	74		67		40-140	10		30
Hexachlorobenzene	88		87		40-140	1		30
Bis(2-chloroethyl)ether	75		67		40-140	11		30
2-Chloronaphthalene	93		92		40-140	1		30
1,2-Dichlorobenzene	76		70		40-140	8		30
1,3-Dichlorobenzene	72		66		40-140	9		30
1,4-Dichlorobenzene	75		69		40-140	8		30
3,3'-Dichlorobenzidine	68		70		40-140	3		30
2,4-Dinitrotoluene	98		102		40-140	4		30
2,6-Dinitrotoluene	80		84		40-140	5		30
Azobenzene	89		90		40-140	1		30
Fluoranthene	95		97		40-140	2		30
4-Bromophenyl phenyl ether	88		89		40-140	1		30
Bis(2-chloroisopropyl)ether	73		67		40-140	9		30
Bis(2-chloroethoxy)methane	73		69		40-140	6		30
Hexachlorobutadiene	81		75		40-140	8		30
Hexachloroethane	72		67		40-140	7		30
Isophorone	70		68		40-140	3		30
Naphthalene	82		76		40-140	8		30
Nitrobenzene	80		75		40-140	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1106586
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG467545-2 WG467545-3								
Bis(2-Ethylhexyl)phthalate	96		100		40-140	4		30
Butyl benzyl phthalate	97		101		40-140	4		30
Di-n-butylphthalate	97		99		40-140	2		30
Di-n-octylphthalate	104		107		40-140	3		30
Diethyl phthalate	91		91		40-140	0		30
Dimethyl phthalate	92		92		40-140	0		30
Benzo(a)anthracene	87		90		40-140	3		30
Benzo(a)pyrene	84		85		40-140	1		30
Benzo(b)fluoranthene	91		93		40-140	2		30
Benzo(k)fluoranthene	90		92		40-140	2		30
Chrysene	87		90		40-140	3		30
Acenaphthylene	83		84		40-140	1		30
Anthracene	92		94		40-140	2		30
Benzo(ghi)perylene	91		96		40-140	5		30
Fluorene	90		90		40-140	0		30
Phenanthrene	91		94		40-140	3		30
Dibenzo(a,h)anthracene	94		97		40-140	3		30
Indeno(1,2,3-cd)Pyrene	95		98		40-140	3		30
Pyrene	89		93		40-140	4		30
Aniline	**37**	Q	**34**	Q	40-140	8		30
4-Chloroaniline	53		52		40-140	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1106586

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG467545-2 WG467545-3								
Dibenzofuran	82		82		40-140	0		30
2-Methylnaphthalene	80		74		40-140	8		30
Acetophenone	79		75		40-140	5		30
2,4,6-Trichlorophenol	85		86		30-130	1		30
2-Chlorophenol	80		74		30-130	8		30
2,4-Dichlorophenol	87		86		30-130	1		30
2,4-Dimethylphenol	75		76		30-130	1		30
2-Nitrophenol	75		71		30-130	5		30
4-Nitrophenol	100		102		30-130	2		30
2,4-Dinitrophenol	65		72		30-130	10		30
Pentachlorophenol	87		92		30-130	6		30
Phenol	81		77		30-130	5		30
2-Methylphenol	76		74		30-130	3		30
3-Methylphenol/4-Methylphenol	76		76		30-130	0		30
2,4,5-Trichlorophenol	83		86		30-130	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1106586

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG467545-2 WG467545-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	79		74		30-130
Phenol-d6	79		75		30-130
Nitrobenzene-d5	72		68		30-130
2-Fluorobiphenyl	79		79		30-130
2,4,6-Tribromophenol	83		84		30-130
4-Terphenyl-d14	91		94		30-130

MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-07 Batch: WG467889-2 WG467889-3								
Acenaphthene	90		86		40-140	5		30
1,2,4-Trichlorobenzene	85		74		40-140	14		30
Hexachlorobenzene	110		110		40-140	0		30
Bis(2-chloroethyl)ether	82		72		40-140	13		30
2-Chloronaphthalene	121		108		40-140	11		30
1,2-Dichlorobenzene	85		74		40-140	14		30
1,3-Dichlorobenzene	83		72		40-140	14		30
1,4-Dichlorobenzene	84		74		40-140	13		30
3,3'-Dichlorobenzidine	50		62		40-140	21		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1106586
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-07 Batch: WG467889-2 WG467889-3								
2,4-Dinitrotoluene	101		104		40-140	3		30
2,6-Dinitrotoluene	95		97		40-140	2		30
Azobenzene	93		93		40-140	0		30
Fluoranthene	109		107		40-140	2		30
4-Bromophenyl phenyl ether	108		109		40-140	1		30
Bis(2-chloroisopropyl)ether	73		64		40-140	13		30
Bis(2-chloroethoxy)methane	87		78		40-140	11		30
Hexachlorobutadiene	94		83		40-140	12		30
Hexachloroethane	85		74		40-140	14		30
Isophorone	90		80		40-140	12		30
Naphthalene	88		78		40-140	12		30
Nitrobenzene	87		77		40-140	12		30
Bis(2-Ethylhexyl)phthalate	107		111		40-140	4		30
Butyl benzyl phthalate	110		113		40-140	3		30
Di-n-butylphthalate	125		125		40-140	0		30
Di-n-octylphthalate	110		114		40-140	4		30
Diethyl phthalate	108		109		40-140	1		30
Dimethyl phthalate	103		103		40-140	0		30
Benzo(a)anthracene	103		105		40-140	2		30
Benzo(a)pyrene	91		92		40-140	1		30
Benzo(b)fluoranthene	120		119		40-140	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1106586
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-07 Batch: WG467889-2 WG467889-3								
Benzo(k)fluoranthene	104		106		40-140	2		30
Chrysene	99		98		40-140	1		30
Acenaphthylene	94		84		40-140	11		30
Anthracene	103		103		40-140	0		30
Benzo(ghi)perylene	107		109		40-140	2		30
Fluorene	96		95		40-140	1		30
Phenanthrene	98		95		40-140	3		30
Dibenzo(a,h)anthracene	101		98		40-140	3		30
Indeno(1,2,3-cd)Pyrene	99		100		40-140	1		30
Pyrene	106		103		40-140	3		30
Aniline	**22**	Q	**28**	Q	40-140	24		30
4-Chloroaniline	**37**	Q	44		40-140	17		30
Dibenzofuran	93		89		40-140	4		30
2-Methylnaphthalene	96		84		40-140	13		30
Acetophenone	95		85		40-140	11		30
2,4,6-Trichlorophenol	102		99		30-130	3		30
2-Chlorophenol	91		82		30-130	10		30
2,4-Dichlorophenol	105		98		30-130	7		30
2,4-Dimethylphenol	94		86		30-130	9		30
2-Nitrophenol	93		84		30-130	10		30
4-Nitrophenol	100		103		30-130	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1106586

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-07 Batch: WG467889-2 WG467889-3								
2,4-Dinitrophenol	97		102		30-130	5		30
Pentachlorophenol	120		125		30-130	4		30
Phenol	86		78		30-130	10		30
2-Methylphenol	91		82		30-130	10		30
3-Methylphenol/4-Methylphenol	86		80		30-130	7		30
2,4,5-Trichlorophenol	104		102		30-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	93		74		30-130
Phenol-d6	95		77		30-130
Nitrobenzene-d5	94		75		30-130
2-Fluorobiphenyl	101		82		30-130
2,4,6-Tribromophenol	119		106		30-130
4-Terphenyl-d14	119		106		30-130

PETROLEUM HYDROCARBONS

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-01	Date Collected:	05/02/11 10:30
Client ID:	B-3/MW-1	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 16:10		
Analyst:	KG		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	33900	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	75		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-02	Date Collected:	05/03/11 10:00
Client ID:	B-4/MW-2	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 18:26		
Analyst:	KG		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	33800	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	55		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-03	Date Collected:	05/04/11 11:10
Client ID:	B-5/MW-3	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 20:07		
Analyst:	KG		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	510000		ug/kg	37500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	68		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-04	Date Collected:	05/05/11 09:45
Client ID:	B-6/MW-4	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 21:15		
Analyst:	KG		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	208000		ug/kg	38900	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	63		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-05	Date Collected:	05/06/11 09:30
Client ID:	B-7	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 17:17		
Analyst:	KG		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	36300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	76		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-06 D	Date Collected:	05/06/11 13:00
Client ID:	B-8/MW-5	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/17/11 18:24		
Analyst:	KG		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	791000		ug/kg	183000	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	71		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106586-07	Date Collected:	05/09/11 11:00
Client ID:	B-9/MW-6	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/14/11 02:15
Analytical Date:	05/16/11 21:48		
Analyst:	KG		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	180000		ug/kg	36400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	77		40-140

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 05/16/11 14:28
Analyst: KG

Extraction Method: EPA 3546
Extraction Date: 05/14/11 02:15

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 01-07 Batch: WG467877-1					
TPH	ND		ug/kg	33300	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	62		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1106586

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-07 Batch: WG467877-2								
TPH	65		-		40-140	-		

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	74				40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG467877-3 QC Sample: L1106586-01 Client ID: B-3/MW-1						
TPH	ND	ND	ug/kg	NC		40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	75		84		40-140

METALS

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-01 Date Collected: 05/02/11 10:30

Client ID: B-3/MW-1 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 17:18	EPA 3050B	1,6020A	EM
Arsenic, Total	0.861		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Beryllium, Total	0.126		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Cadmium, Total	0.064		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Chromium, Total	3.27		mg/kg	0.130	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Copper, Total	4.84		mg/kg	0.065	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Lead, Total	4.35		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.012	--	5	05/16/11 10:00	05/18/11 12:01	EPA 7474	1,7474	EM
Nickel, Total	2.17		mg/kg	0.065	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Selenium, Total	0.162		mg/kg	0.065	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Silver, Total	0.035		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 17:18	EPA 3050B	1,6020A	EM
Thallium, Total	0.111		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM
Zinc, Total	13.8		mg/kg	0.651	--	2	05/16/11 10:00	05/19/11 16:16	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-02 Date Collected: 05/03/11 10:00

Client ID: B-4/MW-2 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 17:21	EPA 3050B	1,6020A	EM
Arsenic, Total	0.780		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Beryllium, Total	0.081		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Cadmium, Total	0.075		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Chromium, Total	3.58		mg/kg	0.126	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Copper, Total	4.33		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Lead, Total	14.9		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.012	--	5	05/16/11 10:00	05/18/11 12:12	EPA 7474	1,7474	EM
Nickel, Total	3.62		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Selenium, Total	0.095		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.033	--	2	05/16/11 10:00	05/19/11 17:21	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM
Zinc, Total	15.9		mg/kg	0.632	--	2	05/16/11 10:00	05/19/11 16:24	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-03 Date Collected: 05/04/11 11:10

Client ID: B-5/MW-3 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.090		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 17:23	EPA 3050B	1,6020A	EM
Arsenic, Total	4.11		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Beryllium, Total	0.298		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Cadmium, Total	0.079		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Chromium, Total	6.48		mg/kg	0.144	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Copper, Total	13.0		mg/kg	0.072	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Lead, Total	77.2		mg/kg	0.090	--	5	05/16/11 10:00	05/19/11 16:47	EPA 3050B	1,6020A	EM
Mercury, Total	0.061		mg/kg	0.012	--	5	05/16/11 10:00	05/18/11 12:15	EPA 7474	1,7474	EM
Nickel, Total	5.25		mg/kg	0.072	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Selenium, Total	0.434		mg/kg	0.072	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM
Silver, Total	0.094		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 17:23	EPA 3050B	1,6020A	EM
Thallium, Total	0.104		mg/kg	0.090	--	5	05/16/11 10:00	05/19/11 16:47	EPA 3050B	1,6020A	EM
Zinc, Total	37.3		mg/kg	0.719	--	2	05/16/11 10:00	05/19/11 16:25	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-04 Date Collected: 05/05/11 09:45

Client ID: B-6/MW-4 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.284		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 17:24	EPA 3050B	1,6020A	EM
Arsenic, Total	1.25		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Beryllium, Total	0.166		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Cadmium, Total	0.071		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Chromium, Total	7.72		mg/kg	0.146	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Copper, Total	14.0		mg/kg	0.073	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Lead, Total	95.2		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Mercury, Total	0.027		mg/kg	0.014	--	5	05/16/11 10:00	05/18/11 12:17	EPA 7474	1,7474	EM
Nickel, Total	5.36		mg/kg	0.073	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Selenium, Total	0.318		mg/kg	0.073	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Silver, Total	0.033		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 17:24	EPA 3050B	1,6020A	EM
Thallium, Total	0.056		mg/kg	0.036	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM
Zinc, Total	55.7		mg/kg	0.728	--	2	05/16/11 10:00	05/19/11 16:27	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-05 Date Collected: 05/06/11 09:30

Client ID: B-7 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.035	--	2	05/16/11 10:00	05/19/11 17:24	EPA 3050B	1,6020A	EM
Arsenic, Total	0.677		mg/kg	0.031	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Beryllium, Total	0.196		mg/kg	0.031	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Cadmium, Total	0.047		mg/kg	0.031	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Chromium, Total	6.60		mg/kg	0.125	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Copper, Total	6.75		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Lead, Total	15.2		mg/kg	0.078	--	5	05/16/11 10:00	05/19/11 16:48	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.012	--	5	05/16/11 10:00	05/18/11 12:20	EPA 7474	1,7474	EM
Nickel, Total	4.61		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Selenium, Total	0.203		mg/kg	0.063	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.035	--	2	05/16/11 10:00	05/19/11 17:24	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.078	--	5	05/16/11 10:00	05/19/11 16:48	EPA 3050B	1,6020A	EM
Zinc, Total	19.0		mg/kg	0.625	--	2	05/16/11 10:00	05/19/11 16:28	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-06 Date Collected: 05/06/11 13:00

Client ID: B-8/MW-5 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.040		mg/kg	0.037	--	2	05/16/11 10:00	05/19/11 17:25	EPA 3050B	1,6020A	EM
Arsenic, Total	1.32		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Beryllium, Total	0.270		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Cadmium, Total	0.409		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Chromium, Total	6.19		mg/kg	0.138	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Copper, Total	10.1		mg/kg	0.069	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Lead, Total	161		mg/kg	0.086	--	5	05/16/11 10:00	05/19/11 16:49	EPA 3050B	1,6020A	EM
Mercury, Total	0.028		mg/kg	0.013	--	5	05/16/11 10:00	05/18/11 12:29	EPA 7474	1,7474	EM
Nickel, Total	4.07		mg/kg	0.069	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Selenium, Total	0.334		mg/kg	0.069	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM
Silver, Total	0.039		mg/kg	0.037	--	2	05/16/11 10:00	05/19/11 17:25	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.086	--	5	05/16/11 10:00	05/19/11 16:49	EPA 3050B	1,6020A	EM
Zinc, Total	126		mg/kg	0.688	--	2	05/16/11 10:00	05/19/11 16:29	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-07 Date Collected: 05/09/11 11:00

Client ID: B-9/MW-6 Date Received: 05/11/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 17:26	EPA 3050B	1,6020A	EM
Arsenic, Total	1.01		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Beryllium, Total	0.143		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Cadmium, Total	0.056		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Chromium, Total	13.6		mg/kg	0.128	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Copper, Total	12.1		mg/kg	0.064	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Lead, Total	4.75		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.013	--	5	05/16/11 10:00	05/18/11 12:31	EPA 7474	1,7474	EM
Nickel, Total	10.4		mg/kg	0.064	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Selenium, Total	0.117		mg/kg	0.064	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.034	--	2	05/16/11 10:00	05/19/11 17:26	EPA 3050B	1,6020A	EM
Thallium, Total	ND		mg/kg	0.032	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM
Zinc, Total	18.8		mg/kg	0.642	--	2	05/16/11 10:00	05/19/11 16:31	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG467817-1										
Antimony, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 17:17	1,6020A	EM
Silver, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 17:17	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG467818-1										
Mercury, Total	ND		mg/kg	0.013	--	5	05/16/11 10:00	05/18/11 11:54	1,7474	EM

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG467819-1										
Arsenic, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Beryllium, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Chromium, Total	ND		mg/kg	0.200	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Copper, Total	ND		mg/kg	0.100	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Lead, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Nickel, Total	ND		mg/kg	0.100	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Selenium, Total	ND		mg/kg	0.100	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Thallium, Total	ND		mg/kg	0.050	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM
Zinc, Total	ND		mg/kg	1.00	--	2	05/16/11 10:00	05/19/11 16:13	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG467817-2 SRM Lot Number: S3SPIKE								
Antimony, Total	106		-		80-120	-		20
Silver, Total	100		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG467818-2 SRM Lot Number: HPHGAF								
Mercury, Total	95		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG467819-2 SRM Lot Number: S1SPIKE								
Arsenic, Total	109		-		80-120	-		20
Beryllium, Total	110		-		80-120	-		20
Cadmium, Total	109		-		80-120	-		20
Chromium, Total	110		-		80-120	-		20
Copper, Total	104		-		80-120	-		20
Lead, Total	108		-		80-120	-		20
Nickel, Total	106		-		80-120	-		20
Selenium, Total	104		-		80-120	-		20
Thallium, Total	108		-		80-120	-		20
Zinc, Total	104		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467817-4 QC Sample: L1106586-01 Client ID: B-3/MW-1												
Antimony, Total	ND	1.31	0.604	**46**	Q	-	-		75-125	-		20
Silver, Total	0.035	1.31	1.34	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467818-4 QC Sample: L1106586-01 Client ID: B-3/MW-1												
Mercury, Total	ND	1.16	1.16	100		-	-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467819-4 QC Sample: L1106586-01 Client ID: B-3/MW-1												
Arsenic, Total	0.861	121	131	107		-	-		75-125	-		20
Beryllium, Total	0.126	60.6	66.5	110		-	-		75-125	-		20
Cadmium, Total	0.064	60.6	65.2	108		-	-		75-125	-		20
Chromium, Total	3.27	121	132	106		-	-		75-125	-		20
Copper, Total	4.84	121	125	99		-	-		75-125	-		20
Lead, Total	4.35	121	121	96		-	-		75-125	-		20
Nickel, Total	2.17	121	125	101		-	-		75-125	-		20
Selenium, Total	0.162	121	125	103		-	-		75-125	-		20
Thallium, Total	0.111	121	120	99		-	-		75-125	-		20
Zinc, Total	13.8	121	136	101		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467817-3 QC Sample: L1106586-01 Client ID: B-3/MW-1						
Antimony, Total	ND	ND	mg/kg	NC		20
Silver, Total	0.035	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467818-3 QC Sample: L1106586-01 Client ID: B-3/MW-1						
Mercury, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467819-3 QC Sample: L1106586-01 Client ID: B-3/MW-1						
Arsenic, Total	0.861	0.636	mg/kg	**30**	Q	20
Beryllium, Total	0.126	0.064	mg/kg	**65**		20
Cadmium, Total	0.064	ND	mg/kg	NC		20
Chromium, Total	3.27	3.29	mg/kg	1		20
Copper, Total	4.84	4.08	mg/kg	17		20
Lead, Total	4.35	3.78	mg/kg	14		20
Nickel, Total	2.17	1.91	mg/kg	13		20
Selenium, Total	0.162	0.068	mg/kg	**81**		20
Thallium, Total	0.111	0.041	mg/kg	**91**		20
Zinc, Total	13.8	8.96	mg/kg	**43**	Q	20

Lab Serial Dilution Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG467819-5 QC Sample: L1106586-01 Client ID: B-3/MW-1						
Copper, Total	4.84	4.83	mg/kg	0		10
Lead, Total	4.35	4.71	mg/kg	8		10

INORGANICS
&
MISCELLANEOUS

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-01
Client ID: B-3/MW-1
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/02/11 10:30
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-02
Client ID: B-4/MW-2
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/03/11 10:00
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-03
Client ID: B-5/MW-3
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/04/11 11:10
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690
Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-04
Client ID: B-6/MW-4
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/05/11 09:45
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-05
Client ID: B-7
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/06/11 09:30
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-06
Client ID: B-8/MW-5
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/06/11 13:00
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106586-07
Client ID: B-9/MW-6
Sample Location: NEW BEDFORD, MA
Matrix: Soil

Date Collected: 05/09/11 11:00
Date Received: 05/11/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89		%	0.10	NA	1	-	05/12/11 10:14	30,2540G	JF

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG467520-1 QC Sample: L1106526-01 Client ID: DUP Sample						
Solids, Total	92	92	%	0		20

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106586-01A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106586-01B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-02A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106586-02B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-03A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106586-03B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-04A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106586-04B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-05A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106586-05B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-06A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1106586
Report Date: 05/20/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106586-06B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106586-07A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106586-07B	Amber 120ml unpreserved	A	N/A	2	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)

*Values in parentheses indicate holding time in days

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106586
Project Number:	6690	**Report Date:**	05/20/11

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1106586
Project Number:	6690	**Report Date:**	05/20/11

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1106586
Project Number: 6690 **Report Date:** 05/20/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised February 23, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **EPA 8260B:** Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline. **EPA 350.1** for Ammonia in a Soil matrix.

Certificate/Approval Program Summary

Last revised March 23, 2011 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: EPA 1311, 3050, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570B, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C.)

Biological Tissue (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C.)

Air & Emissions (EPA TO-15.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA, 245.1, 245.7, 1631E, 180.1, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B. Organic Parameters: EPA 8081, 8082, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 3060A, 6020A, 7470A, 7471A, 9040B, 9045C, 7196A. Organic Parameters: SW-846 3540C, 3580, 3630C, 3640A, 3660B, 3665A, 5035, 8260B, 8270C, 8015D, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, SM2320B, EPA 200.8, SM2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 7470A, 9040B, 6020, 9010B, 9014 Organic Parameters: SW-846 3510C, 3580A, 5030B, 5035L, 5035H, 3630C, 3640C, 3660B, 3665A, 8015B 8081A, 8082, 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9040B, 9045C, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 5030B, 5035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 9014, 9040B, 120.1, SM2510B, 4500CN-E, 4500H-B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, 8082, 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 6020, 7196A, 3060A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 1312, 3050B, 3580, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

Washington State Department of Ecology Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 2510B, EPA 120.1, 180.1, 1631E, 245.7.)

Solid & Chemical Materials (Inorganic Parameters: EPA 9040, 9060, 6020, 7470, 7471, 7474. Organic Parameters: EPA 8081, 8082, 8015 Mod, 8270, 8260.)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 5030B, 8260B, 8270C, 8270C-ALK-PAH, 8082, 8081A, 8015D-SHC.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 5035A, 8260B, 8270C, 8270-ALK-PAH, 8082, 8081A, 8015D-SHC, 8015-DRO.

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl. **TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

Serial_No:05201115:16

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 5/11/11

ALPHA Job #: L1106586

Client Information

Client: APEX Co, LLC

Address: 184 High St. Ste 502, Boston, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal New Bedford

Project Location: New Bedford, MA

Project #: 6690

Project Manager: Chet Myers

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/18/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	TAP 13 METALS (EPA 6020A*)	SVOCs (EPA 8270C)	Sample Specific Comments	Total # Bottles
06586.1	B-3/MW-1	5/2/11	10:30	S	GAD	X	X	X		2
2	B-4/MW-2	5/3/11	10:00	S	GAD	X	X	X		2
3	B-5/MW-3	5/4/11	11:10	S	GAD	X	X	X		2
4	B-6/MW-4	5/5/11	9:45	S	GAD	X	X	X		2
5	B-7	5/6/11	9:30	S	GAD	X	X	X		2
6	B-8/MW-5	5/6/11	13:00	S	GAD	X	X	X		2
7	B-9/MW-6	5/9/11	11:00	S	GAD	X	X	X		2

Container Type	A	A	A
Preservative	A	A	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	5/11/11 11:32	[illegible]	5/11/11 1132
[illegible]	5/11/11 1835	Kate Munn	5/11/11 1835

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Serial_No:05201116

Date Rec'd in Lab: 5/11/11

ALPHA Job #: L1106586

Client Information

Client: Apex Co, LLC

Address: 184 High St. Ste 502, Boston, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal New Bedford

Project Location: New Bedford, MA

Project #: 6690

Project Manager: Chet Myers

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/18/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING

Filtration ☐ Done ☒ Not needed ☐ Lab to do

Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL (EPA 8015)	TPH 13 METALS (EPA 6020A*)	SVOCs (EPA 8270C)	Sample Specific Comments	TOTAL # BOTTLES
06586.1	B-3/MW-1	5/2/11	10:30	S	GAD	X	X	X		2
2	B-4/MW-2	5/3/11	10:00	S	GAD	X	X	X		2
3	B-5/MW-3	5/4/11	11:10	S	GAD	X	X	X		2
4	B-6/MW-4	5/5/11	9:45	S	GAD	X	X	X		2
5	B-7	5/6/11	9:30	S	GAD	X	X	X		2
6	B-8/MW-5	5/6/11	13:00	S	GAD	X	X	X		2
7	B-9/MW-6	5/9/11	11:00	S	GAD	X	X	X		2

Container Type	A	A	A
Preservative	A	A	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/11/11 11:32	[signature]	5/11/11 1132
[signature]	5/11/11 1835	[signature]	5/11/11 1835
[signature]	5/12/11 0700	[signature]	5/12/11 710
[signature]	5/12/11 0845	[signature]	5/12/11 0845

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

ANALYTICAL REPORT

Lab Number:	L1106741
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL N. BEFORD
Project Number:	6690
Report Date:	05/20/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1106741-01	B-11/MW-7	N. BEDFORD	05/12/11 12:00
L1106741-02	B-12/MW-8 (A)	N. BEDFORD	05/13/11 10:00
L1106741-03	B-12/MW-8 (B)	N. BEDFORD	05/13/11 10:05

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741
Project Number: 6690 **Report Date:** 05/20/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Volatile Organics

L1106741-02 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The WG468024-1/-2 LCS/LCSD recoveries, associated with L1106741-02 and -03, are above the individual acceptance criteria for Trichlorofluoromethane (LCS at 133%) and Isopropyl Ether (136%/134%), but within the overall method allowances. The results of the associated samples are reported; however, all positive detects are considered to have a potentially high bias for these compounds.

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741
Project Number: 6690 **Report Date:** 05/20/11

Case Narrative (continued)

The WG468024-1/-2 LCS/LCSD recoveries, associated with L1106741-02 and -03, are below the acceptance criteria for Dichlorodifluoromethane (61%/57%); however, it has been identified as a "difficult" analyte and is within the 40-160% acceptance limits. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for this compound.
The WG468384-1/-2 LCS/LCSD recoveries, associated with L1106741-01, are below the acceptance criteria for Dichlorodifluoromethane (54%/51%); however, it has been identified as a "difficult" analyte and is within the 40-160% acceptance limits. The results of the associated sample are reported; however, all results are considered to have a potentially low bias for this compound.
The initial calibration, associated with L1106741-01, -02 and -03, did not meet the method required minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00392), as well as the average response factor for Chloroethane and 1,4-Dioxane.
The continuing calibration standards, associated with L1106741-01, -02 and -03, are outside the acceptance criteria for several compounds; however, they are within overall method allowances. Copies of the continuing calibration standards are included as an addendum to this report.

Semivolatile Organics
L1106741-02 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.
In reference to question G:
L1106741-02: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question H:
The WG467953-2/-3 LCS/LCSD recoveries, associated with L1106741-01, -02 and -03, are below the individual acceptance criteria for Aniline (14%/19%) and 4-Chloroaniline (25%/32%), but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for these compounds.
The WG467953-2/-3 LCS/LCSD RPD, associated with L1106741-01, -02 and -03, is above the acceptance criteria for 3,3'-Dichlorobenzidine (33%); however, the individual LCS/LCSD recoveries are within method limits.

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741
Project Number: 6690 **Report Date:** 05/20/11

Case Narrative (continued)

VPH

L1106741-02 and -03 fell short of the recommended 1:1 methanol:soil ratio, due to insufficient soil in the sample vials.

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

EPH

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

Metals

In reference to question H:

The WG468124-4 MS recovery, performed on L1106741-01, is below the acceptance criteria for Antimony (36%); however, the associated LCS recovery was within criteria. No further action was taken.

The WG468132-3 Laboratory Duplicate RPDs, performed on L1106741-01, are outside the acceptance criteria for Copper (23%) and Zinc (21%). The elevated RPDs have been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

The WG468132-5 serial dilution test, associated with L1106741-01, had a %D above the acceptance criteria for Lead (12%).

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 05/20/11

ORGANICS

VOLATILES

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	05/16/11 11:44		
Analyst:	BN		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	1000	--	1
1,1-Dichloroethane	ND		ug/kg	160	--	1
Chloroform	ND		ug/kg	160	--	1
Carbon tetrachloride	ND		ug/kg	100	--	1
1,2-Dichloropropane	ND		ug/kg	360	--	1
Dibromochloromethane	ND		ug/kg	100	--	1
1,1,2-Trichloroethane	ND		ug/kg	160	--	1
Tetrachloroethene	ND		ug/kg	100	--	1
Chlorobenzene	ND		ug/kg	100	--	1
Trichlorofluoromethane	ND		ug/kg	410	--	1
1,2-Dichloroethane	ND		ug/kg	100	--	1
1,1,1-Trichloroethane	ND		ug/kg	100	--	1
Bromodichloromethane	ND		ug/kg	100	--	1
trans-1,3-Dichloropropene	ND		ug/kg	100	--	1
cis-1,3-Dichloropropene	ND		ug/kg	100	--	1
1,1-Dichloropropene	ND		ug/kg	410	--	1
Bromoform	ND		ug/kg	410	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	100	--	1
Benzene	ND		ug/kg	100	--	1
Toluene	ND		ug/kg	160	--	1
Ethylbenzene	1100		ug/kg	100	--	1
Chloromethane	ND		ug/kg	410	--	1
Bromomethane	ND		ug/kg	210	--	1
Vinyl chloride	ND		ug/kg	210	--	1
Chloroethane	ND		ug/kg	210	--	1
1,1-Dichloroethene	ND		ug/kg	100	--	1
trans-1,2-Dichloroethene	ND		ug/kg	160	--	1
Trichloroethene	ND		ug/kg	100	--	1
1,2-Dichlorobenzene	ND		ug/kg	410	--	1
1,3-Dichlorobenzene	ND		ug/kg	410	--	1
1,4-Dichlorobenzene	ND		ug/kg	410	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-01 Date Collected: 05/12/11 12:00

Client ID: B-11/MW-7 Date Received: 05/13/11

Sample Location: N. BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	210	--	1
p/m-Xylene	760		ug/kg	210	--	1
o-Xylene	320		ug/kg	210	--	1
cis-1,2-Dichloroethene	ND		ug/kg	100	--	1
Dibromomethane	ND		ug/kg	410	--	1
1,2,3-Trichloropropane	ND		ug/kg	410	--	1
Styrene	ND		ug/kg	210	--	1
Dichlorodifluoromethane	ND		ug/kg	1000	--	1
Acetone	ND		ug/kg	3700	--	1
Carbon disulfide	ND		ug/kg	410	--	1
2-Butanone	ND		ug/kg	1000	--	1
4-Methyl-2-pentanone	ND		ug/kg	1000	--	1
2-Hexanone	ND		ug/kg	1000	--	1
Bromochloromethane	ND		ug/kg	410	--	1
Tetrahydrofuran	ND		ug/kg	410	--	1
2,2-Dichloropropane	ND		ug/kg	520	--	1
1,2-Dibromoethane	ND		ug/kg	410	--	1
1,3-Dichloropropane	ND		ug/kg	410	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	100	--	1
Bromobenzene	ND		ug/kg	520	--	1
n-Butylbenzene	ND		ug/kg	100	--	1
sec-Butylbenzene	ND		ug/kg	100	--	1
tert-Butylbenzene	ND		ug/kg	410	--	1
o-Chlorotoluene	ND		ug/kg	410	--	1
p-Chlorotoluene	ND		ug/kg	410	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	410	--	1
Hexachlorobutadiene	ND		ug/kg	410	--	1
Isopropylbenzene	ND		ug/kg	100	--	1
p-Isopropyltoluene	ND		ug/kg	100	--	1
Naphthalene	12000		ug/kg	410	--	1
n-Propylbenzene	ND		ug/kg	100	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	410	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	410	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	410	--	1
1,2,4-Trimethylbenzene	440		ug/kg	410	--	1
Ethyl ether	ND		ug/kg	520	--	1
Isopropyl Ether	ND		ug/kg	410	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	410	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	410	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	10000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	85		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	D	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)		Date Received:	05/13/11
Sample Location:	N. BEDFORD		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	05/15/11 13:54			
Analyst:	BN			
Percent Solids:	49%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	5000	--	2
1,1-Dichloroethane	ND		ug/kg	740	--	2
Chloroform	ND		ug/kg	740	--	2
Carbon tetrachloride	ND		ug/kg	500	--	2
1,2-Dichloropropane	ND		ug/kg	1700	--	2
Dibromochloromethane	ND		ug/kg	500	--	2
1,1,2-Trichloroethane	ND		ug/kg	740	--	2
Tetrachloroethene	ND		ug/kg	500	--	2
Chlorobenzene	ND		ug/kg	500	--	2
Trichlorofluoromethane	ND		ug/kg	2000	--	2
1,2-Dichloroethane	ND		ug/kg	500	--	2
1,1,1-Trichloroethane	ND		ug/kg	500	--	2
Bromodichloromethane	ND		ug/kg	500	--	2
trans-1,3-Dichloropropene	ND		ug/kg	500	--	2
cis-1,3-Dichloropropene	ND		ug/kg	500	--	2
1,1-Dichloropropene	ND		ug/kg	2000	--	2
Bromoform	ND		ug/kg	2000	--	2
1,1,2,2-Tetrachloroethane	ND		ug/kg	500	--	2
Benzene	6600		ug/kg	500	--	2
Toluene	ND		ug/kg	740	--	2
Ethylbenzene	7600		ug/kg	500	--	2
Chloromethane	ND		ug/kg	2000	--	2
Bromomethane	ND		ug/kg	990	--	2
Vinyl chloride	ND		ug/kg	990	--	2
Chloroethane	ND		ug/kg	990	--	2
1,1-Dichloroethene	ND		ug/kg	500	--	2
trans-1,2-Dichloroethene	ND		ug/kg	740	--	2
Trichloroethene	ND		ug/kg	500	--	2
1,2-Dichlorobenzene	ND		ug/kg	2000	--	2
1,3-Dichlorobenzene	ND		ug/kg	2000	--	2
1,4-Dichlorobenzene	ND		ug/kg	2000	--	2

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-02 D Date Collected: 05/13/11 10:00
Client ID: B-12/MW-8 (A) Date Received: 05/13/11
Sample Location: N. BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	990	--	2
p/m-Xylene	10000		ug/kg	990	--	2
o-Xylene	7200		ug/kg	990	--	2
cis-1,2-Dichloroethene	ND		ug/kg	500	--	2
Dibromomethane	ND		ug/kg	2000	--	2
1,2,3-Trichloropropane	ND		ug/kg	2000	--	2
Styrene	ND		ug/kg	990	--	2
Dichlorodifluoromethane	ND		ug/kg	5000	--	2
Acetone	ND		ug/kg	18000	--	2
Carbon disulfide	ND		ug/kg	2000	--	2
2-Butanone	ND		ug/kg	5000	--	2
4-Methyl-2-pentanone	ND		ug/kg	5000	--	2
2-Hexanone	ND		ug/kg	5000	--	2
Bromochloromethane	ND		ug/kg	2000	--	2
Tetrahydrofuran	ND		ug/kg	2000	--	2
2,2-Dichloropropane	ND		ug/kg	2500	--	2
1,2-Dibromoethane	ND		ug/kg	2000	--	2
1,3-Dichloropropane	ND		ug/kg	2000	--	2
1,1,1,2-Tetrachloroethane	ND		ug/kg	500	--	2
Bromobenzene	ND		ug/kg	2500	--	2
n-Butylbenzene	ND		ug/kg	500	--	2
sec-Butylbenzene	ND		ug/kg	500	--	2
tert-Butylbenzene	ND		ug/kg	2000	--	2
o-Chlorotoluene	ND		ug/kg	2000	--	2
p-Chlorotoluene	ND		ug/kg	2000	--	2
1,2-Dibromo-3-chloropropane	ND		ug/kg	2000	--	2
Hexachlorobutadiene	ND		ug/kg	2000	--	2
Isopropylbenzene	3200		ug/kg	500	--	2
p-Isopropyltoluene	1800		ug/kg	500	--	2
Naphthalene	36000		ug/kg	2000	--	2
n-Propylbenzene	ND		ug/kg	500	--	2
1,2,3-Trichlorobenzene	ND		ug/kg	2000	--	2
1,2,4-Trichlorobenzene	ND		ug/kg	2000	--	2
1,3,5-Trimethylbenzene	ND		ug/kg	2000	--	2
1,2,4-Trimethylbenzene	3200		ug/kg	2000	--	2
Ethyl ether	ND		ug/kg	2500	--	2
Isopropyl Ether	ND		ug/kg	2000	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2000	--	2
Tertiary-Amyl Methyl Ether	ND		ug/kg	2000	--	2

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	D	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)		Date Received:	05/13/11
Sample Location:	N. BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	50000	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	102		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	05/15/11 14:21		
Analyst:	BN		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	830	--	1
1,1-Dichloroethane	ND		ug/kg	120	--	1
Chloroform	ND		ug/kg	120	--	1
Carbon tetrachloride	ND		ug/kg	83	--	1
1,2-Dichloropropane	ND		ug/kg	290	--	1
Dibromochloromethane	ND		ug/kg	83	--	1
1,1,2-Trichloroethane	ND		ug/kg	120	--	1
Tetrachloroethene	ND		ug/kg	83	--	1
Chlorobenzene	ND		ug/kg	83	--	1
Trichlorofluoromethane	ND		ug/kg	330	--	1
1,2-Dichloroethane	ND		ug/kg	83	--	1
1,1,1-Trichloroethane	ND		ug/kg	83	--	1
Bromodichloromethane	ND		ug/kg	83	--	1
trans-1,3-Dichloropropene	ND		ug/kg	83	--	1
cis-1,3-Dichloropropene	ND		ug/kg	83	--	1
1,1-Dichloropropene	ND		ug/kg	330	--	1
Bromoform	ND		ug/kg	330	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	83	--	1
Benzene	520		ug/kg	83	--	1
Toluene	ND		ug/kg	120	--	1
Ethylbenzene	780		ug/kg	83	--	1
Chloromethane	ND		ug/kg	330	--	1
Bromomethane	ND		ug/kg	170	--	1
Vinyl chloride	ND		ug/kg	170	--	1
Chloroethane	ND		ug/kg	170	--	1
1,1-Dichloroethene	ND		ug/kg	83	--	1
trans-1,2-Dichloroethene	ND		ug/kg	120	--	1
Trichloroethene	ND		ug/kg	83	--	1
1,2-Dichlorobenzene	ND		ug/kg	330	--	1
1,3-Dichlorobenzene	ND		ug/kg	330	--	1
1,4-Dichlorobenzene	ND		ug/kg	330	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-03 Date Collected: 05/13/11 10:05

Client ID: B-12/MW-8 (B) Date Received: 05/13/11

Sample Location: N. BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	170	--	1
p/m-Xylene	800		ug/kg	170	--	1
o-Xylene	580		ug/kg	170	--	1
cis-1,2-Dichloroethene	ND		ug/kg	83	--	1
Dibromomethane	ND		ug/kg	330	--	1
1,2,3-Trichloropropane	ND		ug/kg	330	--	1
Styrene	ND		ug/kg	170	--	1
Dichlorodifluoromethane	ND		ug/kg	830	--	1
Acetone	ND		ug/kg	3000	--	1
Carbon disulfide	ND		ug/kg	330	--	1
2-Butanone	ND		ug/kg	830	--	1
4-Methyl-2-pentanone	ND		ug/kg	830	--	1
2-Hexanone	ND		ug/kg	830	--	1
Bromochloromethane	ND		ug/kg	330	--	1
Tetrahydrofuran	ND		ug/kg	330	--	1
2,2-Dichloropropane	ND		ug/kg	420	--	1
1,2-Dibromoethane	ND		ug/kg	330	--	1
1,3-Dichloropropane	ND		ug/kg	330	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	83	--	1
Bromobenzene	ND		ug/kg	420	--	1
n-Butylbenzene	ND		ug/kg	83	--	1
sec-Butylbenzene	ND		ug/kg	83	--	1
tert-Butylbenzene	ND		ug/kg	330	--	1
o-Chlorotoluene	ND		ug/kg	330	--	1
p-Chlorotoluene	ND		ug/kg	330	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	330	--	1
Hexachlorobutadiene	ND		ug/kg	330	--	1
Isopropylbenzene	420		ug/kg	83	--	1
p-Isopropyltoluene	220		ug/kg	83	--	1
Naphthalene	4600		ug/kg	330	--	1
n-Propylbenzene	ND		ug/kg	83	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	330	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	330	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	330	--	1
1,2,4-Trimethylbenzene	350		ug/kg	330	--	1
Ethyl ether	ND		ug/kg	420	--	1
Isopropyl Ether	ND		ug/kg	330	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	330	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	330	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	8300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	100		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/15/11 09:02
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 02-03 Batch: WG468024-3					
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/15/11 09:02
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 02-03 Batch: WG468024-3					
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
2-Butanone	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/15/11 09:02
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 02-03 Batch: WG468024-3					
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Ethyl ether	ND		ug/kg	250	--
Isopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	106		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/16/11 07:46
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01 Batch: WG468384-3					
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--
1,4-Dichlorobenzene	ND		ug/kg	200	--

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/16/11 07:46
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01 Batch: WG468384-3					
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
2-Butanone	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 05/16/11 07:46
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01 Batch: WG468384-3					
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Ethyl ether	ND		ug/kg	250	--
Isopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 02-03 Batch: WG468024-1 WG468024-2								
Methylene chloride	105		100		70-130	5		20
1,1-Dichloroethane	108		105		70-130	3		20
Chloroform	109		108		70-130	1		20
Carbon tetrachloride	120		115		70-130	4		20
1,2-Dichloropropane	110		107		70-130	3		20
Dibromochloromethane	99		98		70-130	1		20
1,1,2-Trichloroethane	93		91		70-130	2		20
Tetrachloroethene	100		95		70-130	5		20
Chlorobenzene	92		89		70-130	3		20
Trichlorofluoromethane	**133**	Q	124		70-130	7		20
1,2-Dichloroethane	117		115		70-130	2		20
1,1,1-Trichloroethane	111		106		70-130	5		20
Bromodichloromethane	112		108		70-130	4		20
trans-1,3-Dichloropropene	94		94		70-130	0		20
cis-1,3-Dichloropropene	105		104		70-130	1		20
1,1-Dichloropropene	105		101		70-130	4		20
Bromoform	94		94		70-130	0		20
1,1,2,2-Tetrachloroethane	83		85		70-130	2		20
Benzene	104		100		70-130	4		20
Toluene	90		84		70-130	7		20
Ethylbenzene	92		89		70-130	3		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 02-03 Batch: WG468024-1 WG468024-2								
Chloromethane	86		84		70-130	2		20
Bromomethane	92		88		70-130	4		20
Vinyl chloride	90		83		70-130	8		20
Chloroethane	110		105		70-130	5		20
1,1-Dichloroethene	107		99		70-130	8		20
trans-1,2-Dichloroethene	106		98		70-130	8		20
Trichloroethene	107		102		70-130	5		20
1,2-Dichlorobenzene	87		87		70-130	0		20
1,3-Dichlorobenzene	88		87		70-130	1		20
1,4-Dichlorobenzene	88		86		70-130	2		20
Methyl tert butyl ether	100		100		70-130	0		20
p/m-Xylene	93		90		70-130	3		20
o-Xylene	95		92		70-130	3		20
cis-1,2-Dichloroethene	109		103		70-130	6		20
Dibromomethane	115		114		70-130	1		20
1,2,3-Trichloropropane	89		85		70-130	5		20
Styrene	94		91		70-130	3		20
Dichlorodifluoromethane	**61**	Q	**57**	Q	70-130	7		20
Acetone	112		123		70-130	9		20
Carbon disulfide	101		96		70-130	5		20
2-Butanone	119		122		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 02-03 Batch: WG468024-1 WG468024-2								
4-Methyl-2-pentanone	113		118		70-130	4		20
2-Hexanone	104		110		70-130	6		20
Bromochloromethane	114		114		70-130	0		20
Tetrahydrofuran	115		122		70-130	6		20
2,2-Dichloropropane	110		105		70-130	5		20
1,2-Dibromoethane	92		90		70-130	2		20
1,3-Dichloropropane	91		91		70-130	0		20
1,1,1,2-Tetrachloroethane	101		98		70-130	3		20
Bromobenzene	88		87		70-130	1		20
n-Butylbenzene	86		83		70-130	4		20
sec-Butylbenzene	86		83		70-130	4		20
tert-Butylbenzene	88		84		70-130	5		20
o-Chlorotoluene	86		84		70-130	2		20
p-Chlorotoluene	85		82		70-130	4		20
1,2-Dibromo-3-chloropropane	82		96		70-130	16		20
Hexachlorobutadiene	89		85		70-130	5		20
Isopropylbenzene	86		82		70-130	5		20
p-Isopropyltoluene	90		87		70-130	3		20
Naphthalene	86		88		70-130	2		20
n-Propylbenzene	85		82		70-130	4		20
1,2,3-Trichlorobenzene	93		91		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD

Project Number: 6690

Lab Number: L1106741

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 02-03 Batch: WG468024-1 WG468024-2								
1,2,4-Trichlorobenzene	92		90		70-130	2		20
1,3,5-Trimethylbenzene	86		83		70-130	4		20
1,2,4-Trimethylbenzene	88		86		70-130	2		20
Ethyl ether	106		104		70-130	2		20
Isopropyl Ether	**136**	Q	**134**	Q	70-130	1		20
Ethyl-Tert-Butyl-Ether	123		121		70-130	2		20
Tertiary-Amyl Methyl Ether	118		118		70-130	0		20
1,4-Dioxane	110		118		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	90		90		70-130
4-Bromofluorobenzene	92		93		70-130
Dibromofluoromethane	105		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01 Batch: WG468384-1 WG468384-2								
Methylene chloride	102		103		70-130	1		20
1,1-Dichloroethane	105		105		70-130	0		20
Chloroform	110		107		70-130	3		20
Carbon tetrachloride	115		112		70-130	3		20
1,2-Dichloropropane	106		108		70-130	2		20
Dibromochloromethane	95		96		70-130	1		20
1,1,2-Trichloroethane	90		90		70-130	0		20
Tetrachloroethene	92		88		70-130	4		20
Chlorobenzene	88		87		70-130	1		20
Trichlorofluoromethane	123		120		70-130	2		20
1,2-Dichloroethane	116		118		70-130	2		20
1,1,1-Trichloroethane	107		104		70-130	3		20
Bromodichloromethane	108		111		70-130	3		20
trans-1,3-Dichloropropene	91		92		70-130	1		20
cis-1,3-Dichloropropene	104		104		70-130	0		20
1,1-Dichloropropene	102		97		70-130	5		20
Bromoform	92		93		70-130	1		20
1,1,2,2-Tetrachloroethane	80		81		70-130	1		20
Benzene	102		102		70-130	0		20
Toluene	83		84		70-130	1		20
Ethylbenzene	88		86		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01 Batch: WG468384-1 WG468384-2								
Chloromethane	85		82		70-130	4		20
Bromomethane	89		88		70-130	1		20
Vinyl chloride	84		82		70-130	2		20
Chloroethane	103		101		70-130	2		20
1,1-Dichloroethene	102		99		70-130	3		20
trans-1,2-Dichloroethene	100		100		70-130	0		20
Trichloroethene	104		104		70-130	0		20
1,2-Dichlorobenzene	84		84		70-130	0		20
1,3-Dichlorobenzene	85		84		70-130	1		20
1,4-Dichlorobenzene	85		85		70-130	0		20
Methyl tert butyl ether	98		98		70-130	0		20
p/m-Xylene	89		88		70-130	1		20
o-Xylene	88		88		70-130	0		20
cis-1,2-Dichloroethene	107		108		70-130	1		20
Dibromomethane	113		116		70-130	3		20
1,2,3-Trichloropropane	84		82		70-130	2		20
Styrene	88		88		70-130	0		20
Dichlorodifluoromethane	**54**	Q	**51**	Q	70-130	6		20
Acetone	126		128		70-130	2		20
Carbon disulfide	98		95		70-130	3		20
2-Butanone	116		122		70-130	5		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01 Batch: WG468384-1 WG468384-2								
4-Methyl-2-pentanone	110		114		70-130	4		20
2-Hexanone	99		105		70-130	6		20
Bromochloromethane	114		116		70-130	2		20
Tetrahydrofuran	111		112		70-130	1		20
2,2-Dichloropropane	106		106		70-130	0		20
1,2-Dibromoethane	88		90		70-130	2		20
1,3-Dichloropropane	90		90		70-130	0		20
1,1,1,2-Tetrachloroethane	99		98		70-130	1		20
Bromobenzene	86		85		70-130	1		20
n-Butylbenzene	81		79		70-130	3		20
sec-Butylbenzene	81		79		70-130	3		20
tert-Butylbenzene	83		81		70-130	2		20
o-Chlorotoluene	83		81		70-130	2		20
p-Chlorotoluene	81		80		70-130	1		20
1,2-Dibromo-3-chloropropane	84		88		70-130	5		20
Hexachlorobutadiene	82		78		70-130	5		20
Isopropylbenzene	80		78		70-130	3		20
p-Isopropyltoluene	85		83		70-130	2		20
Naphthalene	80		82		70-130	2		20
n-Propylbenzene	81		80		70-130	1		20
1,2,3-Trichlorobenzene	87		88		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD

Project Number: 6690

Lab Number: L1106741

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01 Batch: WG468384-1 WG468384-2								
1,2,4-Trichlorobenzene	88		87		70-130	1		20
1,3,5-Trimethylbenzene	82		81		70-130	1		20
1,2,4-Trimethylbenzene	84		83		70-130	1		20
Ethyl ether	100		101		70-130	1		20
Isopropyl Ether	129		129		70-130	0		20
Ethyl-Tert-Butyl-Ether	116		118		70-130	2		20
Tertiary-Amyl Methyl Ether	112		114		70-130	2		20
1,4-Dioxane	113		116		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		104		70-130
Toluene-d8	89		89		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	106		108		70-130

SEMIVOLATILES

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/15/11 10:48
Analytical Date:	05/18/11 17:39		
Analyst:	RC		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	660		ug/kg	410	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	410	--	1
Hexachlorobenzene	ND		ug/kg	410	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	410	--	1
2-Chloronaphthalene	ND		ug/kg	410	--	1
1,2-Dichlorobenzene	ND		ug/kg	410	--	1
1,3-Dichlorobenzene	ND		ug/kg	410	--	1
1,4-Dichlorobenzene	ND		ug/kg	410	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	820	--	1
2,4-Dinitrotoluene	ND		ug/kg	410	--	1
2,6-Dinitrotoluene	ND		ug/kg	410	--	1
Azobenzene	ND		ug/kg	410	--	1
Fluoranthene	ND		ug/kg	410	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	410	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	410	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	410	--	1
Hexachlorobutadiene	ND		ug/kg	820	--	1
Hexachloroethane	ND		ug/kg	410	--	1
Isophorone	ND		ug/kg	410	--	1
Naphthalene	6600		ug/kg	410	--	1
Nitrobenzene	ND		ug/kg	410	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	820	--	1
Butyl benzyl phthalate	ND		ug/kg	410	--	1
Di-n-butylphthalate	ND		ug/kg	410	--	1
Di-n-octylphthalate	ND		ug/kg	410	--	1
Diethyl phthalate	ND		ug/kg	410	--	1
Dimethyl phthalate	ND		ug/kg	410	--	1
Benzo(a)anthracene	ND		ug/kg	410	--	1
Benzo(a)pyrene	ND		ug/kg	410	--	1
Benzo(b)fluoranthene	ND		ug/kg	410	--	1
Benzo(k)fluoranthene	ND		ug/kg	410	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-01 Date Collected: 05/12/11 12:00

Client ID: B-11/MW-7 Date Received: 05/13/11

Sample Location: N. BEDFORD Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	ND		ug/kg	410	--	1
Acenaphthylene	ND		ug/kg	410	--	1
Anthracene	ND		ug/kg	410	--	1
Benzo(ghi)perylene	ND		ug/kg	410	--	1
Fluorene	ND		ug/kg	410	--	1
Phenanthrene	ND		ug/kg	410	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	240	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	410	--	1
Pyrene	ND		ug/kg	410	--	1
Aniline	ND		ug/kg	820	--	1
4-Chloroaniline	ND		ug/kg	410	--	1
Dibenzofuran	ND		ug/kg	410	--	1
2-Methylnaphthalene	2100		ug/kg	410	--	1
Acetophenone	ND		ug/kg	820	--	1
2,4,6-Trichlorophenol	ND		ug/kg	410	--	1
2-Chlorophenol	ND		ug/kg	490	--	1
2,4-Dichlorophenol	ND		ug/kg	820	--	1
2,4-Dimethylphenol	ND		ug/kg	410	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	820	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	570	--	1
2-Methylphenol	ND		ug/kg	490	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	490	--	1
2,4,5-Trichlorophenol	ND		ug/kg	410	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	74		30-130
Phenol-d6	74		30-130
Nitrobenzene-d5	62		30-130
2-Fluorobiphenyl	76		30-130
2,4,6-Tribromophenol	86		30-130
4-Terphenyl-d14	99		30-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	D	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)		Date Received:	05/13/11
Sample Location:	N. BEDFORD		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	97,8270C		Extraction Date:	05/15/11 10:48
Analytical Date:	05/18/11 18:05			
Analyst:	RC			
Percent Solids:	49%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	2600		ug/kg	1400	--	2
1,2,4-Trichlorobenzene	ND		ug/kg	1400	--	2
Hexachlorobenzene	ND		ug/kg	1400	--	2
Bis(2-chloroethyl)ether	ND		ug/kg	1400	--	2
2-Chloronaphthalene	ND		ug/kg	1400	--	2
1,2-Dichlorobenzene	ND		ug/kg	1400	--	2
1,3-Dichlorobenzene	ND		ug/kg	1400	--	2
1,4-Dichlorobenzene	ND		ug/kg	1400	--	2
3,3'-Dichlorobenzidine	ND		ug/kg	2800	--	2
2,4-Dinitrotoluene	ND		ug/kg	1400	--	2
2,6-Dinitrotoluene	ND		ug/kg	1400	--	2
Azobenzene	ND		ug/kg	1400	--	2
Fluoranthene	3400		ug/kg	1400	--	2
4-Bromophenyl phenyl ether	ND		ug/kg	1400	--	2
Bis(2-chloroisopropyl)ether	ND		ug/kg	1400	--	2
Bis(2-chloroethoxy)methane	ND		ug/kg	1400	--	2
Hexachlorobutadiene	ND		ug/kg	2800	--	2
Hexachloroethane	ND		ug/kg	1400	--	2
Isophorone	ND		ug/kg	1400	--	2
Naphthalene	18000		ug/kg	1400	--	2
Nitrobenzene	ND		ug/kg	1400	--	2
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	2800	--	2
Butyl benzyl phthalate	ND		ug/kg	1400	--	2
Di-n-butylphthalate	ND		ug/kg	1400	--	2
Di-n-octylphthalate	ND		ug/kg	1400	--	2
Diethyl phthalate	ND		ug/kg	1400	--	2
Dimethyl phthalate	ND		ug/kg	1400	--	2
Benzo(a)anthracene	ND		ug/kg	1400	--	2
Benzo(a)pyrene	ND		ug/kg	1400	--	2
Benzo(b)fluoranthene	1400		ug/kg	1400	--	2
Benzo(k)fluoranthene	ND		ug/kg	1400	--	2

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	D	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)		Date Received:	05/13/11
Sample Location:	N. BEDFORD		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	1400		ug/kg	1400	--	2
Acenaphthylene	ND		ug/kg	1400	--	2
Anthracene	ND		ug/kg	1400	--	2
Benzo(ghi)perylene	ND		ug/kg	1400	--	2
Fluorene	ND		ug/kg	1400	--	2
Phenanthrene	5300		ug/kg	1400	--	2
Dibenzo(a,h)anthracene	ND		ug/kg	840	--	2
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	1400	--	2
Pyrene	3300		ug/kg	1400	--	2
Aniline	ND		ug/kg	2800	--	2
4-Chloroaniline	ND		ug/kg	1400	--	2
Dibenzofuran	ND		ug/kg	1400	--	2
2-Methylnaphthalene	3000		ug/kg	1400	--	2
Acetophenone	ND		ug/kg	2800	--	2
2,4,6-Trichlorophenol	ND		ug/kg	1400	--	2
2-Chlorophenol	ND		ug/kg	1700	--	2
2,4-Dichlorophenol	ND		ug/kg	2800	--	2
2,4-Dimethylphenol	ND		ug/kg	1400	--	2
2-Nitrophenol	ND		ug/kg	5600	--	2
4-Nitrophenol	ND		ug/kg	2800	--	2
2,4-Dinitrophenol	ND		ug/kg	5600	--	2
Pentachlorophenol	ND		ug/kg	5600	--	2
Phenol	ND		ug/kg	2000	--	2
2-Methylphenol	ND		ug/kg	1700	--	2
3-Methylphenol/4-Methylphenol	ND		ug/kg	1700	--	2
2,4,5-Trichlorophenol	ND		ug/kg	1400	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		30-130
Phenol-d6	60		30-130
Nitrobenzene-d5	51		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	79		30-130
4-Terphenyl-d14	78		30-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	97,8270C	Extraction Date:	05/15/11 10:48
Analytical Date:	05/18/11 18:30		
Analyst:	RC		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Acenaphthene	600		ug/kg	400	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	400	--	1
Hexachlorobenzene	ND		ug/kg	400	--	1
Bis(2-chloroethyl)ether	ND		ug/kg	400	--	1
2-Chloronaphthalene	ND		ug/kg	400	--	1
1,2-Dichlorobenzene	ND		ug/kg	400	--	1
1,3-Dichlorobenzene	ND		ug/kg	400	--	1
1,4-Dichlorobenzene	ND		ug/kg	400	--	1
3,3'-Dichlorobenzidine	ND		ug/kg	810	--	1
2,4-Dinitrotoluene	ND		ug/kg	400	--	1
2,6-Dinitrotoluene	ND		ug/kg	400	--	1
Azobenzene	ND		ug/kg	400	--	1
Fluoranthene	2100		ug/kg	400	--	1
4-Bromophenyl phenyl ether	ND		ug/kg	400	--	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	400	--	1
Bis(2-chloroethoxy)methane	ND		ug/kg	400	--	1
Hexachlorobutadiene	ND		ug/kg	810	--	1
Hexachloroethane	ND		ug/kg	400	--	1
Isophorone	ND		ug/kg	400	--	1
Naphthalene	1800		ug/kg	400	--	1
Nitrobenzene	ND		ug/kg	400	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	810	--	1
Butyl benzyl phthalate	ND		ug/kg	400	--	1
Di-n-butylphthalate	ND		ug/kg	400	--	1
Di-n-octylphthalate	ND		ug/kg	400	--	1
Diethyl phthalate	ND		ug/kg	400	--	1
Dimethyl phthalate	ND		ug/kg	400	--	1
Benzo(a)anthracene	880		ug/kg	400	--	1
Benzo(a)pyrene	780		ug/kg	400	--	1
Benzo(b)fluoranthene	970		ug/kg	400	--	1
Benzo(k)fluoranthene	ND		ug/kg	400	--	1

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Chrysene	960		ug/kg	400	--	1
Acenaphthylene	ND		ug/kg	400	--	1
Anthracene	510		ug/kg	400	--	1
Benzo(ghi)perylene	430		ug/kg	400	--	1
Fluorene	430		ug/kg	400	--	1
Phenanthrene	2900		ug/kg	400	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	240	--	1
Indeno(1,2,3-cd)Pyrene	430		ug/kg	400	--	1
Pyrene	2100		ug/kg	400	--	1
Aniline	ND		ug/kg	810	--	1
4-Chloroaniline	ND		ug/kg	400	--	1
Dibenzofuran	ND		ug/kg	400	--	1
2-Methylnaphthalene	ND		ug/kg	400	--	1
Acetophenone	ND		ug/kg	810	--	1
2,4,6-Trichlorophenol	ND		ug/kg	400	--	1
2-Chlorophenol	ND		ug/kg	490	--	1
2,4-Dichlorophenol	ND		ug/kg	810	--	1
2,4-Dimethylphenol	ND		ug/kg	400	--	1
2-Nitrophenol	ND		ug/kg	1600	--	1
4-Nitrophenol	ND		ug/kg	810	--	1
2,4-Dinitrophenol	ND		ug/kg	1600	--	1
Pentachlorophenol	ND		ug/kg	1600	--	1
Phenol	ND		ug/kg	570	--	1
2-Methylphenol	ND		ug/kg	490	--	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	490	--	1
2,4,5-Trichlorophenol	ND		ug/kg	400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	62		30-130
Phenol-d6	63		30-130
Nitrobenzene-d5	55		30-130
2-Fluorobiphenyl	75		30-130
2,4,6-Tribromophenol	92		30-130
4-Terphenyl-d14	84		30-130

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/18/11 11:51
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/15/11 10:48

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG467953-1					
Acenaphthene	ND		ug/kg	340	--
1,2,4-Trichlorobenzene	ND		ug/kg	340	--
Hexachlorobenzene	ND		ug/kg	340	--
Bis(2-chloroethyl)ether	ND		ug/kg	340	--
2-Chloronaphthalene	ND		ug/kg	340	--
1,2-Dichlorobenzene	ND		ug/kg	340	--
1,3-Dichlorobenzene	ND		ug/kg	340	--
1,4-Dichlorobenzene	ND		ug/kg	340	--
3,3'-Dichlorobenzidine	ND		ug/kg	680	--
2,4-Dinitrotoluene	ND		ug/kg	340	--
2,6-Dinitrotoluene	ND		ug/kg	340	--
Azobenzene	ND		ug/kg	340	--
Fluoranthene	ND		ug/kg	340	--
4-Bromophenyl phenyl ether	ND		ug/kg	340	--
Bis(2-chloroisopropyl)ether	ND		ug/kg	340	--
Bis(2-chloroethoxy)methane	ND		ug/kg	340	--
Hexachlorobutadiene	ND		ug/kg	680	--
Hexachloroethane	ND		ug/kg	340	--
Isophorone	ND		ug/kg	340	--
Naphthalene	ND		ug/kg	340	--
Nitrobenzene	ND		ug/kg	340	--
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	680	--
Butyl benzyl phthalate	ND		ug/kg	340	--
Di-n-butylphthalate	ND		ug/kg	340	--
Di-n-octylphthalate	ND		ug/kg	340	--
Diethyl phthalate	ND		ug/kg	340	--
Dimethyl phthalate	ND		ug/kg	340	--
Benzo(a)anthracene	ND		ug/kg	340	--
Benzo(a)pyrene	ND		ug/kg	340	--
Benzo(b)fluoranthene	ND		ug/kg	340	--
Benzo(k)fluoranthene	ND		ug/kg	340	--

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/18/11 11:51
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/15/11 10:48

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG467953-1					
Chrysene	ND		ug/kg	340	--
Acenaphthylene	ND		ug/kg	340	--
Anthracene	ND		ug/kg	340	--
Benzo(ghi)perylene	ND		ug/kg	340	--
Fluorene	ND		ug/kg	340	--
Phenanthrene	ND		ug/kg	340	--
Dibenzo(a,h)anthracene	ND		ug/kg	200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	340	--
Pyrene	ND		ug/kg	340	--
Aniline	ND		ug/kg	680	--
4-Chloroaniline	ND		ug/kg	340	--
Dibenzofuran	ND		ug/kg	340	--
2-Methylnaphthalene	ND		ug/kg	340	--
Acetophenone	ND		ug/kg	680	--
2,4,6-Trichlorophenol	ND		ug/kg	340	--
2-Chlorophenol	ND		ug/kg	410	--
2,4-Dichlorophenol	ND		ug/kg	680	--
2,4-Dimethylphenol	ND		ug/kg	340	--
2-Nitrophenol	ND		ug/kg	1400	--
4-Nitrophenol	ND		ug/kg	680	--
2,4-Dinitrophenol	ND		ug/kg	1400	--
Pentachlorophenol	ND		ug/kg	1400	--
Phenol	ND		ug/kg	480	--
2-Methylphenol	ND		ug/kg	410	--
3-Methylphenol/4-Methylphenol	ND		ug/kg	410	--
2,4,5-Trichlorophenol	ND		ug/kg	340	--

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 05/18/11 11:51
Analyst: RC

Extraction Method: EPA 3546
Extraction Date: 05/15/11 10:48

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG467953-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	93		30-130
Phenol-d6	91		30-130
Nitrobenzene-d5	78		30-130
2-Fluorobiphenyl	92		30-130
2,4,6-Tribromophenol	107		30-130
4-Terphenyl-d14	102		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG467953-2 WG467953-3								
Acenaphthene	76		79		40-140	4		30
1,2,4-Trichlorobenzene	82		81		40-140	1		30
Hexachlorobenzene	87		94		40-140	8		30
Bis(2-chloroethyl)ether	68		67		40-140	1		30
2-Chloronaphthalene	95		102		40-140	7		30
1,2-Dichlorobenzene	74		78		40-140	5		30
1,3-Dichlorobenzene	73		74		40-140	1		30
1,4-Dichlorobenzene	77		76		40-140	1		30
3,3'-Dichlorobenzidine	54		75		40-140	**33**	Q	30
2,4-Dinitrotoluene	86		91		40-140	6		30
2,6-Dinitrotoluene	87		101		40-140	15		30
Azobenzene	71		75		40-140	5		30
Fluoranthene	84		92		40-140	9		30
4-Bromophenyl phenyl ether	87		99		40-140	13		30
Bis(2-chloroisopropyl)ether	60		59		40-140	2		30
Bis(2-chloroethoxy)methane	70		73		40-140	4		30
Hexachlorobutadiene	95		88		40-140	8		30
Hexachloroethane	72		72		40-140	0		30
Isophorone	67		69		40-140	3		30
Naphthalene	79		79		40-140	0		30
Nitrobenzene	76		75		40-140	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG467953-2 WG467953-3								
Bis(2-Ethylhexyl)phthalate	79		80		40-140	1		30
Butyl benzyl phthalate	80		95		40-140	17		30
Di-n-butylphthalate	87		97		40-140	11		30
Di-n-octylphthalate	83		86		40-140	4		30
Diethyl phthalate	79		86		40-140	8		30
Dimethyl phthalate	89		95		40-140	7		30
Benzo(a)anthracene	84		91		40-140	8		30
Benzo(a)pyrene	81		86		40-140	6		30
Benzo(b)fluoranthene	89		96		40-140	8		30
Benzo(k)fluoranthene	86		93		40-140	8		30
Chrysene	84		91		40-140	8		30
Acenaphthylene	81		87		40-140	7		30
Anthracene	77		90		40-140	16		30
Benzo(ghi)perylene	86		96		40-140	11		30
Fluorene	78		83		40-140	6		30
Phenanthrene	86		97		40-140	12		30
Dibenzo(a,h)anthracene	89		99		40-140	11		30
Indeno(1,2,3-cd)Pyrene	89		99		40-140	11		30
Pyrene	84		91		40-140	8		30
Aniline	**14**	Q	**19**	Q	40-140	30		30
4-Chloroaniline	**25**	Q	**32**	Q	40-140	25		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG467953-2 WG467953-3								
Dibenzofuran	81		85		40-140	5		30
2-Methylnaphthalene	75		80		40-140	6		30
Acetophenone	80		84		40-140	5		30
2,4,6-Trichlorophenol	95		104		30-130	9		30
2-Chlorophenol	81		84		30-130	4		30
2,4-Dichlorophenol	95		100		30-130	5		30
2,4-Dimethylphenol	81		81		30-130	0		30
2-Nitrophenol	77		81		30-130	5		30
4-Nitrophenol	68		80		30-130	16		30
2,4-Dinitrophenol	38		32		30-130	17		30
Pentachlorophenol	74		81		30-130	9		30
Phenol	73		76		30-130	4		30
2-Methylphenol	79		84		30-130	6		30
3-Methylphenol/4-Methylphenol	79		83		30-130	5		30
2,4,5-Trichlorophenol	97		109		30-130	12		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD

Project Number: 6690

Lab Number: L1106741

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG467953-2 WG467953-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	79		74		30-130
Phenol-d6	77		76		30-130
Nitrobenzene-d5	69		64		30-130
2-Fluorobiphenyl	82		79		30-130
2,4,6-Tribromophenol	93		91		30-130
4-Terphenyl-d14	86		90		30-130

PETROLEUM HYDROCARBONS

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/16/11 09:47
Analytical Date:	05/17/11 16:42		
Analyst:	KG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/kg	38400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	76		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/16/11 09:47
Analytical Date:	05/17/11 18:24		
Analyst:	KG		
Percent Solids:	49%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	562000		ug/kg	70900	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	58		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8015B(M)	Extraction Date:	05/16/11 09:47
Analytical Date:	05/17/11 21:47		
Analyst:	KG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	117000		ug/kg	39800	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	65		40-140

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 05/17/11 12:47
Analyst: KG

Extraction Method: EPA 3546
Extraction Date: 05/16/11 09:47

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 01-03 Batch: WG468026-1					
TPH	ND		ug/kg	33300	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	70		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD

Project Number: 6690

Lab Number: L1106741

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-03 Batch: WG468026-2								
TPH	84		-		40-140	-		

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	78				40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG468026-3 QC Sample: L1106646-01 Client ID: DUP Sample						
TPH	2590000	1880000	ug/kg	32		40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	66		53		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	05/17/11 15:42		
Analyst:	TT		
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	4.34	--	1
C9-C12 Aliphatics	12.5		mg/kg	4.34	--	1
C9-C10 Aromatics	7.13		mg/kg	4.34	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	4.34	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	4.34	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	90		70-130
2,5-Dibromotoluene-FID	94		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-01	Date Collected:	05/12/11 12:00
Client ID:	B-11/MW-7	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/11 09:56
Analytical Date:	05/18/11 03:52	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	05/17/11
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.17	--	1
C19-C36 Aliphatics	ND		mg/kg	8.17	--	1
C11-C22 Aromatics	16.8		mg/kg	8.17	--	1
C11-C22 Aromatics, Adjusted	9.06		mg/kg	8.17	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	75		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	77		40-140
2-Bromonaphthalene	82		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	05/17/11 16:33		
Analyst:	TT		
Percent Solids:	49%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	2.2:1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	14.4	--	1
C9-C12 Aliphatics	65.8		mg/kg	14.4	--	1
C9-C10 Aromatics	30.9		mg/kg	14.4	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	14.4	--	1
C9-C12 Aliphatics, Adjusted	19.1		mg/kg	14.4	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	89		70-130
2,5-Dibromotoluene-FID	94		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-02	Date Collected:	05/13/11 10:00
Client ID:	B-12/MW-8 (A)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/11 09:56
Analytical Date:	05/18/11 00:54	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	05/17/11
Percent Solids:	49%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.4	--	1
C19-C36 Aliphatics	16.4		mg/kg	14.4	--	1
C11-C22 Aromatics	127		mg/kg	14.4	--	1
C11-C22 Aromatics, Adjusted	81.3		mg/kg	14.4	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	94		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	76		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	05/17/11 17:24		
Analyst:	TT		
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Yes (Covering the Soil)
Methanol ratio:	1.4:1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	4.97	--	1
C9-C12 Aliphatics	10.4		mg/kg	4.97	--	1
C9-C10 Aromatics	6.38		mg/kg	4.97	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	4.97	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	4.97	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	90		70-130
2,5-Dibromotoluene-FID	95		70-130

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID:	L1106741-03	Date Collected:	05/13/11 10:05
Client ID:	B-12/MW-8 (B)	Date Received:	05/13/11
Sample Location:	N. BEDFORD	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	05/16/11 09:56
Analytical Date:	05/18/11 01:38	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	05/17/11
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.09	--	1
C19-C36 Aliphatics	ND		mg/kg	8.09	--	1
C11-C22 Aromatics	50.3		mg/kg	8.09	--	1
C11-C22 Aromatics, Adjusted	31.5		mg/kg	8.09	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	114		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	79		40-140

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 05/17/11 21:55
Analyst: NH

Extraction Method: EPA 3546
Extraction Date: 05/16/11 09:56
Cleanup Method1: EPH-04-1
Cleanup Date1: 05/17/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03 Batch: WG468031-1					
C9-C18 Aliphatics	ND		mg/kg	6.57	--
C19-C36 Aliphatics	ND		mg/kg	6.57	--
C11-C22 Aromatics	ND		mg/kg	6.57	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.57	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	68		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	75		40-140

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 05/17/11 12:09
Analyst: TT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03 Batch: WG468212-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	96		70-130
2,5-Dibromotoluene-FID	103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG468031-2 WG468031-3								
C9-C18 Aliphatics	71		65		40-140	9		25
C19-C36 Aliphatics	87		79		40-140	10		25
C11-C22 Aromatics	85		86		40-140	1		25
Naphthalene	61		71		40-140	15		25
2-Methylnaphthalene	66		77		40-140	15		25
Acenaphthylene	64		75		40-140	16		25
Acenaphthene	67		76		40-140	13		25
Fluorene	71		75		40-140	5		25
Phenanthrene	78		80		40-140	3		25
Anthracene	78		81		40-140	4		25
Fluoranthene	81		82		40-140	1		25
Pyrene	83		86		40-140	4		25
Benzo(a)anthracene	80		80		40-140	0		25
Chrysene	83		83		40-140	0		25
Benzo(b)fluoranthene	82		82		40-140	0		25
Benzo(k)fluoranthene	85		83		40-140	2		25
Benzo(a)pyrene	78		81		40-140	4		25
Indeno(1,2,3-cd)Pyrene	82		81		40-140	1		25
Dibenzo(a,h)anthracene	78		78		40-140	0		25
Benzo(ghi)perylene	81		81		40-140	0		25
Nonane (C9)	62		58		30-140	7		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG468031-2 WG468031-3								
Decane (C10)	70		66		40-140	6		25
Dodecane (C12)	74		69		40-140	7		25
Tetradecane (C14)	78		70		40-140	11		25
Hexadecane (C16)	84		74		40-140	13		25
Octadecane (C18)	89		77		40-140	14		25
Nonadecane (C19)	90		79		40-140	13		25
Eicosane (C20)	90		79		40-140	13		25
Docosane (C22)	89		80		40-140	11		25
Tetracosane (C24)	89		81		40-140	9		25
Hexacosane (C26)	87		80		40-140	8		25
Octacosane (C28)	84		79		40-140	6		25
Triacontane (C30)	86		82		40-140	5		25
Hexatriacontane (C36)	87		85		40-140	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	58		59		40-140
o-Terphenyl	71		73		40-140
2-Fluorobiphenyl	64		73		40-140
2-Bromonaphthalene	69		80		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG468212-1 WG468212-2								
C5-C8 Aliphatics	95		92		70-130	3		25
C9-C12 Aliphatics	94		77		70-130	20		25
C9-C10 Aromatics	91		86		70-130	5		25
Benzene	89		86		70-130	2		25
Toluene	90		88		70-130	3		25
Ethylbenzene	92		89		70-130	4		25
p/m-Xylene	92		88		70-130	4		25
o-Xylene	88		85		70-130	4		25
Methyl tert butyl ether	78		82		70-130	4		25
Naphthalene	88		89		70-130	1		25
1,2,4-Trimethylbenzene	90		86		70-130	5		25
Pentane	101		106		70-130	5		25
2-Methylpentane	92		88		70-130	4		25
2,2,4-Trimethylpentane	96		88		70-130	8		25
n-Nonane	97		80		30-130	19		25
n-Decane	89		70		70-130	23		25
n-Butylcyclohexane	95		80		70-130	17		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD

Project Number: 6690

Lab Number: L1106741

Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG468212-1 WG468212-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	86		79		70-130
2,5-Dibromotoluene-FID	91		84		70-130

METALS

Project Name: SOUTH TERMINAL N. BEFORD
Lab Number: L1106741
Project Number: 6690
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-01
Client ID: B-11/MW-7
Sample Location: N. BEDFORD
Matrix: Soil
Percent Solids: 83%

Date Collected: 05/12/11 12:00
Date Received: 05/13/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 17:28	EPA 3050B	1,6020A	EM
Arsenic, Total	1.00		mg/kg	0.034	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Beryllium, Total	0.194		mg/kg	0.034	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Cadmium, Total	0.040		mg/kg	0.034	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Chromium, Total	6.04		mg/kg	0.138	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Copper, Total	3.42		mg/kg	0.069	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Lead, Total	3.30		mg/kg	0.034	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.014	--	5	05/16/11 12:30	05/19/11 13:26	EPA 7474	1,7474	LR
Nickel, Total	3.38		mg/kg	0.069	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Selenium, Total	0.279		mg/kg	0.069	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 17:28	EPA 3050B	1,6020A	EM
Thallium, Total	0.082		mg/kg	0.034	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM
Zinc, Total	10.1		mg/kg	0.688	--	2	05/16/11 12:30	05/19/11 16:35	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL N. BEFORD
Lab Number: L1106741
Project Number: 6690
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-02
Client ID: B-12/MW-8 (A)
Sample Location: N. BEDFORD
Matrix: Soil
Percent Solids: 49%

Date Collected: 05/13/11 10:00
Date Received: 05/13/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.106		mg/kg	0.065	--	2	05/16/11 12:30	05/19/11 17:32	EPA 3050B	1,6020A	EM
Arsenic, Total	3.95		mg/kg	0.067	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Beryllium, Total	0.317		mg/kg	0.067	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Cadmium, Total	0.257		mg/kg	0.067	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Chromium, Total	8.20		mg/kg	0.267	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Copper, Total	3.62		mg/kg	0.133	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Lead, Total	3.96		mg/kg	0.067	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Mercury, Total	ND		mg/kg	0.025	--	5	05/16/11 12:30	05/19/11 13:38	EPA 7474	1,7474	LR
Nickel, Total	4.37		mg/kg	0.133	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Selenium, Total	2.53		mg/kg	0.133	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.065	--	2	05/16/11 12:30	05/19/11 17:32	EPA 3050B	1,6020A	EM
Thallium, Total	0.219		mg/kg	0.067	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM
Zinc, Total	8.03		mg/kg	1.33	--	2	05/16/11 12:30	05/19/11 16:43	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-03 Date Collected: 05/13/11 10:05

Client ID: B-12/MW-8 (B) Date Received: 05/13/11

Sample Location: N. BEDFORD Field Prep: Not Specified

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.056		mg/kg	0.038	--	2	05/16/11 12:30	05/19/11 17:33	EPA 3050B	1,6020A	EM
Arsenic, Total	1.78		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Beryllium, Total	0.251		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Chromium, Total	9.02		mg/kg	0.150	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Copper, Total	2.93		mg/kg	0.075	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Lead, Total	4.63		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Mercury, Total	0.013		mg/kg	0.013	--	5	05/16/11 12:30	05/19/11 13:40	EPA 7474	1,7474	LR
Nickel, Total	4.99		mg/kg	0.075	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Selenium, Total	0.481		mg/kg	0.075	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Silver, Total	ND		mg/kg	0.038	--	2	05/16/11 12:30	05/19/11 17:33	EPA 3050B	1,6020A	EM
Thallium, Total	0.045		mg/kg	0.037	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM
Zinc, Total	13.0		mg/kg	0.748	--	2	05/16/11 12:30	05/19/11 16:44	EPA 3050B	1,6020A	EM

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741

Project Number: 6690 **Report Date:** 05/20/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG468124-1										
Antimony, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 17:27	1,6020A	EM
Silver, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 17:27	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG468129-1										
Mercury, Total	ND		mg/kg	0.013	--	5	05/16/11 12:30	05/19/11 13:20	1,7474	LR

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG468132-1										
Arsenic, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Beryllium, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Cadmium, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Chromium, Total	ND		mg/kg	0.200	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Copper, Total	ND		mg/kg	0.100	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Lead, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Nickel, Total	ND		mg/kg	0.100	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Selenium, Total	ND		mg/kg	0.100	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Thallium, Total	ND		mg/kg	0.050	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM
Zinc, Total	ND		mg/kg	1.00	--	2	05/16/11 12:30	05/19/11 16:32	1,6020A	EM

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG468124-2 SRM Lot Number: S3SPIKE								
Antimony, Total	104		-		80-120	-		20
Silver, Total	100		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG468129-2 SRM Lot Number: HPHGAF								
Mercury, Total	94		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG468132-2 SRM Lot Number: S1SPIKE								
Arsenic, Total	108		-		80-120	-		20
Beryllium, Total	104		-		80-120	-		20
Cadmium, Total	107		-		80-120	-		20
Chromium, Total	110		-		80-120	-		20
Copper, Total	104		-		80-120	-		20
Lead, Total	108		-		80-120	-		20
Nickel, Total	106		-		80-120	-		20
Selenium, Total	102		-		80-120	-		20
Thallium, Total	108		-		80-120	-		20
Zinc, Total	106		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690
Lab Number: L1106741
Report Date: 05/20/11

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468124-4 QC Sample: L1106741-01 Client ID: B-11/MW-7												
Antimony, Total	ND	1.56	0.563	**36**	Q	-	-		75-125	-		20
Silver, Total	ND	1.56	1.52	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468129-4 QC Sample: L1106741-01 Client ID: B-11/MW-7												
Mercury, Total	ND	1.34	1.31	97		-	-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468132-4 QC Sample: L1106741-01 Client ID: B-11/MW-7												
Arsenic, Total	1.00	142	152	106		-	-		75-125	-		20
Beryllium, Total	0.194	70.9	76.8	108		-	-		75-125	-		20
Cadmium, Total	0.040	70.9	75.0	106		-	-		75-125	-		20
Chromium, Total	6.04	142	159	108		-	-		75-125	-		20
Copper, Total	3.42	142	145	100		-	-		75-125	-		20
Lead, Total	3.30	142	137	94		-	-		75-125	-		20
Nickel, Total	3.38	142	148	102		-	-		75-125	-		20
Selenium, Total	0.279	142	144	101		-	-		75-125	-		20
Thallium, Total	0.082	142	135	95		-	-		75-125	-		20
Zinc, Total	10.1	142	158	104		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468124-3 QC Sample: L1106741-01 Client ID: B-11/MW-7						
Antimony, Total	ND	ND	mg/kg	NC		20
Silver, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468129-3 QC Sample: L1106741-01 Client ID: B-11/MW-7						
Mercury, Total	ND	ND	mg/kg	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468132-3 QC Sample: L1106741-01 Client ID: B-11/MW-7						
Arsenic, Total	1.00	0.900	mg/kg	11		20
Beryllium, Total	0.194	0.219	mg/kg	12		20
Cadmium, Total	0.040	ND	mg/kg	NC		20
Chromium, Total	6.04	6.52	mg/kg	8		20
Copper, Total	3.42	4.33	mg/kg	**23**	Q	20
Lead, Total	3.30	3.18	mg/kg	4		20
Nickel, Total	3.38	3.80	mg/kg	12		20
Selenium, Total	0.279	0.266	mg/kg	5		20
Thallium, Total	0.082	ND	mg/kg	NC		20
Zinc, Total	10.1	12.5	mg/kg	**21**	Q	20

Lab Serial Dilution Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG468132-5 QC Sample: L1106741-01 Client ID: B-11/MW-7						
Lead, Total	3.30	3.69	mg/kg	**12**	Q	10

INORGANICS
&
MISCELLANEOUS

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-01
Client ID: B-11/MW-7
Sample Location: N. BEDFORD
Matrix: Soil

Date Collected: 05/12/11 12:00
Date Received: 05/13/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83		%	0.10	NA	1	-	05/16/11 09:17	30,2540G	MF

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-02
Client ID: B-12/MW-8 (A)
Sample Location: N. BEDFORD
Matrix: Soil

Date Collected: 05/13/11 10:00
Date Received: 05/13/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	49		%	0.10	NA	1	-	05/16/11 09:17	30,2540G	MF

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

SAMPLE RESULTS

Lab ID: L1106741-03
Client ID: B-12/MW-8 (B)
Sample Location: N. BEDFORD
Matrix: Soil

Date Collected: 05/13/11 10:05
Date Received: 05/13/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83		%	0.10	NA	1	-	05/16/11 09:17	30,2540G	MF

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG468000-1 QC Sample: L1106734-01 Client ID: DUP Sample						
Solids, Total	91	92	%	1		20

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: 05/13/2011 21:19

Cooler Information	Custody Seal
Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106741-01A	Vial MeOH preserved	A	N/A	4	Y	Absent	VPH-10(28)
L1106741-01B	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-01C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-01D	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-01E	Amber 120ml unpreserved	A	N/A	4	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106741-01F	Amber 120ml unpreserved	A	N/A	4	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106741-02A	Vial MeOH preserved	A	N/A	4	Y	Absent	VPH-10(28)
L1106741-02B	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-02C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-02D	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-02E	Amber 120ml unpreserved	A	N/A	4	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL N. BEFORD
Project Number: 6690

Lab Number: L1106741
Report Date: 05/20/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1106741-02F	Amber 120ml unpreserved	A	N/A	4	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)
L1106741-03A	Vial MeOH preserved	A	N/A	4	Y	Absent	VPH-10(28)
L1106741-03B	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-03C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-03D	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1106741-03E	Amber 120ml unpreserved	A	N/A	4	Y	Absent	EPH-10(14),MCP-8270-10(14),TS(7),TPH-DRO-D(14)
L1106741-03F	Amber 120ml unpreserved	A	N/A	4	Y	Absent	A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180)

*Values in parentheses indicate holding time in days

Project Name:	SOUTH TERMINAL N. BEFORD	**Lab Number:**	L1106741
Project Number:	6690	**Report Date:**	05/20/11

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.

Report Format: Data Usability Report

Project Name:	SOUTH TERMINAL N. BEFORD	**Lab Number:**	L1106741
Project Number:	6690	**Report Date:**	05/20/11

Data Qualifiers

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL N. BEFORD **Lab Number:** L1106741
Project Number: 6690 **Report Date:** 05/20/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised February 23, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

Analytes Not Accredited by NELAP
Certification is not available by NELAP for the following analytes: **EPA 8260B:** Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline. **EPA 350.1** for Ammonia in a Soil matrix.

Certificate/Approval Program Summary

Last revised March 23, 2011 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: EPA 1311, 3050, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570B, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C.)

Biological Tissue (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C.)

Air & Emissions (EPA TO-15.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: EPA, 245.1, 245.7, 1631E, 180.1, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B. Organic Parameters: EPA 8081, 8082, 8260B, 8270C.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 3060A, 6020A, 7470A, 7471A, 9040B, 9045C, 7196A. Organic Parameters: SW-846 3540C, 3580, 3630C, 3640A, 3660B, 3665A, 5035, 8260B, 8270C, 8015D, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, SM2320B, EPA 200.8, SM2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 7470A, 9040B, 6020, 9010B, 9014 Organic Parameters: SW-846 3510C, 3580A, 5030B, 5035L, 5035H, 3630C, 3640C, 3660B, 3665A, 8015B 8081A, 8082, 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9040B, 9045C, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 5030B, 5035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. ***NELAP Accredited.***

Non-Potable Water (Inorganic Parameters: SM2320B, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 9014, 9040B, 120.1, SM2510B, 4500CN-E, 4500H-B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, 8082, 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 6020, 7196A, 3060A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 1312, 3050B, 3580, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. ***NELAP Accredited via LA-DEQ.***

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. ***NELAP Accredited.***

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

Washington State Department of Ecology Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 2510B, EPA 120.1, 180.1, 1631E, 245.7.)

Solid & Chemical Materials (Inorganic Parameters: EPA 9040, 9060, 6020, 7470, 7471, 7474. Organic Parameters: EPA 8081, 8082, 8015 Mod, 8270, 8260.)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Non-Potable Water (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 5030B, 8260B, 8270C, 8270C-ALK-PAH, 8082, 8081A, 8015D-SHC.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 5035A, 8260B, 8270C, 8270-ALK-PAH, 8082, 8081A, 8015D-SHC, 8015-DRO.

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C:** Biphenyl. **TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 5/13/11

ALPHA Job #: L1106741

Client Information

Client: APEX Co LLC

Address: 184 HIGH ST, STE 501, BOSTON MA 02110

Phone: 617-728-0070

Fax: 617-728-0050

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL N. BEDFORD

Project Location: N. BEDFORD

Project #: 6690

Project Manager: CHET MYERS

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/20/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	MADEP EPH (CAN/S PANES)	TPP13 METALS (EPA 6020)	SVOCs (EPA 8270C)	VOCs (8260)	MA DEP VPH (CAN/S PANES)	Sample Specific Comments	TOTAL # BOTTLES
06741-1	B-11 / MW-7	5/12/11	12:00	S	GAD	X	X	X	X	X	X		6
2	B-12/MW-8 (A)	5/13/11	10:00	S	GAD	X	X	X	X	X	X		6
3	B-12/MW-8 (B)	5/13/11	10:05	S	GAD	X	X	X	X	X	X		6
					GAD	X							
Container Type						A	A	A	A	V	V		
Preservative						A	A	A	A	F	F		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/13/11 12:05	[signature]	5/13/11 1205
[signature]	5/13/11 1830	[signature]	5/13/11 1830

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:05201116:37

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Serial_No:20520537

Date Rec'd in Lab: 5/13/11

ALPHA Job #: L1106741

Client Information

Client: APEX Co LLC

Address: 184 High St, Ste 502, Boston MA 02110

Phone: 617-728-0070

Fax: 617-728-0050

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal N. Bedford

Project Location: N. Bedford

Project #: 6690

Project Manager: Chet Myers

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/20/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

* Run TCLP if exceeds 20 times rule

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (GRO/DRO)	Mercury	TPH 13 Metals (Cd, Cr, Cu, Pb, Ni, Zn)	5 VOCs (EPA 524.2)	Hocs (8260)	MA DEP TPH (GRO/DRO)	Sample Specific Comments	Total # Bottles
06741-1	B-11 / MW-7	5/12/11	12:00	S	GAD	X	X	X	X	X	X		6
2	B-12/MW-8 (A)	5/13/11	10:00	S	GAD	X	X	X	X	X	X		6
3	B-12/MW-8 (B)	5/13/11	10:05	S	GAD	X	X	X	X	X	X		6
					GAD	A							
	Container Type					A	A	A	A	V	V		
	Preservative					A	A	A	A	F	F		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	5/13/11 12:05	[illegible]	5/13/11 120[illegible]
[illegible]	5/13/11 1830	[illegible]	5/13/11 1830
[illegible]	5/13/11 1830	[illegible]	5/14/11 9:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1106741

Instrument ID: Voa100.i Calibration Date: 16-MAY-2011 Time: 06:53

Lab File ID: 0516A01 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.17722	.09566	.1	46	20	F
chloromethane	.47561	.40541	.1	15	20	
vinyl chloride	.25587	.21401	.1	16	20	
bromomethane	.11538	.10227	.1	11	20	
chloroethane	.09781	.10052	.1	-3	20	F
trichlorofluoromethane	.23634	.29153	.1	-23	20	F
ethyl ether	.11802	.11862	.05	-1	20	
1,1,-dichloroethene	.19082	.19481	.1	-2	20	
carbon disulfide	.6873	.67731	.1	1	20	
methylene chloride	.22954	.23349	.1	-2	20	
acetone	.18532	.23412	.1	-26	20	F
trans-1,2-dichloroethene	.23214	.23323	.1	0	20	
methyl tert butyl ether	.66033	.6437	.1	3	20	
Diisopropyl Ether	1.1677	1.5079	.05	-29	20	F
1,1-dichloroethane	.47925	.50289	.2	-5	20	
Ethyl-Tert-Butyl-Ether	.86672	1.0033	.05	-16	20	
cis-1,2-dichloroethene	.25182	.26974	.1	-7	20	
2,2-dichloropropane	.3202	.34058	.05	-6	20	
bromochloromethane	.127	.14493	.05	-14	20	
chloroform	.40218	.44245	.2	-10	20	
carbontetrachloride	.3031	.34879	.1	-15	20	
tetrahydrofuran	.18955	.21025	.05	-11	20	
1,1,1-trichloroethane	.35506	.37981	.1	-7	20	
2-butanone	.30979	.35873	.1	-16	20	
1,1-dichloropropene	.29417	.29902	.05	-2	20	
benzene	.87858	.89257	.5	-2	20	
Tertiary-Amyl Methyl Ether	.55162	.621	.05	-13	20	
1,2-dichloroethane	.38882	.44984	.1	-16	20	
trichloroethene	.23493	.24539	.2	-4	20	
dibromomethane	.15392	.17331	.05	-13	20	
1,2-dichloropropane	.27656	.29289	.1	-6	20	
bromodichloromethane	.3088	.33442	.2	-8	20	
1,4-dioxane	.00394	.00444	.05	-13	20	F
cis-1,3-dichloropropene	.36895	.3822	.2	-4	20	
toluene	.72557	.60318	.4	17	20	
4-methyl-2-pentanone	.18357	.20299	.1	-11	20	
tetrachloroethene	.32182	.29729	.2	8	20	
trans-1,3-dichloropropene	.44423	.40603	.1	9	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1106741

Instrument ID: Voa100.i Calibration Date: 16-MAY-2011 Time: 06:53

Lab File ID: 0516A01 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

Compound	___ RRF	RRF	MIN RRF	%D	MAX %D	
1,1,2-trichloroethane	.22238	.19991	.1	10	20	
chlorodibromomethane	.33912	.32234	.1	5	20	
1,3-dichloropropane	.45079	.40528	.05	10	20	
1,2-dibromoethane	.30976	.27386	.1	12	20	
2-hexanone	.57213	.56896	.1	1	20	
chlorobenzene	.82126	.71984	.5	12	20	
ethyl benzene	1.3736	1.2040	.1	12	20	
1,1,1,2-tetrachloroethane	.30271	.30009	.05	1	20	
p/m xylene	.54299	.48476	.1	11	20	
o xylene	.51795	.45791	.3	12	20	
styrene	.85423	.74869	.3	12	20	
bromoform	.40571	.37233	.1	8	20	
isopropylbenzene	2.4838	1.9881	.1	20	20	
bromobenzene	.63736	.54654	.05	14	20	
n-propylbenzene	2.7978	2.2714	.05	19	20	
1,1,2,2,-tetrachloroethane	.70848	.56534	.3	20	20	F
2-chlorotoluene	1.8188	1.5156	.05	17	20	
1,3,5-trimethybenzene	2.0635	1.6949	.05	18	20	
1,2,3-trichloropropane	.58959	.49845	.05	15	20	
4-chorotoluene	1.7774	1.4455	.05	19	20	
tert-butylbenzene	1.7500	1.4446	.05	17	20	
1,2,4-trimethylbenzene	2.1219	1.7735	.05	16	20	
sec-butylbenzene	2.6576	2.1423	.05	19	20	
p-isopropyltoluene	2.1972	1.8676	.05	15	20	
1,3-dichlorobenzene	1.2512	1.0605	.6	15	20	
1,4-dichlorobenzene	1.2928	1.0954	.5	15	20	
n-butylbenzene	2.0173	1.6405	.05	19	20	
1,2-dichlorobenzene	1.2053	1.0117	.4	16	20	
1,2-dibromo-3-chloropropane	.18118	.15293	.05	16	20	
hexachlorobutadiene	.40991	.33467	.05	18	20	
1,2,4-trichlorobenzene	.86394	.75822	.2	12	20	
naphthalene	2.6062	2.0947	.05	20	20	
1,2,3-trichlorobenzene	.80639	.70385	.05	13	20	
dibromofluoromethane	.2574	.27422	.05	-7	30	
1,2-dichloroethane-d4	.31692	.32886	.05	-4	30	
toluene-d8	1.2413	1.0996	.05	11	30	
4-bromofluorobenzene	.89147	.82944	.05	7	30	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1106741

Instrument ID: Voa100.i Calibration Date: 15-MAY-2011 Time: 08:09

Lab File ID: 0515A02 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.17722	.10889	.1	39	20	F
chloromethane	.47561	.41077	.1	14	20	
vinyl chloride	.25587	.23105	.1	10	20	
bromomethane	.11538	.10576	.1	8	20	
chloroethane	.09781	.10812	.1	-11	20	F
trichlorofluoromethane	.23634	.31471	.1	-33	20	F
ethyl ether	.11802	.12472	.05	-6	20	
1,1,-dichloroethene	.19082	.20444	.1	-7	20	
carbon disulfide	.6873	.69468	.1	-1	20	
methylene chloride	.22954	.241	.1	-5	20	
acetone	.18532	.20699	.1	-12	20	
trans-1,2-dichloroethene	.23214	.2462	.1	-6	20	
methyl tert butyl ether	.66033	.66321	.1	0	20	
Diisopropyl Ether	1.1677	1.5906	.05	-36	20	F
1,1-dichloroethane	.47925	.51732	.2	-8	20	
Ethyl-Tert-Butyl-Ether	.86672	1.0637	.05	-23	20	F
cis-1,2-dichloroethene	.25182	.27389	.1	-9	20	
2,2-dichloropropane	.3202	.35301	.05	-10	20	
bromochloromethane	.127	.14546	.05	-15	20	
chloroform	.40218	.43677	.2	-9	20	
carbontetrachloride	.3031	.36544	.1	-21	20	F
tetrahydrofuran	.18955	.21729	.05	-15	20	
1,1,1-trichloroethane	.35506	.39341	.1	-11	20	
2-butanone	.30979	.36757	.1	-19	20	
1,1-dichloropropene	.29417	.30968	.05	-5	20	
benzene	.87858	.91815	.5	-5	20	
Tertiary-Amyl Methyl Ether	.55162	.65153	.05	-18	20	
1,2-dichloroethane	.38882	.45606	.1	-17	20	
trichloroethene	.23493	.25224	.2	-7	20	
dibromomethane	.15392	.17682	.05	-15	20	
1,2-dichloropropane	.27656	.30491	.1	-10	20	
bromodichloromethane	.3088	.3445	.2	-12	20	
1,4-dioxane	.00394	.00432	.05	-10	20	F
cis-1,3-dichloropropene	.36895	.38912	.2	-5	20	
toluene	.72557	.65371	.4	10	20	
4-methyl-2-pentanone	.18357	.2079	.1	-13	20	
tetrachloroethene	.32182	.32125	.2	0	20	
trans-1,3-dichloropropene	.44423	.41683	.1	6	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1106741

Instrument ID: Voa100.i Calibration Date: 15-MAY-2011 Time: 08:09

Lab File ID: 0515A02 Init. Calib. Date(s): 25-APR-2 25-APR-2

Sample No: 8260 CCAL Init. Calib. Times : 09:44 13:42

Compound	RRF	RRF	MIN RRF	%D	MAX %D
1,1,2-trichloroethane	.22238	.2064	.1	7	20
chlorodibromomethane	.33912	.335	.1	1	20
1,3-dichloropropane	.45079	.41226	.05	9	20
1,2-dibromoethane	.30976	.28341	.1	9	20
2-hexanone	.57213	.59686	.1	-4	20
chlorobenzene	.82126	.75497	.5	8	20
ethyl benzene	1.3736	1.2686	.1	8	20
1,1,1,2-tetrachloroethane	.30271	.30564	.05	-1	20
p/m xylene	.54299	.50496	.1	7	20
o xylene	.51795	.49075	.3	5	20
styrene	.85423	.80414	.3	6	20
bromoform	.40571	.38255	.1	6	20
isopropylbenzene	2.4838	2.1253	.1	14	20
bromobenzene	.63736	.56083	.05	12	20
n-propylbenzene	2.7978	2.3765	.05	15	20
1,1,2,2,-tetrachloroethane	.70848	.59068	.3	17	20
2-chlorotoluene	1.8188	1.5694	.05	14	20
1,3,5-trimethybenzene	2.0635	1.7802	.05	14	20
1,2,3-trichloropropane	.58959	.52607	.05	11	20
4-chorotoluene	1.7774	1.5036	.05	15	20
tert-butylbenzene	1.7500	1.5408	.05	12	20
1,2,4-trimethylbenzene	2.1219	1.8575	.05	12	20
sec-butylbenzene	2.6576	2.2758	.05	14	20
p-isopropyltoluene	2.1972	1.9783	.05	10	20
1,3-dichlorobenzene	1.2512	1.1058	.6	12	20
1,4-dichlorobenzene	1.2928	1.1334	.5	12	20
n-butylbenzene	2.0173	1.7407	.05	14	20
1,2-dichlorobenzene	1.2053	1.0492	.4	13	20
1,2-dibromo-3-chloropropane	.18118	.14861	.05	18	20
hexachlorobutadiene	.40991	.36386	.05	11	20
1,2,4-trichlorobenzene	.86394	.79234	.2	8	20
naphthalene	2.6062	2.2383	.05	14	20
1,2,3-trichlorobenzene	.80639	.74962	.05	7	20
dibromofluoromethane	.2574	.27051	.05	-5	30
1,2-dichloroethane-d4	.31692	.32468	.05	-2	30
toluene-d8	1.2413	1.1138	.05	10	30
4-bromofluorobenzene	.89147	.82381	.05	8	30

FORM VII MCP-8260HLW-10

ANALYTICAL REPORT

Lab Number:	L1107170
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL NEW BEDFORD
Project Number:	6690
Report Date:	05/27/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1107170
Report Date: 05/27/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1107170-01	B-8/MW-5	NEW BEDFORD, MA	05/06/11 13:00

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1107170

Project Number: 6690 **Report Date:** 05/27/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1107170
Project Number: 6690 **Report Date:** 05/27/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth A. Simmons Elizabeth Simmons

Title: Technical Director/Representative Date: 05/27/11

METALS

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1107170
Project Number:	6690	**Report Date:**	05/27/11

SAMPLE RESULTS

Lab ID:	L1107170-01	Date Collected:	05/06/11 13:00
Client ID:	B-8/MW-5	Date Received:	05/11/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Soil	TCLP/SPLP Ext. Date:	05/25/11 22:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab											
Lead, TCLP	0.55		mg/l	0.50	--	1	05/27/11 10:45	05/27/11 15:17	EPA 3015	1,6010B	MG

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1107170

Project Number: 6690 **Report Date:** 05/27/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Westborough Lab for sample(s): 01 Batch: WG470084-1										
Lead, TCLP	ND		mg/l	0.50	--	1	05/27/11 10:45	05/27/11 13:05	1,6010B	MG

Prep Information

Digestion Method: EPA 3015

TCLP/SPLP Extraction Date: 05/25/11 22:20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Number: 6690

Lab Number: L1107170

Report Date: 05/27/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01 Batch: WG470084-2								
Lead, TCLP	100		-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1107170
Report Date: 05/27/11

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01 QC Batch ID: WG470084-4 QC Sample: L1106986-01 Client ID: MS Sample												
Lead, TCLP	ND	10	10	100		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1107170
Report Date: 05/27/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Westborough Lab Associated sample(s): 01 QC Batch ID: WG470084-3 QC Sample: L1106986-01 Client ID: DUP Sample						
Lead, TCLP	ND	0.52	mg/l	NC		20

Project Name: SOUTH TERMINAL NEW BEDFORD
Project Number: 6690

Lab Number: L1107170
Report Date: 05/27/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1107170-01A	Amber 120ml unpreserved	A	N/A	2	Y	Absent	-
L1107170-01X	Plastic 250ml HNO3 preserved spl	A	<2	2	Y	Absent	PB-CI(180)

*Values in parentheses indicate holding time in days

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1107170
Project Number:	6690	**Report Date:**	05/27/11

GLOSSARY

Acronyms

EPA	· Environmental Protection Agency.
LCS	· Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	· Laboratory Control Sample Duplicate: Refer to LCS.
LFB	· Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	· Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	· Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	· Matrix Spike Sample Duplicate: Refer to MS.
NA	· Not Applicable.
NC	· Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	· Not Ignitable.
RL	· Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	· Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	· Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of

Project Name:	SOUTH TERMINAL NEW BEDFORD	**Lab Number:**	L1107170
Project Number:	6690	**Report Date:**	05/27/11

Data Qualifiers

sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Project Name: SOUTH TERMINAL NEW BEDFORD **Lab Number:** L1107170
Project Number: 6690 **Report Date:** 05/27/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised May 23, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

L1107170

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 5/11/11

ALPHA Job #: L1106586

5/23/11 KLB

Client Information

Client: APEX Co, LLC

Address: 184 HIGH ST. STE 502

BOSTON, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0086

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: SOUTH TERMINAL NEW BEDFORD

Project Location: NEW BEDFORD, MA

Project #: 6690

Project Manager: CHRIS MYERS

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: ~~5/27/11~~ 5/18/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for Inorganic analyses require MS every 20 soil samples)

* RUN TCLP IF EXCEEDS 20 TIMES RULE

ANALYSIS: TPH (EPA 8015) | TPH (EPA 8015) | SVOCs (EPA 8270C) | TCLP PB

SAMPLE HANDLING: Filtration ☐ Done ☒ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH (EPA 8015)	TPH (EPA 8015)	SVOCs (EPA 8270C)	TCLP PB	Sample Specific Comments	TOTAL # BOTTLES
~~06586~~ 1	B-3/MW-1	5/2/11	10:30	S	GAD	X	X	X			2
2	B-4/MW-2	5/3/11	10:00	S	GAD	X	X	X			2
3	B-5/MW-3	5/4/11	11:10	S	GAD	X	X	X			2
4	B-6/MW-4	5/5/11	9:45	S	GAD	X	X	X			2
5	B-7	5/6/11	9:30	S	GAD	X	X	X			2
7170.01 6	B-8/MW-5	5/6/11	13:00	S	GAD	X	X	X	☒		2
7	B-9/MW-6	5/9/11	11:00	S	GAD	X	X	X			2

Container Type: A A A

Preservative: B A B

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/11/11 11:32	[signature]	5/11/11 1132
[signature]	5/11/11 1835	Kate Munn	5/11/11 1835

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:05271117:06

Serial_No:05271117:06

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 5/11/11

ALPHA Job #: L1106586

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: APEX Co, LLC
Address: 184 High St. Ste 502
Boston, MA 02110
Phone: (617) 728-0070
Fax: (617) 728-0080
Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal New Bedford
Project Location: New Bedford, MA
Project #: 6690
Project Manager: Chet Myers
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 5/18/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)
* RUN TCLP IF EXCEEDS 20 TIMES RULE

ANALYSIS: TCLP EPA 8015 | TPP 13 METALS (EPA 6020A) | SVOCS (EPA 8270C)

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCLP EPA 8015	TPP 13 METALS (EPA 6020A)	SVOCS (EPA 8270C)	Sample Specific Comments	TOTAL # BOTTLES
06586-1	B-3/MW-1	5/2/11	10:30	S	GAD	X	X	X		2
2	B-4/MW-2	5/3/11	10:00	S	GAD	X	X	X		2
3	B-5/MW-3	5/4/11	11:10	S	GAD	X	X	X		2
4	B-6/MW-4	5/5/11	9:45	S	GAD	X	X	X		2
5	B-7	5/6/11	9:30	S	GAD	X	X	X		2
6	B-8/MW-5	5/6/11	13:00	S	GAD	X	X	X		2
7	B-9/MW-6	5/9/11	11:00	S	GAD	X	X	X		2

Container Type	A	A	A
Preservative	A	A	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01 (rev. 18-Jan-2010)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/11/11 11:32	[signature]	5/11/11 1132
[signature]	5/11/11 1835	Kate Munn	5/11/11 1835
[signature]	5/12/11 0700	[signature]	5/12/11 710
Pat Cane	5/12/11 8am	[signature]	5/12/11 0845
P. Gillett	5/23/11 1630	[signature]	5/23/11 1630
[signature]	5/23/11 1710	[signature]	5/23/11 1710
[signature]	5/23/11 1350	P. Gillett	5/23/11 1540

Please print clearly, legibly and completely. Samples cannot be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Rec'd Kim O'Malley 5/23/11 1710

ANALYTICAL REPORT

Lab Number:	L1109751
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL
Project Number:	6690
Report Date:	07/13/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1109751-01	TRIP BLANK	NEW BEDFORD, MA	06/28/11 00:00
L1109751-02	MW-1	NEW BEDFORD, MA	06/28/11 12:35
L1109751-03	MW-2	NEW BEDFORD, MA	06/28/11 14:00
L1109751-04	MW-8	NEW BEDFORD, MA	06/28/11 15:15
L1109751-05	MW-7	NEW BEDFORD, MA	06/29/11 10:37
L1109751-06	MW-6	NEW BEDFORD, MA	06/29/11 13:17

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL **Lab Number:** L1109751
Project Number: 6690 **Report Date:** 07/13/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Report Submission

This final report replaces the partial report issued July 12, 2011 and includes the results of all requested analyses.

MCP Related Narratives

Sample Receipt

The samples were Field Filtered for Dissolved Metals only.

The samples were received above the appropriate pH for the Metals analysis. The laboratory added additional HNO3 to a pH <2.

Volatile Organics

L1109751-05 has elevated detection limits due to the dilution required by the elevated concentrations of target

Case Narrative (continued)

compounds in the sample.

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The WG477573-1/-2 LCS/LCSD recoveries, associated with L1109751-02 through -05, are below the acceptance criteria for Bromomethane (53%/56%); however, it has been identified as a "difficult" analyte and is within the 40-160% acceptance limits. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for this compound.

The WG477573-1/-2 LCS/LCSD RPD, associated with L1109751-02 through -05, are above the acceptance criteria for Naphthalene (25%); however, the individual LCS/LCSD recoveries are within method limits.

The WG477900-1/-2 LCS/LCSD recoveries, associated with L1109751-01 and -06, are below the acceptance criteria for Bromomethane (50%/53%); however, it has been identified as a "difficult" analyte and is within the 40-160% acceptance limits. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for this compound.

The WG477900-1/-2 LCS/LCSD RPD, associated with L1109751-01 and -06, is above the acceptance criteria for 2-Hexanone (24%); however, the individual LCS/LCSD recoveries are within method limits.

The initial calibration, associated with L1109751-01 through -06, did not meet the method required minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00293), as well as the average response factor for 1,4-Dioxane. In addition, a quadratic fit was utilized for Acetone.

The continuing calibration standards, associated with L1109751-01 through -06, are outside the acceptance criteria for several compounds; however, they are within overall method allowances. Copies of the continuing calibration standards are included as addenda to this report.

Semivolatile Organics

In reference to question H:

The WG476803-2/-3 LCS/LCSD recoveries, associated with L1109751-02 through -06, are outside the individual acceptance criteria for several compounds, but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially high bias for

Project Name: SOUTH TERMINAL **Lab Number:** L1109751
Project Number: 6690 **Report Date:** 07/13/11

Case Narrative (continued)

2,4-Dinitrophenol (144%/140%) and a potentially low bias for Aniline (36%/31%) and Phenol (29%/28%).

Semivolatile Organics - SIM

L1109751-05 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

In reference to question G:

L1109751-05: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The surrogate recoveries for L1109751-05 are below the acceptance criteria for 2-fluorophenol, Phenol-d6, Nitrobenzene-d5, 2-Fluorobiphenyl, 2,4,6-Tribromophenol, and 4-Terphenyl-d14 (all 0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

VPH

L1109751-05 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

In reference to question G:

L1109751-05: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

EPH

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

Metals

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth A. Simmons Elizabeth Simmons

Title: Technical Director/Representative Date: 07/13/11

ORGANICS

VOLATILES

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-01	Date Collected:	06/28/11 00:00
Client ID:	TRIP BLANK	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/08/11 09:16		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-01 Date Collected: 06/28/11 00:00

Client ID: TRIP BLANK Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-01	Date Collected:	06/28/11 00:00
Client ID:	TRIP BLANK	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	101		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/07/11 14:03		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-02 Date Collected: 06/28/11 12:35

Client ID: MW-1 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	97		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/07/11 14:36		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-03 Date Collected: 06/28/11 14:00

Client ID: MW-2 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	100		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/07/11 15:08		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-04 Date Collected: 06/28/11 15:15

Client ID: MW-8 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	42		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	101		70-130

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	D	Date Collected:	06/29/11 10:37
Client ID:	MW-7		Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA		Field Prep:	See Narrative
Matrix:	Water			
Analytical Method:	97,8260B			
Analytical Date:	07/07/11 15:40			
Analyst:	MM			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	200	--	100
1,1-Dichloroethane	ND		ug/l	100	--	100
Chloroform	ND		ug/l	100	--	100
Carbon tetrachloride	ND		ug/l	100	--	100
1,2-Dichloropropane	ND		ug/l	100	--	100
Dibromochloromethane	ND		ug/l	100	--	100
1,1,2-Trichloroethane	ND		ug/l	100	--	100
Tetrachloroethene	ND		ug/l	100	--	100
Chlorobenzene	ND		ug/l	100	--	100
Trichlorofluoromethane	ND		ug/l	200	--	100
1,2-Dichloroethane	ND		ug/l	100	--	100
1,1,1-Trichloroethane	ND		ug/l	100	--	100
Bromodichloromethane	ND		ug/l	100	--	100
trans-1,3-Dichloropropene	ND		ug/l	50	--	100
cis-1,3-Dichloropropene	ND		ug/l	50	--	100
1,1-Dichloropropene	ND		ug/l	200	--	100
Bromoform	ND		ug/l	200	--	100
1,1,2,2-Tetrachloroethane	ND		ug/l	100	--	100
Benzene	370		ug/l	50	--	100
Toluene	110		ug/l	100	--	100
Ethylbenzene	940		ug/l	100	--	100
Chloromethane	ND		ug/l	200	--	100
Bromomethane	ND		ug/l	200	--	100
Vinyl chloride	ND		ug/l	100	--	100
Chloroethane	ND		ug/l	200	--	100
1,1-Dichloroethene	ND		ug/l	100	--	100
trans-1,2-Dichloroethene	ND		ug/l	100	--	100
Trichloroethene	ND		ug/l	100	--	100
1,2-Dichlorobenzene	ND		ug/l	100	--	100
1,3-Dichlorobenzene	ND		ug/l	100	--	100
1,4-Dichlorobenzene	ND		ug/l	100	--	100

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-05 D Date Collected: 06/29/11 10:37

Client ID: MW-7 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	200	--	100
p/m-Xylene	560		ug/l	200	--	100
o-Xylene	280		ug/l	100	--	100
cis-1,2-Dichloroethene	ND		ug/l	100	--	100
Dibromomethane	ND		ug/l	200	--	100
1,2,3-Trichloropropane	ND		ug/l	200	--	100
Styrene	ND		ug/l	100	--	100
Dichlorodifluoromethane	ND		ug/l	200	--	100
Acetone	ND		ug/l	500	--	100
Carbon disulfide	ND		ug/l	200	--	100
2-Butanone	ND		ug/l	500	--	100
4-Methyl-2-pentanone	ND		ug/l	500	--	100
2-Hexanone	ND		ug/l	500	--	100
Bromochloromethane	ND		ug/l	200	--	100
Tetrahydrofuran	ND		ug/l	500	--	100
2,2-Dichloropropane	ND		ug/l	200	--	100
1,2-Dibromoethane	ND		ug/l	200	--	100
1,3-Dichloropropane	ND		ug/l	200	--	100
1,1,1,2-Tetrachloroethane	ND		ug/l	100	--	100
Bromobenzene	ND		ug/l	200	--	100
n-Butylbenzene	ND		ug/l	200	--	100
sec-Butylbenzene	ND		ug/l	200	--	100
tert-Butylbenzene	ND		ug/l	200	--	100
o-Chlorotoluene	ND		ug/l	200	--	100
p-Chlorotoluene	ND		ug/l	200	--	100
1,2-Dibromo-3-chloropropane	ND		ug/l	200	--	100
Hexachlorobutadiene	ND		ug/l	60	--	100
Isopropylbenzene	ND		ug/l	200	--	100
p-Isopropyltoluene	ND		ug/l	200	--	100
Naphthalene	3900		ug/l	200	--	100
n-Propylbenzene	ND		ug/l	200	--	100
1,2,3-Trichlorobenzene	ND		ug/l	200	--	100
1,2,4-Trichlorobenzene	ND		ug/l	200	--	100
1,3,5-Trimethylbenzene	ND		ug/l	200	--	100
1,2,4-Trimethylbenzene	300		ug/l	200	--	100
Ethyl ether	ND		ug/l	200	--	100
Isopropyl Ether	ND		ug/l	200	--	100
Ethyl-Tert-Butyl-Ether	ND		ug/l	200	--	100
Tertiary-Amyl Methyl Ether	ND		ug/l	200	--	100

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-05 D Date Collected: 06/29/11 10:37

Client ID: MW-7 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	25000	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	99		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/08/11 09:49		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID: L1109751-06 Date Collected: 06/29/11 13:17

Client ID: MW-6 Date Received: 06/30/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	101		70-130

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/07/11 07:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02-05 Batch: WG477573-3					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/07/11 07:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02-05 Batch: WG477573-3					
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/07/11 07:01
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02-05 Batch: WG477573-3					
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	98		70-130

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/08/11 06:34
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01,06 Batch: WG477900-3					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/08/11 06:34
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01,06 Batch: WG477900-3					
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/08/11 06:34
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01,06 Batch: WG477900-3					
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02-05 Batch: WG477573-1 WG477573-2								
Methylene chloride	103		97		70-130	6		20
1,1-Dichloroethane	96		97		70-130	1		20
Chloroform	103		101		70-130	2		20
Carbon tetrachloride	99		94		70-130	5		20
1,2-Dichloropropane	98		100		70-130	2		20
Dibromochloromethane	86		87		70-130	1		20
1,1,2-Trichloroethane	89		95		70-130	7		20
Tetrachloroethene	104		93		70-130	11		20
Chlorobenzene	90		90		70-130	0		20
Trichlorofluoromethane	118		101		70-130	16		20
1,2-Dichloroethane	97		97		70-130	0		20
1,1,1-Trichloroethane	100		95		70-130	5		20
Bromodichloromethane	106		96		70-130	10		20
trans-1,3-Dichloropropene	90		92		70-130	2		20
cis-1,3-Dichloropropene	101		95		70-130	6		20
1,1-Dichloropropene	96		95		70-130	1		20
Bromoform	76		89		70-130	16		20
1,1,2,2-Tetrachloroethane	84		97		70-130	14		20
Benzene	100		96		70-130	4		20
Toluene	98		91		70-130	7		20
Ethylbenzene	98		97		70-130	1		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02-05 Batch: WG477573-1 WG477573-2								
Chloromethane	88		78		70-130	12		20
Bromomethane	**53**	Q	**56**	Q	70-130	6		20
Vinyl chloride	102		95		70-130	7		20
Chloroethane	106		96		70-130	10		20
1,1-Dichloroethene	108		95		70-130	13		20
trans-1,2-Dichloroethene	98		94		70-130	4		20
Trichloroethene	98		96		70-130	2		20
1,2-Dichlorobenzene	87		94		70-130	8		20
1,3-Dichlorobenzene	89		95		70-130	7		20
1,4-Dichlorobenzene	93		94		70-130	1		20
Methyl tert butyl ether	84		91		70-130	8		20
p/m-Xylene	96		94		70-130	2		20
o-Xylene	92		93		70-130	1		20
cis-1,2-Dichloroethene	99		97		70-130	2		20
Dibromomethane	101		100		70-130	1		20
1,2,3-Trichloropropane	90		101		70-130	12		20
Styrene	91		93		70-130	2		20
Dichlorodifluoromethane	90		82		70-130	9		20
Acetone	83		92		70-130	10		20
Carbon disulfide	116		100		70-130	15		20
2-Butanone	92		105		70-130	13		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02-05 Batch: WG477573-1 WG477573-2								
4-Methyl-2-pentanone	83		101		70-130	20		20
2-Hexanone	85		100		70-130	16		20
Bromochloromethane	95		94		70-130	1		20
Tetrahydrofuran	88		103		70-130	16		20
2,2-Dichloropropane	105		101		70-130	4		20
1,2-Dibromoethane	88		91		70-130	3		20
1,3-Dichloropropane	86		94		70-130	9		20
1,1,1,2-Tetrachloroethane	95		94		70-130	1		20
Bromobenzene	87		94		70-130	8		20
n-Butylbenzene	101		101		70-130	0		20
sec-Butylbenzene	94		100		70-130	6		20
tert-Butylbenzene	95		97		70-130	2		20
o-Chlorotoluene	95		98		70-130	3		20
p-Chlorotoluene	96		99		70-130	3		20
1,2-Dibromo-3-chloropropane	91		91		70-130	0		20
Hexachlorobutadiene	97		104		70-130	7		20
Isopropylbenzene	99		95		70-130	4		20
p-Isopropyltoluene	96		104		70-130	8		20
Naphthalene	70		90		70-130	**25**	Q	20
n-Propylbenzene	96		100		70-130	4		20
1,2,3-Trichlorobenzene	76		91		70-130	18		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02-05 Batch: WG477573-1 WG477573-2								
1,2,4-Trichlorobenzene	83		97		70-130	16		20
1,3,5-Trimethylbenzene	96		99		70-130	3		20
1,2,4-Trimethylbenzene	93		102		70-130	9		20
Ethyl ether	111		105		70-130	6		20
Isopropyl Ether	86		97		70-130	12		20
Ethyl-Tert-Butyl-Ether	85		96		70-130	12		20
Tertiary-Amyl Methyl Ether	95		96		70-130	1		20
1,4-Dioxane	107		118		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		102		70-130
Toluene-d8	103		101		70-130
4-Bromofluorobenzene	96		104		70-130
Dibromofluoromethane	102		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01,06 Batch: WG477900-1 WG477900-2								
Methylene chloride	108		107		70-130	1		20
1,1-Dichloroethane	93		89		70-130	4		20
Chloroform	96		94		70-130	2		20
Carbon tetrachloride	94		90		70-130	4		20
1,2-Dichloropropane	92		90		70-130	2		20
Dibromochloromethane	85		88		70-130	3		20
1,1,2-Trichloroethane	86		95		70-130	10		20
Tetrachloroethene	94		96		70-130	2		20
Chlorobenzene	89		90		70-130	1		20
Trichlorofluoromethane	101		95		70-130	6		20
1,2-Dichloroethane	91		92		70-130	1		20
1,1,1-Trichloroethane	93		90		70-130	3		20
Bromodichloromethane	88		91		70-130	3		20
trans-1,3-Dichloropropene	88		91		70-130	3		20
cis-1,3-Dichloropropene	90		89		70-130	1		20
1,1-Dichloropropene	94		90		70-130	4		20
Bromoform	84		87		70-130	4		20
1,1,2,2-Tetrachloroethane	85		92		70-130	8		20
Benzene	93		90		70-130	3		20
Toluene	91		92		70-130	1		20
Ethylbenzene	96		96		70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01,06 Batch: WG477900-1 WG477900-2								
Chloromethane	76		71		70-130	7		20
Bromomethane	**50**	Q	**53**	Q	70-130	6		20
Vinyl chloride	90		86		70-130	5		20
Chloroethane	94		88		70-130	7		20
1,1-Dichloroethene	92		91		70-130	1		20
trans-1,2-Dichloroethene	92		88		70-130	4		20
Trichloroethene	94		91		70-130	3		20
1,2-Dichlorobenzene	90		93		70-130	3		20
1,3-Dichlorobenzene	94		93		70-130	1		20
1,4-Dichlorobenzene	96		92		70-130	4		20
Methyl tert butyl ether	79		87		70-130	10		20
p/m-Xylene	95		94		70-130	1		20
o-Xylene	96		95		70-130	1		20
cis-1,2-Dichloroethene	94		92		70-130	2		20
Dibromomethane	94		97		70-130	3		20
1,2,3-Trichloropropane	93		96		70-130	3		20
Styrene	94		95		70-130	1		20
Dichlorodifluoromethane	77		76		70-130	1		20
Acetone	82		91		70-130	10		20
Carbon disulfide	103		97		70-130	6		20
2-Butanone	88		99		70-130	12		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01,06 Batch: WG477900-1 WG477900-2								
4-Methyl-2-pentanone	81		93		70-130	14		20
2-Hexanone	78		99		70-130	**24**	Q	20
Bromochloromethane	89		91		70-130	2		20
Tetrahydrofuran	92		96		70-130	4		20
2,2-Dichloropropane	99		94		70-130	5		20
1,2-Dibromoethane	83		93		70-130	11		20
1,3-Dichloropropane	88		96		70-130	9		20
1,1,1,2-Tetrachloroethane	90		94		70-130	4		20
Bromobenzene	95		92		70-130	3		20
n-Butylbenzene	103		101		70-130	2		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	100		93		70-130	7		20
o-Chlorotoluene	99		96		70-130	3		20
p-Chlorotoluene	102		96		70-130	6		20
1,2-Dibromo-3-chloropropane	78		90		70-130	14		20
Hexachlorobutadiene	110		106		70-130	4		20
Isopropylbenzene	94		93		70-130	1		20
p-Isopropyltoluene	103		100		70-130	3		20
Naphthalene	76		86		70-130	12		20
n-Propylbenzene	102		95		70-130	7		20
1,2,3-Trichlorobenzene	81		91		70-130	12		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01,06 Batch: WG477900-1 WG477900-2								
1,2,4-Trichlorobenzene	89		93		70-130	4		20
1,3,5-Trimethylbenzene	100		96		70-130	4		20
1,2,4-Trimethylbenzene	102		99		70-130	3		20
Ethyl ether	94		103		70-130	9		20
Isopropyl Ether	92		95		70-130	3		20
Ethyl-Tert-Butyl-Ether	86		93		70-130	8		20
Tertiary-Amyl Methyl Ether	88		95		70-130	8		20
1,4-Dioxane	106		125		70-130	16		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		100		70-130
Toluene-d8	101		104		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 13:56
Analytical Date:	07/09/11 23:02		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	65		30-130
2-Fluorobiphenyl	62		30-130
2,4,6-Tribromophenol	84		15-110
4-Terphenyl-d14	114		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 13:59
Analytical Date:	07/06/11 09:32		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	0.55		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	0.48		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	0.23		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		15-110
Phenol-d6	32		15-110
Nitrobenzene-d5	66		30-130
2-Fluorobiphenyl	56		30-130
2,4,6-Tribromophenol	68		15-110
4-Terphenyl-d14	105		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 13:56
Analytical Date:	07/09/11 23:27		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	41		15-110
Nitrobenzene-d5	87		30-130
2-Fluorobiphenyl	87		30-130
2,4,6-Tribromophenol	89		15-110
4-Terphenyl-d14	109		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 13:59
Analytical Date:	07/05/11 13:20		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		15-110
Phenol-d6	33		15-110
Nitrobenzene-d5	68		30-130
2-Fluorobiphenyl	65		30-130
2,4,6-Tribromophenol	87		15-110
4-Terphenyl-d14	80		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 13:56
Analytical Date:	07/09/11 23:51		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		15-110
Phenol-d6	37		15-110
Nitrobenzene-d5	77		30-130
2-Fluorobiphenyl	76		30-130
2,4,6-Tribromophenol	85		15-110
4-Terphenyl-d14	106		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 13:59
Analytical Date:	07/05/11 13:49		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	2.1		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	3.8		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	0.22		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	0.28		ug/l	0.20	--	1
Phenanthrene	0.25		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	3.2		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		15-110
Phenol-d6	32		15-110
Nitrobenzene-d5	69		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	98		15-110
4-Terphenyl-d14	88		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 13:56
Analytical Date:	07/10/11 00:16		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		15-110
Phenol-d6	42		15-110
Nitrobenzene-d5	88		30-130
2-Fluorobiphenyl	88		30-130
2,4,6-Tribromophenol	106		15-110
4-Terphenyl-d14	110		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05 D	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 13:59
Analytical Date:	07/06/11 10:07		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	68		ug/l	10	--	50
2-Chloronaphthalene	ND		ug/l	10	--	50
Fluoranthene	ND		ug/l	10	--	50
Hexachlorobutadiene	ND		ug/l	25	--	50
Naphthalene	700		ug/l	10	--	50
Benzo(a)anthracene	ND		ug/l	10	--	50
Benzo(a)pyrene	ND		ug/l	10	--	50
Benzo(b)fluoranthene	ND		ug/l	10	--	50
Benzo(k)fluoranthene	ND		ug/l	10	--	50
Chrysene	ND		ug/l	10	--	50
Acenaphthylene	ND		ug/l	10	--	50
Anthracene	ND		ug/l	10	--	50
Benzo(ghi)perylene	ND		ug/l	10	--	50
Fluorene	20		ug/l	10	--	50
Phenanthrene	19		ug/l	10	--	50
Dibenzo(a,h)anthracene	ND		ug/l	10	--	50
Indeno(1,2,3-cd)Pyrene	ND		ug/l	10	--	50
Pyrene	ND		ug/l	10	--	50
2-Methylnaphthalene	150		ug/l	10	--	50
Pentachlorophenol	ND		ug/l	40	--	50
Hexachlorobenzene	ND		ug/l	40	--	50
Hexachloroethane	ND		ug/l	40	--	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	**0**	Q	15-110
Phenol-d6	**0**	Q	15-110
Nitrobenzene-d5	**0**	Q	30-130
2-Fluorobiphenyl	**0**	Q	30-130
2,4,6-Tribromophenol	**0**	Q	15-110
4-Terphenyl-d14	**0**	Q	30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 13:56
Analytical Date:	07/10/11 00:40		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		15-110
Phenol-d6	40		15-110
Nitrobenzene-d5	88		30-130
2-Fluorobiphenyl	85		30-130
2,4,6-Tribromophenol	92		15-110
4-Terphenyl-d14	106		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 13:59
Analytical Date:	07/05/11 14:18		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	73		30-130
2-Fluorobiphenyl	68		30-130
2,4,6-Tribromophenol	96		15-110
4-Terphenyl-d14	84		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/06/11 11:38
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 13:56

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-06 Batch: WG476803-1					
Acenaphthene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Hexachlorobenzene	ND		ug/l	2.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
2-Chloronaphthalene	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
Fluoranthene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorobutadiene	ND		ug/l	2.0	--
Hexachloroethane	ND		ug/l	2.0	--
Isophorone	ND		ug/l	5.0	--
Naphthalene	ND		ug/l	2.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Benzo(a)anthracene	ND		ug/l	2.0	--
Benzo(a)pyrene	ND		ug/l	2.0	--
Benzo(b)fluoranthene	ND		ug/l	2.0	--
Benzo(k)fluoranthene	ND		ug/l	2.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/06/11 11:38
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 13:56

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-06 Batch: WG476803-1					
Chrysene	ND		ug/l	2.0	--
Acenaphthylene	ND		ug/l	2.0	--
Anthracene	ND		ug/l	2.0	--
Benzo(ghi)perylene	ND		ug/l	2.0	--
Fluorene	ND		ug/l	2.0	--
Phenanthrene	ND		ug/l	2.0	--
Dibenzo(a,h)anthracene	ND		ug/l	2.0	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	2.0	--
Pyrene	ND		ug/l	2.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
2-Methylnaphthalene	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Pentachlorophenol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/06/11 11:38
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 13:56

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 02-06 Batch: WG476803-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		15-110
Phenol-d6	23		15-110
Nitrobenzene-d5	80		30-130
2-Fluorobiphenyl	61		30-130
2,4,6-Tribromophenol	76		15-110
4-Terphenyl-d14	103		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C-SIM
Analytical Date: 07/05/11 18:06
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 13:59

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 02-06 Batch: WG476804-1					
Acenaphthene	ND		ug/l	0.20	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C-SIM
Analytical Date: 07/05/11 18:06
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 13:59

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 02-06 Batch: WG476804-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		15-110
Phenol-d6	25		15-110
Nitrobenzene-d5	53		30-130
2-Fluorobiphenyl	47		30-130
2,4,6-Tribromophenol	49		15-110
4-Terphenyl-d14	79		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-06 Batch: WG476803-2 WG476803-3								
Acenaphthene	78		81		40-140	4		20
1,2,4-Trichlorobenzene	53		57		40-140	7		20
Hexachlorobenzene	117		106		40-140	10		20
Bis(2-chloroethyl)ether	56		55		40-140	2		20
2-Chloronaphthalene	92		91		40-140	1		20
1,2-Dichlorobenzene	45		51		40-140	13		20
1,3-Dichlorobenzene	45		46		40-140	2		20
1,4-Dichlorobenzene	44		48		40-140	9		20
3,3'-Dichlorobenzidine	114		102		40-140	11		20
2,4-Dinitrotoluene	129		117		40-140	10		20
2,6-Dinitrotoluene	114		104		40-140	9		20
Azobenzene	91		87		40-140	4		20
Fluoranthene	114		102		40-140	11		20
4-Bromophenyl phenyl ether	110		101		40-140	9		20
Bis(2-chloroisopropyl)ether	43		44		40-140	2		20
Bis(2-chloroethoxy)methane	56		61		40-140	9		20
Hexachlorobutadiene	55		58		40-140	5		20
Hexachloroethane	41		47		40-140	14		20
Isophorone	63		66		40-140	5		20
Naphthalene	60		60		40-140	0		20
Nitrobenzene	65		67		40-140	3		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-06 Batch: WG476803-2 WG476803-3								
Bis(2-Ethylhexyl)phthalate	127		124		40-140	2		20
Butyl benzyl phthalate	117		114		40-140	3		20
Di-n-butylphthalate	117		114		40-140	3		20
Di-n-octylphthalate	119		107		40-140	11		20
Diethyl phthalate	114		100		40-140	13		20
Dimethyl phthalate	103		92		40-140	11		20
Benzo(a)anthracene	116		111		40-140	4		20
Benzo(a)pyrene	111		105		40-140	6		20
Benzo(b)fluoranthene	130		117		40-140	11		20
Benzo(k)fluoranthene	127		108		40-140	16		20
Chrysene	117		102		40-140	14		20
Acenaphthylene	84		84		40-140	0		20
Anthracene	102		105		40-140	3		20
Benzo(ghi)perylene	123		106		40-140	15		20
Fluorene	98		90		40-140	9		20
Phenanthrene	101		100		40-140	1		20
Dibenzo(a,h)anthracene	130		108		40-140	18		20
Indeno(1,2,3-cd)Pyrene	114		97		40-140	16		20
Pyrene	105		105		40-140	0		20
Aniline	**36**	Q	**31**	Q	40-140	15		20
4-Chloroaniline	63		62		40-140	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-06 Batch: WG476803-2 WG476803-3								
Dibenzofuran	89		85		40-140	5		20
2-Methylnaphthalene	61		62		40-140	2		20
Acetophenone	73		71		40-140	3		20
2,4,6-Trichlorophenol	103		99		30-130	4		20
2-Chlorophenol	58		62		30-130	7		20
2,4-Dichlorophenol	76		77		30-130	1		20
2,4-Dimethylphenol	69		72		30-130	4		20
2-Nitrophenol	71		72		30-130	1		20
4-Nitrophenol	67		59		30-130	13		20
2,4-Dinitrophenol	**144**	Q	**140**	Q	30-130	3		20
Pentachlorophenol	94		93		30-130	1		20
Phenol	**29**	Q	**28**	Q	30-130	4		20
2-Methylphenol	51		53		30-130	4		20
3-Methylphenol/4-Methylphenol	52		53		30-130	2		20
2,4,5-Trichlorophenol	102		101		30-130	1		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 02-06 Batch: WG476803-2 WG476803-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	38		36		15-110
Phenol-d6	26		24		15-110
Nitrobenzene-d5	78		87		30-130
2-Fluorobiphenyl	74		75		30-130
2,4,6-Tribromophenol	103		99		15-110
4-Terphenyl-d14	111		108		30-130

MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 02-06 Batch: WG476804-2 WG476804-3

Acenaphthene	71		78		40-140	9		20
2-Chloronaphthalene	77		86		40-140	11		20
Fluoranthene	110		120		40-140	9		20
Hexachlorobutadiene	51		56		40-140	9		20
Naphthalene	68		76		40-140	11		20
Benzo(a)anthracene	96		105		40-140	9		20
Benzo(a)pyrene	84		91		40-140	8		20
Benzo(b)fluoranthene	98		114		40-140	15		20
Benzo(k)fluoranthene	96		102		40-140	6		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 02-06 Batch: WG476804-2 WG476804-3								
Chrysene	88		95		40-140	8		20
Acenaphthylene	77		84		40-140	9		20
Anthracene	87		96		40-140	10		20
Benzo(ghi)perylene	79		83		40-140	5		20
Fluorene	86		93		40-140	8		20
Phenanthrene	85		96		40-140	12		20
Dibenzo(a,h)anthracene	88		95		40-140	8		20
Indeno(1,2,3-cd)Pyrene	84		88		40-140	5		20
Pyrene	103		112		40-140	8		20
2-Methylnaphthalene	67		76		40-140	13		20
Pentachlorophenol	105		116		30-130	10		20
Hexachlorobenzene	69		77		40-140	11		20
Hexachloroethane	55		62		40-140	12		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	47		51		15-110
Phenol-d6	34		37		15-110
Nitrobenzene-d5	69		77		30-130
2-Fluorobiphenyl	66		73		30-130
2,4,6-Tribromophenol	75		83		15-110
4-Terphenyl-d14	95		101		30-130

PETROLEUM HYDROCARBONS

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/04/11 12:46
Analytical Date:	07/08/11 10:06		
Analyst:	NH		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/04/11 12:46
Analytical Date:	07/07/11 09:12		
Analyst:	NH		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	70		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/04/11 12:46
Analytical Date:	07/07/11 05:48		
Analyst:	NH		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	97		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/04/11 12:46
Analytical Date:	07/07/11 05:14		
Analyst:	NH		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	3350		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	83		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/04/11 12:46
Analytical Date:	07/07/11 06:21		
Analyst:	NH		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	84		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 07/07/11 08:03
Analyst: NH

Extraction Method: EPA 3510C
Extraction Date: 07/04/11 12:46

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 02-06 Batch: WG476974-1					
TPH	ND		ug/l	500	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	94		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOUTH TERMINAL

Project Number: 6690

Lab Number: L1109751

Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 02-06 Batch: WG476974-2								
TPH	82		-		40-140	-		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	92				40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 02-06 QC Batch ID: WG476974-4 QC Sample: L1109751-02 Client ID: MW-1						
TPH	ND	ND	ug/l	NC		40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		89		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-01	Date Collected:	06/28/11 00:00
Client ID:	TRIP BLANK	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Water		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	07/06/11 18:04		
Analyst:	TT		

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	83		70-130
2,5-Dibromotoluene-FID	91		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	07/06/11 18:55		
Analyst:	TT		

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	84		70-130
2,5-Dibromotoluene-FID	92		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/07/11 17:47
Analytical Date:	07/11/11 22:48	Cleanup Method1:	EPH-04-1
Analyst:	AS	Cleanup Date1:	07/08/11

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	187		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	148		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	79		40-140
o-Terphenyl	88		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	77		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/07/11 17:47
Analytical Date:	07/11/11 23:20	Cleanup Method1:	EPH-04-1
Analyst:	AS	Cleanup Date1:	07/08/11

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	3030		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	2710		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	87		40-140
o-Terphenyl	98		40-140
2-Fluorobiphenyl	94		40-140
2-Bromonaphthalene	95		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05 D	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	07/08/11 07:12		
Analyst:	TT		

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	1250	--	25
C9-C12 Aliphatics	7470		ug/l	1250	--	25
C9-C10 Aromatics	3730		ug/l	1250	--	25
C5-C8 Aliphatics, Adjusted	ND		ug/l	1250	--	25
C9-C12 Aliphatics, Adjusted	2370		ug/l	1250	--	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	82		70-130
2,5-Dibromotoluene-FID	85		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 07/06/11 14:21
Analyst: TT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01,04 Batch: WG477378-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	82		70-130
2,5-Dibromotoluene-FID	90		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 07/07/11 12:24
Analyst: TT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 05 Batch: WG477619-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	81		70-130
2,5-Dibromotoluene-FID	87		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 07/11/11 10:33
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 07/07/11 17:47
Cleanup Method1: EPH-04-1
Cleanup Date1: 07/08/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 04-05 Batch: WG477718-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	71		40-140
o-Terphenyl	72		40-140
2-Fluorobiphenyl	65		40-140
2-Bromonaphthalene	68		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01,04 Batch: WG477378-1 WG477378-2								
C5-C8 Aliphatics	115		113		70-130	2		25
C9-C12 Aliphatics	82		85		70-130	3		25
C9-C10 Aromatics	96		98		70-130	2		25
Benzene	95		94		70-130	0		25
Toluene	94		94		70-130	0		25
Ethylbenzene	94		95		70-130	1		25
p/m-Xylene	96		97		70-130	1		25
o-Xylene	96		98		70-130	2		25
Methyl tert butyl ether	94		93		70-130	1		25
Naphthalene	84		86		70-130	2		25
1,2,4-Trimethylbenzene	96		96		70-130	0		25
Pentane	129		120		70-130	7		25
2-Methylpentane	121		122		70-130	1		25
2,2,4-Trimethylpentane	103		105		70-130	2		25
n-Nonane	86		87		30-130	2		25
n-Decane	83		86		70-130	3		25
n-Butylcyclohexane	91		93		70-130	3		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01,04 Batch: WG477378-1 WG477378-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	76		79		70-130
2,5-Dibromotoluene-FID	82		84		70-130

Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05 Batch: WG477619-1 WG477619-2								
C5-C8 Aliphatics	107		108		70-130	1		25
C9-C12 Aliphatics	82		87		70-130	5		25
C9-C10 Aromatics	97		98		70-130	1		25
Benzene	95		92		70-130	3		25
Toluene	94		95		70-130	1		25
Ethylbenzene	95		95		70-130	1		25
p/m-Xylene	97		97		70-130	0		25
o-Xylene	97		98		70-130	1		25
Methyl tert butyl ether	93		90		70-130	3		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 05 Batch: WG477619-1 WG477619-2								
Naphthalene	82		84		70-130	3		25
1,2,4-Trimethylbenzene	95		96		70-130	1		25
Pentane	115		110		70-130	4		25
2-Methylpentane	112		115		70-130	3		25
2,2,4-Trimethylpentane	98		102		70-130	4		25
n-Nonane	85		87		30-130	3		25
n-Decane	84		90		70-130	6		25
n-Butylcyclohexane	88		92		70-130	4		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	75		75		70-130
2,5-Dibromotoluene-FID	80		80		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 04-05 Batch: WG477718-2 WG477718-3								
C9-C18 Aliphatics	80		68		40-140	16		25
C19-C36 Aliphatics	99		91		40-140	8		25
C11-C22 Aromatics	89		85		40-140	5		25
Naphthalene	76		68		40-140	11		25
2-Methylnaphthalene	81		74		40-140	9		25
Acenaphthylene	73		68		40-140	7		25
Acenaphthene	80		74		40-140	8		25
Fluorene	79		74		40-140	7		25
Phenanthrene	85		82		40-140	4		25
Anthracene	84		81		40-140	4		25
Fluoranthene	89		88		40-140	1		25
Pyrene	93		93		40-140	0		25
Benzo(a)anthracene	89		89		40-140	0		25
Chrysene	92		92		40-140	0		25
Benzo(b)fluoranthene	91		92		40-140	1		25
Benzo(k)fluoranthene	96		96		40-140	0		25
Benzo(a)pyrene	88		90		40-140	2		25
Indeno(1,2,3-cd)Pyrene	95		95		40-140	0		25
Dibenzo(a,h)anthracene	90		90		40-140	0		25
Benzo(ghi)perylene	94		93		40-140	1		25
Nonane (C9)	71		57		30-140	22		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 04-05 Batch: WG477718-2 WG477718-3								
Decane (C10)	81		67		40-140	19		25
Dodecane (C12)	88		74		40-140	17		25
Tetradecane (C14)	92		78		40-140	16		25
Hexadecane (C16)	96		84		40-140	13		25
Octadecane (C18)	100		90		40-140	11		25
Nonadecane (C19)	102		92		40-140	10		25
Eicosane (C20)	102		93		40-140	9		25
Docosane (C22)	100		92		40-140	8		25
Tetracosane (C24)	101		93		40-140	8		25
Hexacosane (C26)	100		92		40-140	8		25
Octacosane (C28)	97		90		40-140	7		25
Triacontane (C30)	100		92		40-140	8		25
Hexatriacontane (C36)	100		91		40-140	9		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	83		81		40-140
o-Terphenyl	82		80		40-140
2-Fluorobiphenyl	68		71		40-140
2-Bromonaphthalene	73		74		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

METALS

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109751
Project Number:	6690	**Report Date:**	07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-02	Date Collected:	06/28/11 12:35
Client ID:	MW-1	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0011		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0010		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 13:43	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.001		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0144		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 05:08	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109751
Project Number:	6690	**Report Date:**	07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-03	Date Collected:	06/28/11 14:00
Client ID:	MW-2	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0011		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0025		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Lead, Dissolved	0.0016		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 13:45	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0014		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.001		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0189		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 05:14	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109751
Project Number:	6690	**Report Date:**	07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-04	Date Collected:	06/28/11 15:15
Client ID:	MW-8	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Chromium, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Copper, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 13:47	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.001		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0090		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 05:20	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109751
Project Number:	6690	**Report Date:**	07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-05	Date Collected:	06/29/11 10:37
Client ID:	MW-7	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0013		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 13:49	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0011		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.001		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0127		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 05:27	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109751
Project Number:	6690	**Report Date:**	07/13/11

SAMPLE RESULTS

Lab ID:	L1109751-06	Date Collected:	06/29/11 13:17
Client ID:	MW-6	Date Received:	06/30/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0046		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0009		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 13:51	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0021		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.002		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0130		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 05:33	EPA 3005A	97,6020A	BM

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab for sample(s): 02-06 Batch: WG476943-1										
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Copper, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Nickel, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Selenium, Dissolved	ND		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Zinc, Dissolved	ND		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab for sample(s): 02-06 Batch: WG477461-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/06/11 17:01	07/07/11 12:59	97,7470A	AH

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Westborough Lab Associated sample(s): 02-06 Batch: WG476943-2 WG476943-3								
Antimony, Dissolved	94		94		80-120	0		20
Arsenic, Dissolved	103		101		80-120	2		20
Beryllium, Dissolved	95		94		80-120	1		20
Cadmium, Dissolved	103		104		80-120	1		20
Chromium, Dissolved	92		90		80-120	2		20
Copper, Dissolved	96		95		80-120	1		20
Lead, Dissolved	100		101		80-120	1		20
Nickel, Dissolved	95		96		80-120	1		20
Selenium, Dissolved	102		102		80-120	0		20
Silver, Dissolved	92		91		80-120	1		20
Thallium, Dissolved	94		93		80-120	1		20
Zinc, Dissolved	102		99		80-120	3		20
MCP Dissolved Metals - Westborough Lab Associated sample(s): 02-06 Batch: WG477461-2 WG477461-3								
Mercury, Dissolved	108		105		80-120	3		20

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1109751-01A	Vial HCl preserved	A	N/A	3	Y	Absent	VPH-10(14),MCP-8260-10(14)
L1109751-02A	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-02B	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-02C	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-02D	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-02E	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-02F	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-02G	Plastic 500ml HNO3 preserved	B	<2	4	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109751-03A	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-03B	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-03C	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-03D	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-03E	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-03F	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1109751-03G	Plastic 500ml HNO3 preserved	B	<2	4	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109751-04A	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-04B	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-04C	Vial HCl preserved	A	N/A	3	Y	Absent	VPH-10(14)
L1109751-04D	Vial HCl preserved	A	N/A	3	Y	Absent	VPH-10(14)
L1109751-04E	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-04F	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-04G	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-04H	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-04I	Amber 1000ml HCl preserved	B	<2	4	Y	Absent	EPH-10(14)
L1109751-04J	Amber 1000ml HCl preserved	B	<2	4	Y	Absent	EPH-10(14)
L1109751-04K	Plastic 500ml HNO3 preserved	B	<2	4	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109751-05A	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-05B	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-05C	Vial HCl preserved	A	N/A	3	Y	Absent	VPH-10(14)
L1109751-05D	Vial HCl preserved	A	N/A	3	Y	Absent	VPH-10(14)
L1109751-05E	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-05F	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-05G	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-05H	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-05I	Amber 1000ml HCl preserved	B	<2	4	Y	Absent	EPH-10(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109751
Report Date: 07/13/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1109751-05J	Amber 1000ml HCl preserved	B	<2	4	Y	Absent	EPH-10(14)
L1109751-05K	Plastic 500ml HNO3 preserved	B	<2	4	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109751-06A	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-06B	Vial HCl preserved	A	N/A	3	Y	Absent	MCP-8260-10(14)
L1109751-06C	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-06D	Amber 1000ml unpreserved	A	7	3	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109751-06E	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-06F	Amber 1000ml unpreserved	B	7	4	Y	Absent	TPH-DRO-D(7)
L1109751-06G	Plastic 500ml HNO3 preserved	B	<2	4	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)

Container Comments

L1109751-05C

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL **Lab Number:** L1109751

Project Number: 6690 **Report Date:** 07/13/11

GLOSSARY

Acronyms

EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
M	- Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109751
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Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL **Lab Number:** L1109751
Project Number: 6690 **Report Date:** 07/13/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised June 7, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/30/11

ALPHA Job #: L1109751

Client Information

Client: Apex Co., LLC

Address: 184 High St. Ste 502, Boston, MA 02110

Phone: (617) 728-0070

Fax: (617) 728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal

Project Location: New Bedford

Project #: 6690

Project Manager: Chet Myers

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 7/8/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria MA MCP GW

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

SAMPLE HANDLING

Filtration
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	13 PARCITY METALS 6020A/7471	TPH EPA 8015	SVOC 8270C	MA EPH (CARBON RANGES)	VOCs 8260	MA VPH (CARBON RANGES)	Sample Specific Comments	TOTAL # BOTTLES
0975 1	TRIP BLANK	6/23/11			KR					X	X		1
2	MW-1	6/28/11	12:35	GW	GH	X	X	X		X			
3	MW-2	6/28/11	14:00	GW	GH	X	X	X		X			
4	MW-8	6/28/11	15:15	GW	GH	X	X	X	X	X	X	SLIGHT PETROLEUM ODOR	
5	MW-7	6/28/11	10:37	GW	GAD	X	X	X	X	X	X	SLIGHT PETROLEUM ODOR	
6	MW-6	6/28/11	13:17	GW	GAD	X	X	X		X			

Container Type	P	A	A	A	V	V
Preservative	A	A	A	B	B	D

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
P. Gillent	6/30/11 9:55	P. Gillent	6/30/11 1045
P. Gillent	6/30/11 1625	[illegible]	6/30/11 1625

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:07131110:04

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109751

Instrument ID: Jack.i Calibration Date: 08-JUL-2011 Time: 04:57

Lab File ID: 0708A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.51464	.39794	.1	23	20	F
chloromethane	.72395	.54669	.1	24	20	F
vinyl chloride	.64051	.57786	.1	10	20	
bromomethane	.35522	.17721	.1	50	20	F
chloroethane	.36316	.3423	.1	6	20	
trichlorofluoromethane	.76783	.77258	.1	-1	20	
ethyl ether	.2548	.23957	.05	6	20	
1,1,-dichloroethene	.52577	.48556	.1	8	20	
carbon disulfide	1.4189	1.4558	.1	-3	20	
methylene chloride	.58411	.63313	.1	-8	20	
acetone	100	82.150	.1	18	20	
trans-1,2-dichloroethene	.58756	.54362	.1	7	20	
methyl tert butyl ether	1.3085	1.0354	.1	21	20	F
Ethyl-Tert-Butyl-Ether	1.5709	1.3570	.05	14	20	
Diisopropyl Ether	1.7281	1.5833	.01	8	20	
1,1-dichloroethane	1.0440	.97328	.2	7	20	
cis-1,2-dichloroethene	.6364	.5963	.1	6	20	
2,2-dichloropropane	.8103	.80381	.05	1	20	
bromochloromethane	.29365	.26035	.05	11	20	
chloroform	.97072	.93539	.2	4	20	
carbontetrachloride	.74515	.69787	.1	6	20	
tetrahydrofuran	.11977	.11078	.05	8	20	
1,1,1-trichloroethane	.85602	.8	.1	7	20	
Tertiary-Amyl Methyl Ether	1.3512	1.1863	.05	12	20	
1,1-dichloropropene	.82562	.7767	.05	6	20	
2-butanone	.15979	.14094	.1	12	20	
benzene	2.4862	2.3145	.5	7	20	
1,2-dichloroethane	.60644	.55108	.1	9	20	
trichloroethene	.6214	.58289	.2	6	20	
dibromomethane	.29164	.27327	.05	6	20	
1,2-dichloropropane	.61786	.5695	.1	8	20	
bromodichloromethane	.83554	.73918	.2	12	20	
1,4-dioxane	.00293	.00311	.05	-6	20	F
cis-1,3-dichloropropene	.90971	.8161	.2	10	20	
toluene	2.0650	1.8873	.4	9	20	
tetrachloroethene	.96842	.90548	.2	6	20	
4-methyl-2-pentanone	.14621	.11787	.1	19	20	
trans-1,3-dichloropropene	.98043	.86586	.1	12	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109751

Instrument ID: Jack.i Calibration Date: 08-JUL-2011 Time: 04:57

Lab File ID: 0708A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
1,1,2-trichloroethane	.48814	.41755	.1	14	20	
chlorodibromomethane	.68897	.58648	.1	15	20	
1,3-dichloropropane	.99242	.8747	.05	12	20	
1,2-dibromoethane	.5844	.48457	.1	17	20	
2-hexanone	.30316	.23528	.1	22	20	F
chlorobenzene	2.2881	2.0449	.5	11	20	
ethyl benzene	3.8858	3.7138	.1	4	20	
1,1,1,2-tetrachloroethane	.77094	.69726	.05	10	20	
p/m xylene	1.5531	1.4780	.1	5	20	
o xylene	1.5037	1.4403	.3	4	20	
styrene	2.4717	2.3210	.3	6	20	
bromoform	.73129	.61823	.1	15	20	
isopropylbenzene	3.8629	3.6510	.1	5	20	
bromobenzene	1.7372	1.6445	.05	5	20	
n-propylbenzene	7.3574	7.5150	.05	-2	20	
1,1,2,2,-tetrachloroethane	1.1510	.98305	.3	15	20	
2-chlorotoluene	5.0241	4.9549	.05	1	20	
1,2,3-trichloropropane	.84982	.79316	.05	7	20	
1,3,5-trimethybenzene	5.0630	5.0546	.05	0	20	
4-chorotoluene	4.4986	4.5776	.05	-2	20	
tert-butylbenzene	4.4234	4.4027	.05	0	20	
1,2,4-trimethylbenzene	5.1280	5.2586	.05	-3	20	
sec-butylbenzene	6.1442	6.1561	.01	0	20	
p-isopropyltoluene	5.0070	5.1769	.05	-3	20	
1,3-dichlorobenzene	3.0830	2.9014	.6	6	20	
1,4-dichlorobenzene	3.1175	2.9859	.5	4	20	
n-butylbenzene	4.0357	4.1662	.05	-3	20	
1,2-dichlorobenzene	2.8281	2.5561	.4	10	20	
1,2-dibromo-3-chloropropane	.15112	.11719	.05	22	20	F
hexachlorobutadiene	.58852	.64648	.05	-10	20	
1,2,4-trichlorobenzene	1.3925	1.2428	.2	11	20	
naphthalene	2.7390	2.0743	.05	24	20	F
1,2,3-trichlorobenzene	1.1195	.90589	.05	19	20	
dibromofluoromethane	.2378	.23643	.05	1	20	
1,2-dichloroethane-d4	.22894	.22377	.05	2	20	
toluene-d8	1.2709	1.2799	.01	-1	20	
4-bromofluorobenzene	.78386	.83464	.05	-6	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109751

Instrument ID: Jack.i Calibration Date: 07-JUL-2011 Time: 05:24

Lab File ID: 0707A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.51464	.46309	.1	10	20	
chloromethane	.72395	.63323	.1	13	20	
vinyl chloride	.64051	.65139	.1	-2	20	
bromomethane	.35522	.18767	.1	47	20	F
chloroethane	.36316	.38588	.1	-6	20	
trichlorofluoromethane	.76783	.90512	.1	-18	20	
ethyl ether	.2548	.28311	.05	-11	20	
1,1,-dichloroethene	.52577	.56755	.1	-8	20	
carbon disulfide	1.4189	1.6505	.1	-16	20	
methylene chloride	.58411	.60453	.1	-3	20	
acetone	100	83.323	.1	17	20	
trans-1,2-dichloroethene	.58756	.57501	.1	2	20	
methyl tert butyl ether	1.3085	1.0973	.1	16	20	
Ethyl-Tert-Butyl-Ether	1.5709	1.3298	.05	15	20	
Diisopropyl Ether	1.7281	1.4776	.01	14	20	
1,1-dichloroethane	1.0440	1.0022	.2	4	20	
cis-1,2-dichloroethene	.6364	.62874	.1	1	20	
2,2-dichloropropane	.8103	.85142	.05	-5	20	
bromochloromethane	.29365	.27916	.05	5	20	
chloroform	.97072	.9974	.2	-3	20	
carbontetrachloride	.74515	.74103	.1	1	20	
tetrahydrofuran	.11977	.1059	.05	12	20	
1,1,1-trichloroethane	.85602	.85435	.1	0	20	
Tertiary-Amyl Methyl Ether	1.3512	1.283	.05	5	20	
1,1-dichloropropene	.82562	.79166	.05	4	20	
2-butanone	.15979	.14615	.1	9	20	
benzene	2.4862	2.4859	.5	0	20	
1,2-dichloroethane	.60644	.58721	.1	3	20	
trichloroethene	.6214	.60883	.2	2	20	
dibromomethane	.29164	.29475	.05	-1	20	
1,2-dichloropropane	.61786	.60524	.1	2	20	
bromodichloromethane	.83554	.88272	.2	-6	20	
1,4-dioxane	.00293	.00314	.05	-7	20	F
cis-1,3-dichloropropene	.90971	.92279	.2	-1	20	
toluene	2.0650	2.0345	.4	1	20	
tetrachloroethene	.96842	1.0073	.2	-4	20	
4-methyl-2-pentanone	.14621	.12145	.1	17	20	
trans-1,3-dichloropropene	.98043	.88377	.1	10	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109751

Instrument ID: Jack.i Calibration Date: 07-JUL-2011 Time: 05:24

Lab File ID: 0707A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
1,1,2-trichloroethane	.48814	.43386	.1	11	20	
chlorodibromomethane	.68897	.59239	.1	14	20	
1,3-dichloropropane	.99242	.85682	.05	14	20	
1,2-dibromoethane	.5844	.51172	.1	12	20	
2-hexanone	.30316	.25674	.1	15	20	
chlorobenzene	2.2881	2.0649	.5	10	20	
ethyl benzene	3.8858	3.7940	.1	2	20	
1,1,1,2-tetrachloroethane	.77094	.72949	.05	5	20	
p/m xylene	1.5531	1.4895	.1	4	20	
o xylene	1.5037	1.3894	.3	8	20	
styrene	2.4717	2.2490	.3	9	20	
bromoform	.73129	.55785	.1	24	20	F
isopropylbenzene	3.8629	3.8318	.1	1	20	
bromobenzene	1.7372	1.5181	.05	13	20	
n-propylbenzene	7.3574	7.0973	.05	4	20	
1,1,2,2,-tetrachloroethane	1.1510	.96988	.3	16	20	
2-chlorotoluene	5.0241	4.7669	.05	5	20	
1,2,3-trichloropropane	.84982	.76831	.05	10	20	
1,3,5-trimethybenzene	5.0630	4.8720	.05	4	20	
4-chorotoluene	4.4986	4.3333	.05	4	20	
tert-butylbenzene	4.4234	4.1989	.05	5	20	
1,2,4-trimethylbenzene	5.1280	4.7684	.05	7	20	
sec-butylbenzene	6.1442	5.7692	.01	6	20	
p-isopropyltoluene	5.0070	4.8261	.05	4	20	
1,3-dichlorobenzene	3.0830	2.7305	.6	11	20	
1,4-dichlorobenzene	3.1175	2.8886	.5	7	20	
n-butylbenzene	4.0357	4.0830	.05	-1	20	
1,2-dichlorobenzene	2.8281	2.4689	.4	13	20	
1,2-dibromo-3-chloropropane	.15112	.13753	.05	9	20	
hexachlorobutadiene	.58852	.57032	.05	3	20	
1,2,4-trichlorobenzene	1.3925	1.1532	.2	17	20	
naphthalene	2.7390	1.9102	.05	30	20	F
1,2,3-trichlorobenzene	1.1195	.84546	.05	24	20	F
dibromofluoromethane	.2378	.24247	.05	-2	20	
1,2-dichloroethane-d4	.22894	.23758	.05	-4	20	
toluene-d8	1.2709	1.3114	.01	-3	20	
4-bromofluorobenzene	.78386	.75157	.05	4	20	

FORM VII MCP-8260-10

ANALYTICAL REPORT

Lab Number:	L1109821
Client:	Apex Companies 184 High Street Suite 502 Boston, MA 02110
ATTN:	Chet Myers
Phone:	(617) 728-0070
Project Name:	SOUTH TERMINAL
Project Number:	6690
Report Date:	07/07/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1109821-01	MW-4	NEW BEDFORD, MA	06/30/11 12:15
L1109821-02	MW-5	NEW BEDFORD, MA	06/30/11 13:30
L1109821-03	MW-3	NEW BEDFORD, MA	06/30/11 14:50
L1109821-04	TRIP	NEW BEDFORD, MA	06/30/11 00:00

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: SOUTH TERMINAL **Lab Number:** L1109821
Project Number: 6690 **Report Date:** 07/07/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Sample Receipt

The samples were Field Filtered for Dissolved Metals only.

The samples were received above the appropriate pH for the Metals analysis. The laboratory added additional HNO3 to a pH <2.

Volatile Organics

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The initial calibration, associated with L1109821-01 through -04, did not meet the method required minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00293), as well as the average

Project Name: SOUTH TERMINAL **Lab Number:** L1109821
Project Number: 6690 **Report Date:** 07/07/11

Case Narrative (continued)

response factor for 1,4-Dioxane. In addition, a quadratic fit was utilized for Acetone.
The continuing calibration standard, associated with L1109821-01 through -04, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

Semivolatile Organics
In reference to question H:
The WG476756-2/-3 LC/LCSD recoveries, associated with L1109821-01, -02 and -03, are below the individual acceptance criteria for Aniline (31%/32%), but within the overall method allowances. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for this compound.

Metals
L1109821-02 has elevated detection limit for all analytes, with the exception of Mercury, due to the dilution required by the high concentrations of non-target analytes. The requested reporting limits were not achieved.
In reference to question G:
L1109821-02: One or more of the target analytes did not achieve the requested CAM reporting limits.
In reference to question I:
All samples were analyzed for a subset of MCP elements per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth A. Simmons Elizabeth Simmons

Title: Technical Director/Representative Date: 07/07/11

ORGANICS

VOLATILES

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/04/11 19:35		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID: L1109821-01 Date Collected: 06/30/11 12:15

Client ID: MW-4 Date Received: 07/01/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	98		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/04/11 20:07		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID: L1109821-02 Date Collected: 06/30/11 13:30

Client ID: MW-5 Date Received: 07/01/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	97		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/04/11 20:39		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID: L1109821-03 Date Collected: 06/30/11 14:50

Client ID: MW-3 Date Received: 07/01/11

Sample Location: NEW BEDFORD, MA Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	98		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-04	Date Collected:	06/30/11 00:00
Client ID:	TRIP	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified
Matrix:	Water		
Analytical Method:	97,8260B		
Analytical Date:	07/04/11 19:02		
Analyst:	MM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID: L1109821-04 Date Collected: 06/30/11 00:00

Client ID: TRIP Date Received: 07/01/11

Sample Location: NEW BEDFORD, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-04	Date Collected:	06/30/11 00:00
Client ID:	TRIP	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	98		70-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/04/11 17:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG477040-3					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/04/11 17:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG477040-3					
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/04/11 17:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG477040-3					
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG477040-1 WG477040-2								
Methylene chloride	93		95		70-130	2		20
1,1-Dichloroethane	91		95		70-130	4		20
Chloroform	94		98		70-130	4		20
Carbon tetrachloride	97		96		70-130	1		20
1,2-Dichloropropane	91		94		70-130	3		20
Dibromochloromethane	88		89		70-130	1		20
1,1,2-Trichloroethane	91		96		70-130	5		20
Tetrachloroethene	101		99		70-130	2		20
Chlorobenzene	92		91		70-130	1		20
Trichlorofluoromethane	99		100		70-130	1		20
1,2-Dichloroethane	93		97		70-130	4		20
1,1,1-Trichloroethane	96		98		70-130	2		20
Bromodichloromethane	86		90		70-130	5		20
trans-1,3-Dichloropropene	95		93		70-130	2		20
cis-1,3-Dichloropropene	92		95		70-130	3		20
1,1-Dichloropropene	91		97		70-130	6		20
Bromoform	89		93		70-130	4		20
1,1,2,2-Tetrachloroethane	90		96		70-130	6		20
Benzene	95		96		70-130	1		20
Toluene	95		93		70-130	2		20
Ethylbenzene	97		97		70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG477040-1 WG477040-2								
Chloromethane	80		80		70-130	0		20
Bromomethane	106		104		70-130	2		20
Vinyl chloride	90		92		70-130	2		20
Chloroethane	90		91		70-130	1		20
1,1-Dichloroethene	94		96		70-130	2		20
trans-1,2-Dichloroethene	95		98		70-130	3		20
Trichloroethene	97		96		70-130	1		20
1,2-Dichlorobenzene	92		96		70-130	4		20
1,3-Dichlorobenzene	92		95		70-130	3		20
1,4-Dichlorobenzene	94		97		70-130	3		20
Methyl tert butyl ether	86		97		70-130	12		20
p/m-Xylene	96		96		70-130	0		20
o-Xylene	98		97		70-130	1		20
cis-1,2-Dichloroethene	97		98		70-130	1		20
Dibromomethane	94		99		70-130	5		20
1,2,3-Trichloropropane	93		102		70-130	9		20
Styrene	96		97		70-130	1		20
Dichlorodifluoromethane	80		85		70-130	6		20
Acetone	76		81		70-130	6		20
Carbon disulfide	92		90		70-130	2		20
2-Butanone	92		102		70-130	10		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG477040-1 WG477040-2								
4-Methyl-2-pentanone	90		100		70-130	11		20
2-Hexanone	88		92		70-130	4		20
Bromochloromethane	93		97		70-130	4		20
Tetrahydrofuran	94		104		70-130	10		20
2,2-Dichloropropane	100		102		70-130	2		20
1,2-Dibromoethane	94		93		70-130	1		20
1,3-Dichloropropane	91		93		70-130	2		20
1,1,1,2-Tetrachloroethane	98		98		70-130	0		20
Bromobenzene	96		94		70-130	2		20
n-Butylbenzene	92		97		70-130	5		20
sec-Butylbenzene	93		97		70-130	4		20
tert-Butylbenzene	93		97		70-130	4		20
o-Chlorotoluene	91		96		70-130	5		20
p-Chlorotoluene	93		97		70-130	4		20
1,2-Dibromo-3-chloropropane	104		99		70-130	5		20
Hexachlorobutadiene	108		105		70-130	3		20
Isopropylbenzene	94		94		70-130	0		20
p-Isopropyltoluene	96		101		70-130	5		20
Naphthalene	89		98		70-130	10		20
n-Propylbenzene	94		98		70-130	4		20
1,2,3-Trichlorobenzene	97		102		70-130	5		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG477040-1 WG477040-2								
1,2,4-Trichlorobenzene	99		104		70-130	5		20
1,3,5-Trimethylbenzene	90		96		70-130	6		20
1,2,4-Trimethylbenzene	94		98		70-130	4		20
Ethyl ether	98		103		70-130	5		20
Isopropyl Ether	90		98		70-130	9		20
Ethyl-Tert-Butyl-Ether	91		101		70-130	10		20
Tertiary-Amyl Methyl Ether	95		105		70-130	10		20
1,4-Dioxane	110		130		70-130	17		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
Toluene-d8	101		99		70-130
4-Bromofluorobenzene	100		102		70-130
Dibromofluoromethane	97		104		70-130

SEMIVOLATILES

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 02:53
Analytical Date:	07/07/11 10:26		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		15-110
Phenol-d6	30		15-110
Nitrobenzene-d5	61		30-130
2-Fluorobiphenyl	57		30-130
2,4,6-Tribromophenol	83		15-110
4-Terphenyl-d14	81		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 02:50
Analytical Date:	07/05/11 16:29		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	74		30-130
2-Fluorobiphenyl	68		30-130
2,4,6-Tribromophenol	70		15-110
4-Terphenyl-d14	91		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 02:53
Analytical Date:	07/07/11 10:51		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	63		30-130
2-Fluorobiphenyl	59		30-130
2,4,6-Tribromophenol	78		15-110
4-Terphenyl-d14	77		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 02:50
Analytical Date:	07/05/11 17:02		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		15-110
Phenol-d6	37		15-110
Nitrobenzene-d5	75		30-130
2-Fluorobiphenyl	67		30-130
2,4,6-Tribromophenol	69		15-110
4-Terphenyl-d14	87		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C	Extraction Date:	07/02/11 02:53
Analytical Date:	07/07/11 11:15		
Analyst:	RC		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
Acetophenone	ND		ug/l	5.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics - Westborough Lab						
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	38		15-110
Phenol-d6	27		15-110
Nitrobenzene-d5	60		30-130
2-Fluorobiphenyl	55		30-130
2,4,6-Tribromophenol	68		15-110
4-Terphenyl-d14	75		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	97,8270C-SIM	Extraction Date:	07/02/11 02:50
Analytical Date:	07/05/11 17:34		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Semivolatile Organics by SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	ND		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		15-110
Phenol-d6	34		15-110
Nitrobenzene-d5	76		30-130
2-Fluorobiphenyl	70		30-130
2,4,6-Tribromophenol	67		15-110
4-Terphenyl-d14	91		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C-SIM
Analytical Date: 07/05/11 14:53
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:50

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-03 Batch: WG476755-1					
Acenaphthene	ND		ug/l	0.20	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C-SIM
Analytical Date: 07/05/11 14:53
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:50

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics by SIM - Westborough Lab for sample(s): 01-03 Batch: WG476755-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		15-110
Phenol-d6	35		15-110
Nitrobenzene-d5	76		30-130
2-Fluorobiphenyl	66		30-130
2,4,6-Tribromophenol	65		15-110
4-Terphenyl-d14	85		30-130

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/07/11 09:13
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:53

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG476756-1					
Acenaphthene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Hexachlorobenzene	ND		ug/l	2.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
2-Chloronaphthalene	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
Fluoranthene	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorobutadiene	ND		ug/l	2.0	--
Hexachloroethane	ND		ug/l	2.0	--
Isophorone	ND		ug/l	5.0	--
Naphthalene	ND		ug/l	2.0	--
Nitrobenzene	ND		ug/l	2.0	--
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Benzo(a)anthracene	ND		ug/l	2.0	--
Benzo(a)pyrene	ND		ug/l	2.0	--
Benzo(b)fluoranthene	ND		ug/l	2.0	--
Benzo(k)fluoranthene	ND		ug/l	2.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/07/11 09:13
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:53

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG476756-1					
Chrysene	ND		ug/l	2.0	--
Acenaphthylene	ND		ug/l	2.0	--
Anthracene	ND		ug/l	2.0	--
Benzo(ghi)perylene	ND		ug/l	2.0	--
Fluorene	ND		ug/l	2.0	--
Phenanthrene	ND		ug/l	2.0	--
Dibenzo(a,h)anthracene	ND		ug/l	2.0	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	2.0	--
Pyrene	ND		ug/l	2.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
2-Methylnaphthalene	ND		ug/l	2.0	--
Acetophenone	ND		ug/l	5.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
2-Chlorophenol	ND		ug/l	2.0	--
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
Pentachlorophenol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270C
Analytical Date: 07/07/11 09:13
Analyst: RC

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:53

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01-03 Batch: WG476756-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		15-110
Phenol-d6	31		15-110
Nitrobenzene-d5	65		30-130
2-Fluorobiphenyl	59		30-130
2,4,6-Tribromophenol	80		15-110
4-Terphenyl-d14	79		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG476755-2 WG476755-3								
Acenaphthene	86		86		40-140	0		20
2-Chloronaphthalene	99		96		40-140	3		20
Fluoranthene	120		120		40-140	0		20
Hexachlorobutadiene	71		66		40-140	7		20
Naphthalene	88		85		40-140	3		20
Benzo(a)anthracene	104		106		40-140	2		20
Benzo(a)pyrene	90		94		40-140	4		20
Benzo(b)fluoranthene	109		111		40-140	2		20
Benzo(k)fluoranthene	102		107		40-140	5		20
Chrysene	95		96		40-140	1		20
Acenaphthylene	96		95		40-140	1		20
Anthracene	98		98		40-140	0		20
Benzo(ghi)perylene	83		91		40-140	9		20
Fluorene	99		102		40-140	3		20
Phenanthrene	96		96		40-140	0		20
Dibenzo(a,h)anthracene	92		99		40-140	7		20
Indeno(1,2,3-cd)Pyrene	87		94		40-140	8		20
Pyrene	111		111		40-140	0		20
2-Methylnaphthalene	88		84		40-140	5		20
Pentachlorophenol	124		123		30-130	1		20
Hexachlorobenzene	78		78		40-140	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics by SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG476755-2 WG476755-3								
Hexachloroethane	77		72		40-140	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57		59		15-110
Phenol-d6	41		42		15-110
Nitrobenzene-d5	85		84		30-130
2-Fluorobiphenyl	82		81		30-130
2,4,6-Tribromophenol	85		88		15-110
4-Terphenyl-d14	100		101		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG476756-2 WG476756-3								
Acenaphthene	71		73		40-140	3		20
1,2,4-Trichlorobenzene	62		60		40-140	3		20
Hexachlorobenzene	71		77		40-140	8		20
Bis(2-chloroethyl)ether	65		68		40-140	5		20
2-Chloronaphthalene	71		74		40-140	4		20
1,2-Dichlorobenzene	61		59		40-140	3		20
1,3-Dichlorobenzene	59		58		40-140	2		20
1,4-Dichlorobenzene	58		57		40-140	2		20
3,3'-Dichlorobenzidine	82		88		40-140	7		20
2,4-Dinitrotoluene	77		85		40-140	10		20
2,6-Dinitrotoluene	65		76		40-140	16		20
Azobenzene	84		89		40-140	6		20
Fluoranthene	76		82		40-140	8		20
4-Bromophenyl phenyl ether	73		78		40-140	7		20
Bis(2-chloroisopropyl)ether	42		44		40-140	5		20
Bis(2-chloroethoxy)methane	62		69		40-140	11		20
Hexachlorobutadiene	58		55		40-140	5		20
Hexachloroethane	62		59		40-140	5		20
Isophorone	59		68		40-140	14		20
Naphthalene	66		65		40-140	2		20
Nitrobenzene	68		68		40-140	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG476756-2 WG476756-3								
Bis(2-Ethylhexyl)phthalate	106		108		40-140	2		20
Butyl benzyl phthalate	81		89		40-140	9		20
Di-n-butylphthalate	91		96		40-140	5		20
Di-n-octylphthalate	99		104		40-140	5		20
Diethyl phthalate	79		85		40-140	7		20
Dimethyl phthalate	77		82		40-140	6		20
Benzo(a)anthracene	93		97		40-140	4		20
Benzo(a)pyrene	80		84		40-140	5		20
Benzo(b)fluoranthene	95		96		40-140	1		20
Benzo(k)fluoranthene	90		94		40-140	4		20
Chrysene	93		98		40-140	5		20
Acenaphthylene	62		69		40-140	11		20
Anthracene	85		88		40-140	3		20
Benzo(ghi)perylene	87		91		40-140	4		20
Fluorene	72		77		40-140	7		20
Phenanthrene	84		86		40-140	2		20
Dibenzo(a,h)anthracene	88		92		40-140	4		20
Indeno(1,2,3-cd)Pyrene	87		91		40-140	4		20
Pyrene	74		81		40-140	9		20
Aniline	**31**	Q	**32**	Q	40-140	3		20
4-Chloroaniline	47		49		40-140	4		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG476756-2 WG476756-3								
Dibenzofuran	75		76		40-140	1		20
2-Methylnaphthalene	63		64		40-140	2		20
Acetophenone	63		70		40-140	11		20
2,4,6-Trichlorophenol	62		69		30-130	11		20
2-Chlorophenol	62		66		30-130	6		20
2,4-Dichlorophenol	63		66		30-130	5		20
2,4-Dimethylphenol	58		70		30-130	19		20
2-Nitrophenol	59		63		30-130	7		20
4-Nitrophenol	38		44		30-130	15		20
2,4-Dinitrophenol	67		79		30-130	16		20
Pentachlorophenol	77		83		30-130	8		20
Phenol	33		36		30-130	9		20
2-Methylphenol	53		62		30-130	16		20
3-Methylphenol/4-Methylphenol	48		57		30-130	17		20
2,4,5-Trichlorophenol	65		72		30-130	10		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01-03 Batch: WG476756-2 WG476756-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	44		46		15-110
Phenol-d6	30		32		15-110
Nitrobenzene-d5	62		66		30-130
2-Fluorobiphenyl	60		62		30-130
2,4,6-Tribromophenol	90		89		15-110
4-Terphenyl-d14	77		83		30-130

PETROLEUM HYDROCARBONS

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/02/11 02:58
Analytical Date:	07/03/11 17:44		
Analyst:	KG		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	75		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/02/11 02:58
Analytical Date:	07/03/11 18:18		
Analyst:	KG		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	81		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015B(M)	Extraction Date:	07/02/11 02:58
Analytical Date:	07/03/11 20:31		
Analyst:	KG		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Quantitation - Westborough Lab						
TPH	ND		ug/l	500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	90		40-140

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015B(M)
Analytical Date: 07/03/11 16:03
Analyst: KG

Extraction Method: EPA 3510C
Extraction Date: 07/02/11 02:58

Parameter	Result	Qualifier	Units	RL	MDL
Petroleum Hydrocarbon Quantitation - Westborough Lab for sample(s): 01-03 Batch: WG476757-1					
TPH	ND		ug/l	500	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	88		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-03 Batch: WG476757-2								
TPH	81		-		40-140	-		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
o-Terphenyl	86				40-140

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Petroleum Hydrocarbon Quantitation - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG476757-3 QC Sample: L1109821-01 Client ID: MW-4						
TPH	ND	ND	ug/l	NC		40

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	75		80		40-140

METALS

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109821
Project Number:	6690	**Report Date:**	07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-01	Date Collected:	06/30/11 12:15
Client ID:	MW-4	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	0.0036		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0006		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0018		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 16:00	07/05/11 15:47	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0008		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.001		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0118		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 04:44	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109821
Project Number:	6690	**Report Date:**	07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-02	Date Collected:	06/30/11 13:30
Client ID:	MW-5	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0100	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0055		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0124		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 16:00	07/05/11 15:49	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0064		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.024		mg/l	0.010	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0050	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM
Zinc, Dissolved	ND		mg/l	0.0500	--	10	07/03/11 12:15	07/06/11 04:50	EPA 3005A	97,6020A	BM

Project Name:	SOUTH TERMINAL	**Lab Number:**	L1109821
Project Number:	6690	**Report Date:**	07/07/11

SAMPLE RESULTS

Lab ID:	L1109821-03	Date Collected:	06/30/11 14:50
Client ID:	MW-3	Date Received:	07/01/11
Sample Location:	NEW BEDFORD, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Copper, Dissolved	0.0024		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 16:00	07/05/11 15:51	EPA 7470A	97,7470A	AH
Nickel, Dissolved	0.0021		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Selenium, Dissolved	0.002		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM
Zinc, Dissolved	0.0116		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 04:56	EPA 3005A	97,6020A	BM

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab for sample(s): 01-03 Batch: WG476943-1										
Antimony, Dissolved	ND		mg/l	0.0010	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Beryllium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Chromium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Copper, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Lead, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Nickel, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Selenium, Dissolved	ND		mg/l	0.001	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Silver, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Thallium, Dissolved	ND		mg/l	0.0005	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM
Zinc, Dissolved	ND		mg/l	0.0050	--	1	07/03/11 12:15	07/06/11 01:49	97,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab for sample(s): 01-03 Batch: WG477020-1										
Mercury, Dissolved	ND		mg/l	0.0002	--	1	07/03/11 16:00	07/05/11 15:30	97,7470A	AH

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG476943-2 WG476943-3								
Antimony, Dissolved	94		94		80-120	0		20
Arsenic, Dissolved	103		101		80-120	2		20
Beryllium, Dissolved	95		94		80-120	1		20
Cadmium, Dissolved	103		104		80-120	1		20
Chromium, Dissolved	92		90		80-120	2		20
Copper, Dissolved	96		95		80-120	1		20
Lead, Dissolved	100		101		80-120	1		20
Nickel, Dissolved	95		96		80-120	1		20
Selenium, Dissolved	102		102		80-120	0		20
Silver, Dissolved	92		91		80-120	1		20
Thallium, Dissolved	94		93		80-120	1		20
Zinc, Dissolved	102		99		80-120	3		20
MCP Dissolved Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG477020-2 WG477020-3								
Mercury, Dissolved	86		85		80-120	1		20

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1109821-01A	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-01B	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-01C	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-01D	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-01E	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)
L1109821-01F	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)
L1109821-01G	Plastic 500ml HNO3 preserved	A	<2	3.7	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109821-02A	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-02B	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-02C	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-02D	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-02E	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)
L1109821-02F	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL
Project Number: 6690

Lab Number: L1109821
Report Date: 07/07/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1109821-02G	Plastic 500ml HNO3 preserved	A	<2	3.7	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109821-03A	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-03B	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1109821-03C	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-03D	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	MCP-8270-10(7),MCP-8270SIM-10(7)
L1109821-03E	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)
L1109821-03F	Amber 1000ml unpreserved	A	7	3.7	Y	Absent	TPH-DRO-D(7)
L1109821-03G	Plastic 500ml HNO3 preserved	A	<2	3.7	Y	Absent	MCP-BE-6020S-10(180),MCP-PB-6020S-10(180),MCP-7470S-10(28),MCP-SB-6020S-10(180),MCP-CU-6020S-10(180),MCP-TL-6020S-10(180),MCP-CD-6020S-10(180),MCP-SE-6020S-10(180),MCP-AS-6020S-10(180),MCP-NI-6020S-10(180),MCP-AG-6020S-10(180),MCP-ZN-6020S-10(180),MCP-CR-6020S-10(180)
L1109821-04A	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)

*Values in parentheses indicate holding time in days

Project Name: SOUTH TERMINAL **Lab Number:** L1109821

Project Number: 6690 **Report Date:** 07/07/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL
Project Number: 6690
Lab Number: L1109821
Report Date: 07/07/11

Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: SOUTH TERMINAL **Lab Number:** L1109821
Project Number: 6690 **Report Date:** 07/07/11

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised June 7, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, EPA 200.7, 200.8, 245.1. Organic Parameters: 608, 624, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (*Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, EPA 6010B, 7196A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270C-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8082, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 7196A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8081A, 8082, 8151A, 8330, 8260B, 8270C, 8270C-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2)

Non-Potable Water (Inorganic Parameters: EPA 1312. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B,

3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/1/11

ALPHA Job #: L1109821

Client Information

Client: APEX Co, LLC

Address: 184 High St. Ste 502 Boston, MA 02110

Phone: 617-728-0070

Fax: 617-728-0080

Email: cmyers@apexcos.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: South Terminal

Project Location: New Bedford

Project #: 6690

Project Manager: Chet Myers

ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: 7/6/11 Time:

Report Information - Data Deliverables

☒ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MA MCP Criteria: MA MCP GW STANDARDS

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

SAMPLE HANDLING

Filtration: ☒ Done ~~☒ Not needed~~ GRO ☐ Lab to do

Preservation: ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)		Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	13 PRIORITY POLLUTANT METALS 6020A/7471	TPH EPA 8015	SVOCs 8270C	VOCs 8260	Sample Specific Comments	TOTAL # BOTTLES
G9821	1	MW-4	6/30/11	12:15	GW	SJH	X	X	X	X		7
	2	MW-5	6/30/11	13:30	GW	GJH	X	X	X	X		7
	3	MW-3	6/30/11	14:50	GW	GJH	X	X	X	X		7
	4	TRIP	6/23/11			KR				X		1

Container Type	P	A	A	V											
Preservative	A	A	A	B											

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/1/11 9:45	[signature]	7/1/11 12:10
[signature]	7/1/11 1210	[signature]	7/1/11 1710

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:07071120:12

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109821

Instrument ID: Jack.i Calibration Date: 04-JUL-2011 Time: 16:20

Lab File ID: 0704N01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 ccal Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.51464	.41327	.1	20	20	
chloromethane	.72395	.57747	.1	20	20	F
vinyl chloride	.64051	.57529	.1	10	20	
bromomethane	.35522	.37719	.1	-6	20	
chloroethane	.36316	.32549	.1	10	20	
trichlorofluoromethane	.76783	.75957	.1	1	20	
ethyl ether	.2548	.24893	.05	2	20	
1,1,-dichloroethene	.52577	.49254	.1	6	20	
carbon disulfide	1.4189	1.2984	.1	8	20	
freon-113	.50328	.51317	.1	-2	20	
iodomethane	.76333	.73127	.05	4	20	
acrolien	.00529	.0439	.05	-730	20	F
methylene chloride	.58411	.54588	.1	7	20	
acetone	100	76.153	.1	24	20	F
trans-1,2-dichloroethene	.58756	.55865	.1	5	20	
methyl acetate	.24556	.23853	.1	3	20	
methyl tert butyl ether	1.3085	1.1323	.1	13	20	
tert butyl alcohol	.04112	.03641	.05	11	20	F
Diisopropyl Ether	1.7281	1.5580	.01	10	20	
1,1-dichloroethane	1.0440	.95477	.2	9	20	
Halothane	.45395	.41714	.05	8	20	
Ethyl-Tert-Butyl-Ether	1.5709	1.4269	.05	9	20	
vinyl acetate	.91019	.81124	.05	11	20	
cis-1,2-dichloroethene	.6364	.61562	.1	3	20	
2,2-dichloropropane	.8103	.80814	.05	0	20	
bromochloromethane	.29365	.27426	.05	7	20	
chloroform	.97072	.90921	.2	6	20	
carbontetrachloride	.74515	.72031	.1	3	20	
ethyl acetate	.35091	.33303	.05	5	20	
tetrahydrofuran	.11977	.11322	.05	5	20	
1,1,1-trichloroethane	.85602	.82349	.1	4	20	
1,1-dichloropropene	.82562	.75124	.05	9	20	
2-butanone	.15979	.14637	.1	8	20	
benzene	2.4862	2.3549	.5	5	20	
Tertiary-Amyl Methyl Ether	1.3512	1.2815	.05	5	20	
1,2-dichloroethane	.60644	.56187	.1	7	20	
trichloroethene	.6214	.60543	.2	3	20	
dibromomethane	.29164	.27565	.05	5	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109821

Instrument ID: Jack.i Calibration Date: 04-JUL-2011 Time: 16:20

Lab File ID: 0704N01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 ccal Init. Calib. Times : 07:57 13:55

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D	
1,2-dichloropropane	.61786	.56033	.1	9	20	
bromodichloromethane	.83554	.71765	.2	14	20	
1,4-dioxane	.00293	.00323	.05	-10	20	F
2-chloroethylvinyl ether	.2818	.27771	.05	1	20	
cis-1,3-dichloropropene	.90971	.83329	.2	8	20	
toluene	2.0650	1.9551	.4	5	20	
tetrachloroethene	.96842	.98215	.2	-1	20	
4-methyl-2-pentanone	.14621	.13107	.1	10	20	
trans-1,3-dichloropropene	.98043	.93293	.1	5	20	
1,1,2-trichloroethane	.48814	.44598	.1	9	20	
chlorodibromomethane	.68897	.60976	.1	11	20	
1,3-dichloropropane	.99242	.90602	.05	9	20	
1,2-dibromoethane	.5844	.54784	.1	6	20	
2-hexanone	.30316	.26781	.1	12	20	
chlorobenzene	2.2881	2.1007	.5	8	20	
ethyl benzene	3.8858	3.7716	.1	3	20	
1,1,1,2-tetrachloroethane	.77094	.75732	.05	2	20	
p/m xylene	1.5531	1.4989	.1	3	20	
o xylene	1.5037	1.4721	.3	2	20	
bromoform	.73129	.6501	.1	11	20	
styrene	2.4717	2.3820	.3	4	20	
isopropylbenzene	3.8629	3.6275	.1	6	20	
bromobenzene	1.7372	1.6652	.05	4	20	
n-propylbenzene	7.3574	6.9370	.05	6	20	
1,1,2,2,-tetrachloroethane	1.1510	1.0373	.3	10	20	
4-ethyltoluene	6.6346	5.9173	.05	11	20	
2-chlorotoluene	5.0241	4.5929	.05	9	20	
1,2,3-trichloropropane	.84982	.7911	.05	7	20	
1,3,5-trimethybenzene	5.0630	4.5717	.05	10	20	
trans-1,4-dichloro-2-butene	.28106	.2745	.05	2	20	
4-chorotoluene	4.4986	4.1991	.05	7	20	
1,2,4-trimethylbenzene	5.1280	4.8462	.05	5	20	
sec-butylbenzene	6.1442	5.7236	.01	7	20	
tert-butylbenzene	4.4234	4.1122	.05	7	20	
p-isopropyltoluene	5.0070	4.8147	.05	4	20	
1,3-dichlorobenzene	3.0830	2.8397	.6	8	20	
1,4-dichlorobenzene	3.1175	2.9199	.5	6	20	
p-diethylbenzene	3.0895	2.7521	.05	11	20	

FORM VII MCP-8260-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1109821

Instrument ID: Jack.i Calibration Date: 04-JUL-2011 Time: 16:20

Lab File ID: 0704N01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 ccal Init. Calib. Times : 07:57 13:55

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
n-butylbenzene	4.0357	3.7256	.05	8	20
1,2-dichlorobenzene	2.8281	2.6101	.4	8	20
1,2,4,5-tetramethylbenzene	4.3658	3.7087	.05	15	20
1,2-dibromo-3-chloropropane	.15112	.15705	.05	-4	20
1,3,5-trichlorobenzene	.77501	.73572	.05	5	20
1,2,4-trichlorobenzene	1.3925	1.3821	.2	1	20
hexachlorobutadiene	.58852	.6367	.05	-8	20
naphthalene	2.7390	2.4391	.05	11	20
1,2,3-trichlorobenzene	1.1195	1.0894	.05	3	20
dibromofluoromethane	.2378	.23086	.05	3	20
1,2-dichloroethane-d4	.22894	.22704	.05	1	20
toluene-d8	1.2709	1.2841	.01	-1	20
4-bromofluorobenzene	.78386	.78705	.05	0	20

FORM VII MCP-8260-10

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: 6690
Report Number: 20993
Date Received: 05/12/11
Date Reported: 05/27/11

Project: South Terminal.6690

Attached please find results for analyses performed on samples received on 05/12/11 at 1000.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent, except where noted.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

EnviroSystems, Incorporated

Authorized Signature

Date 5/27/11

Attachment
Report

Lab Number:	20993-001
Sample Designation:	B-3/MW-1
Date Sampled:	05/02/11 1030
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	96
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0052
Aroclor 1221	U	0.0052
Aroclor 1232	U	0.0052
Aroclor 1248	U	0.0052
Aroclor 1254	0.03	0.0052
Aroclor 1260	U	0.0052

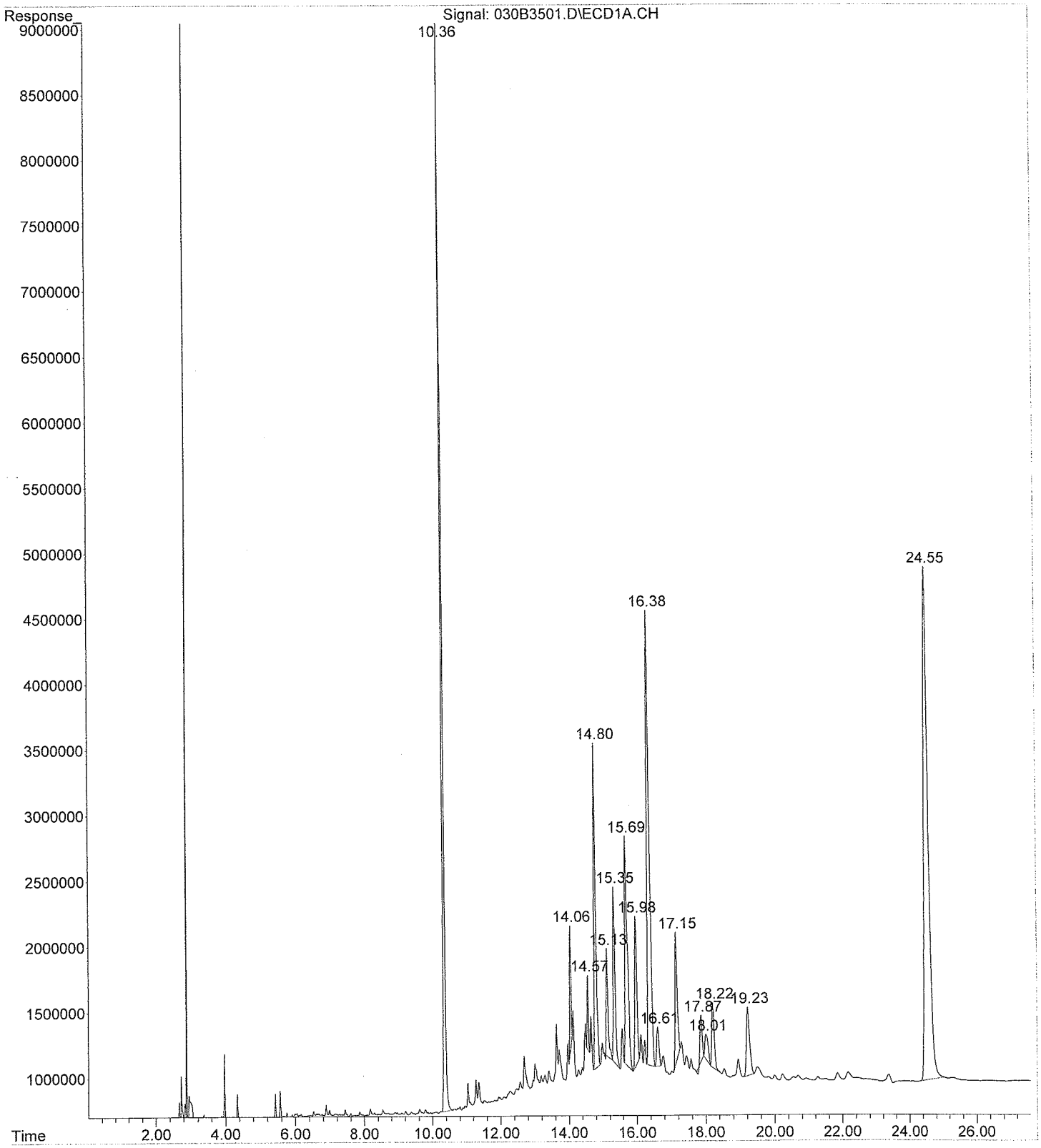
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	76	30 - 150
decachlorobiphenyl	84	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052511A\030B3501.D
Operator : rdf
Acquired : 26 May 2011 6:48 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-001 FV 1.0
Misc Info :
Vial Number: 30



Lab Number:	20993-002
Sample Designation:	B-4/MW-2
Date Sampled:	05/03/11 1000
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	93
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)		Reporting Limit (ug/g)
Aroclor 1016\1242	U		0.0054
Aroclor 1221	U		0.0054
Aroclor 1232	U		0.0054
Aroclor 1248	U		0.0054
Aroclor 1254	0.48		0.0054
Aroclor 1260	0.013	J	0.0054

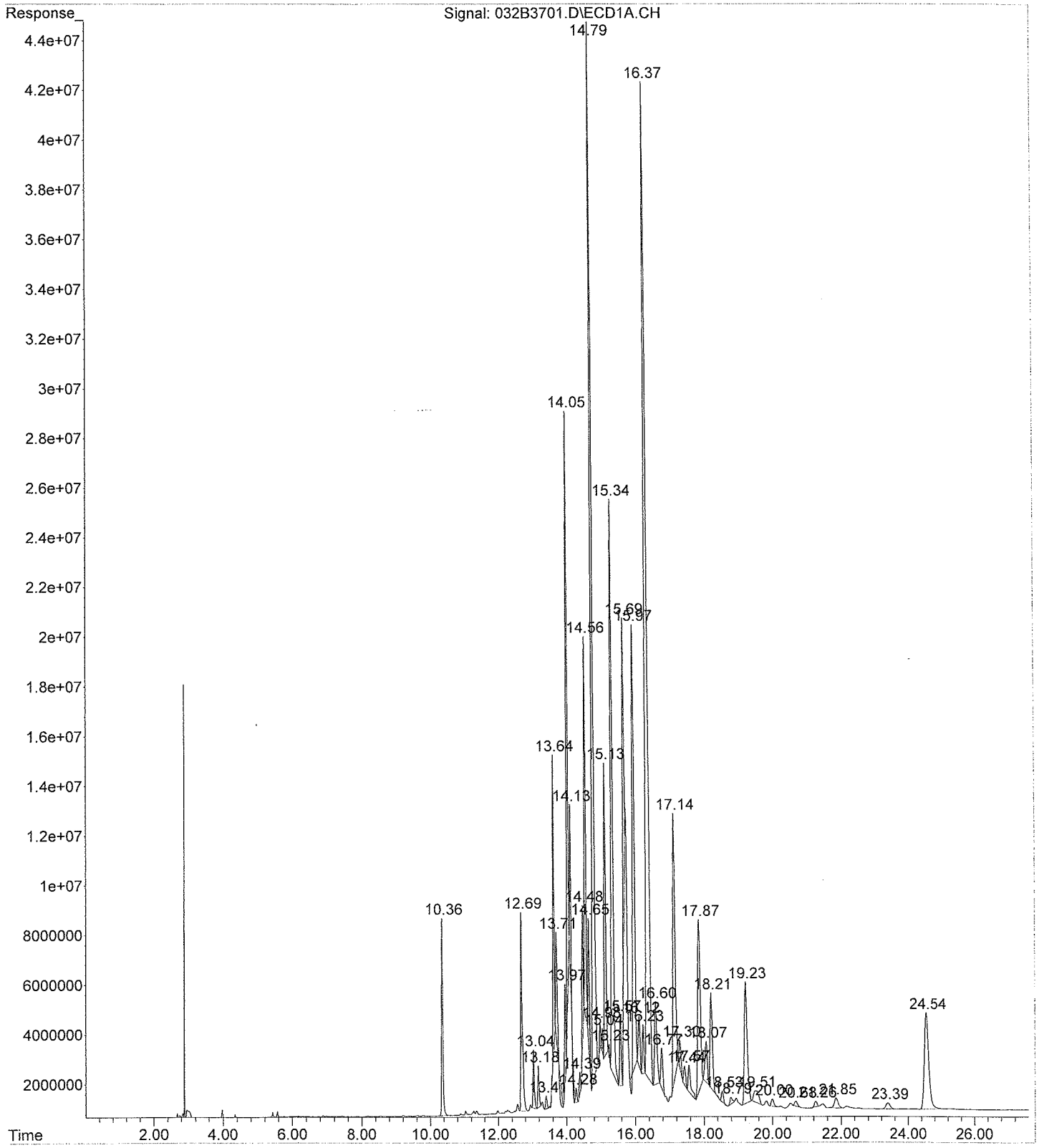
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	74	30 - 150
decachlorobiphenyl	82	30 - 150

U = Below quantitation limit
J = Estimated value. This analyte may have been affected by other aroclors in the sample.

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052511A\032B3701.D
Operator : rdf
Acquired : 26 May 2011 8:02 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-002 FV 1.0
Misc Info :
Vial Number: 32



Lab Number:	20993-003
Sample Designation:	B-5/MW-3
Date Sampled:	05/04/11 1110
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	U	0.0057
Aroclor 1260	U	0.0057

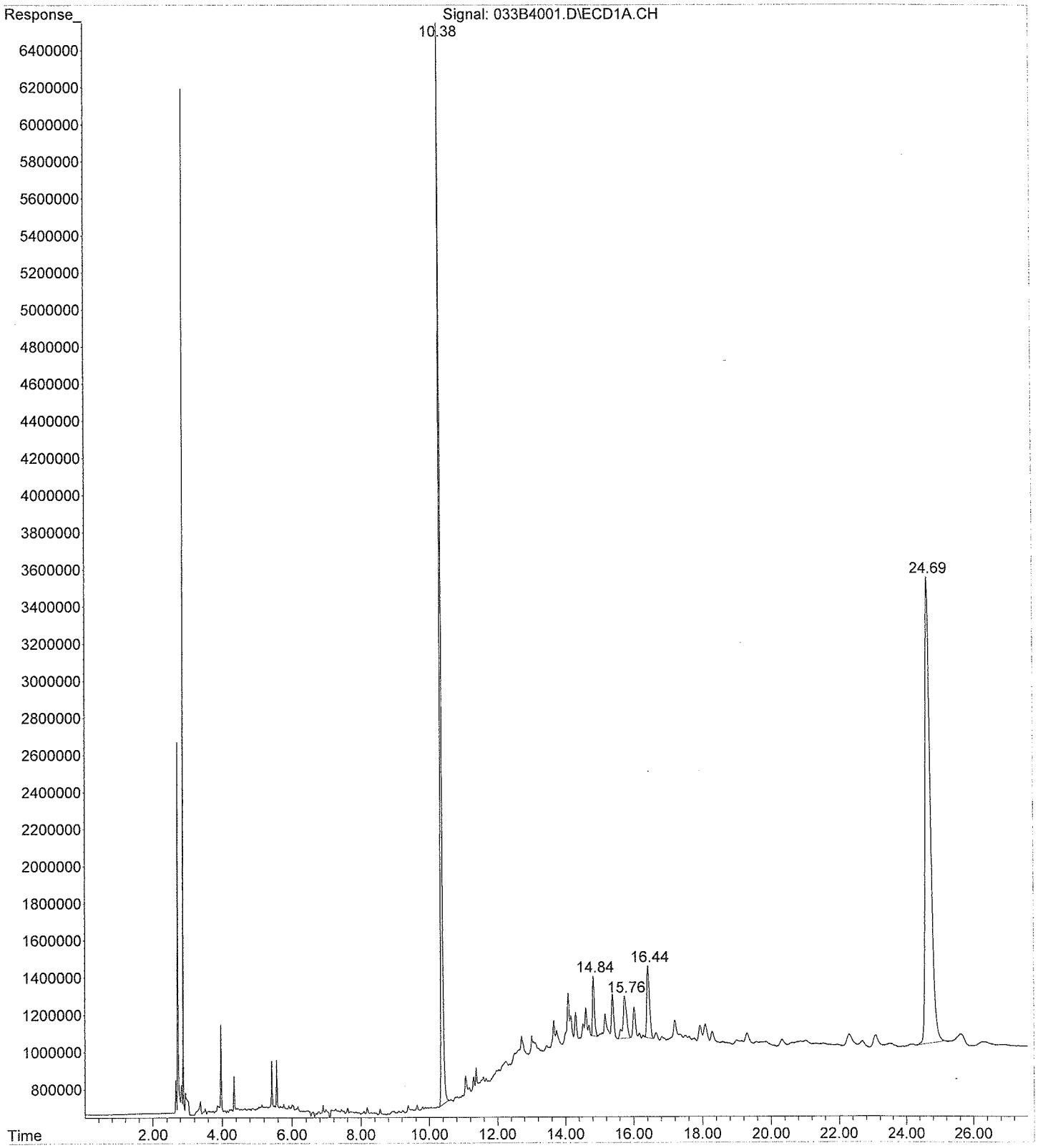
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	58	30 - 150
decachlorobiphenyl	62	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052511A\033B4001.D
Operator : rdf
Acquired : 26 May 2011 9:52 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-003 FV 1.0
Misc Info :
Vial Number: 33



Lab Number:	20993-004
Sample Designation:	B-6/MW-4
Date Sampled:	05/05/11 0945
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	0.04	0.0057
Aroclor 1260	U	0.0057

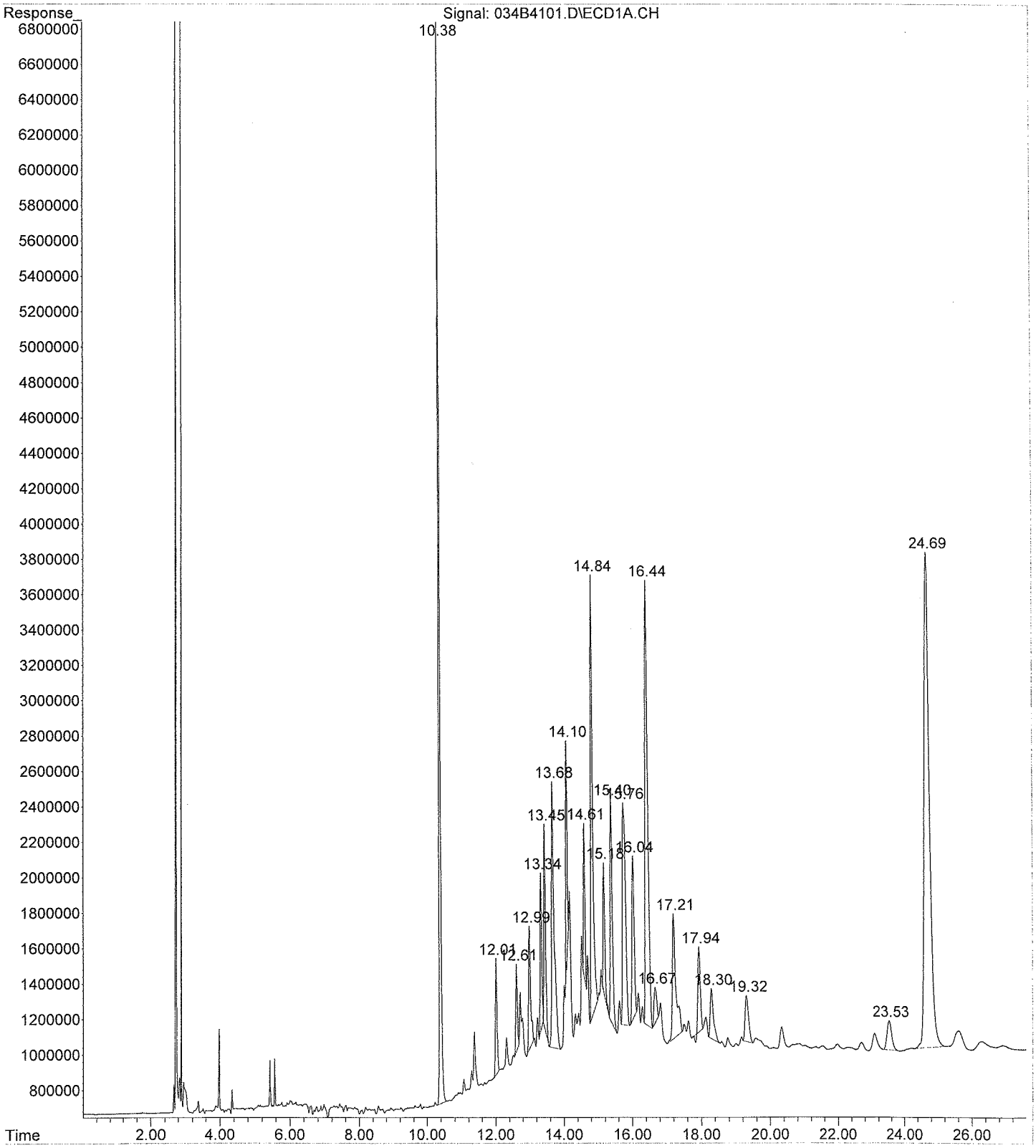
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	60	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052511A\034B4101.D
Operator : rdf
Acquired : 26 May 2011 10:29 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-004 FV 1.0
Misc Info :
Vial Number: 34



Lab Number:	20993-005
Sample Designation:	B-7
Date Sampled:	05/06/11 0930
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	94
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0053
Aroclor 1221	U	0.0053
Aroclor 1232	U	0.0053
Aroclor 1248	U	0.0053
Aroclor 1254	0.06	0.0053
Aroclor 1260	U	0.0053

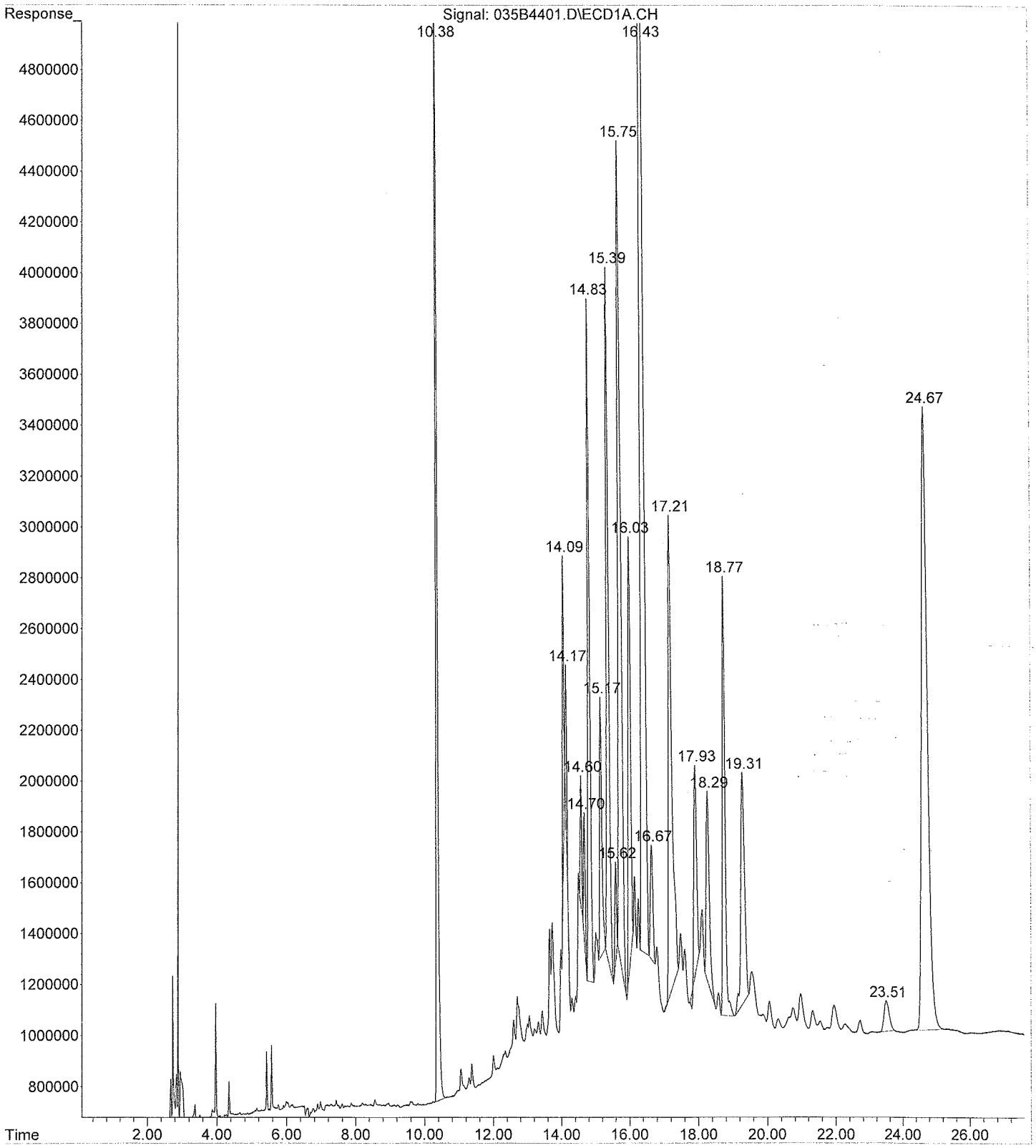
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	73	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : C:\DATA2\052511A\035B4401.D
Operator : rdf
Acquired : 26 May 2011 12:20 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-005 FV 1.0
Misc Info :
Vial Number: 35



Lab Number:	20993-006
Sample Designation:	B-8/MW-5
Date Sampled:	05/06/11 1300
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	0.02	0.0057
Aroclor 1260	U	0.0057

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	55	30 - 150
decachlorobiphenyl	66	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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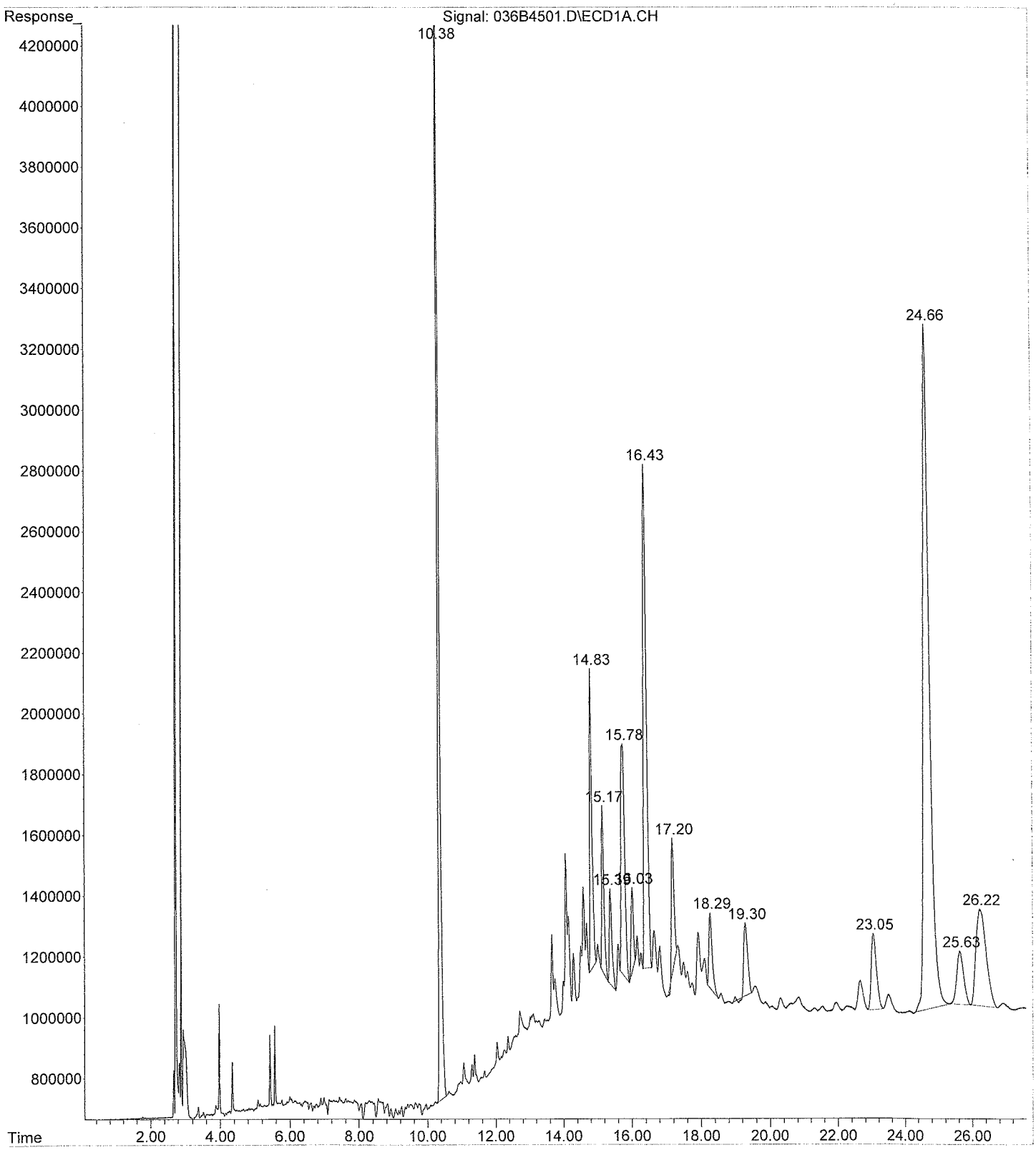
File : C:\DATA2\052511A\036B4501.D
Operator : rdf
Acquired : 26 May 2011 12:57 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-006 FV 1.0
Misc Info :
Vial Number: 36



Lab Number:	20993-007
Sample Designation:	B-9/MW-6
Date Sampled:	05/09/11 1100
Date Extracted:	05/17/11
Date Analyzed:	05/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	94
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0053
Aroclor 1221	U	0.0053
Aroclor 1232	U	0.0053
Aroclor 1248	U	0.0053
Aroclor 1254	0.02	0.0053
Aroclor 1260	U	0.0053

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	74	30 - 150
decachlorobiphenyl	70	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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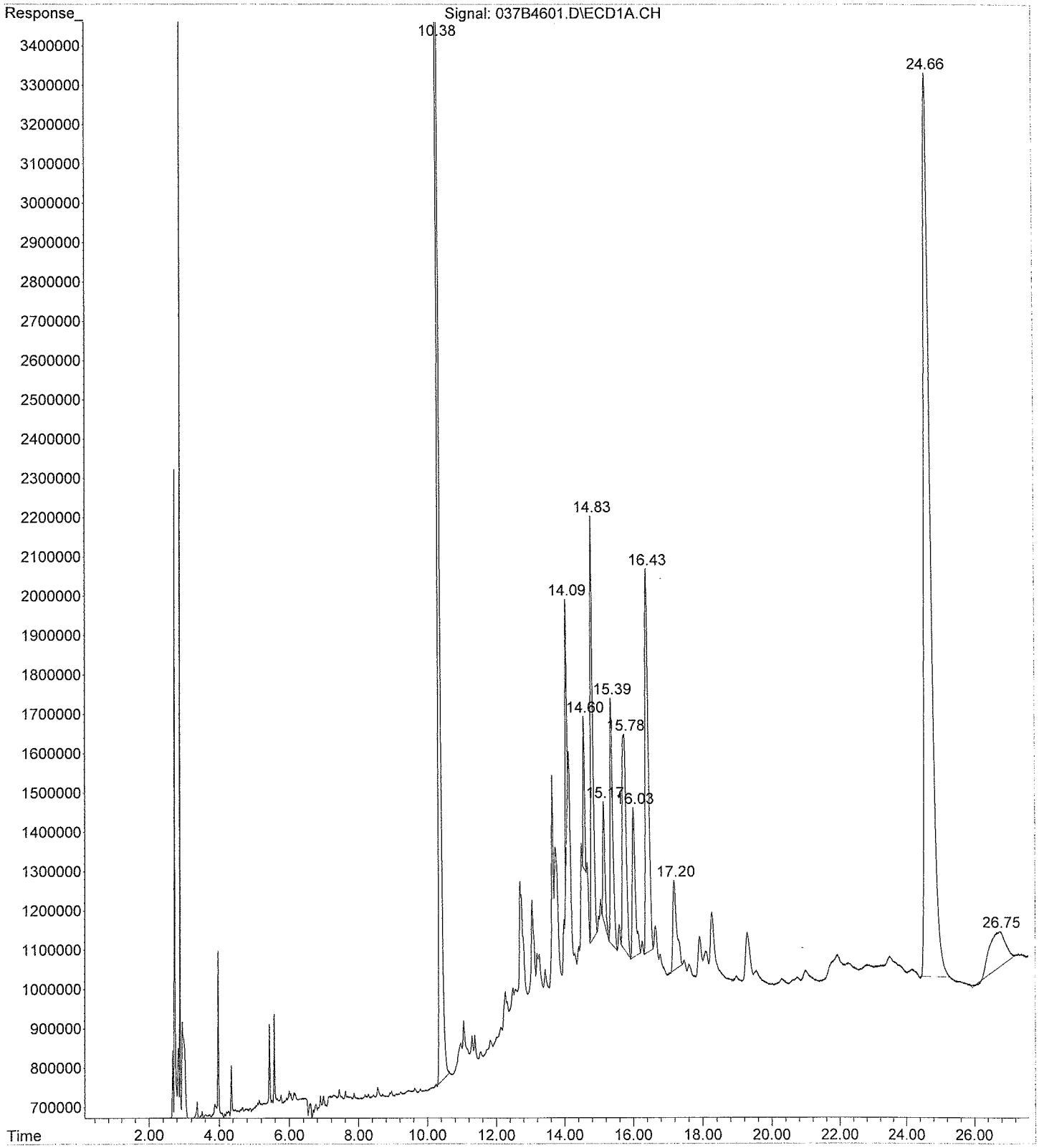
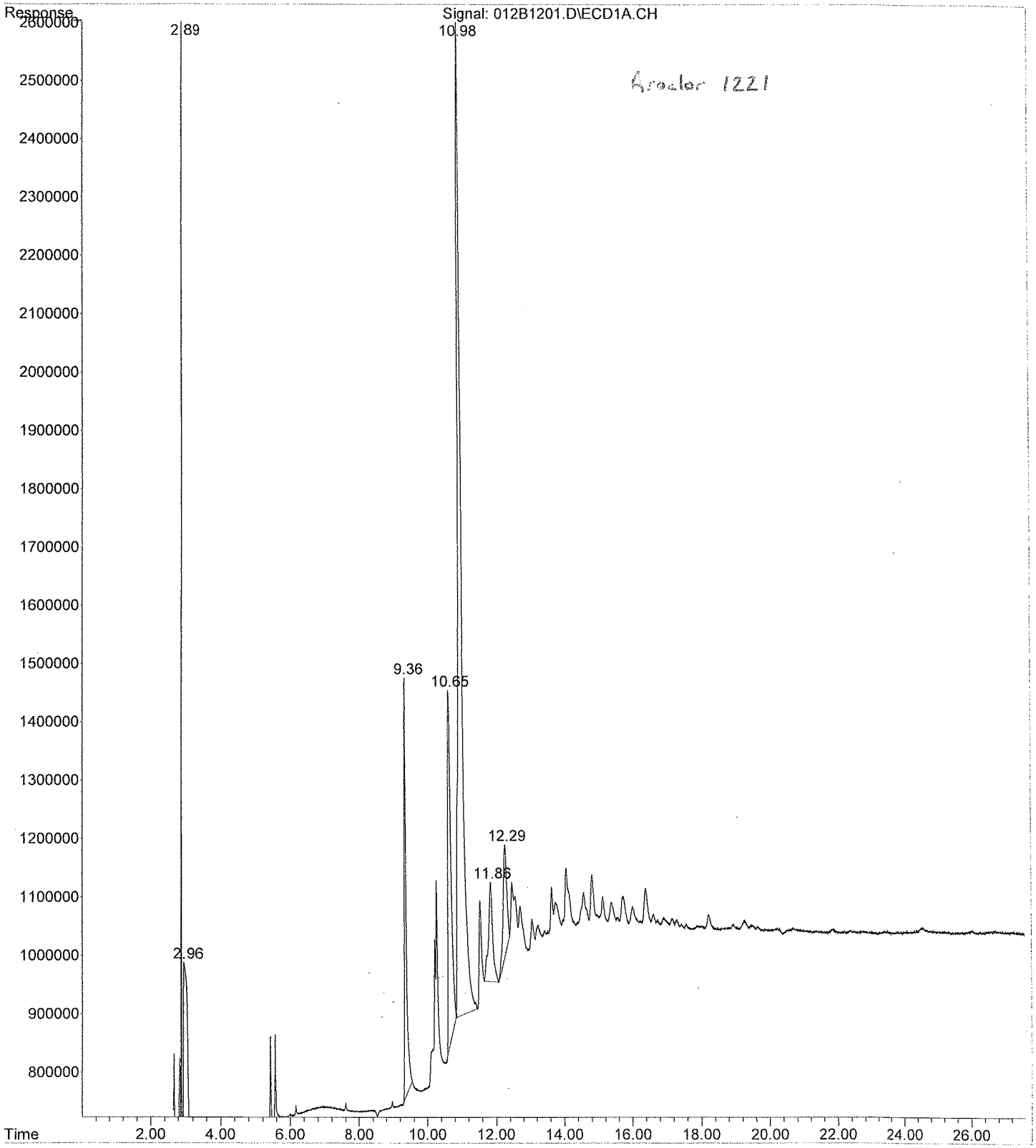
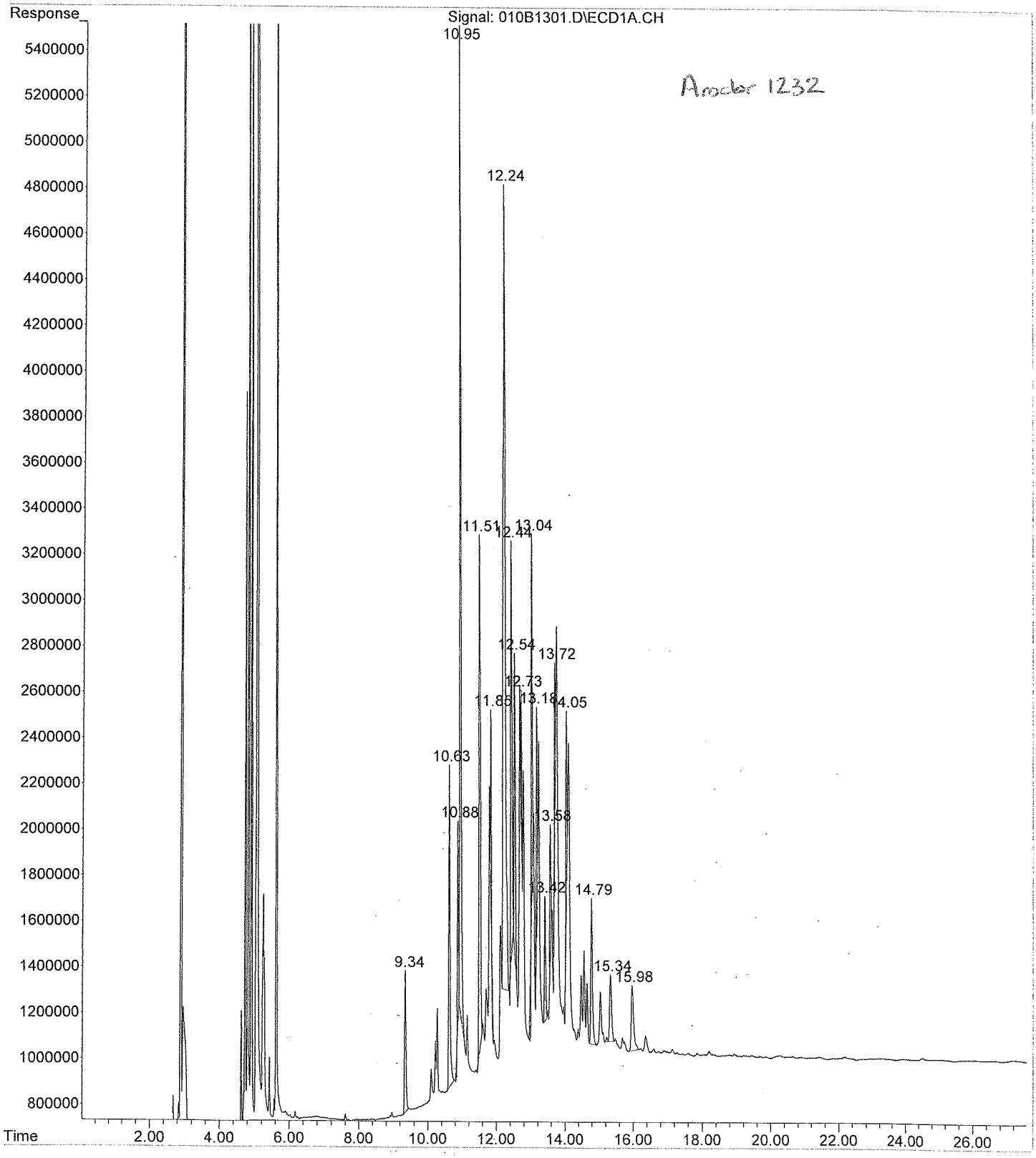
File : C:\DATA2\052511A\037B4601.D
Operator : rdf
Acquired : 26 May 2011 1:33 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 20993-007 FV 1.0
Misc Info :
Vial Number: 37



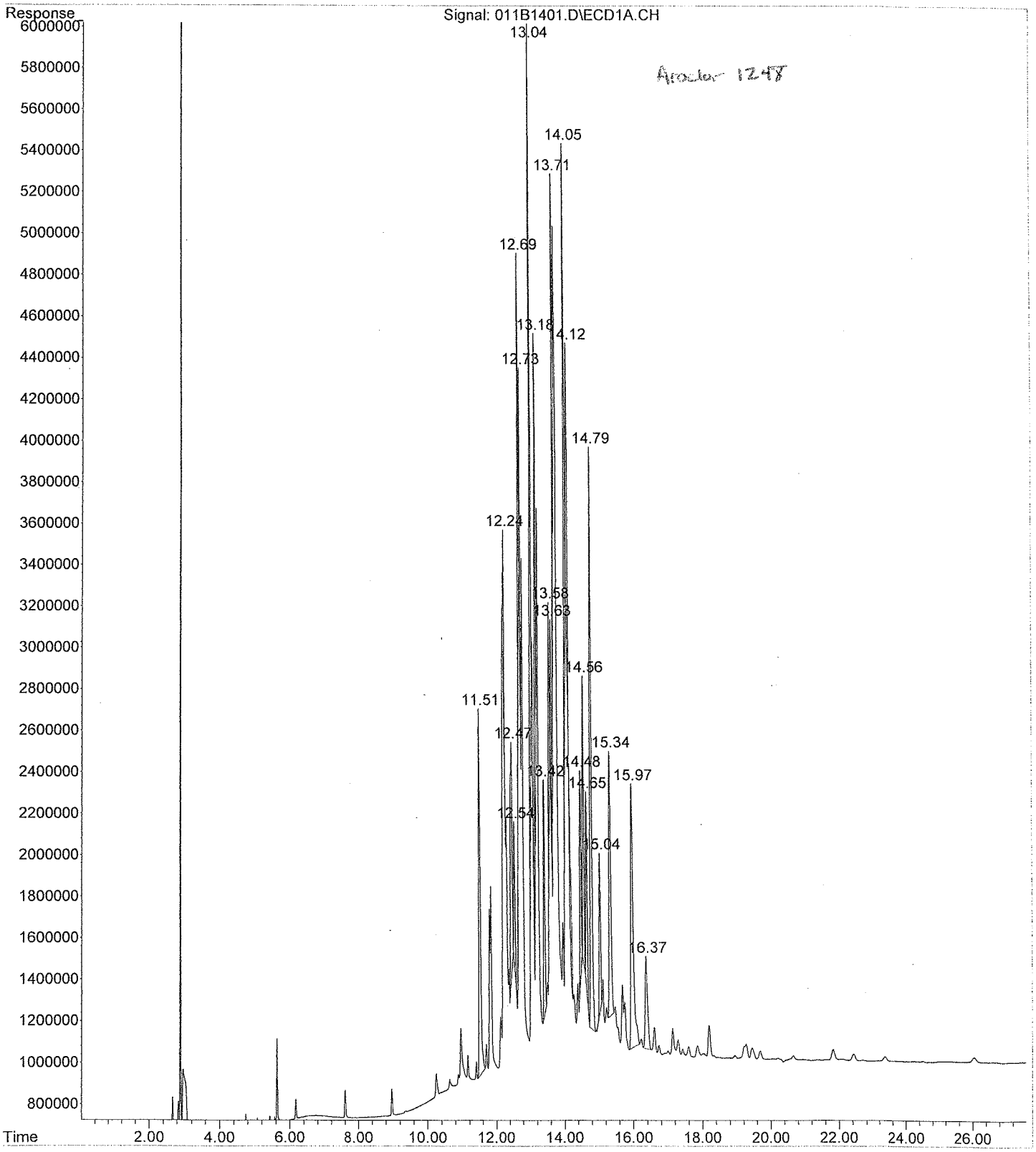
File : C:\DATA2\052511A\012B1201.D
Operator : rdf
Acquired : 25 May 2011 4:42 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1221 1000
Misc Info :
Vial Number: 12



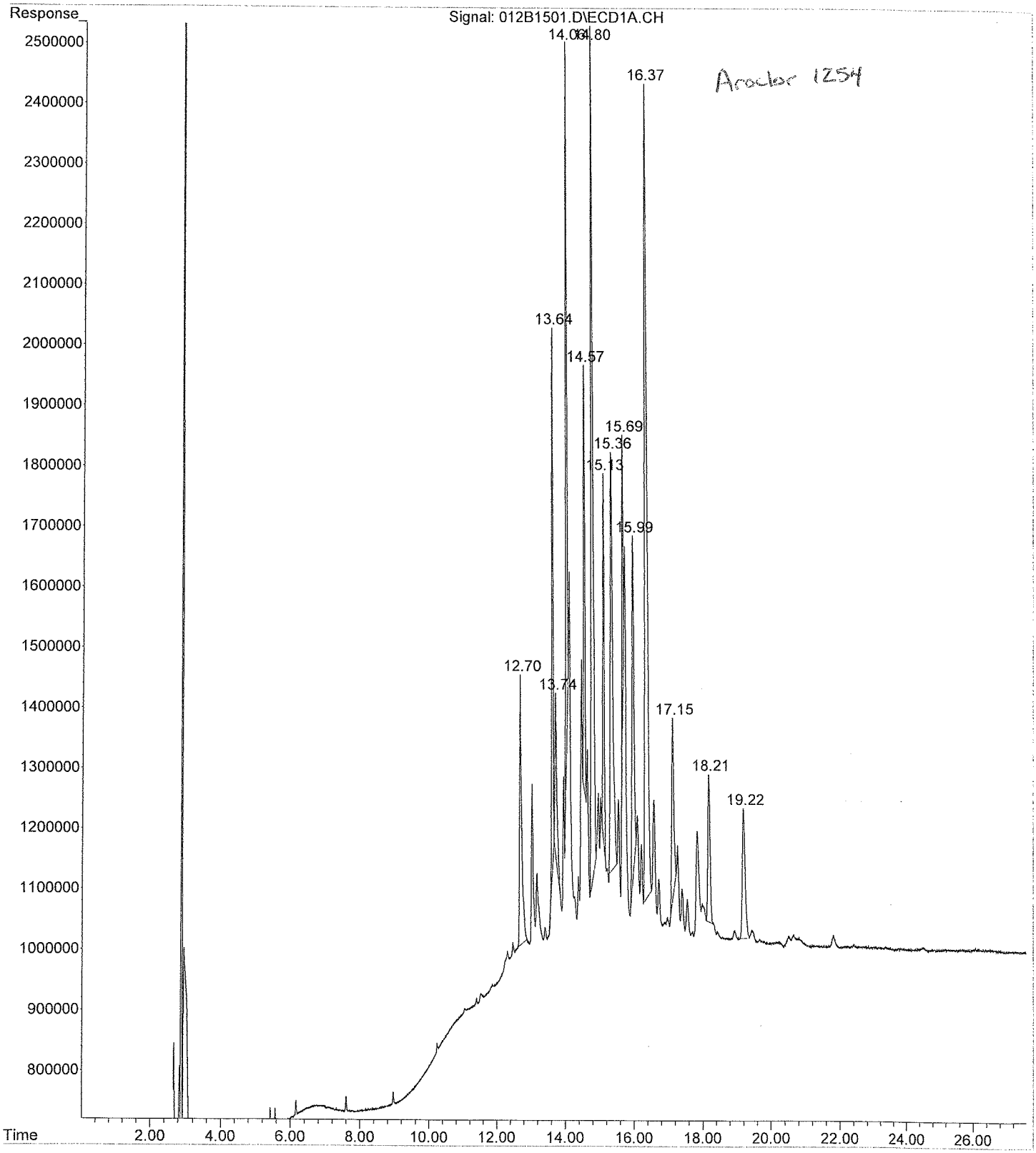
File : C:\DATA2\052311A\010B1301.D
Operator : rdf
Acquired : 23 May 2011 4:43 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1232.1000
Misc Info :
Vial Number: 10



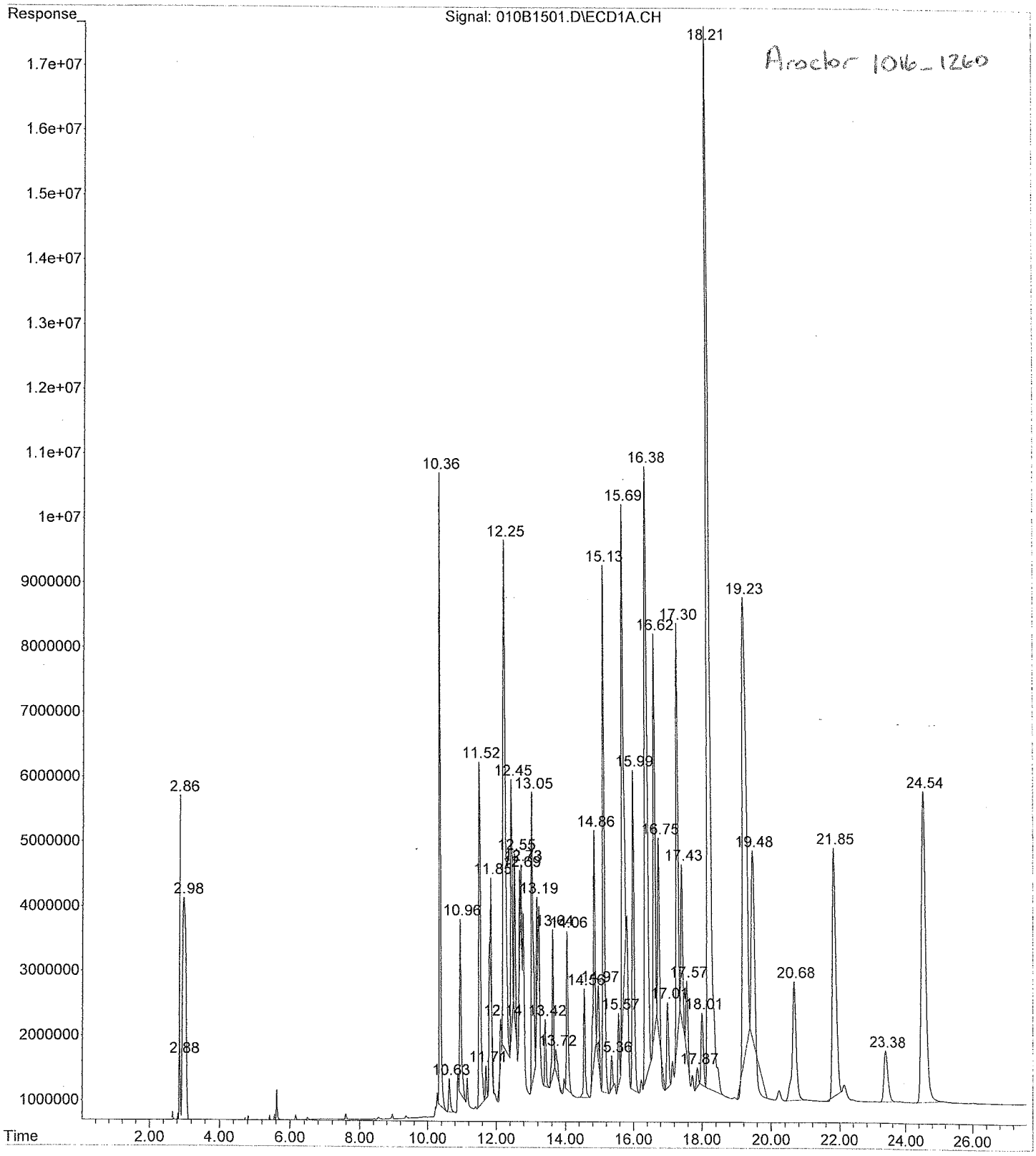
File : C:\DATA2\052311A\011B1401.D
Operator : rdf
Acquired : 23 May 2011 5:20 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1248.1000
Misc Info :
Vial Number: 11



File : C:\DATA2\052311A\012B1501.D
Operator : rdf
Acquired : 23 May 2011 5:57 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1254.1000
Misc Info :
Vial Number: 12



File : C:\DATA2\052511A\010B1501.D
Operator : rdf
Acquired : 25 May 2011 6:32 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1016-1260 1000
Misc Info :
Vial Number: 10



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20993		
SDG No:			
Project:	South Terminal.6690		
Delivered via:	ESI		
Date and Time Received:	05/12/11 1000	Date and TIme Logged into Lab:	05/12/11 1400
Recieved By:	DW	Logged into Lab by:	LCB LCB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:		Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
B-3/MW-1	20993-001	S	ARO8082	9oz G	4C	Yes
B-4/MW-2	20993-002	S	ARO8082	9oz G	4C	Yes
B-5/MW-3	20993-003	S	ARO8082	9oz G	4C	Yes
B-6/MW-4	20993-004	S	ARO8082	9oz G	4C	Yes
B-7	20993-005	S	ARO8082	9oz G	4C	Yes
B-8/MW-5	20993-006	S	ARO8082	9oz G	4C	Yes
B-9/MW-6	20993-007	S	ARO8082	9oz G	4C	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20993

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: Greg Dowd	Project Name: South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 189 High St. Ste 500	Project Number: 6690	
Invoice to: Chet Myers	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-0010	Fax: (617) 728-0080	email: cmyers@apexcs.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	B-3/MW-1	5/2/11	10:30	GAD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
-002	B-4/MW-2	5/3/11	10:00	GAD	C	200	G	N/A	S	N	
-003	B-5/MW-3	5/4/11	11:10	GAD	C	200	G	N/A	S	N	
-004	B-6/MW-4	5/5/11	9:45	GAD	C	200	G	N/A	S	N	
-005	B-7	5/6/11	9:30	GAD	C	200	G	N/A	S	N	
-006	B-8/MW-5	5/6/11	13:00	GAD	C	200	G	N/A	S	N	
-007	B-9/MW-6	5/9/11	11:00	GAD	C	200	G	N/A	S	N	

22/22

Relinquished By: [signature]	Date: 5/12/11 Time: 10:00	Received By: [signature]	Date: 5/12/11 Time: 10:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No:

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: .
Report Number: 21163
Date Received: 06/29 - 07/01/11
Date Reported: 07/06/11

Project: South Terminal.New Bedford. 6690

Attached please find results for analyses performed on samples received on 06/29/11 thru 07/01/11.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Russell S. Lake

Date 7/6/11

Authorized
Signature

Attachment
Report

Lab Number:	21163-001
Sample Designation:	MW-1
Date Sampled:	06/28/11 1235
Date Extracted:	06/30/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	115	30 - 150

U = Below quantitation limit

ESI

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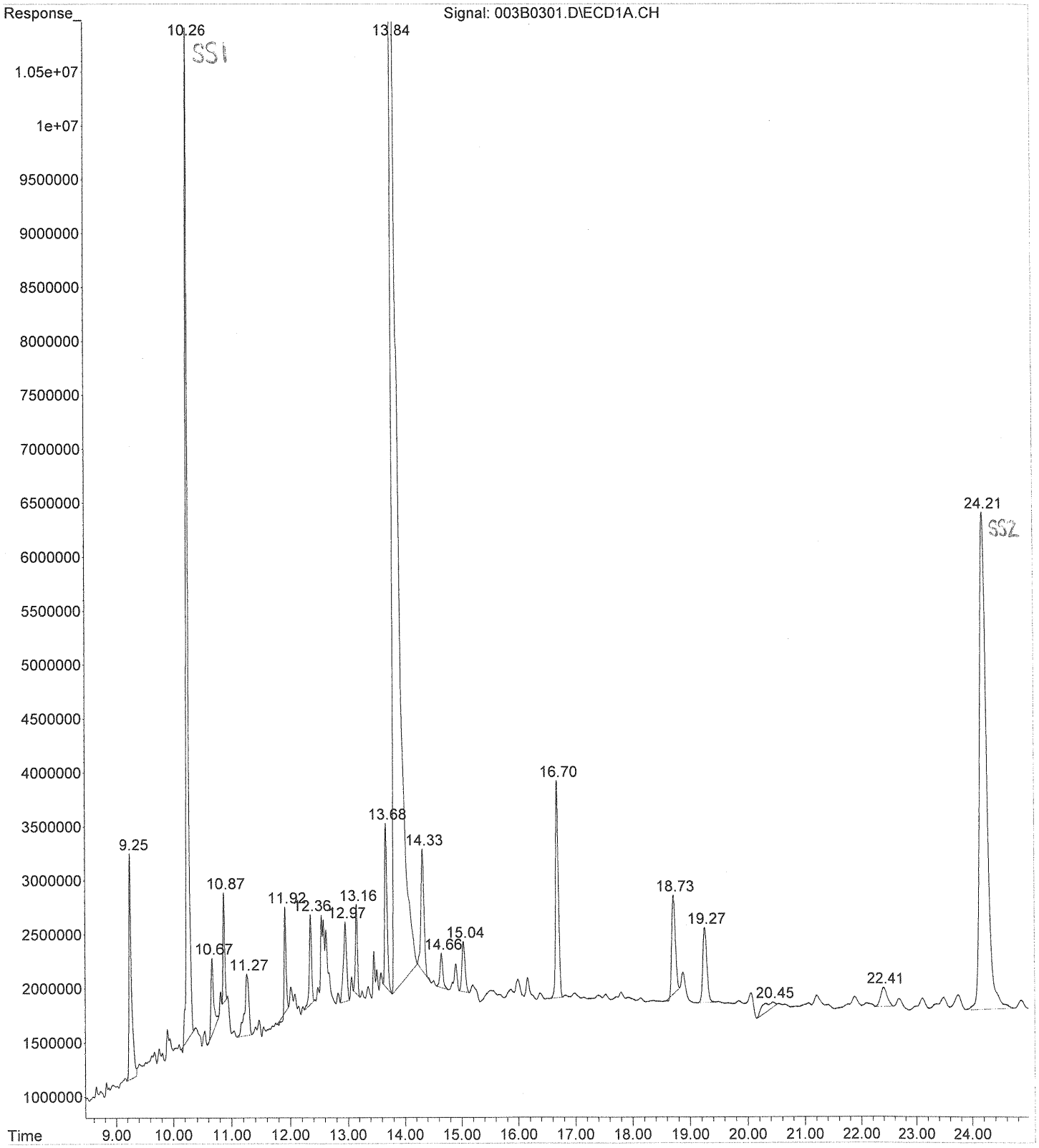
File : H:\1\DATA\063011B\003B0301.D
Operator : rdf
Acquired : 01 Jul 2011 2:52 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-001
Misc Info :
Vial Number: 3



Lab Number:	21163-002
Sample Designation:	MW-2
Date Sampled:	06/28/11 1400
Date Extracted:	06/30/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	105	30 - 150
decachlorobiphenyl	112	30 - 150

U = Below quantitation limit

ESI

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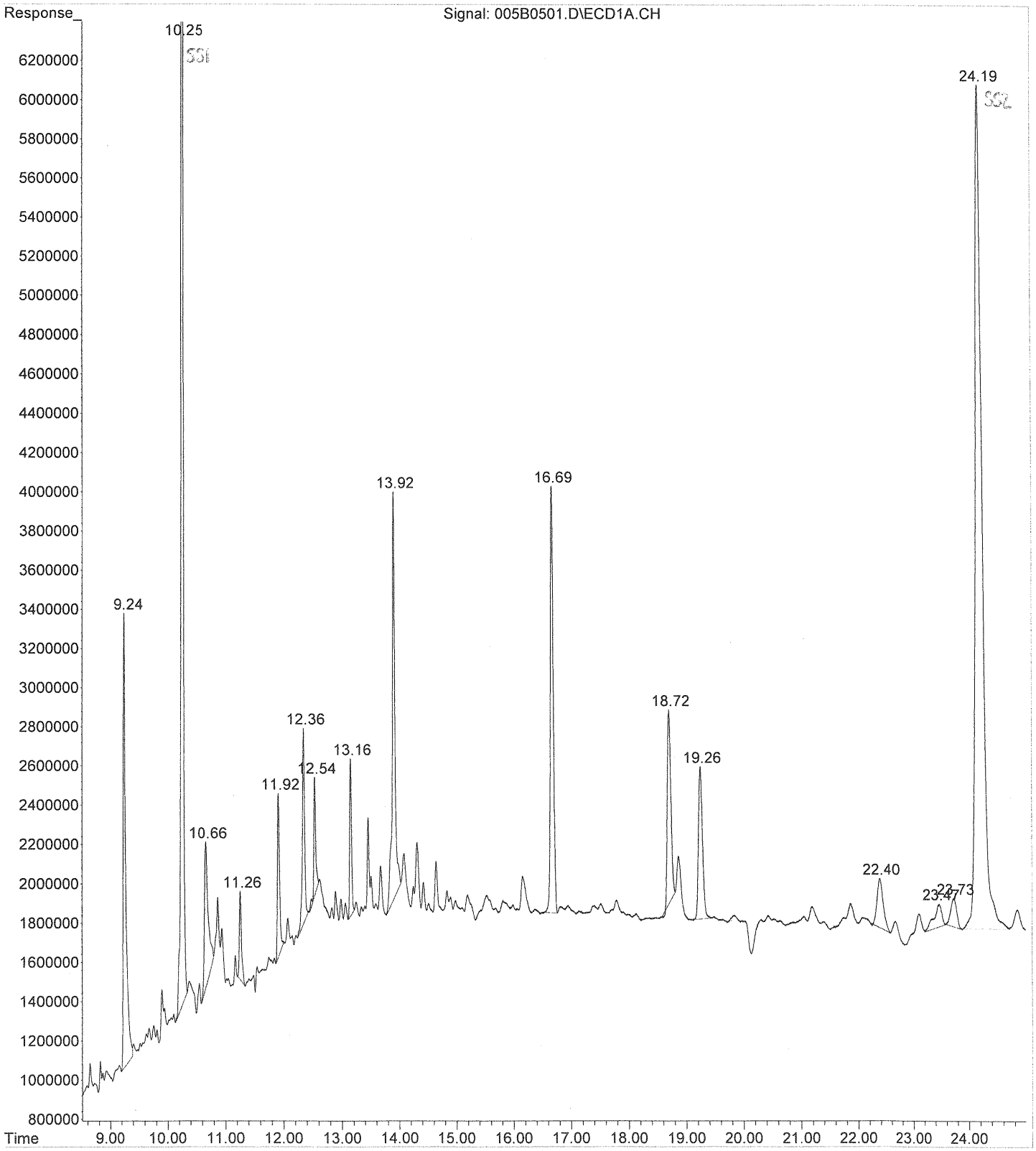
File : H:\1\DATA\063011B\005B0501.D
Operator : rdf
Acquired : 01 Jul 2011 4:06 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-002
Misc Info :
Vial Number: 5



Lab Number:	21163-003
Sample Designation:	MW-8
Date Sampled:	06/28/11 1515
Date Extracted:	06/30/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	110	30 - 150
decachlorobiphenyl	123	30 - 150

U = Below quantitation limit

ESI

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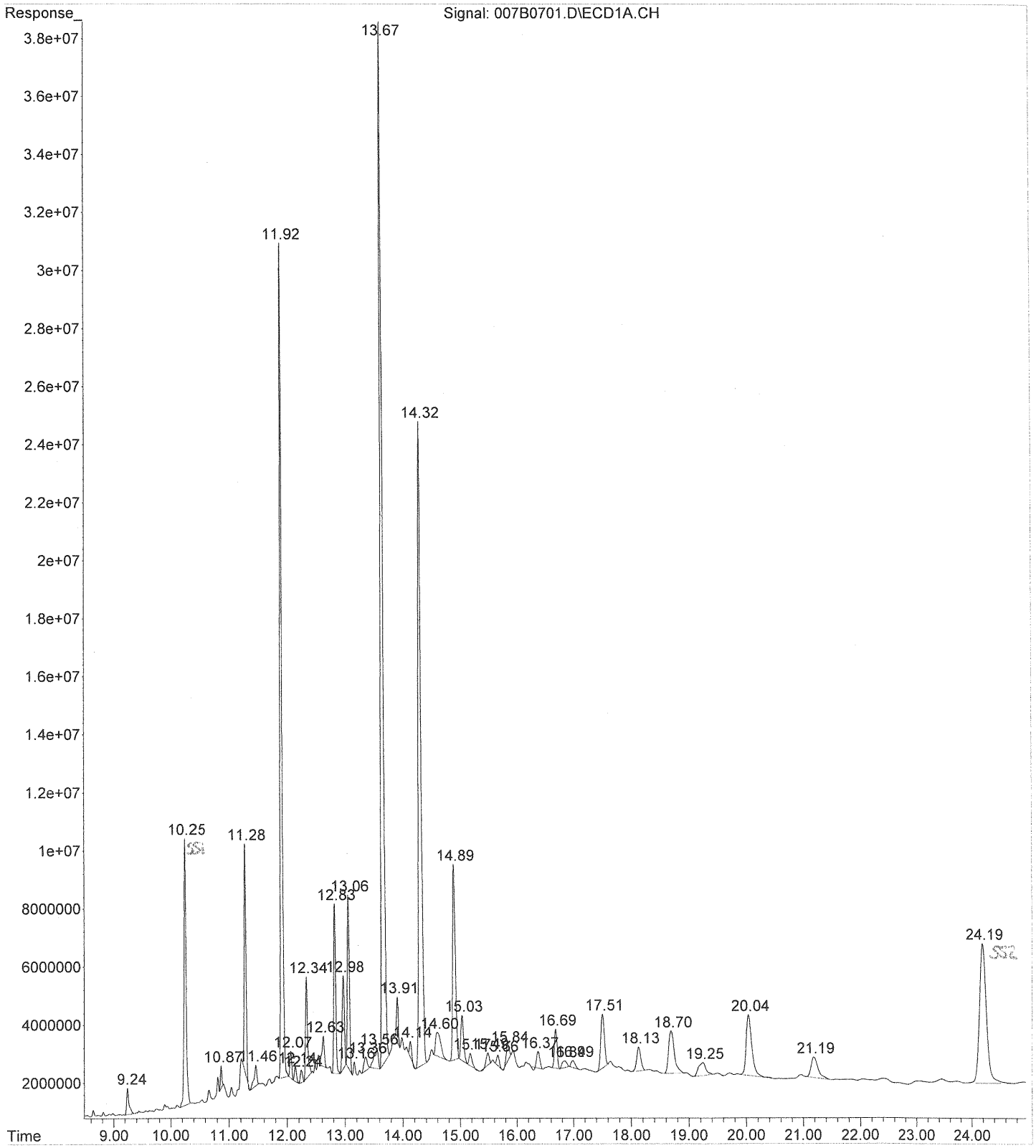
File : H:\1\DATA\063011B\007B0701.D
Operator : rdf
Acquired : 01 Jul 2011 5:21 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-003
Misc Info :
Vial Number: 7



Lab Number:	21163-004
Sample Designation:	MW-7
Date Sampled:	06/29/11 1037
Date Extracted:	06/30/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	90	30 - 150
decachlorobiphenyl	119	30 - 150

U = Below quantitation limit

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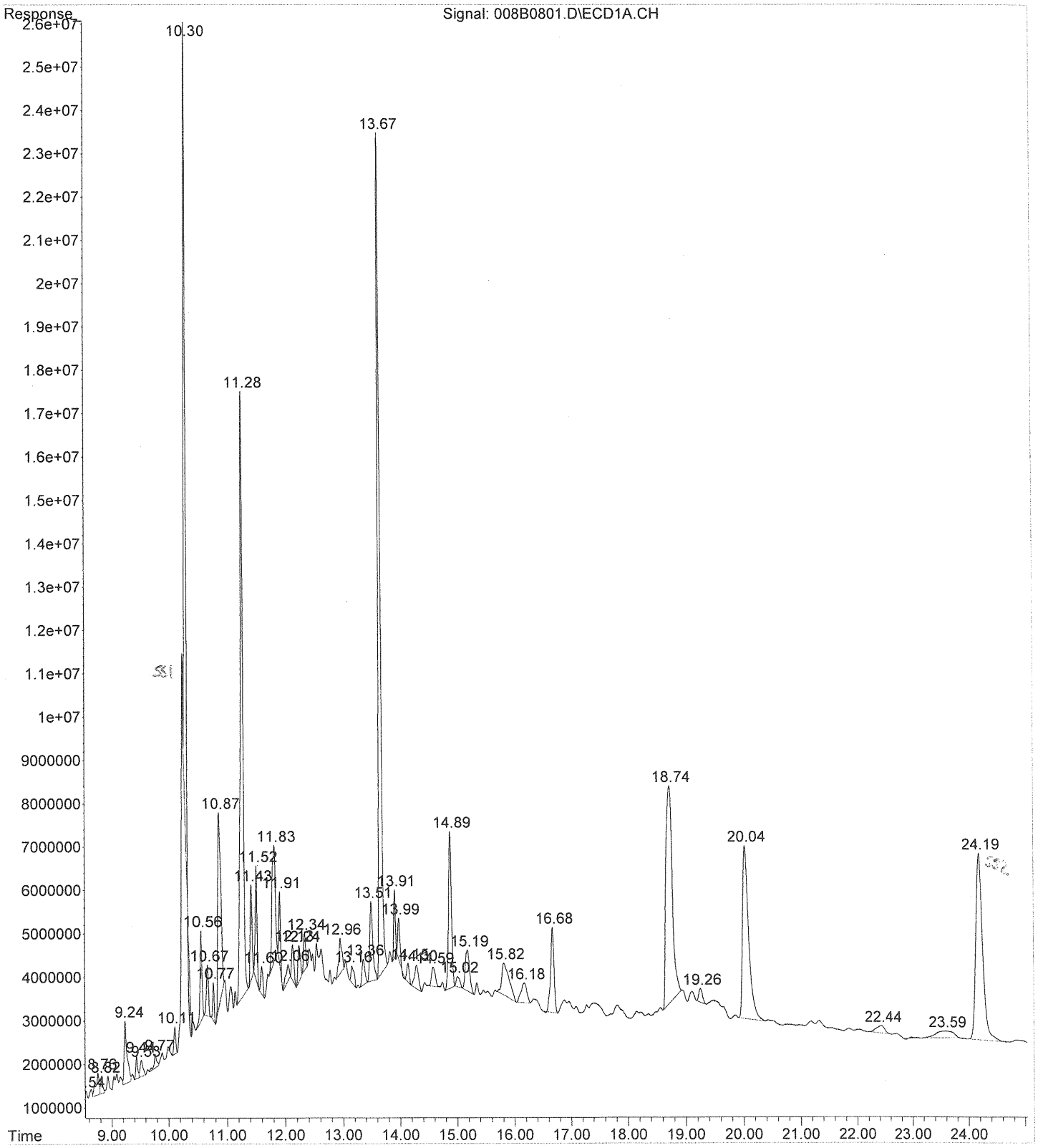
File : H:\1\DATA\063011B\008B0801.D
Operator : rdf
Acquired : 01 Jul 2011 5:58 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-004
Misc Info :
Vial Number: 8



Lab Number:	21163-005
Sample Designation:	MW-6
Date Sampled:	06/29/11 1317
Date Extracted:	06/30/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

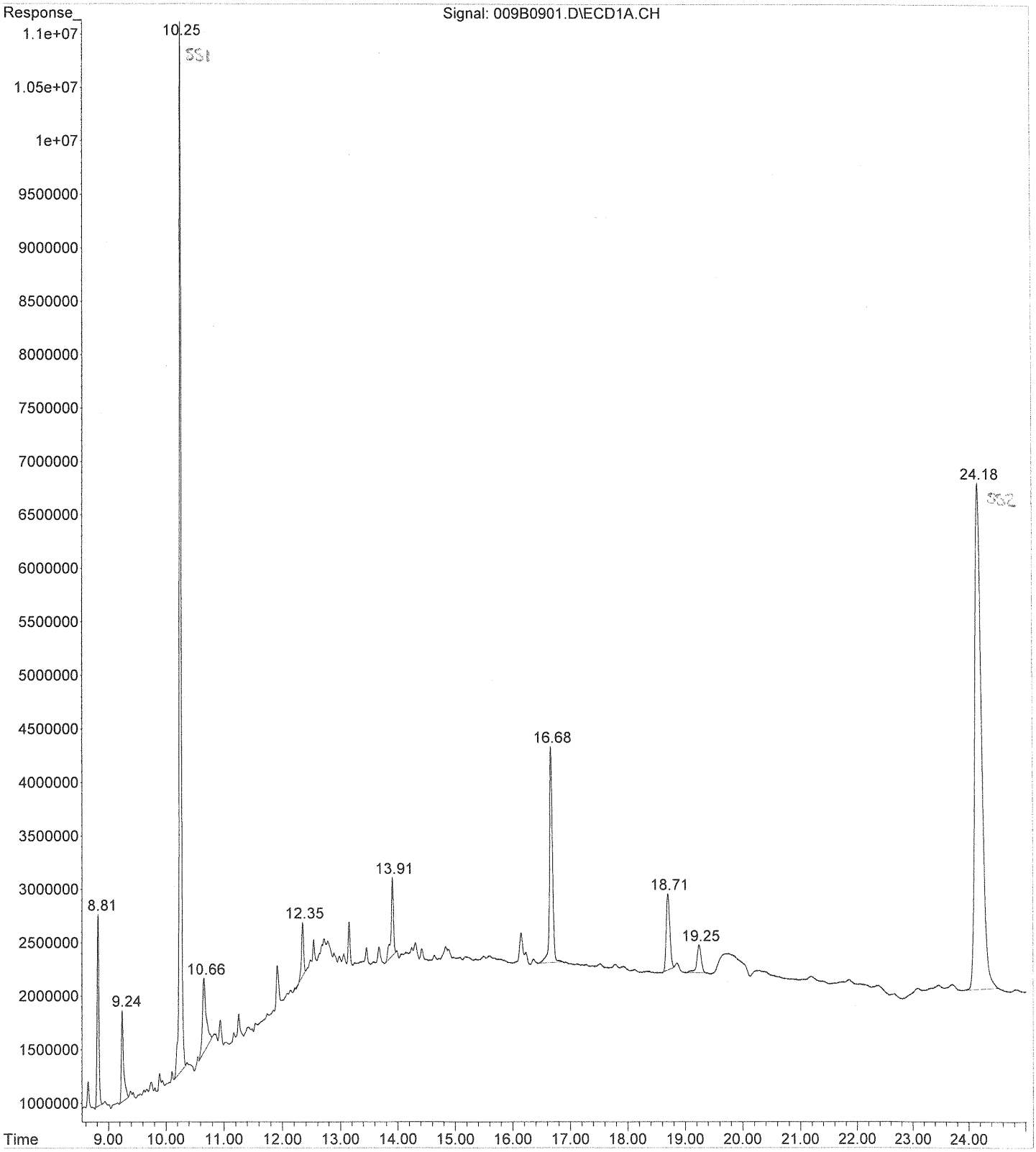
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	111	30 - 150
decachlorobiphenyl	129	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : H:\1\DATA\063011B\009B0901.D
Operator : rdf
Acquired : 01 Jul 2011 6:35 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-005
Misc Info :
Vial Number: 9



Lab Number:	21163-006
Sample Designation:	MW-4
Date Sampled:	06/30/11 1215
Date Extracted:	07/01/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	103	30 - 150
decachlorobiphenyl	123	30 - 150

U = Below quantitation limit

ESI

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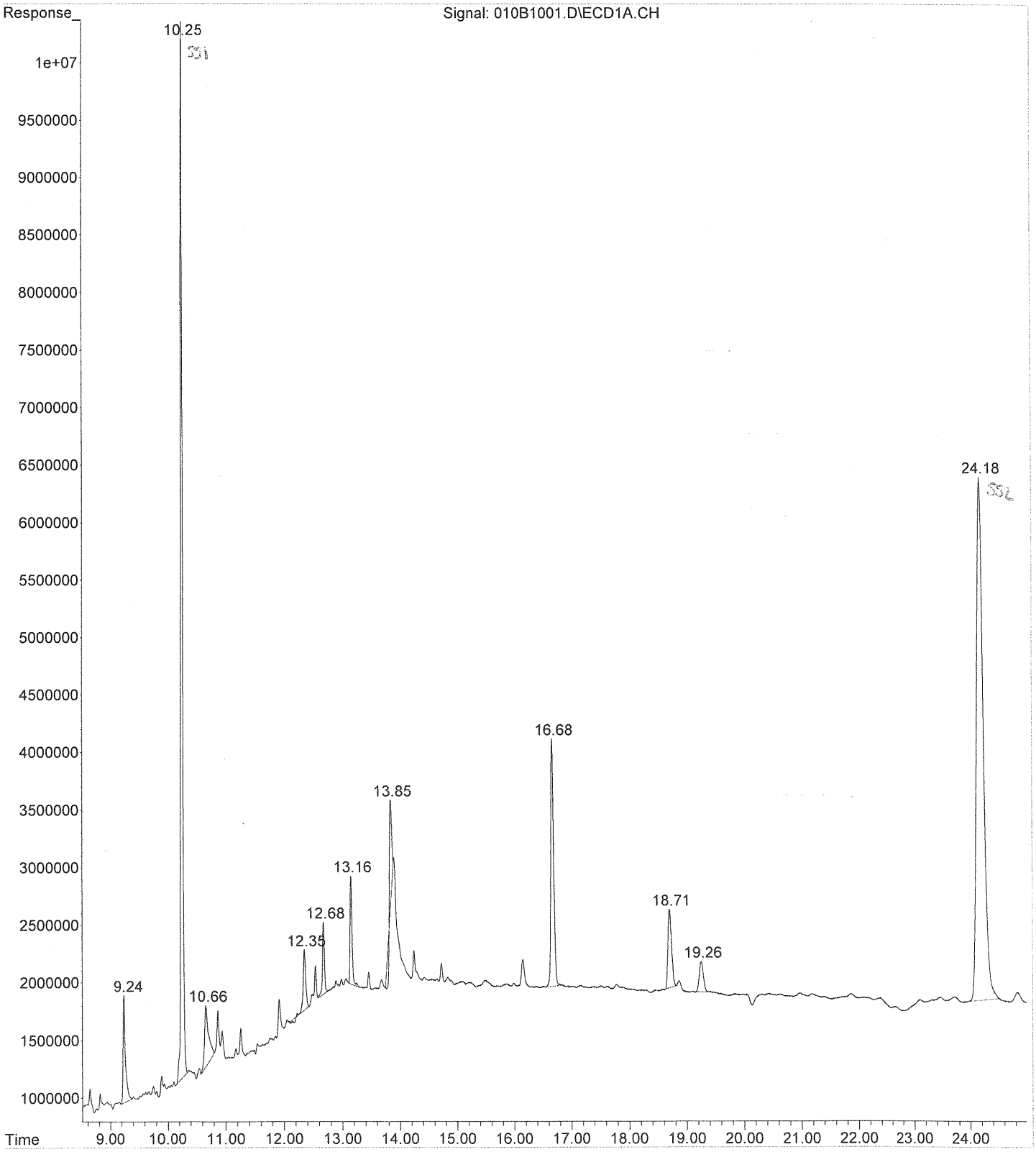
File : H:\1\DATA\063011B\010B1001.D
Operator : rdf
Acquired : 01 Jul 2011 7:12 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-006
Misc Info :
Vial Number: 10



Lab Number:	21163-007
Sample Designation:	MW-5
Date Sampled:	06/30/11 1330
Date Extracted:	07/01/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

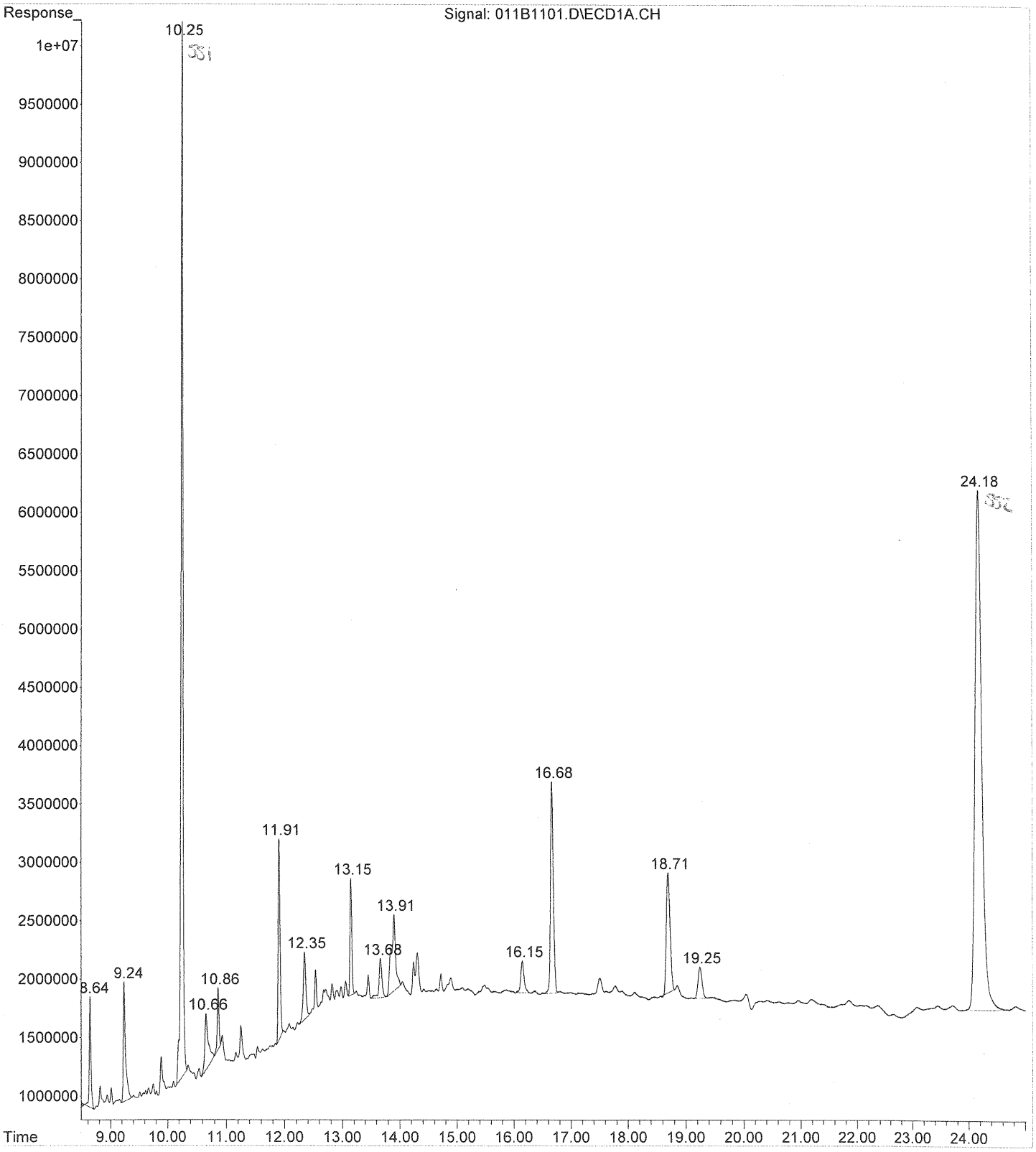
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	104	30 - 150
decachlorobiphenyl	123	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : H:\1\DATA\063011B\011B1101.D
Operator : rdf
Acquired : 01 Jul 2011 7:50 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-007
Misc Info :
Vial Number: 11



Lab Number:	21163-008
Sample Designation:	MW-3
Date Sampled:	06/30/11 1450
Date Extracted:	07/01/11
Date Analyzed:	07/01/11
Matrix:	Water
Sample Amount (g):	1000
Sample Dry Weight (%)	100
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/L)	Reporting Limit (ug/L)
Aroclor 1016\1242	U	0.05
Aroclor 1221	U	0.05
Aroclor 1232	U	0.05
Aroclor 1248	U	0.05
Aroclor 1254	U	0.05
Aroclor 1260	U	0.05

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	104	30 - 150
decachlorobiphenyl	123	30 - 150

U = Below quantitation limit

ESI

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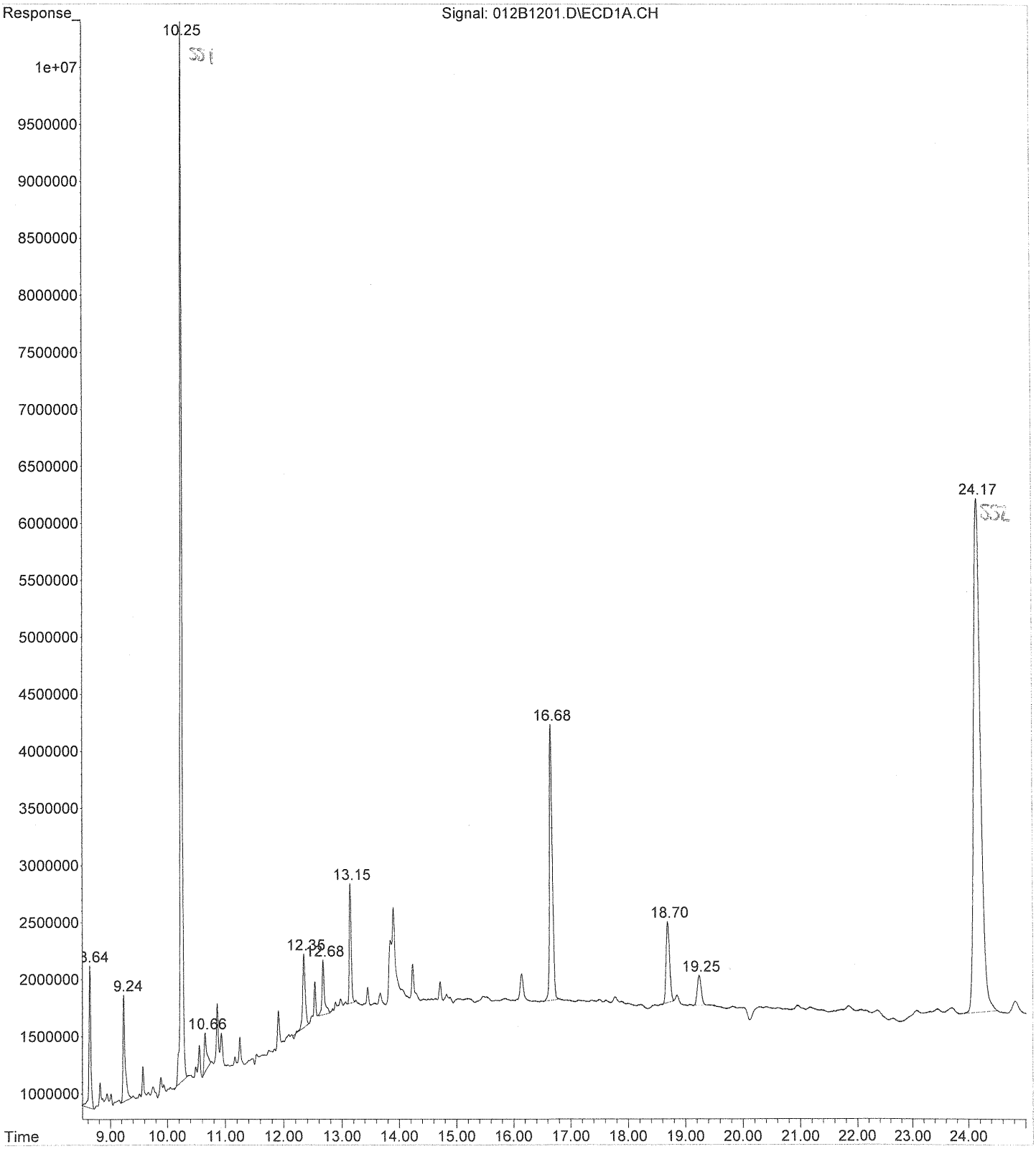
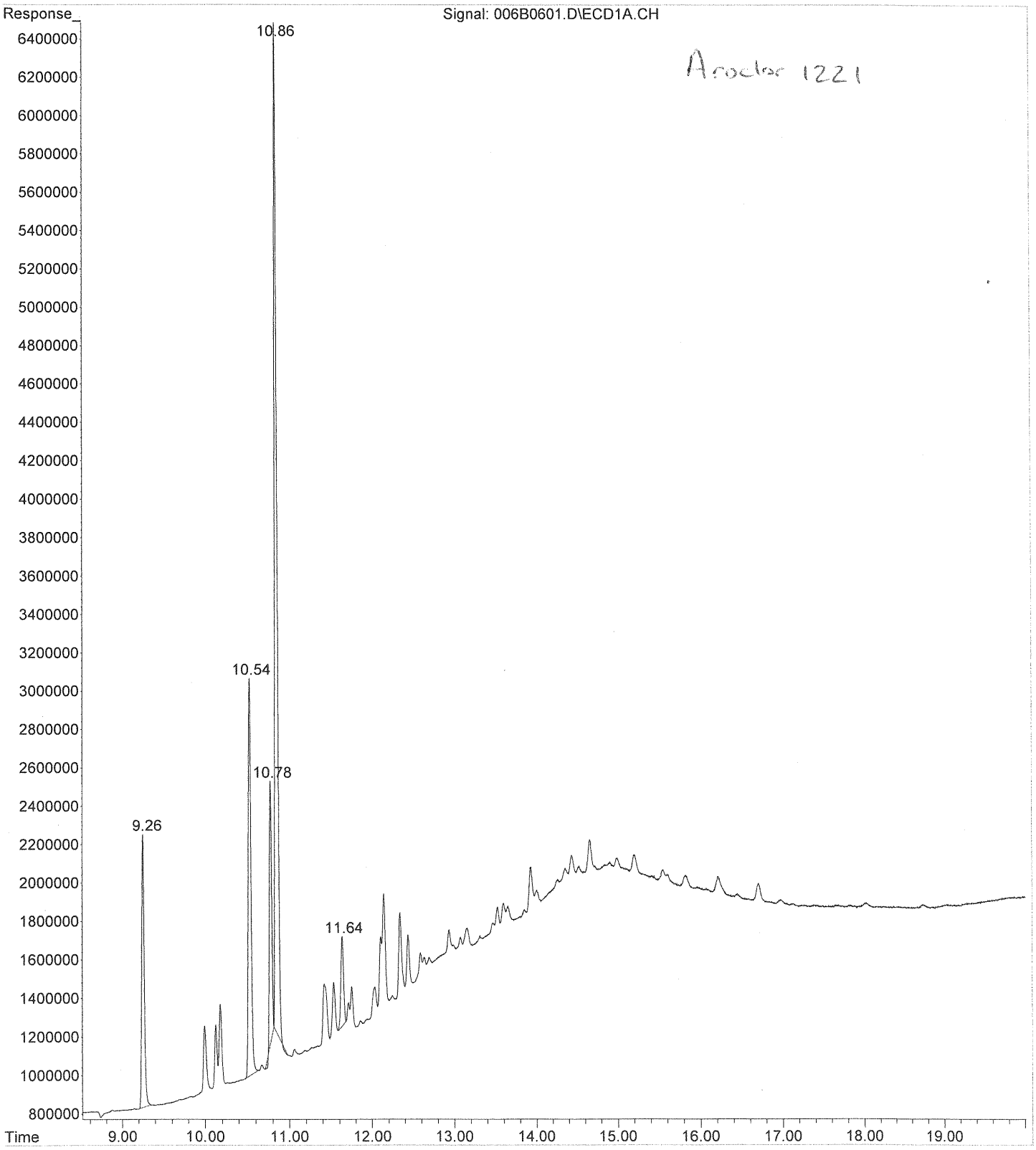
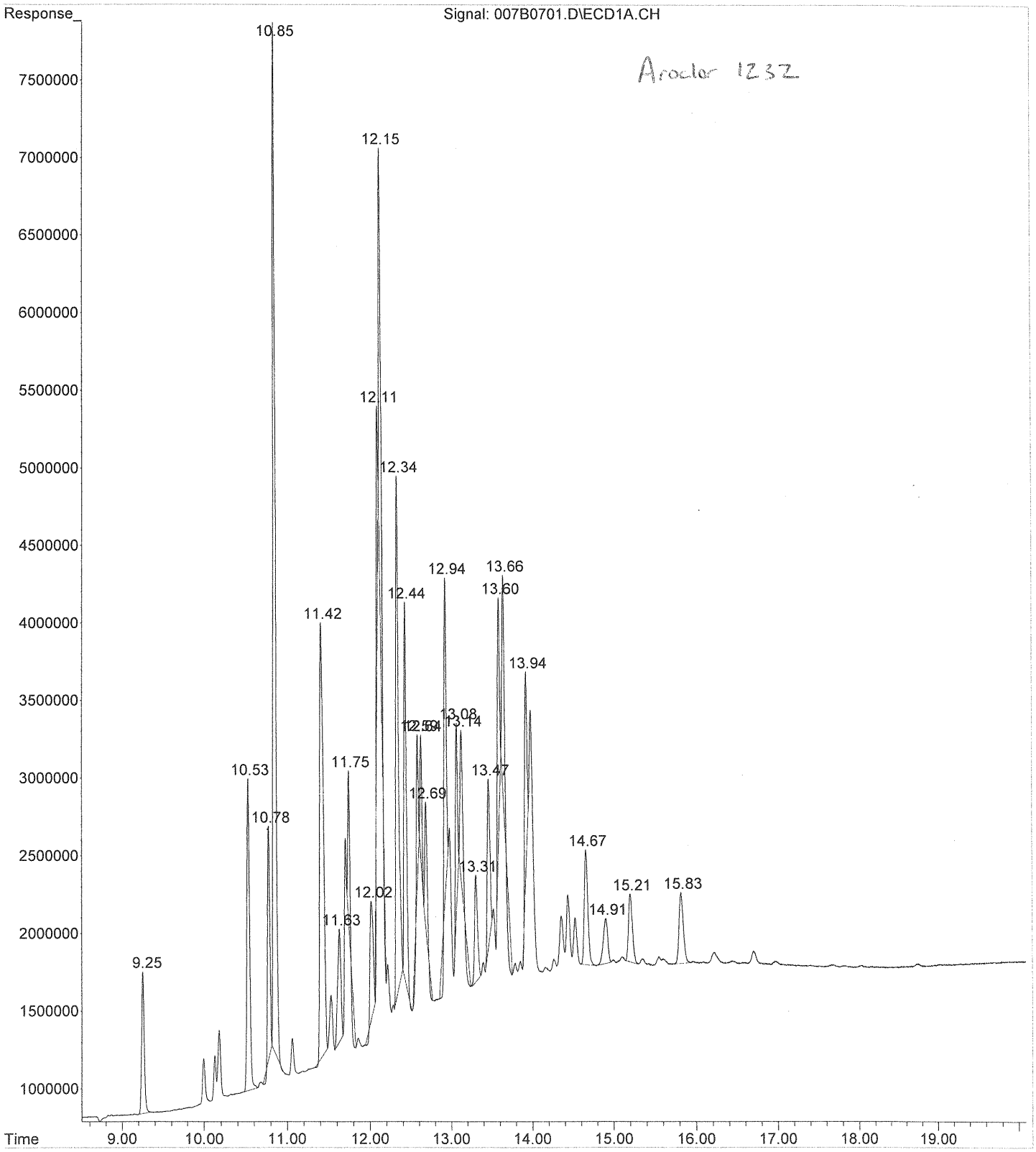
File : H:\1\DATA\063011B\012B1201.D
Operator : rdf
Acquired : 01 Jul 2011 8:27 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21163-008
Misc Info :
Vial Number: 12



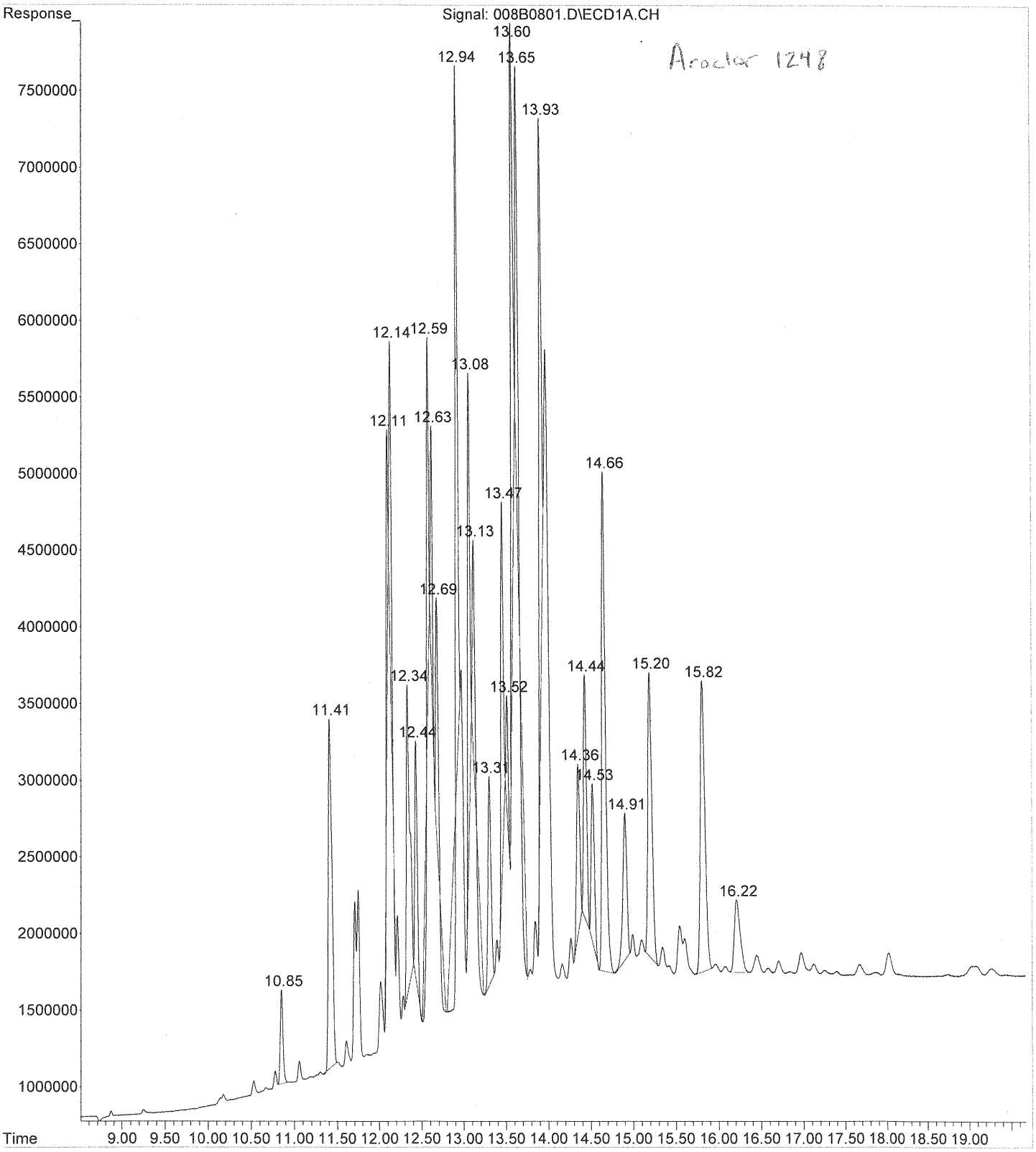
File : H:\1\DATA\063011A\006B0601.D
Operator : rdf
Acquired : 30 Jun 2011 5:39 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1221 1 o4915
Misc Info :
Vial Number: 6



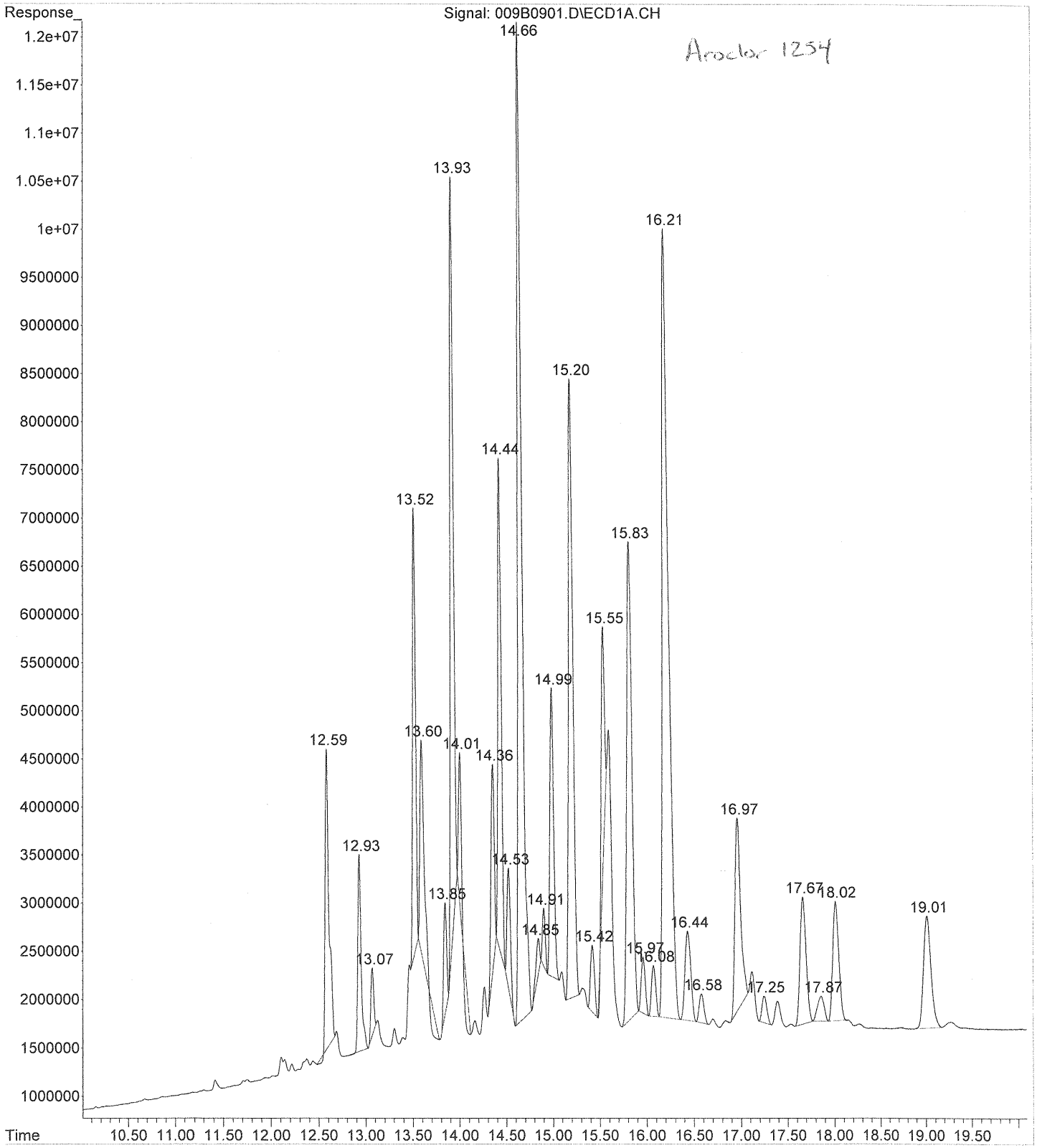
File : H:\1\DATA\063011A\007B0701.D
Operator : rdf
Acquired : 30 Jun 2011 6:16 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1232 1 o3396
Misc Info :
Vial Number: 7



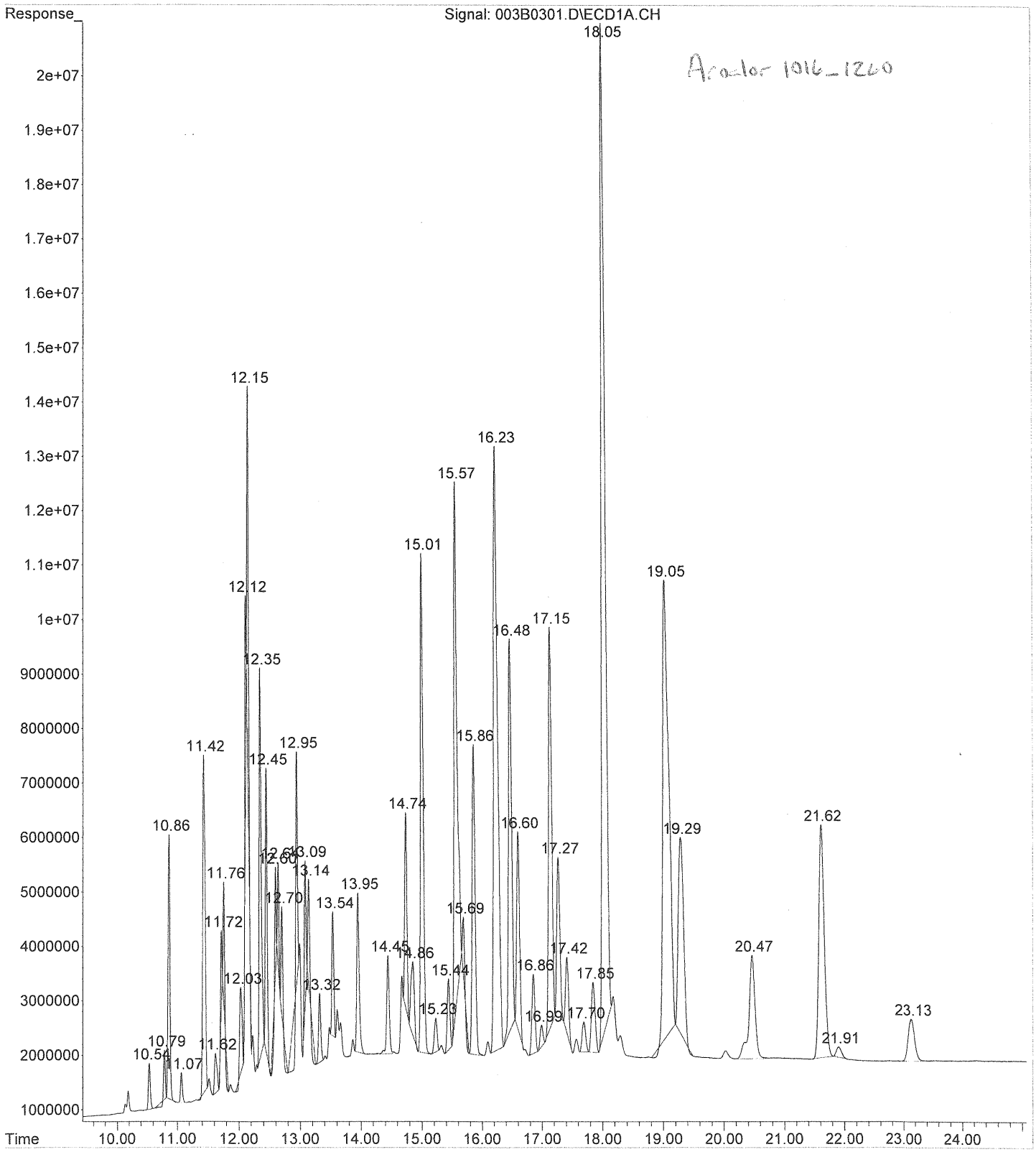
File : H:\1\DATA\063011A\008B0801.D
Operator : rdf
Acquired : 30 Jun 2011 6:53 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1248 1 o4551
Misc Info :
Vial Number: 8



File : H:\1\DATA\063011A\009B0901.D
Operator : rdf
Acquired : 30 Jun 2011 7:29 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1254 1 o4453
Misc Info :
Vial Number: 9



File : H:\1\DATA\063011A\003B0301.D
Operator : rdf
Acquired : 30 Jun 2011 3:49 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 1016/1260 1.25
Misc Info :
Vial Number: 3



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21163		
SDG No:			
Project:	South Terminal.New Bedford. 6690		
Delivered via:	ESI		
Date and Time Received:	06/29/11 0900	Date and TIme Logged into Lab:	06/29/11 1235
Recieved By:	DW	Logged into Lab by:	MES MES
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	10	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
MW-1	21163-001	W	ARO8082	2x1L g	4C	Yes
MW-2	21163-002	W	ARO8082	2x1L g	4C	Yes
MW-8	21163-003	W	ARO8082	2x1L g	4C	Yes

Notes and qualifications:

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0778 (603) 926-3345 fax (603) 926-3521 www.envirosystems.com

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21163		
SDG No:			
Project:	South Terminal.New Bedford. 6690		
Delivered via:	ESI		
Date and Time Received:	06/30/11 0950	Date and TIme Logged into Lab:	06/30/11 1415
Recieved By:	DW	Logged into Lab by:	JEB JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	7	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
MW-7	21163-004	W	ARO8082	2x1L g	4C	Yes
MW-6	21163-005	W	ARO8082	2x1L g	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21163		
SDG No:			
Project:	South Terminal.New Bedford. 6690		
Delivered via:	ESI		
Date and Time Received:	07/01/11 0730	Date and TIme Logged into Lab:	07/01/11 1040
Recieved By:	DW	Logged into Lab by:	MES
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	4	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
MW-4	21163-006	W	ARO8020	2x1L g	4C	Yes
MW-5	21163-007	W	ARO8020	2x1L g	4C	Yes
MW-3	21163-008	W	ARO8020	2x1L g	4C	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21163

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co., LLC	Contact: Chet Myers	Project Name: South Terminal New Bedford	Page 1 of 1
Report to: Chet Myers	Address: 184 High St Ste 502	Project Number: 6690	
Invoice to: Apex	Address: Boston MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-0070	Fax: (617) 728-0080	email: cmyers@apexcl.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other MA MCP

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	MW-1	6/28/11	12:35	GH	G	1000	G	NA	W	N	PCBs Arsenics EPA 8082 w/ non target ELD
-002	MW-2	6/28/11	14:00	GH	G	1000	G	NA	W	N	PCBs Arsenics EPA 8082 w/ non target ELD
-003	MW-8	6/28/11	15:15	GH	G	1000	G	NA	W	N	PCBs Arsenics EPA 8082 w/ non target ELD

26/28

Relinquished By: [signature]	Date: 6/29/11 Time: 0900	Received By: [signature]	Date: 6/29/11 Time: 0900
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No:

ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 2163

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co., LLC	Contact: Chet Myers	Project Name: South Terminal New Bedford	Page 1 of 1
Report to: Chet Myers	Address: 184 High St. Ste 500	Project Number: 6690	
Invoice to: Apex	Address: Boston MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-2070	Fax: (617) 728-2080	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other MA MCP

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-004	MW-7	6/29/11	10:37	GAP	G	1000	G	NA	W	N	PCB Aroclors EPA method 8082
-005	MW-6	6/29/11	13:17	GAP	G	1000	G	NA	W	N	PCB Aroclors EPA method 8082

27/28

Relinquished By: [signature]	Date: 6/30/11	Time: 9:30	Received By: [signature] Date: 6/30/11 Time: 9:30
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: [illegible]

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21163

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co, LLC	Contact: Chet Myers	Project Name: South Tremont New Medford	Page 1 of 1
Report to: Chet Myers	Address: 159 High St. Somerville	Project Number: 6690	
Invoice to: Apex	Address: Boston MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-0070	Fax: (617) 728-0030	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other MA MCP

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-036	MW-4	6/30/11	12:15	GH	G	1000	G	None	W	N	PCB Aroclors EPA 8082
-037	MW-5	6/30/11	13:30	GH	G	1000	G	None	W	N	PCB Aroclors EPA 8082
-038	MW-3	6/30/11	14:50	GH	G	1000	G	None	W	N	PCB Aroclors EPA 8082

28/28

Relinquished By:	Date: 7/1/11	Time: 0230	Received By:	Date: 7/1/11	Time: 0230
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments: Please Rush Analysis

Sample Delivery Group No: Page of

COC Doc No:

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number:	None
Report Number:	21200
Date Received:	07/15/11
Date Reported:	08/01/11

Project: South Terminal.6690

Attached please find results for analyses performed on samples received on 07/15/11 at 1040.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Authorized Signature

Date 8/1/11

Attachment
Report

Lab Number:	21200-001
Sample Designation:	B-11/MW-7
Date Sampled:	05/12/11 1200
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	U	0.0057
Aroclor 1260	U	0.0057

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	89	30 - 150
decachlorobiphenyl	93	30 - 150

U = Below quantitation limit

ESI

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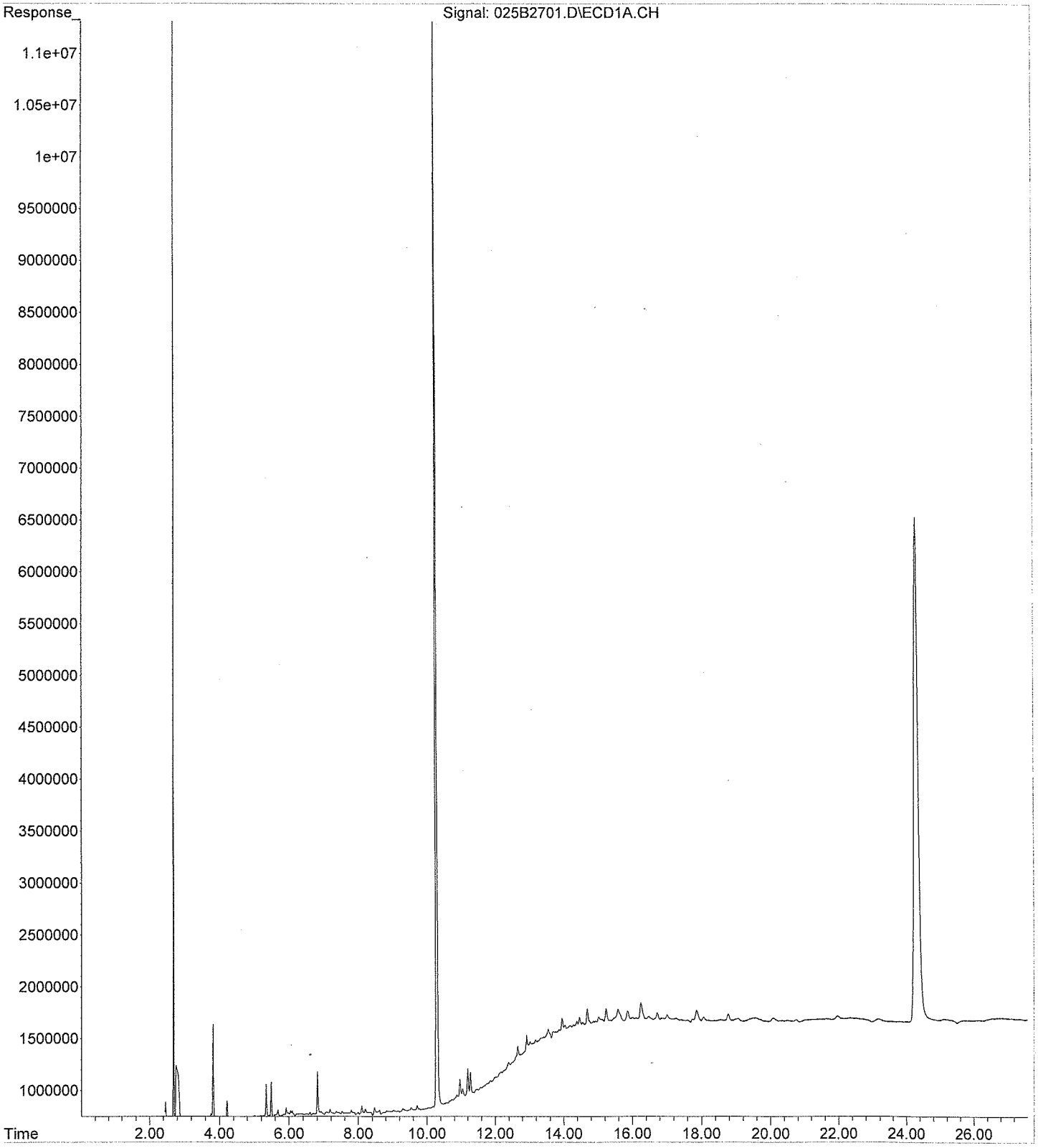
File : H:\1\DATA\072211B\025B2701.D
Operator : rdf
Acquired : 26 Jul 2011 6:34 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-001 ARO
Misc Info :
Vial Number: 25



Lab Number:	21200-002
Sample Designation:	B-12/MW-8a
Date Sampled:	05/13/11 1000
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	44
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.011
Aroclor 1221	U	0.011
Aroclor 1232	U	0.011
Aroclor 1248	U	0.011
Aroclor 1254	U	0.011
Aroclor 1260	U	0.011

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	76	30 - 150
decachlorobiphenyl	81	30 - 150

U = Below quantitation limit

ESI

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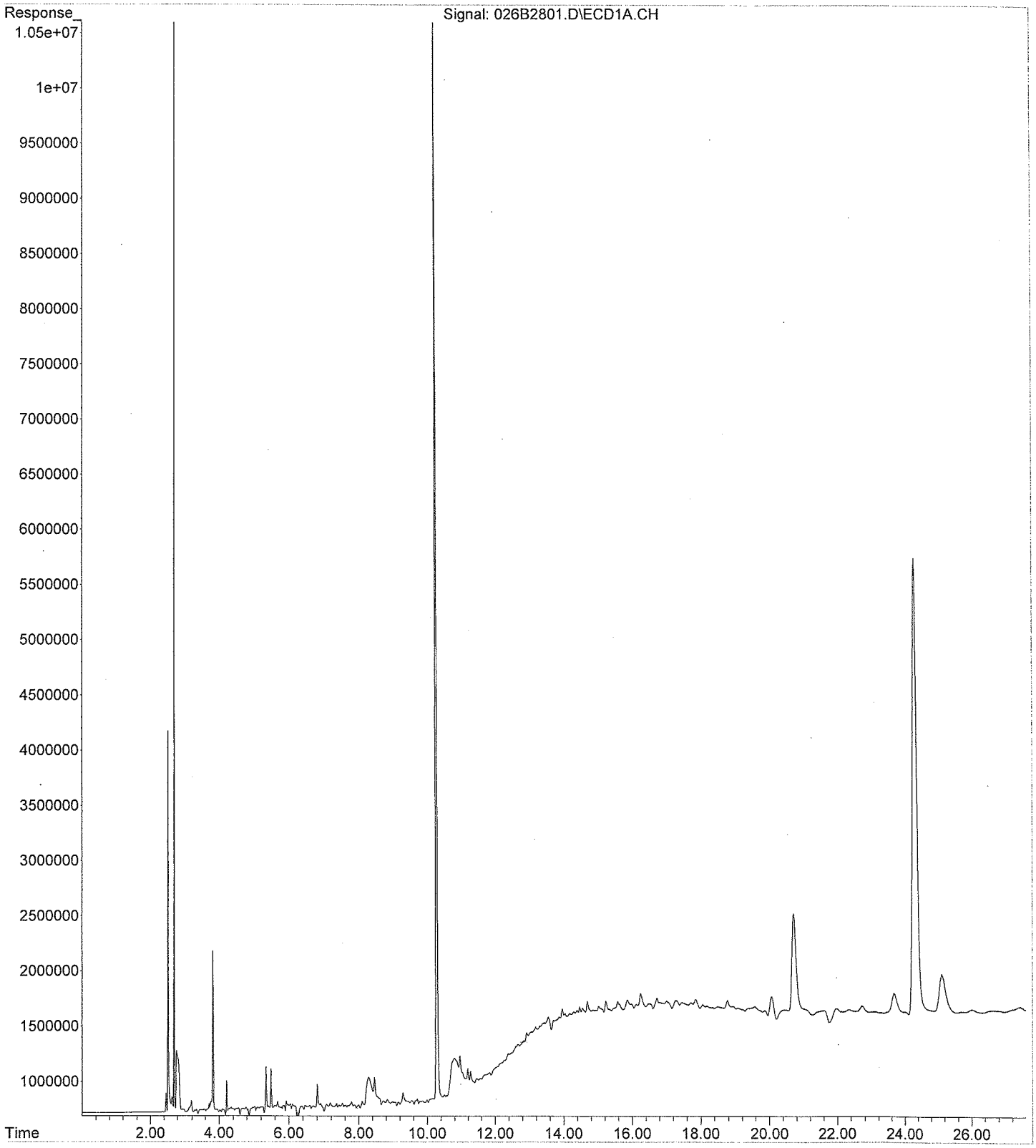
File : H:\1\DATA\072211B\026B2801.D
Operator : rdf
Acquired : 26 Jul 2011 7:11 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-002 ARO
Misc Info :
Vial Number: 26



Lab Number:	21200-003
Sample Designation:	B-12/MW-8b
Date Sampled:	05/13/11 1005
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	U	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	95	30 - 150

U = Below quantitation limit

ESI

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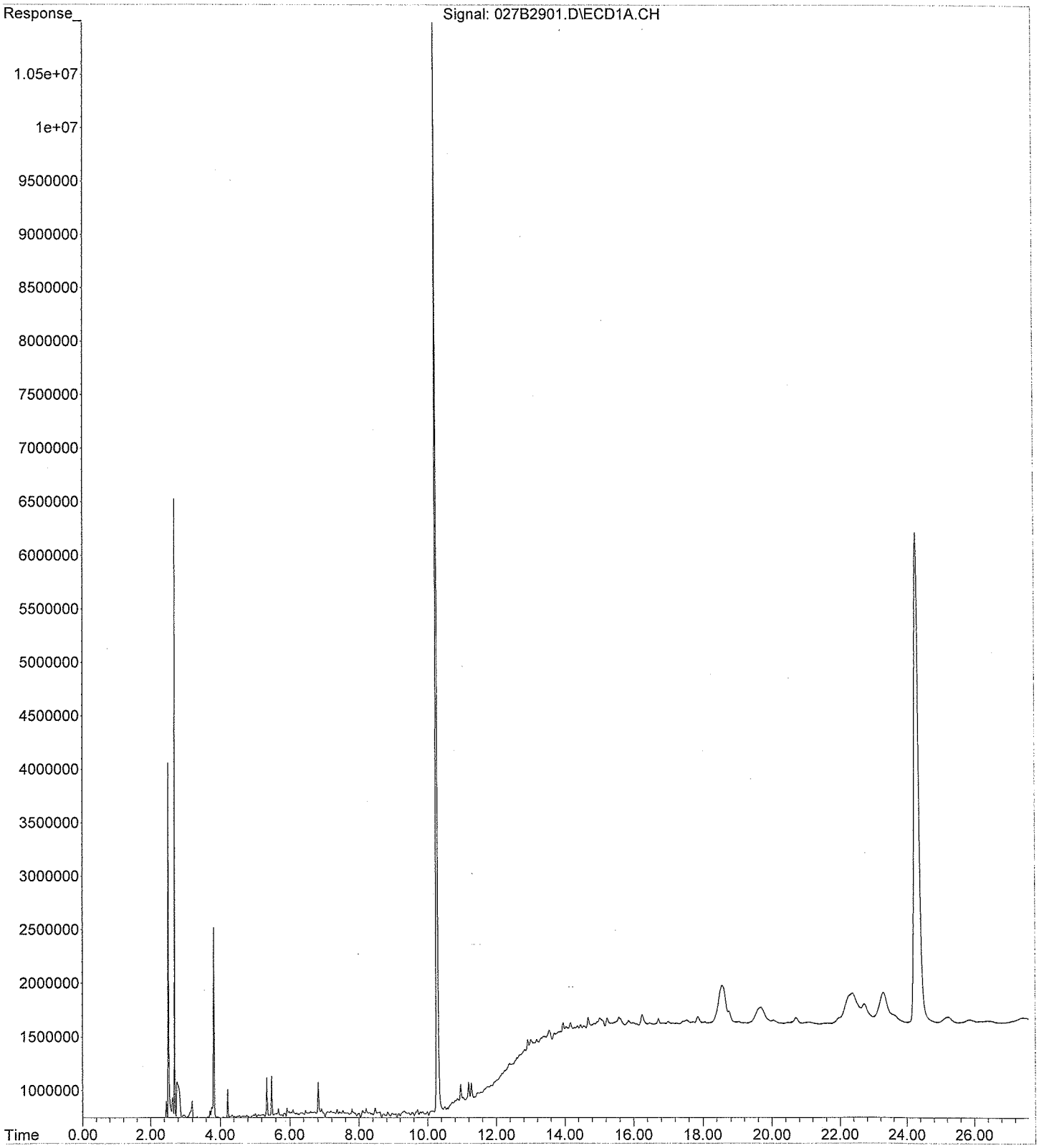
File : H:\1\DATA\072211B\027B2901.D
Operator : rdf
Acquired : 26 Jul 2011 7:48 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-003 ARO
Misc Info :
Vial Number: 27



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21200		
SDG No:			
Project:	South Terminal.6690		
Delivered via:	ESI		
Date and Time Received:	07/15/11 1040	Date and TIme Logged into Lab:	07/15/11 1545
Recieved By:	DW	Logged into Lab by:	EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	8C	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
B-11/MW-7	21200-001	S	ARO8082	1X200 G	NA	Yes
B-12/MW-8a	21200-002	S	ARO8082	1X200 G	NA	Yes
B-12/MW-8b	21200-003	S	ARO8082	1X200 G	NA	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21200

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact: Chet Myers	Project Name: South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High St #502	Project Number: 6690	
Invoice to: Chet Myer	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-0070	Fax: (617) 728 0070	email: cmyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	B-11/MW-7	7/13/11	12:00	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
-002	B-12/MW-8a	7/13/11	10:00	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
-003	B-12/MW-8b	7/13/11	10:05	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082

9/9

Relinquished By: Gregory Harper	Date: 7/15/11 Time: 10:40 AM	Received By:	Date: 7/15/11 Time: 10:40 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 1085

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number:	None
Report Number:	21200
Date Received:	07/15/11
Date Reported:	08/01/11

Project: South Terminal.6690

Attached please find results for analyses performed on samples received on 07/15/11 at 1040.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Authorized Signature

Date 8/1/11

Attachment
Report

Lab Number:	21200-001
Sample Designation:	B-11/MW-7
Date Sampled:	05/12/11 1200
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	U	0.0057
Aroclor 1260	U	0.0057

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	89	30 - 150
decachlorobiphenyl	93	30 - 150

U = Below quantitation limit

ESI

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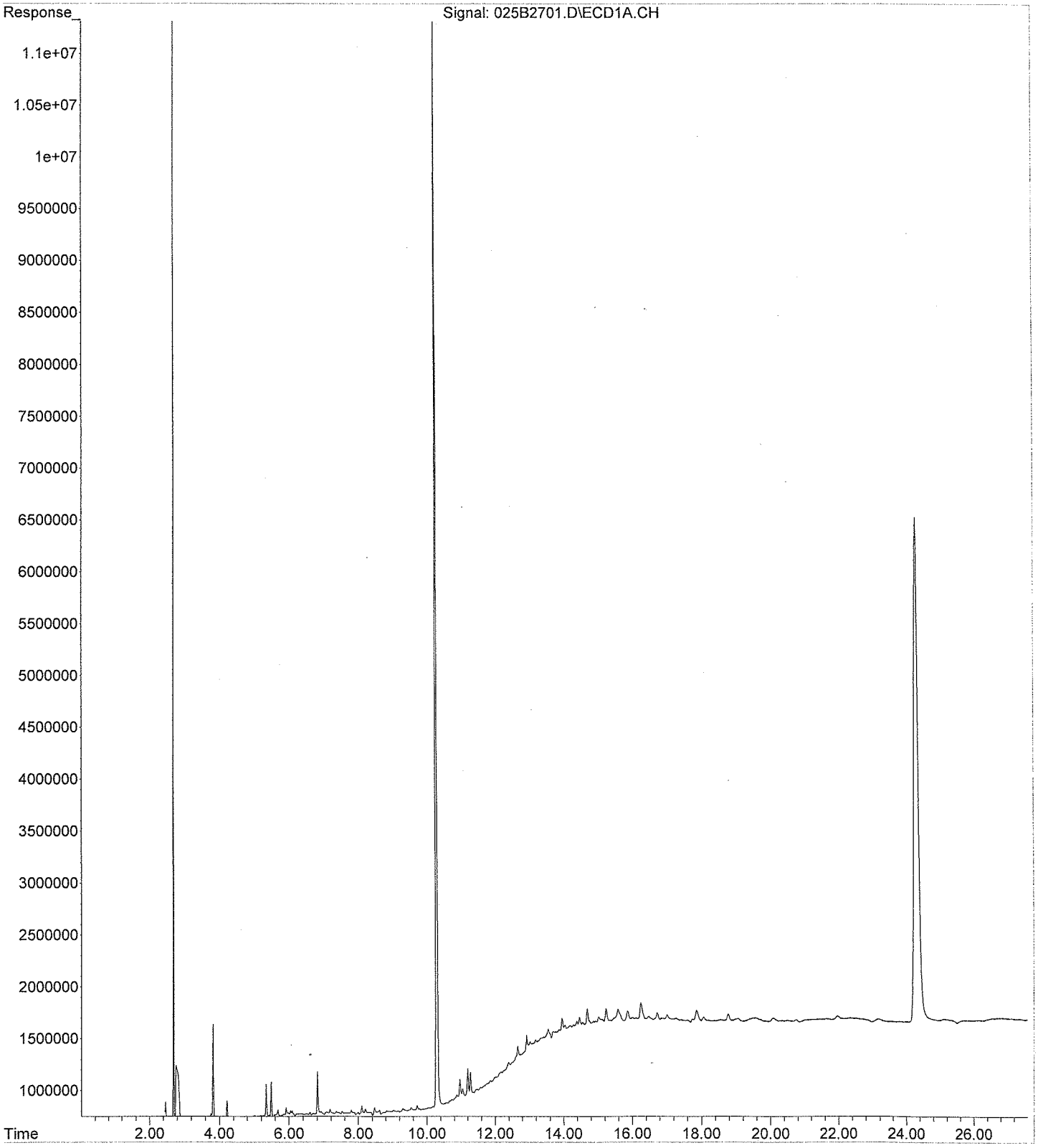
File : H:\1\DATA\072211B\025B2701.D
Operator : rdf
Acquired : 26 Jul 2011 6:34 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-001 ARO
Misc Info :
Vial Number: 25



Lab Number:	21200-002
Sample Designation:	B-12/MW-8a
Date Sampled:	05/13/11 1000
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	44
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.011
Aroclor 1221	U	0.011
Aroclor 1232	U	0.011
Aroclor 1248	U	0.011
Aroclor 1254	U	0.011
Aroclor 1260	U	0.011

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	76	30 - 150
decachlorobiphenyl	81	30 - 150

U = Below quantitation limit

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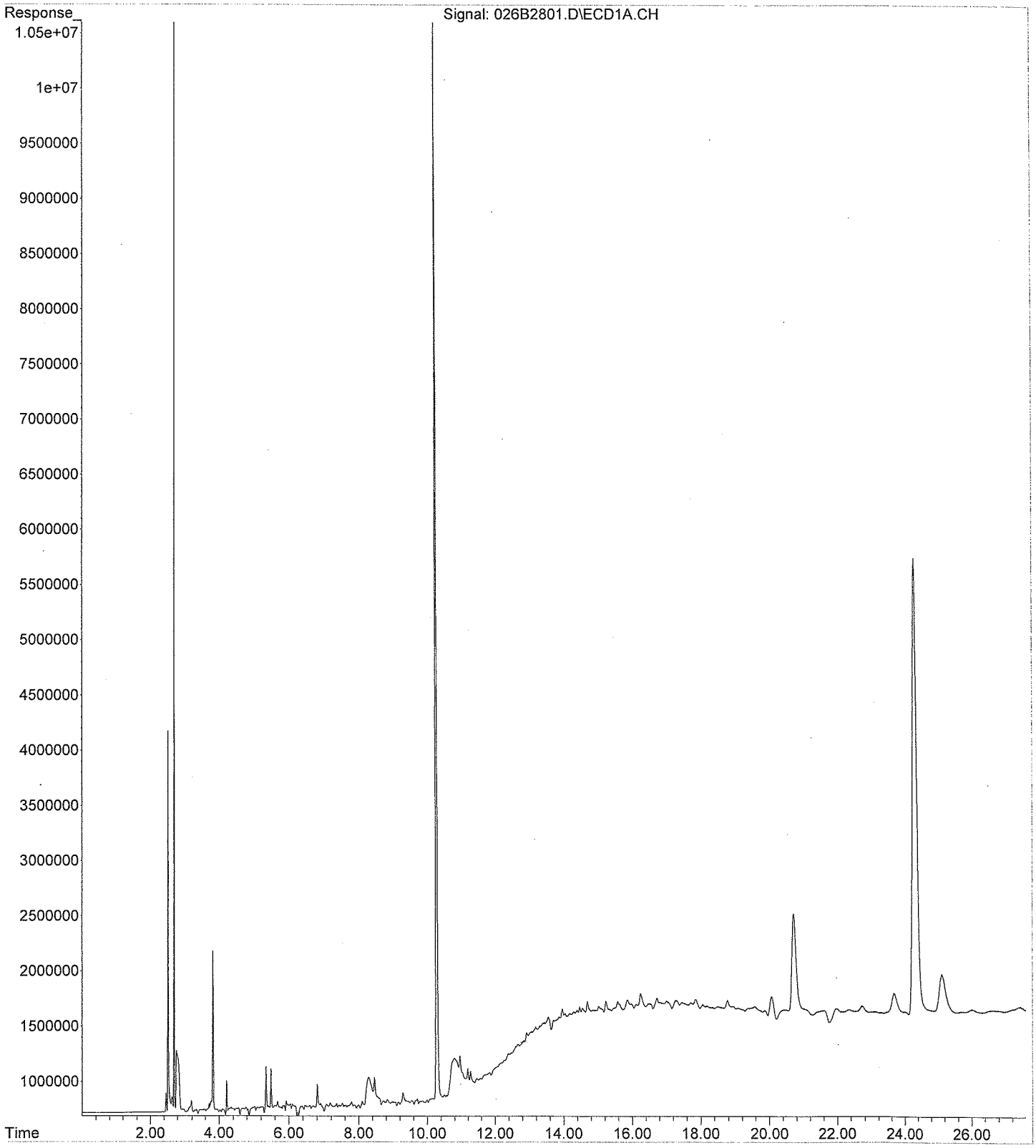
File : H:\1\DATA\072211B\026B2801.D
Operator : rdf
Acquired : 26 Jul 2011 7:11 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-002 ARO
Misc Info :
Vial Number: 26



Lab Number:	21200-003
Sample Designation:	B-12/MW-8b
Date Sampled:	05/13/11 1005
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	U	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	95	30 - 150

U = Below quantitation limit

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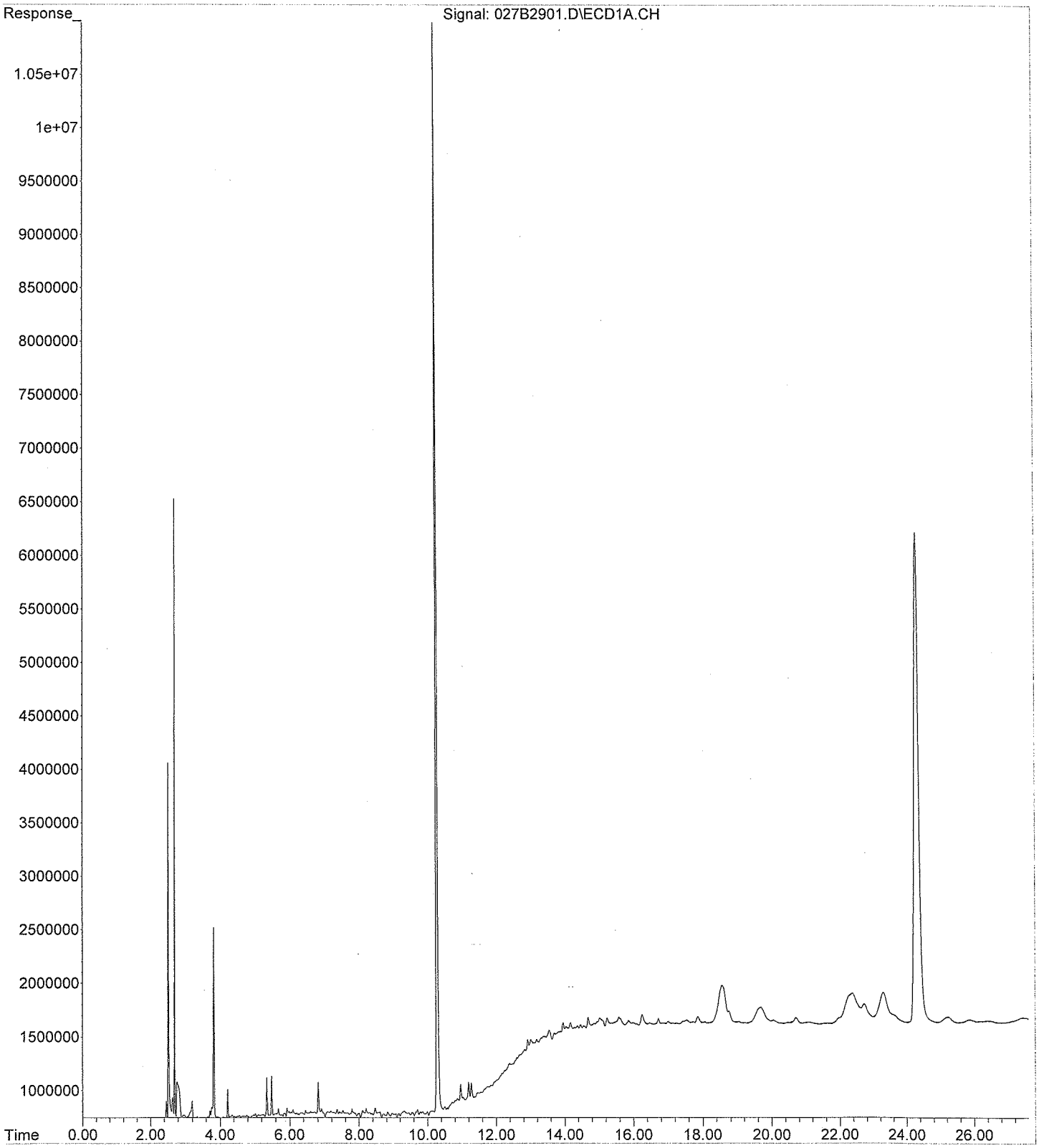
File : H:\1\DATA\072211B\027B2901.D
Operator : rdf
Acquired : 26 Jul 2011 7:48 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21200-003 ARO
Misc Info :
Vial Number: 27



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21200		
SDG No:			
Project:	South Terminal.6690		
Delivered via:	ESI		
Date and Time Received:	07/15/11 1040	Date and TIme Logged into Lab:	07/15/11 1545
Recieved By:	DW	Logged into Lab by:	EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	8C	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
B-11/MW-7	21200-001	S	ARO8082	1X200 G	NA	Yes
B-12/MW-8a	21200-002	S	ARO8082	1X200 G	NA	Yes
B-12/MW-8b	21200-003	S	ARO8082	1X200 G	NA	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21200

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact: Chet Myers	Project Name: South Terminal	Page 1 of 1
Report to: Chet Myers	Address: 184 High St #502	Project Number: 6690	
Invoice to: Chet Myer	Address: Boston, MA 02110	Project Manager: Chet Myers	
Voice: (617) 728-0070	Fax: (617) 728 0070	email: cmyers@apexcos.com	P.O. No: 6690 Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	B-11/MW-7	7/13/11	12:00	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
-002	B-12/MW-8a	7/13/11	10:00	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082
-003	B-12/MW-8b	7/13/11	10:05	GD	C	200	G	N/A	S	N	PCB Aroclors EPA 8082

9/9

Relinquished By: Gregory Harper	Date: 7/15/11 Time: 10:40 AM	Received By:	Date: 7/15/11 Time: 10:40 AM
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 1085

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One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 21206
Date Received: 07/19 - 07/26/11
Date Reported: 07/29/11

Project: South Terminal

Attached please find the aroclor results for analyses performed on samples received on 07/19/11 thru 07/26/11. The results for volatiles, semi-volatiles, and extractable petroleum hydrocarbons will be reported uder seperate cover.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent, except where noted.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

EnviroSystems, Incorporated

Russell Leh

Date 8/2/2011

Authorized
Signature

Attachment
Report

Lab Number:	21206-001
Sample Designation:	TP6-1-N-H
Date Sampled:	07/18/11 1200
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	50
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0099
Aroclor 1221	U	0.0099
Aroclor 1232	U	0.0099
Aroclor 1248	U	0.0099
Aroclor 1254	0.02	0.0099
Aroclor 1260	U	0.0099

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	60	30 - 150
decachlorobiphenyl	62	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

ESI

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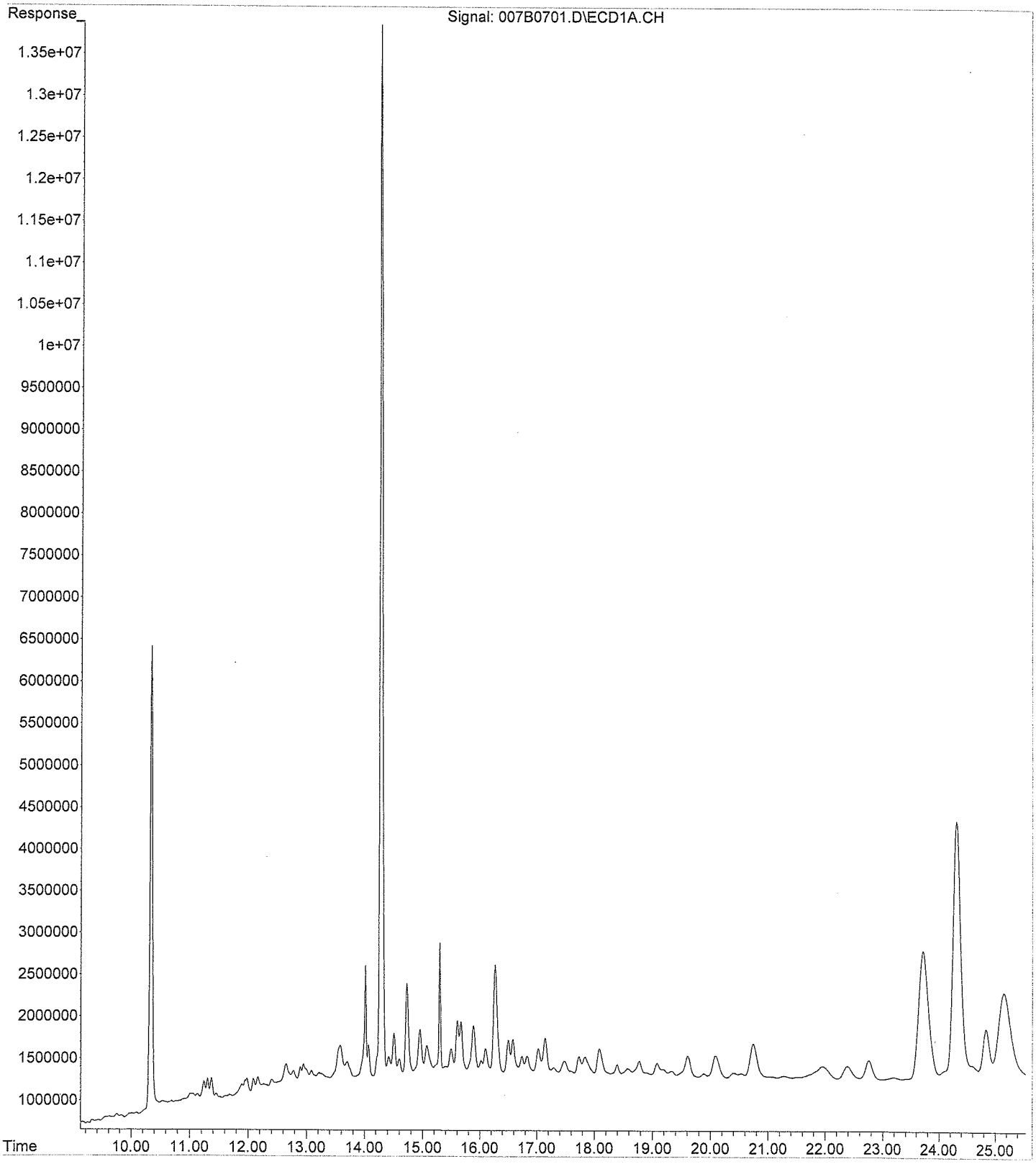
File : H:\1\DATA\072211B\007B0701.D
Operator : rdf
Acquired : 25 Jul 2011 6:21 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-001 ARO
Misc Info :
Vial Number: 7



Lab Number:	21206-005
Sample Designation:	TP6-2-N-M
Date Sampled:	07/18/11 1230
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	74
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0068
Aroclor 1221	U	0.0068
Aroclor 1232	U	0.0068
Aroclor 1248	U	0.0068
Aroclor 1254	U	0.0068
Aroclor 1260	U	0.0068

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	55	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

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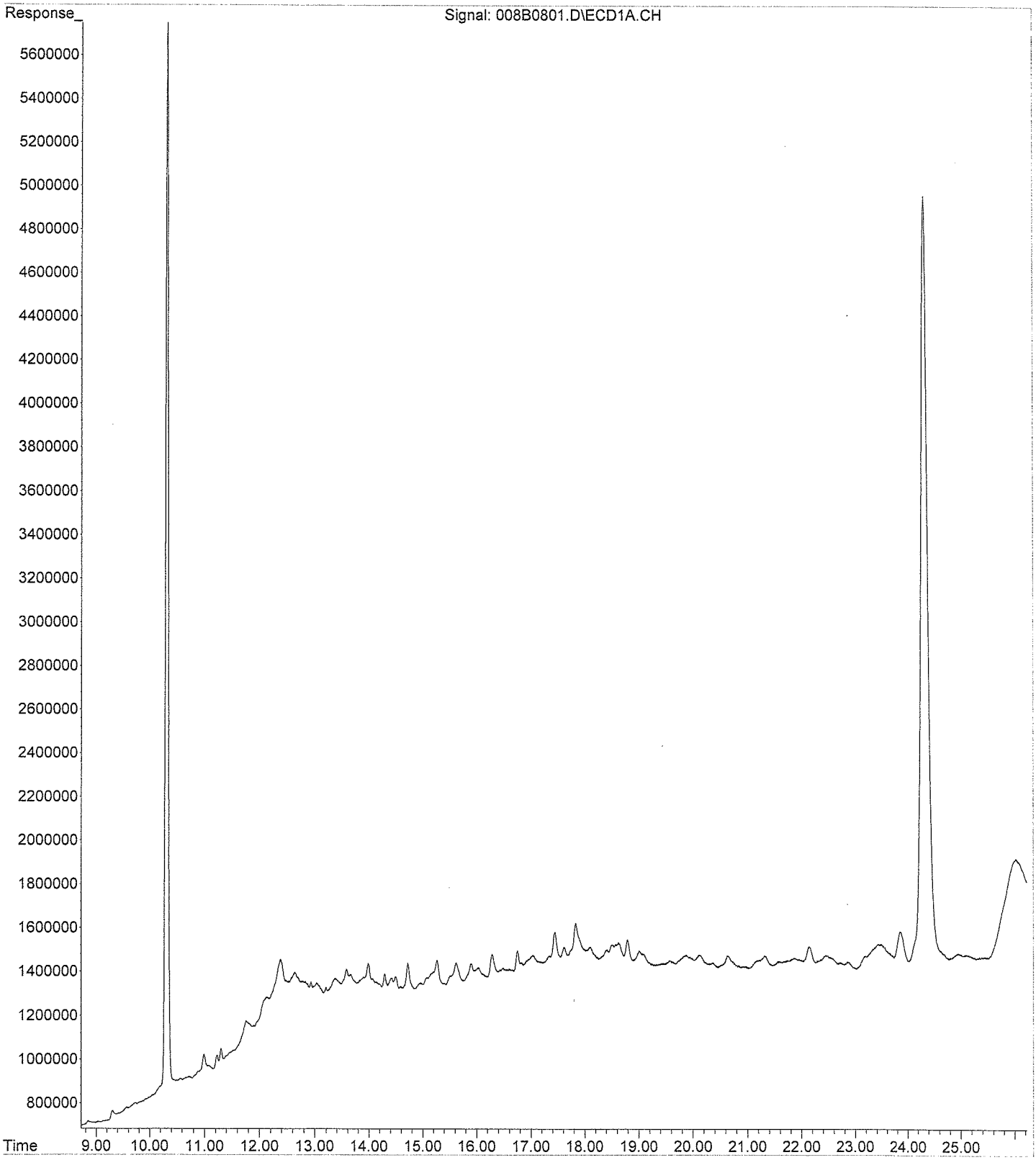
File : H:\1\DATA\072211B\008B0801.D
Operator : rdf
Acquired : 25 Jul 2011 6:58 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-005 ARO
Misc Info :
Vial Number: 8



Lab Number:	21206-009
Sample Designation:	TP6-3-N-A
Date Sampled:	07/18/11 1300
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	0.54	0.0059
Aroclor 1260	0.019	0.0059
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	80	30 - 150
decachlorobiphenyl	85	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

ESI

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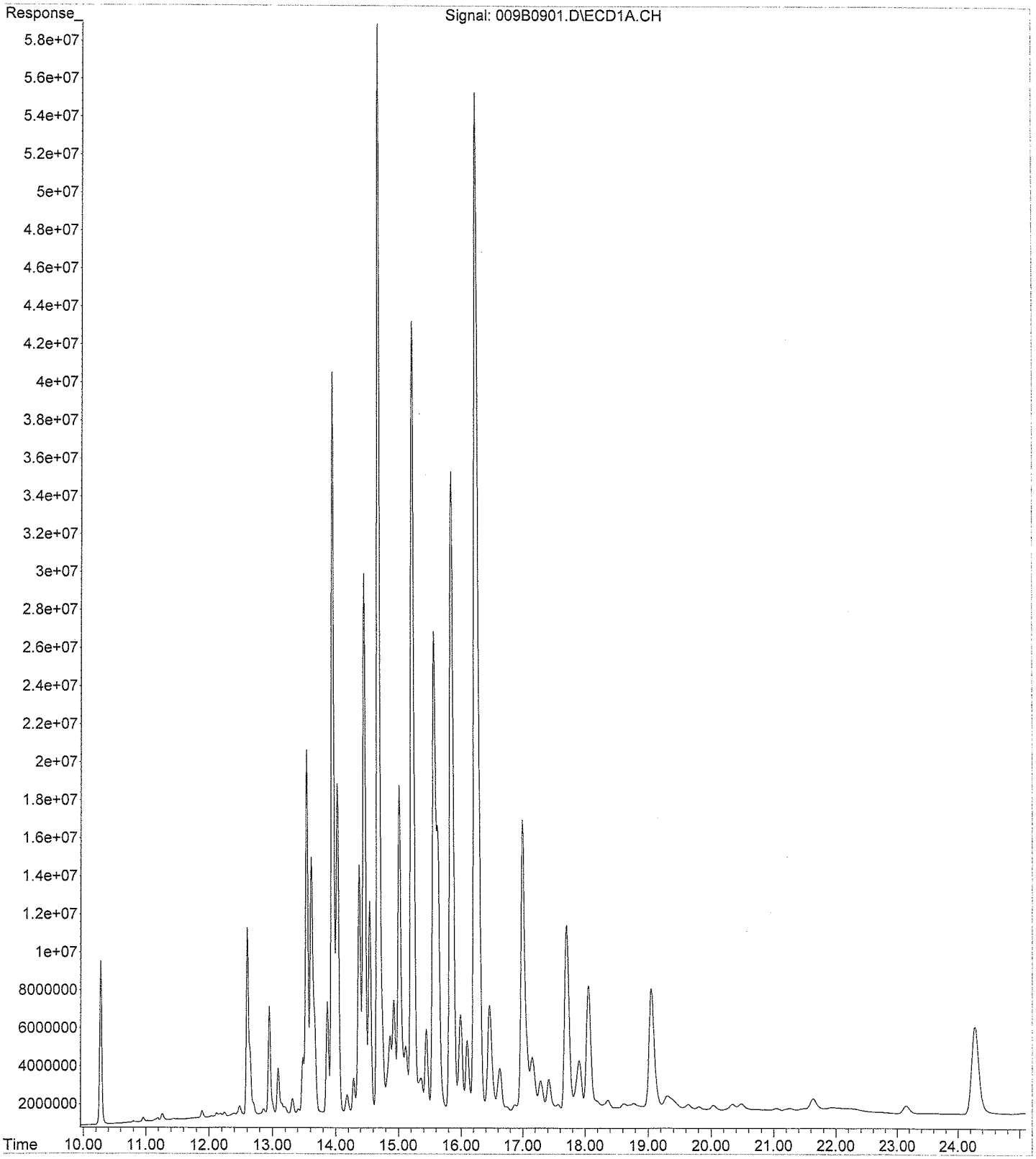
File : H:\1\DATA\072211B\009B0901.D
Operator : rdf
Acquired : 25 Jul 2011 7:34 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-009 ARO
Misc Info :
Vial Number: 9



Lab Number:	21206-013
Sample Designation:	TP6-3-N-B
Date Sampled:	07/18/11 1330
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	81
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0062
Aroclor 1221	U	0.0062
Aroclor 1232	U	0.0062
Aroclor 1248	U	0.0062
Aroclor 1254	U	0.0062
Aroclor 1260	U	0.0062
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	87	30 - 150
decachlorobiphenyl	91	30 - 150

U = Below quantitation limit

ESI

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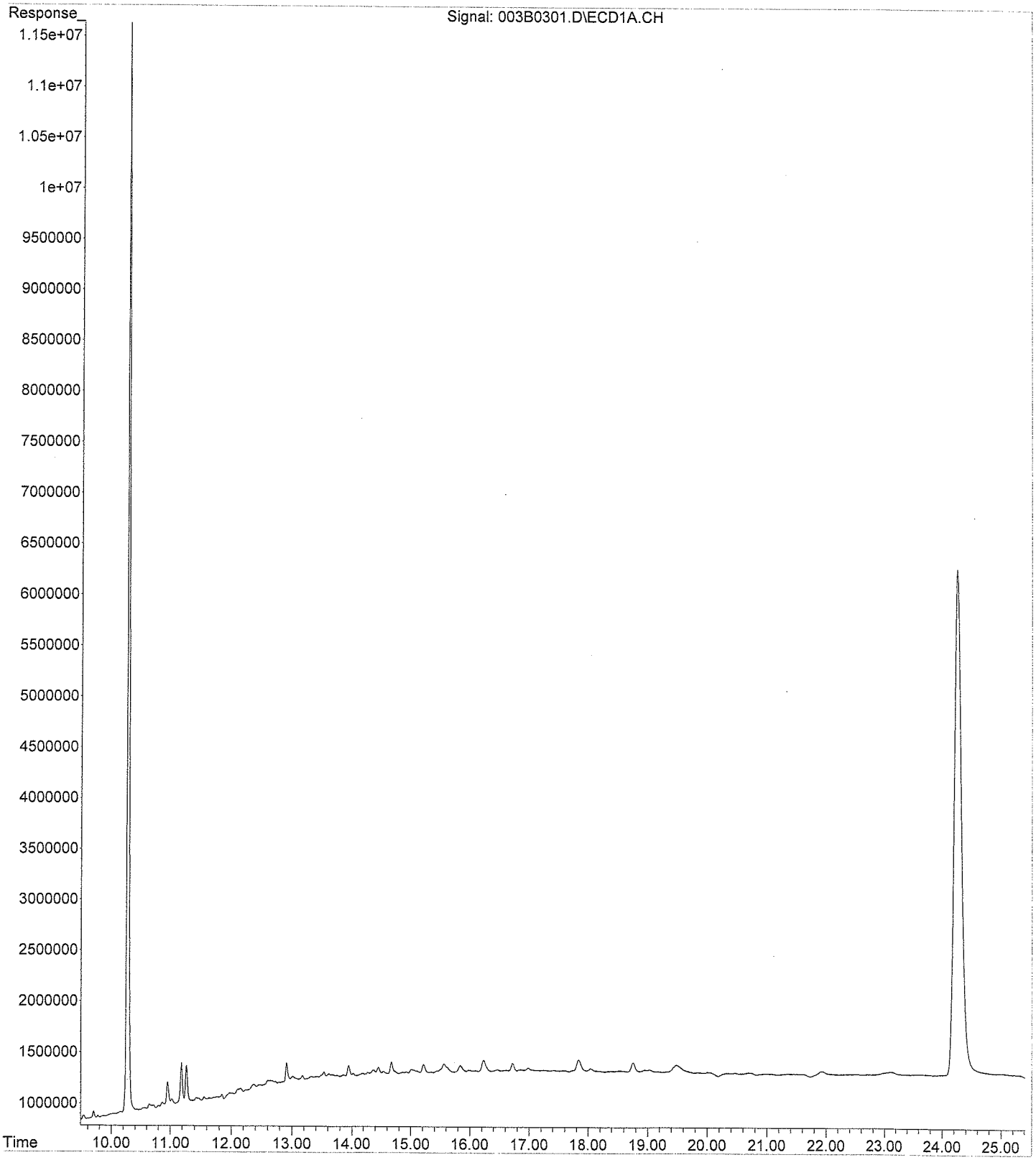
File : H:\1\DATA\072211B\003B0301.D
Operator : rdf
Acquired : 25 Jul 2011 3:54 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-013 ARO
Misc Info :
Vial Number: 3



Lab Number:	21206-018
Sample Designation:	TP6-2-W-A
Date Sampled:	07/19/11 0900
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	1.70	0.0058
Aroclor 1260	U	0.0058

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	91	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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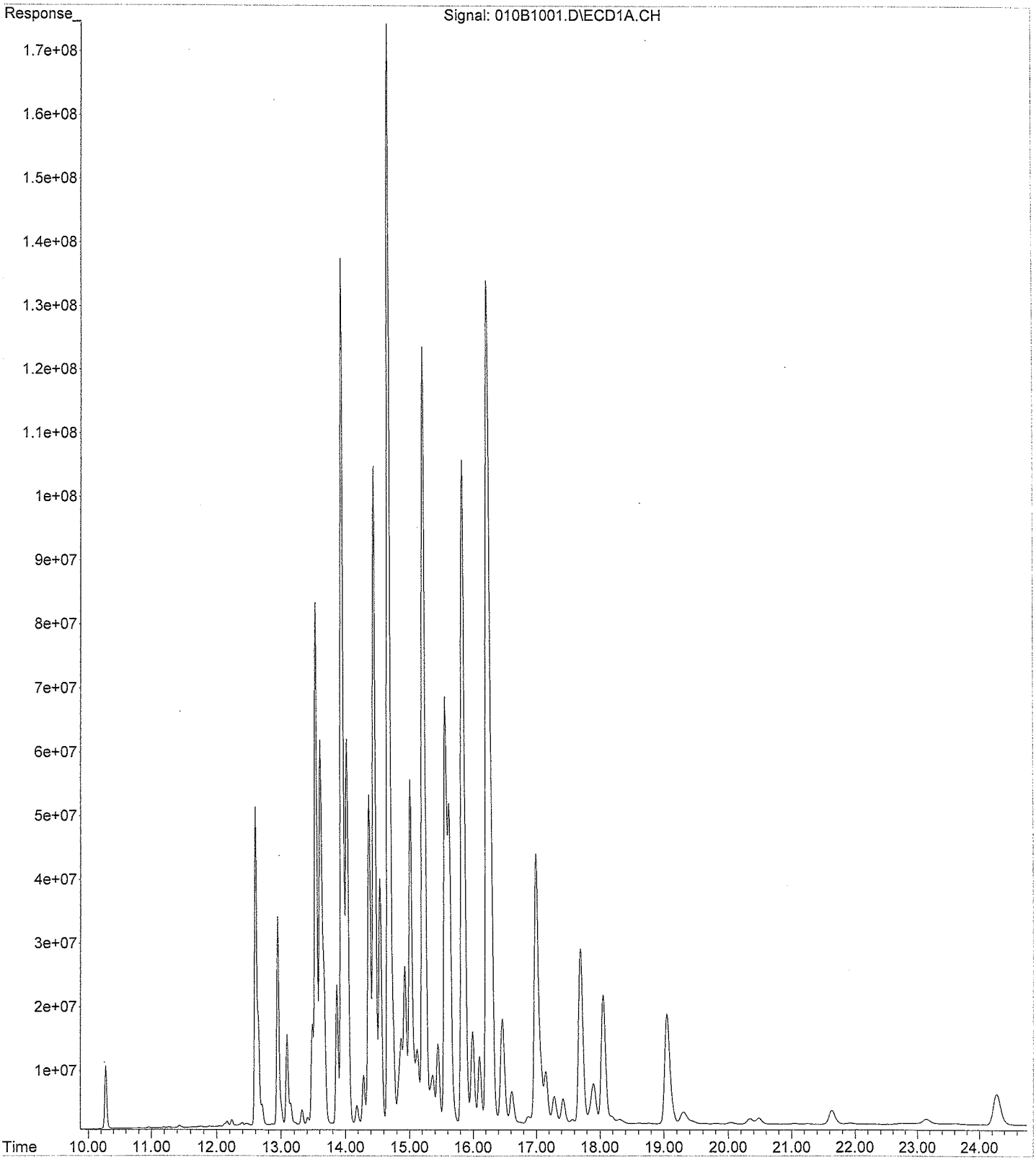
File : H:\1\DATA\072211B\010B1001.D
Operator : rdf
Acquired : 25 Jul 2011 8:11 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-018 ARO
Misc Info :
Vial Number: 10



Lab Number:	21206-022
Sample Designation:	TP6-2-W-M
Date Sampled:	07/19/11 0915
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	26
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.019
Aroclor 1221	U	0.019
Aroclor 1232	U	0.019
Aroclor 1248	U	0.019
Aroclor 1254	U	0.019
Aroclor 1260	U	0.019

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	72	30 - 150
decachlorobiphenyl	70	30 - 150

U = Below quantitation limit

ESI

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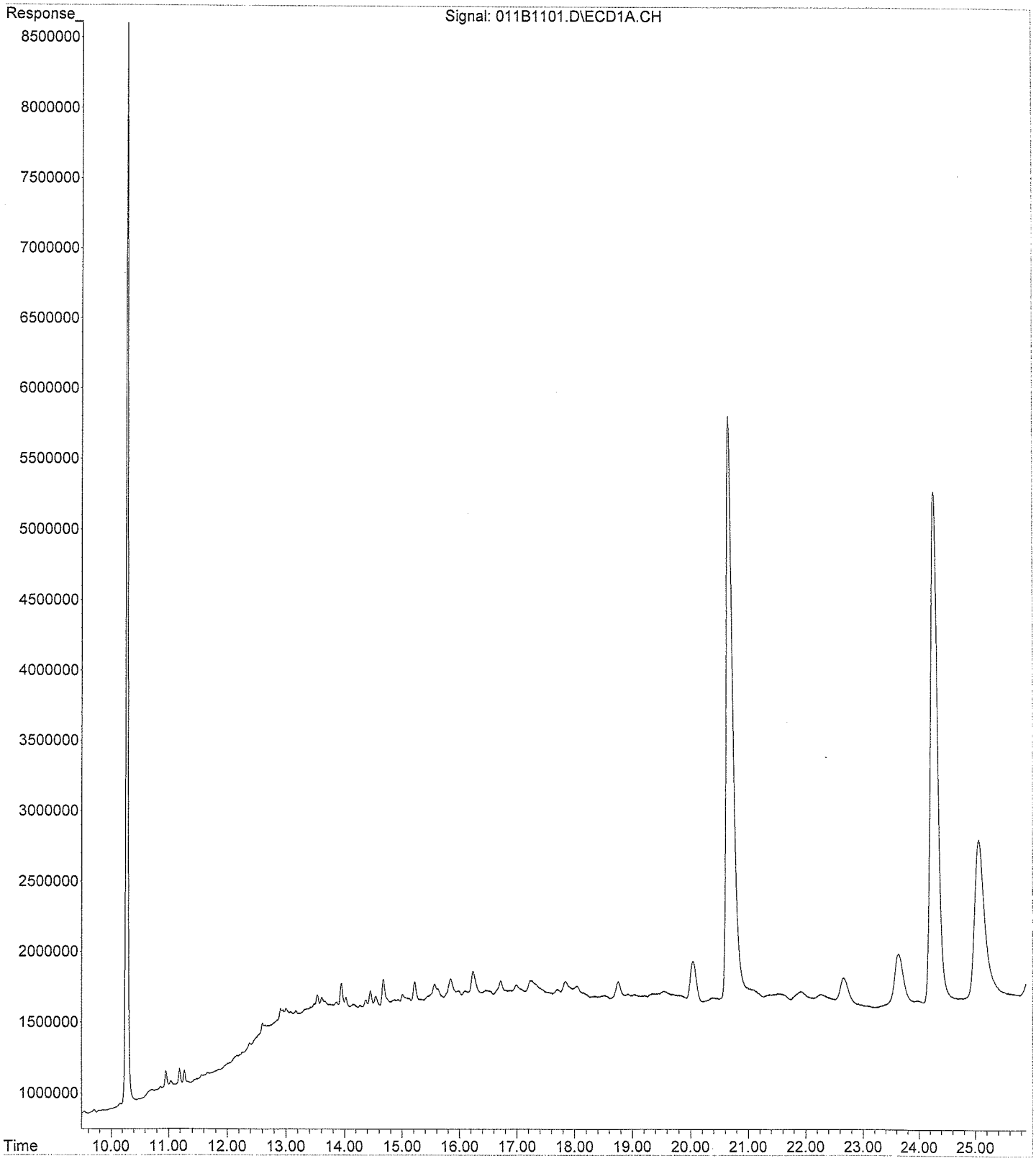
File : H:\1\DATA\072211B\011B1101.D
Operator : rdf
Acquired : 25 Jul 2011 8:48 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-022 ARO
Misc Info :
Vial Number: 11



Lab Number:	21206-026
Sample Designation:	TP6-2-W-B
Date Sampled:	07/19/11 0930
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	90
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	U	0.0056
Aroclor 1260	U	0.0056

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	78	30 - 150
decachlorobiphenyl	91	30 - 150

U = Below quantitation limit

ESI

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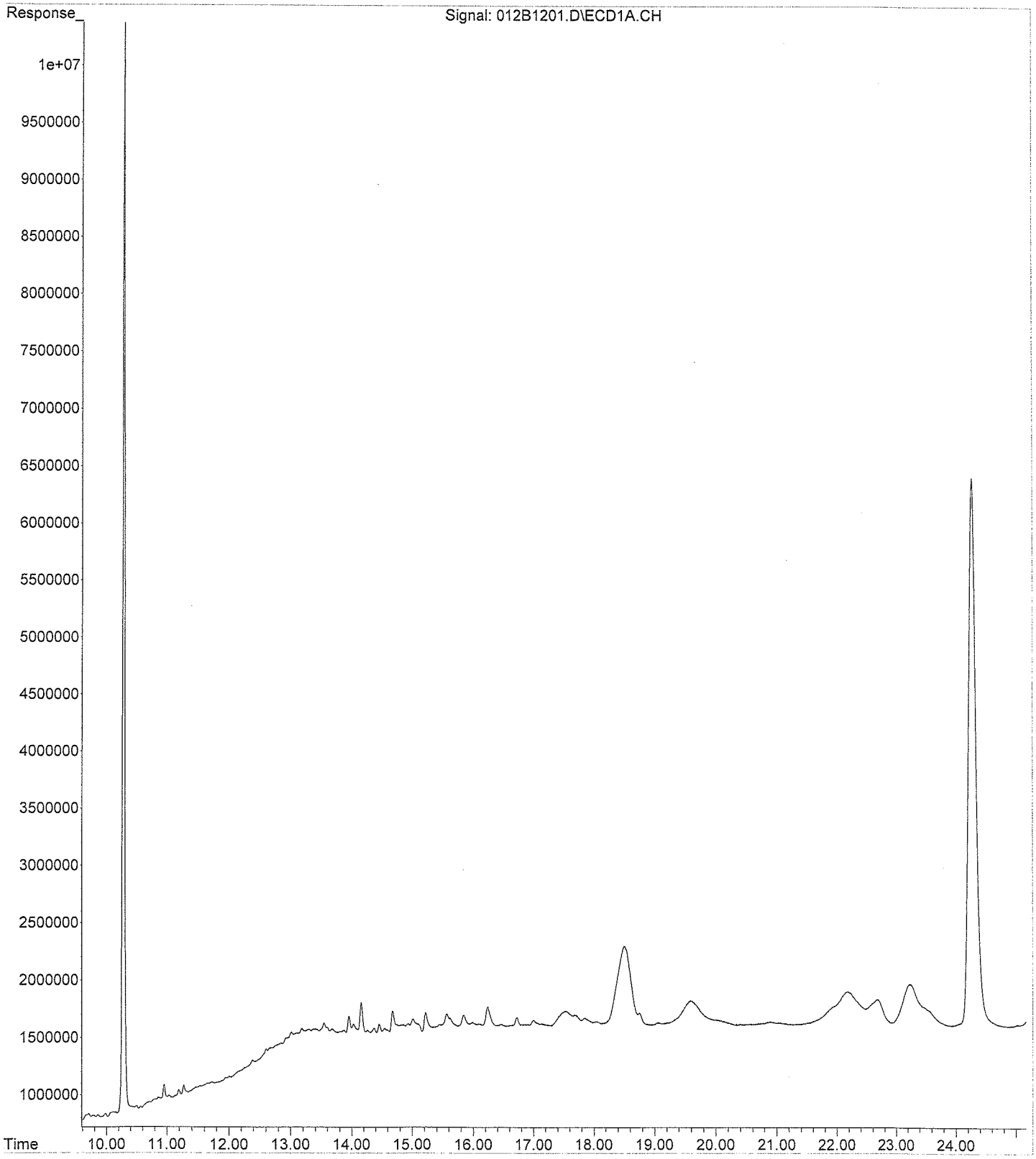
File : H:\1\DATA\072211B\012B1201.D
Operator : rdf
Acquired : 25 Jul 2011 9:24 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-026 ARO
Misc Info :
Vial Number: 12



Lab Number:	21206-030
Sample Designation:	TP2-1-W-H
Date Sampled:	07/19/11 1000
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	U	0.0058
Aroclor 1260	U	0.0058
sum(		

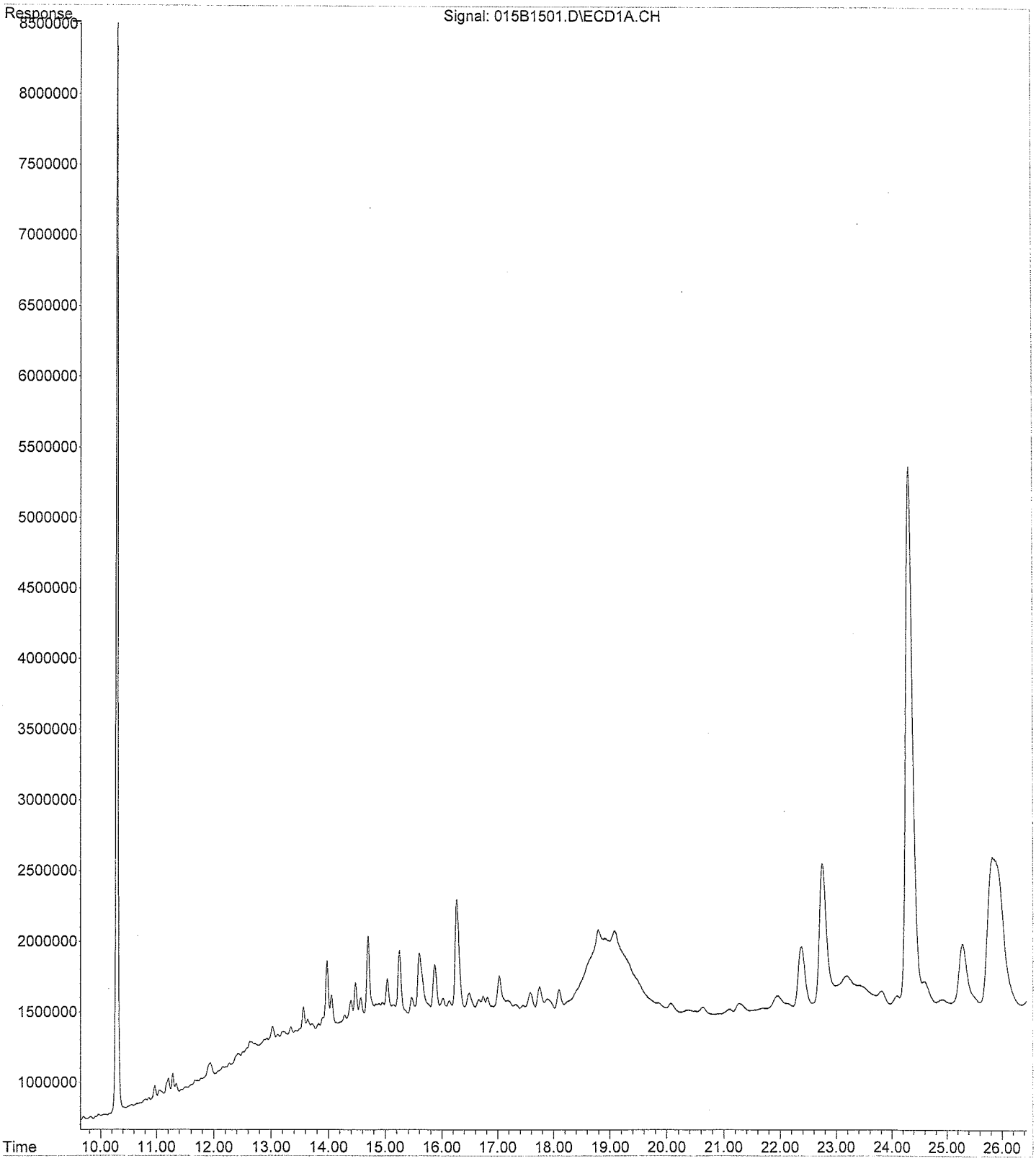
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	64	30 - 150
decachlorobiphenyl	75	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : H:\1\DATA\072211B\015B1501.D
Operator : rdf
Acquired : 25 Jul 2011 11:14 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-030 ARO
Misc Info :
Vial Number: 15



Lab Number:	21206-034
Sample Designation:	TP2-2-W-M
Date Sampled:	07/19/11 1030
Date Extracted:	07/20/11
Date Analyzed:	07/25/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	U	0.0056
Aroclor 1260	U	0.0056

sum(

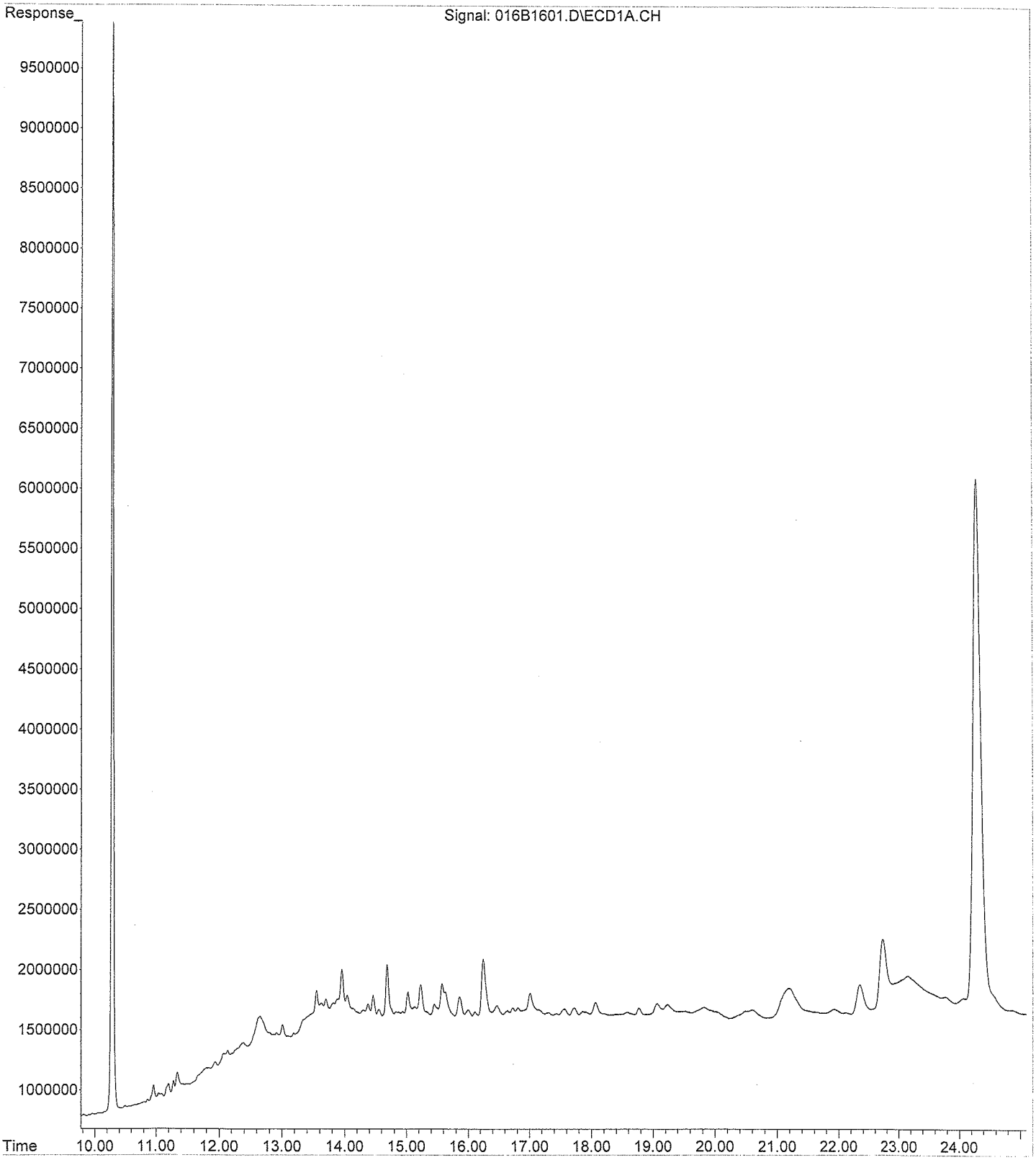
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	74	30 - 150
decachlorobiphenyl	83	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : H:\1\DATA\072211B\016B1601.D
Operator : rdf
Acquired : 25 Jul 2011 11:51 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-034 ARO
Misc Info :
Vial Number: 16



Lab Number:	21206-038
Sample Designation:	TP2-4-W-A
Date Sampled:	07/19/11 1100
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	91
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	0.0077	0.0055
Aroclor 1221	U	0.0055
Aroclor 1232	U	0.0055
Aroclor 1248	U	0.0055
Aroclor 1254	0.17	0.0055
Aroclor 1260	0.012	0.0055
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	91	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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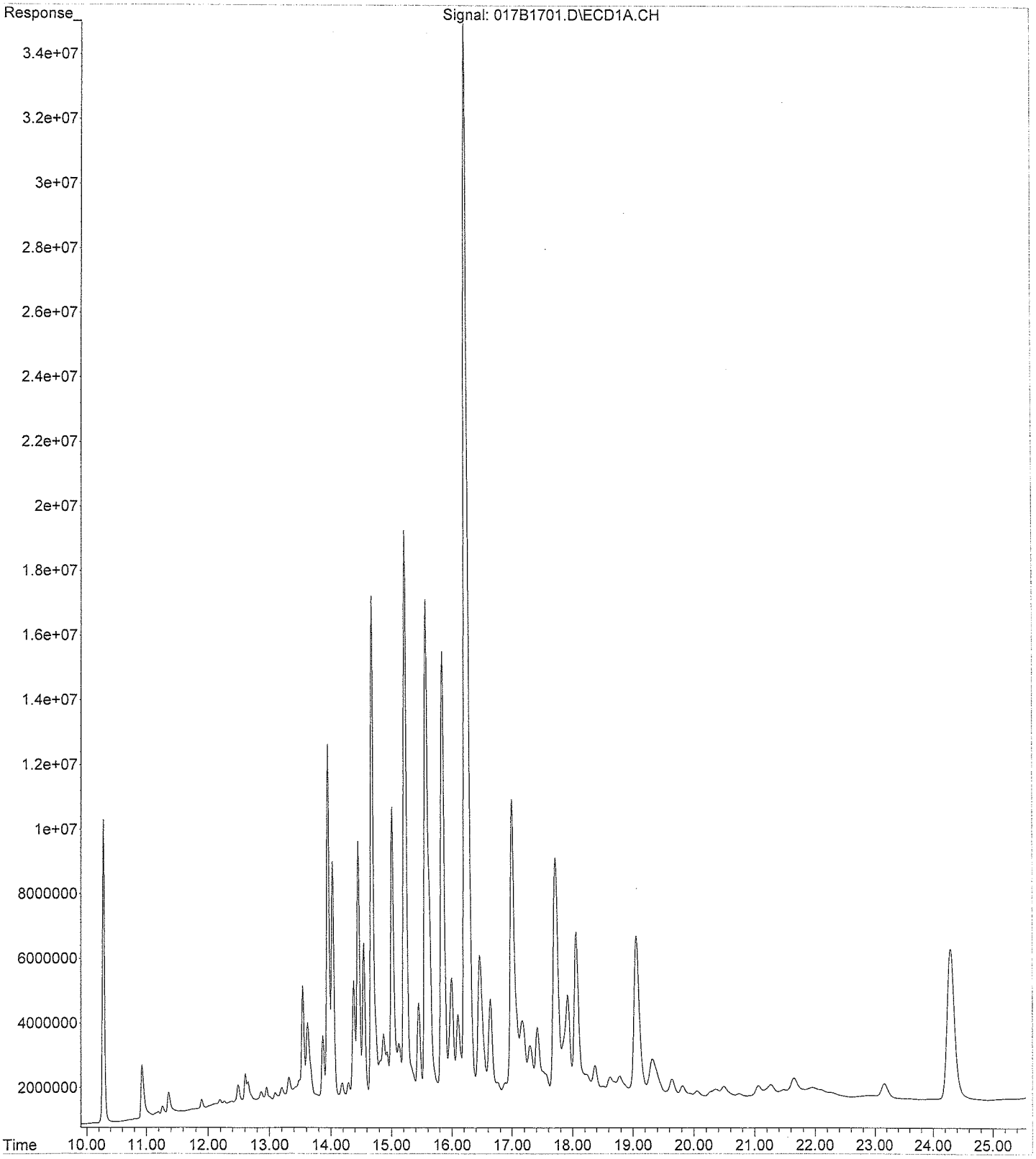
File : H:\1\DATA\072211B\017B1701.D
Operator : rdf
Acquired : 26 Jul 2011 12:28 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-038 ARO
Misc Info :
Vial Number: 17



Lab Number:	21206-042
Sample Designation:	TP2-4-W-B
Date Sampled:	07/19/11 1115
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	0.09	0.0057
Aroclor 1260	0.0059	0.0057
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	91	30 - 150
decachlorobiphenyl	109	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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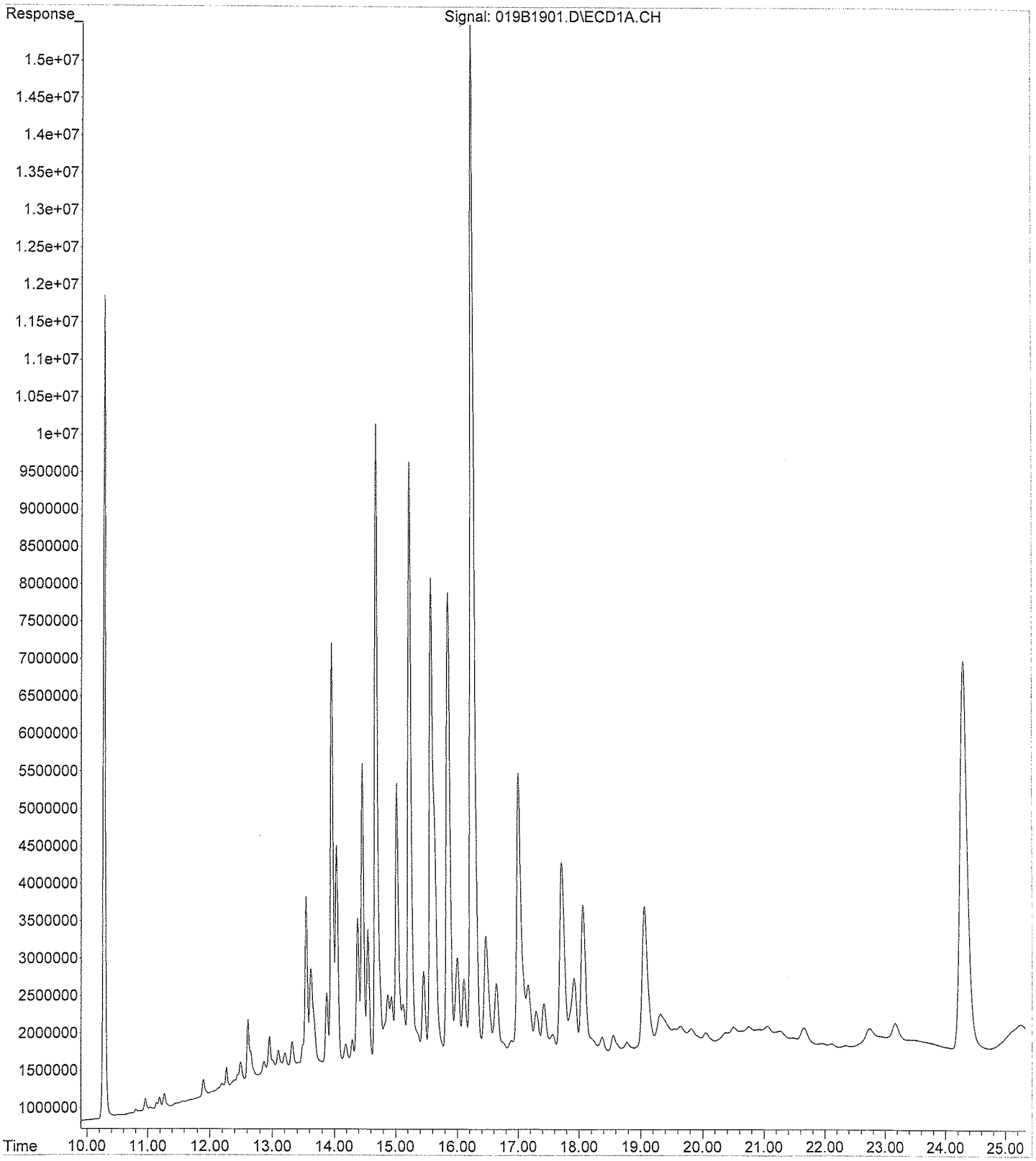
File : H:\1\DATA\072211B\019B1901.D
Operator : rdf
Acquired : 26 Jul 2011 1:41 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-042 ARO
Misc Info :
Vial Number: 19



Lab Number:	21206-046
Sample Designation:	TP4-1-E
Date Sampled:	07/19/11 1200
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.57	0.0067
Aroclor 1260	U	0.0067
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	90	30 - 150
decachlorobiphenyl	111	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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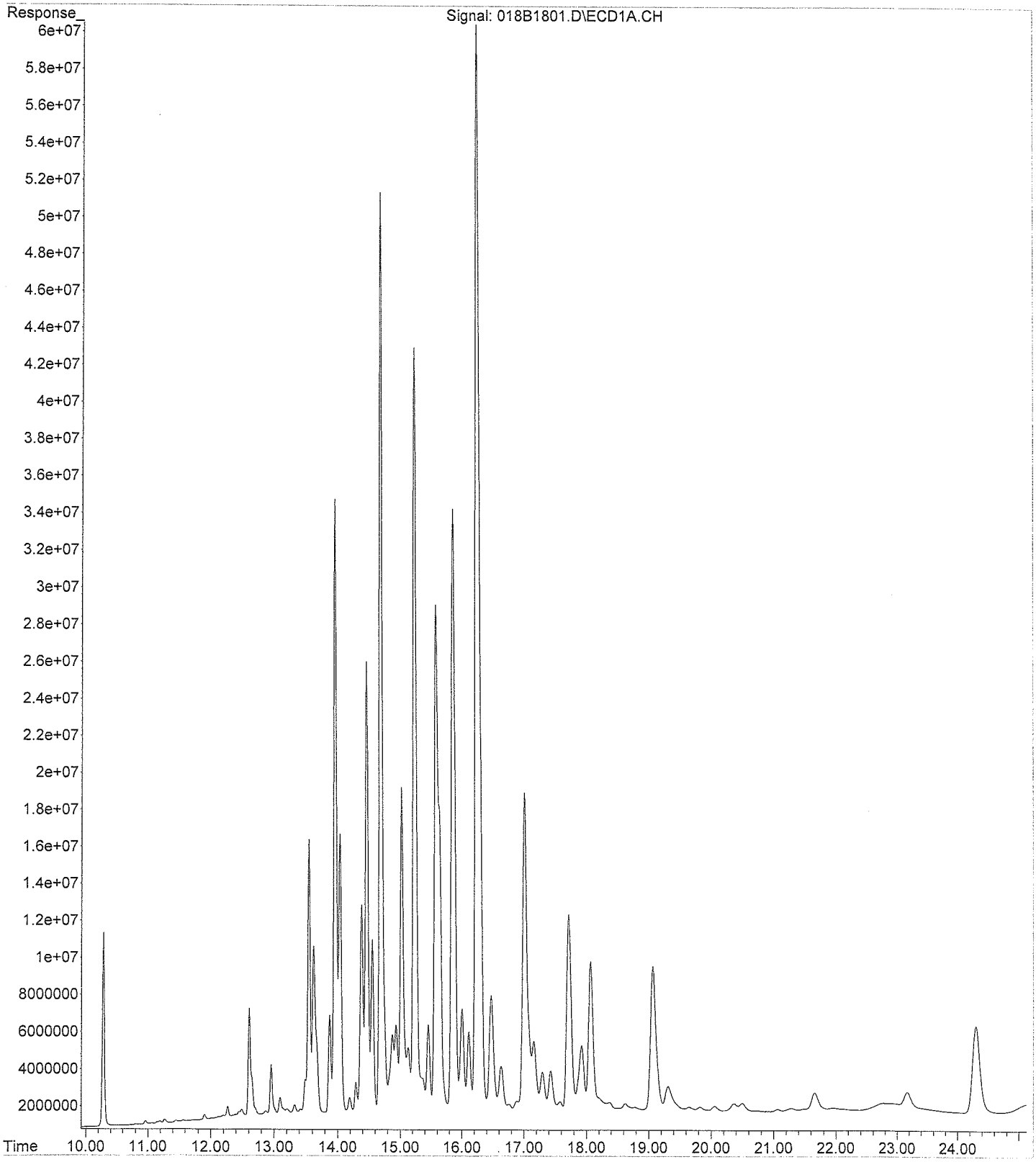
File : H:\1\DATA\072211B\018B1801.D
Operator : rdf
Acquired : 26 Jul 2011 1:04 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: ~~21206-040~~ ARO 21206-046
Misc Info :
Vial Number: 18



Lab Number:	21206-050
Sample Designation:	TP3-1-S
Date Sampled:	07/19/11 1300
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	72
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0069
Aroclor 1221	U	0.0069
Aroclor 1232	U	0.0069
Aroclor 1248	U	0.0069
Aroclor 1254	U	0.0069
Aroclor 1260	U	0.0069

sum(SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	97	30 - 150
decachlorobiphenyl	91	30 - 150

U = Below quantitation limit

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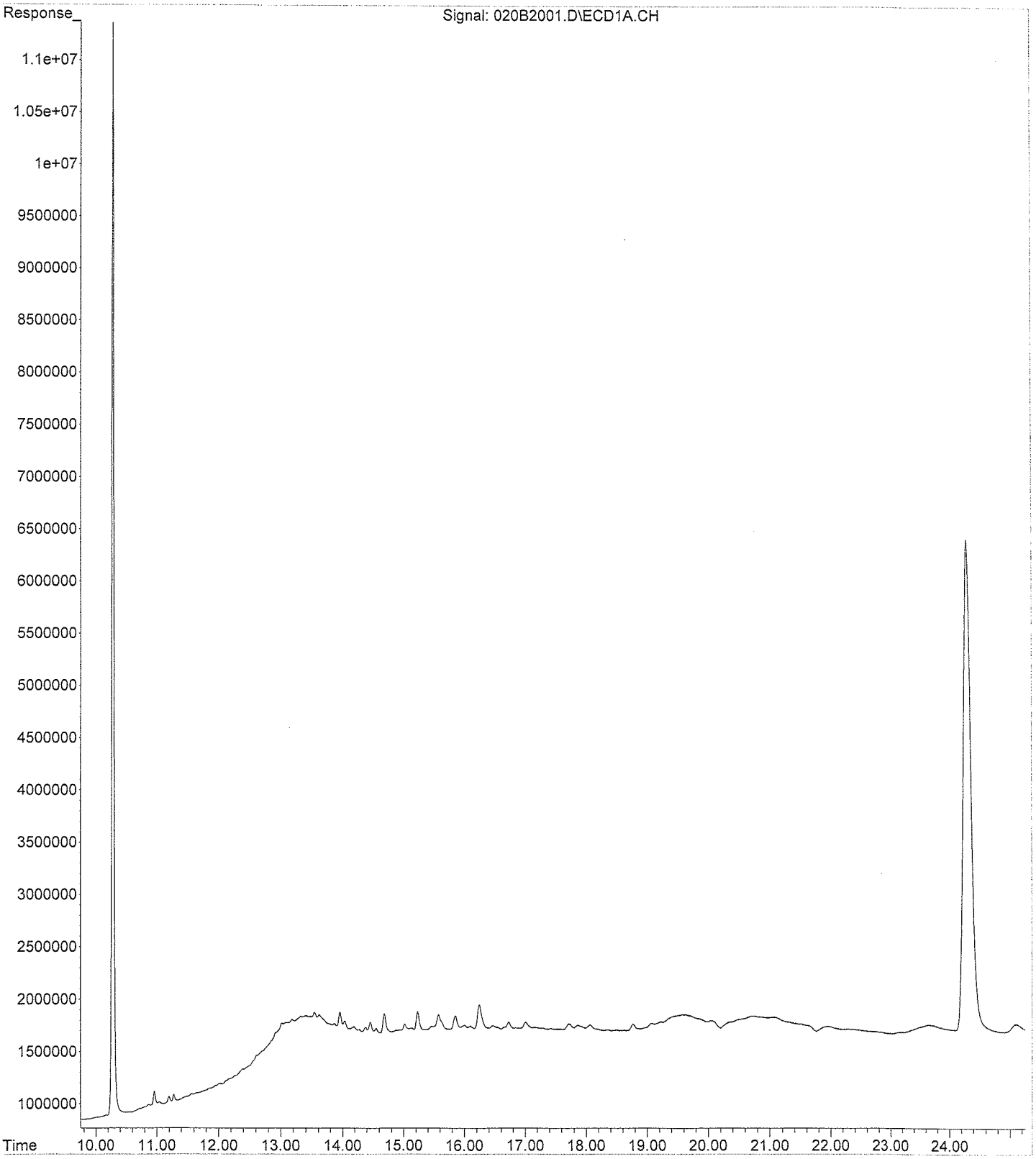
File : H:\1\DATA\072211B\020B2001.D
Operator : rdf
Acquired : 26 Jul 2011 2:18 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-050 ARO
Misc Info :
Vial Number: 20



Lab Number:	21206-052
Sample Designation:	TP3-2-S-A
Date Sampled:	07/19/11 1400
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	87
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	1.30	0.0058
Aroclor 1260	0.06	0.0058
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	108	30 - 150

U = Below quantitation limit

Aroclor 1254 concentration was above the calibration limit but within the linear response range of the instrument. This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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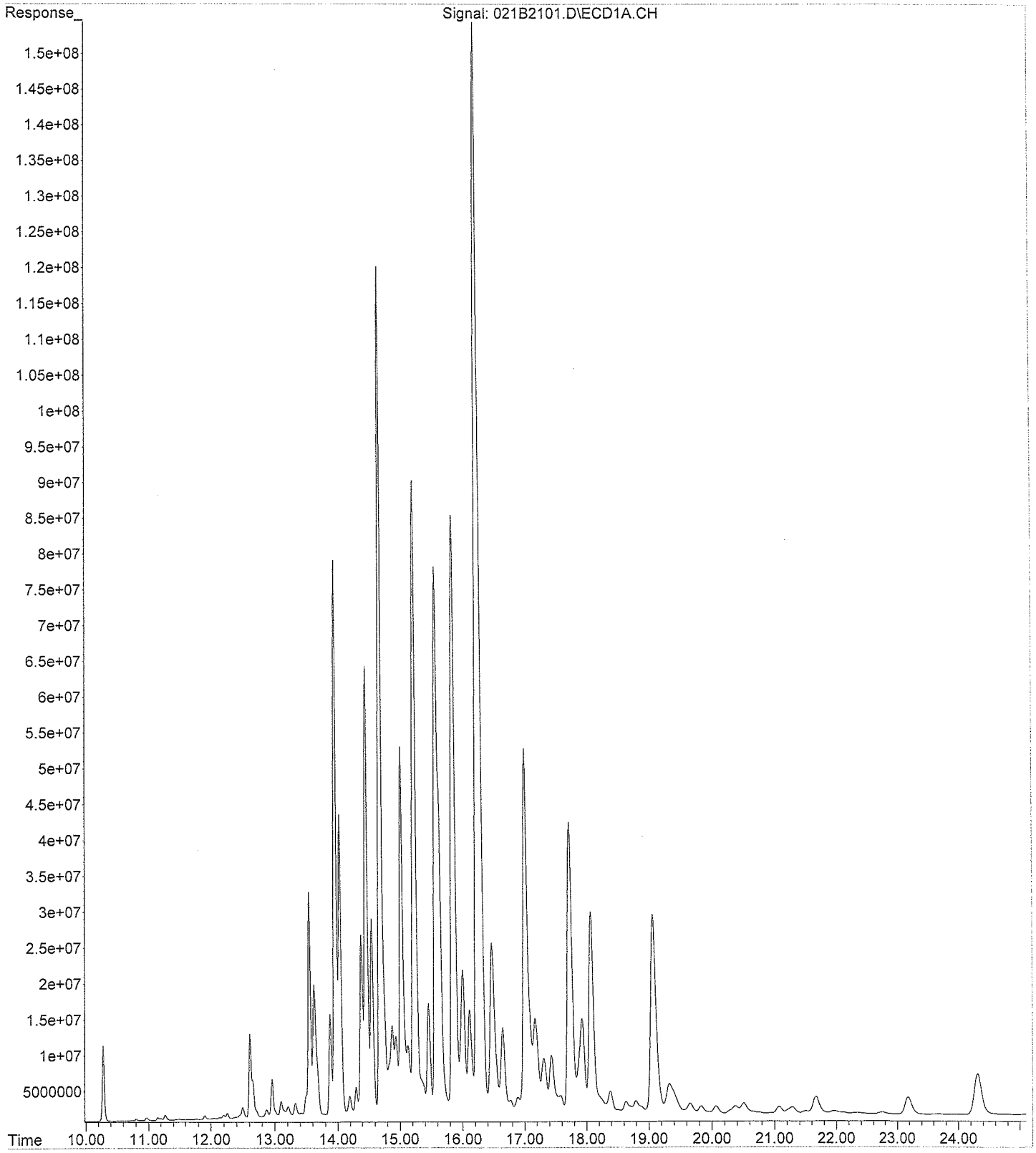
File : H:\1\DATA\072211B\021B2101.D
Operator : rdf
Acquired : 26 Jul 2011 2:54 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-052 ARO
Misc Info :
Vial Number: 21



Lab Number:	21206-054
Sample Designation:	TP3-2-S-M
Date Sampled:	07/19/11 1415
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.42	0.0056
Aroclor 1260	0.019	0.0056
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	94	30 - 150
decachlorobiphenyl	96	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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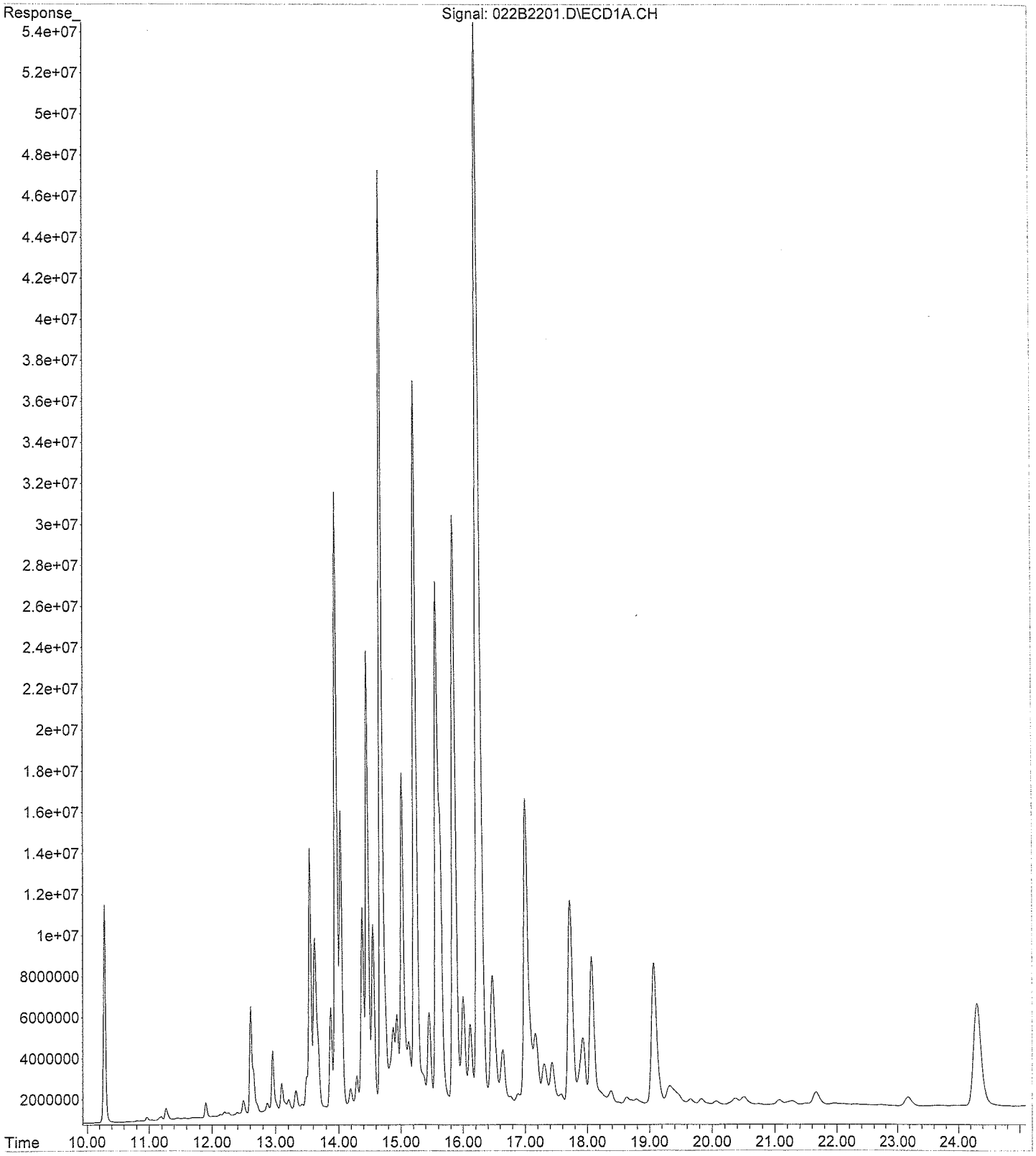
File : H:\1\DATA\072211B\022B2201.D
Operator : rdf
Acquired : 26 Jul 2011 3:31 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-054 ARO
Misc Info :
Vial Number: 22



Lab Number:	21206-056
Sample Designation:	TP3-2-S-B
Date Sampled:	07/19/11 1430
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	U	0.0059
Aroclor 1260	U	0.0059
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	100	30 - 150
decachlorobiphenyl	98	30 - 150

U = Below quantitation limit

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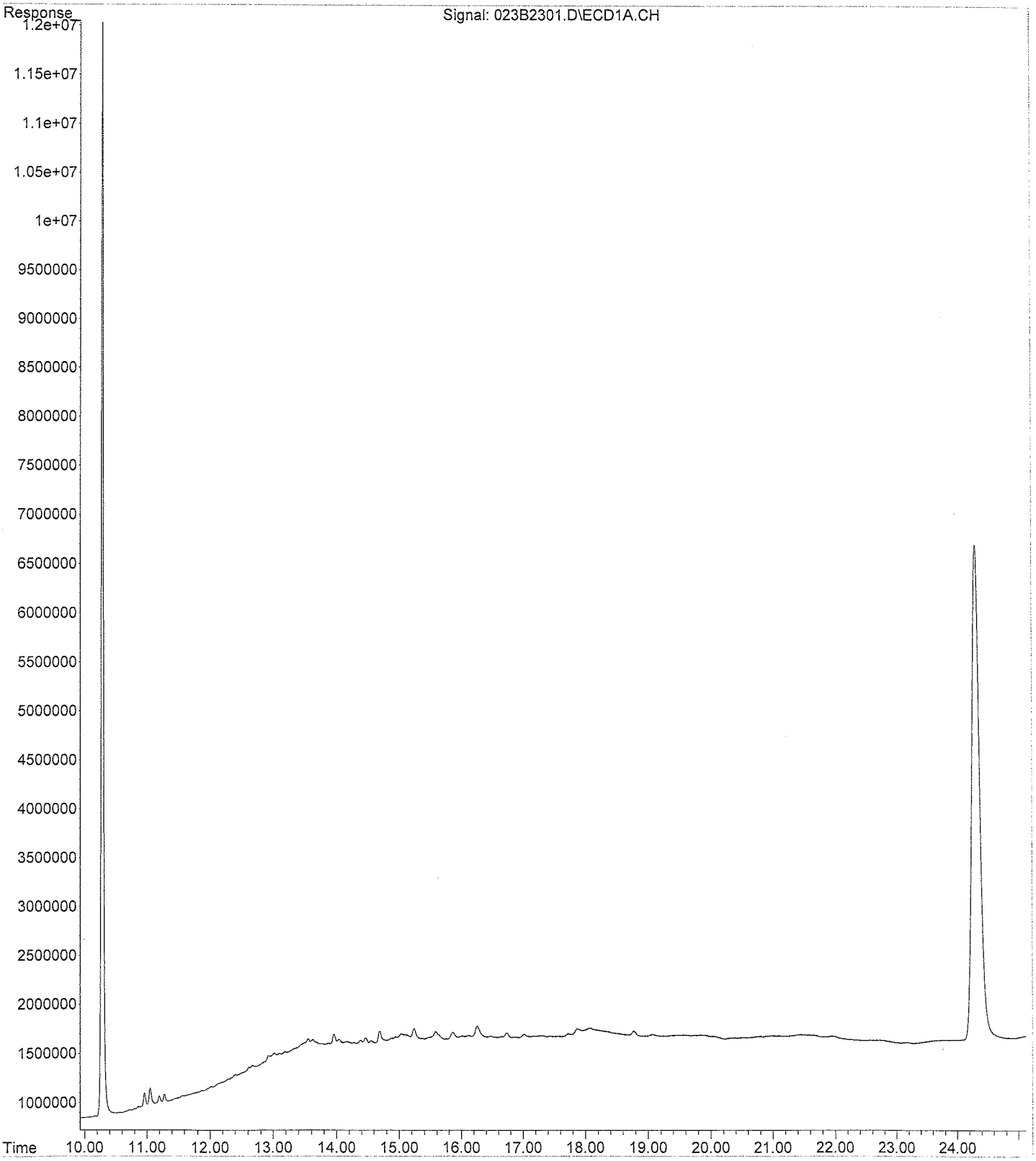
File : H:\1\DATA\072211B\023B2301.D
Operator : rdf
Acquired : 26 Jul 2011 4:07 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-056 ARO
Misc Info :
Vial Number: 23



Lab Number:	21206-059
Sample Designation:	TP4-1-S-A
Date Sampled:	07/20/11 1000
Date Extracted:	07/20/11
Date Analyzed:	07/26/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	0.36	0.0058
Aroclor 1260	0.041	0.0058
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	100	30 - 150
decachlorobiphenyl	102	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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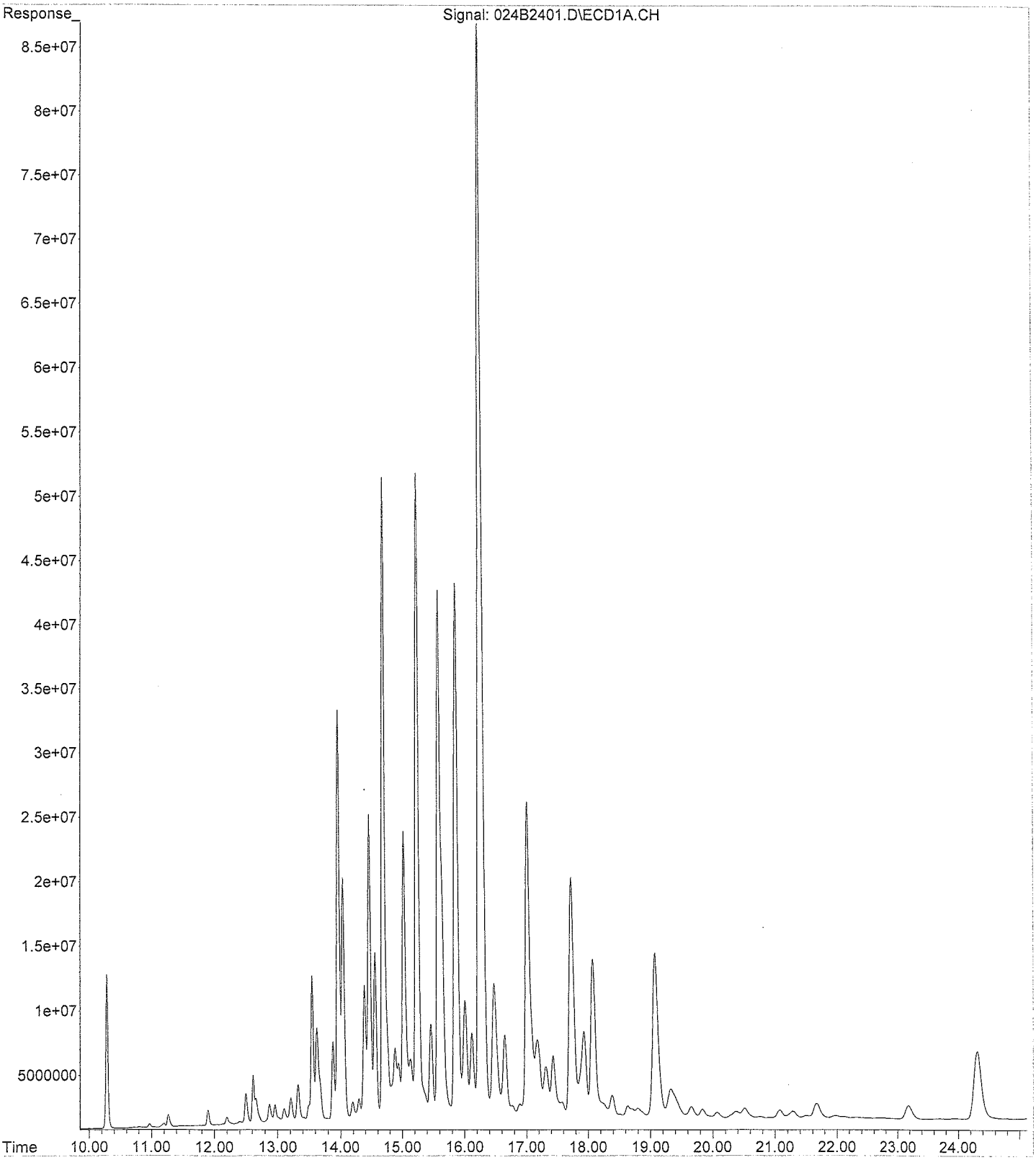
File : H:\1\DATA\072211B\024B2401.D
Operator : rdf
Acquired : 26 Jul 2011 4:44 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-059 ARO
Misc Info :
Vial Number: 24



Lab Number:	21206-061
Sample Designation:	TP4-1-S-M
Date Sampled:	07/20/11 1015
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.006	0.0056
Aroclor 1260	U	0.0056
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	62	30 - 150
decachlorobiphenyl	70	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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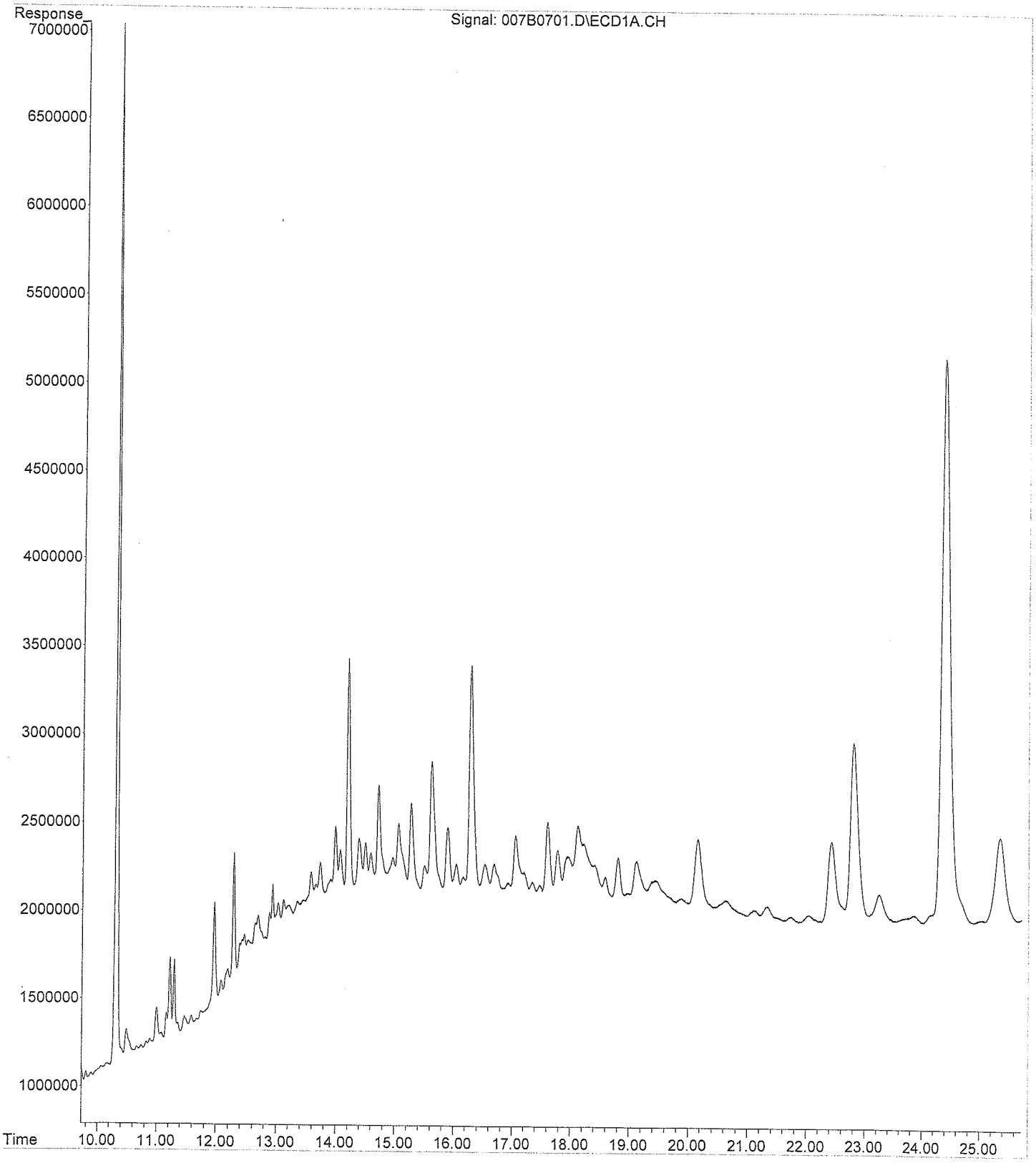
File : H:\1\DATA\072211C\007B0701.D
Operator : rdf
Acquired : 27 Jul 2011 3:31 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-061 ARO
Misc Info :
Vial Number: 7



Lab Number:	21206-063
Sample Designation:	TP4-1-S-B
Date Sampled:	07/20/11 1020
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	U	0.0059
Aroclor 1260	U	0.0059

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	59	30 - 150
decachlorobiphenyl	71	30 - 150

U = Below quantitation limit

ESI

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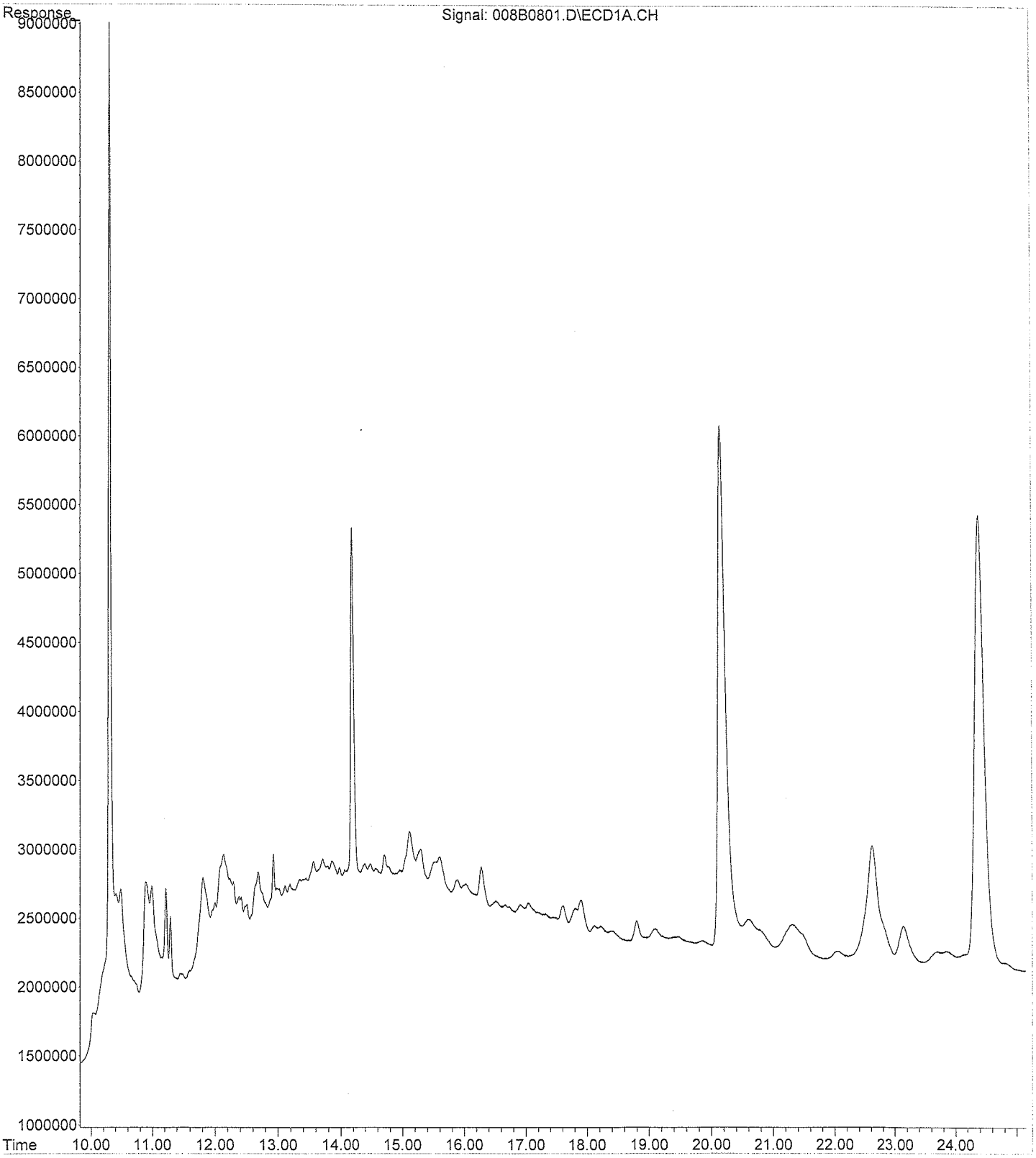
File : H:\1\DATA\072211C\008B0801.D
Operator : rdf
Acquired : 27 Jul 2011 4:08 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-063 ARO
Misc Info :
Vial Number: 8



Lab Number:	21206-065
Sample Designation:	TP4-1-W-A
Date Sampled:	07/20/11 1130
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	81
Final Volume (mL)	1
Dilution Factor:	500

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	3.1
Aroclor 1221	U	3.1
Aroclor 1232	U	3.1
Aroclor 1248	U	3.1
Aroclor 1254	630	3.1
Aroclor 1260	11	3.1

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted out	30 - 150
decachlorobiphenyl	Diluted out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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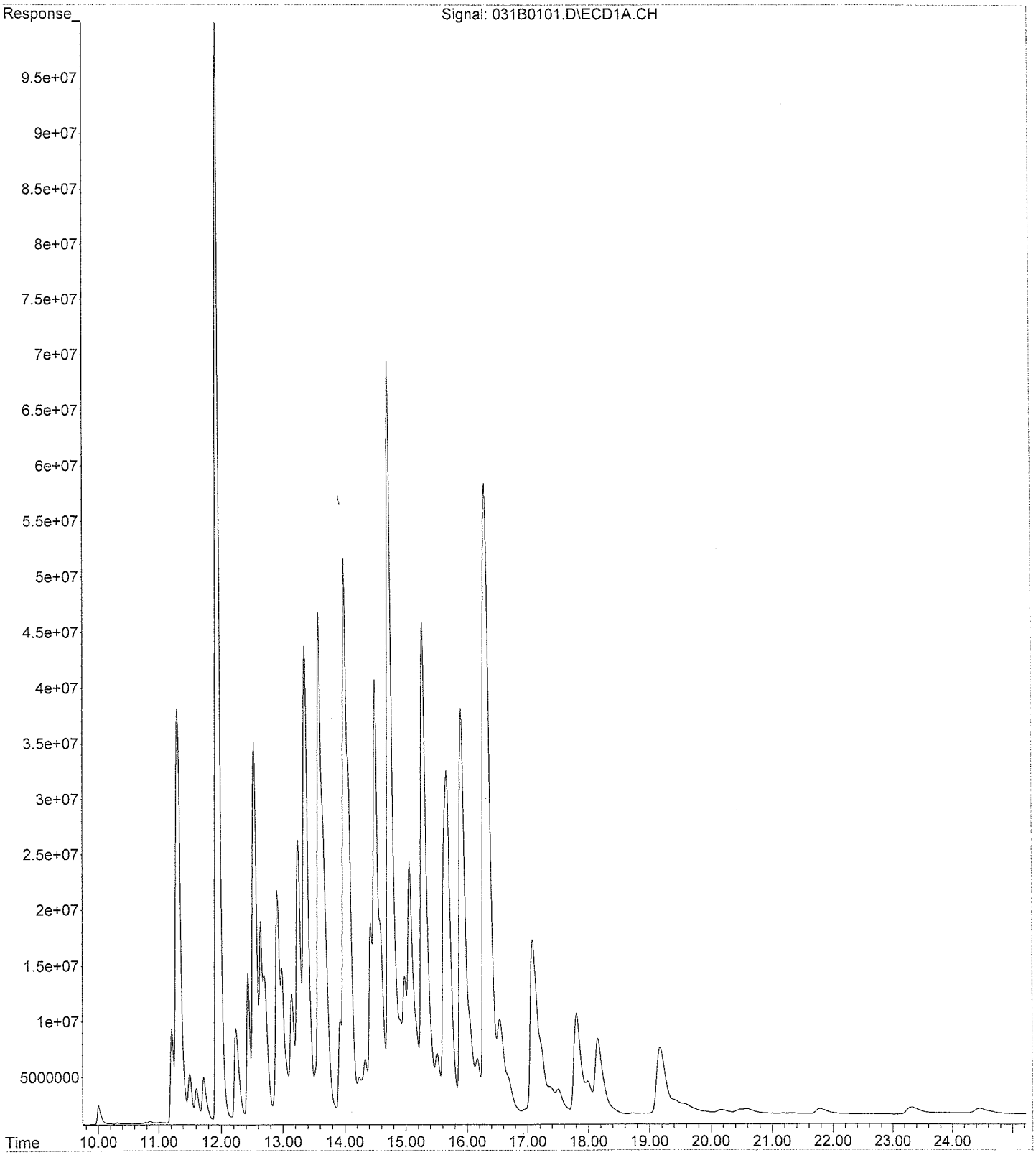
File : H:\1\DATA\072211D\031B0101.D
Operator : rdf
Acquired : 28 Jul 2011 11:30 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-065 L500
Misc Info :
Vial Number: 31



Lab Number:	21206-067
Sample Designation:	TP4-1-W-M
Date Sampled:	07/20/11 1140
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	500

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	2.9
Aroclor 1221	U	2.9
Aroclor 1232	U	2.9
Aroclor 1248	U	2.9
Aroclor 1254	970	2.9
Aroclor 1260	19	2.9

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted out	30 - 150
decachlorobiphenyl	Diluted out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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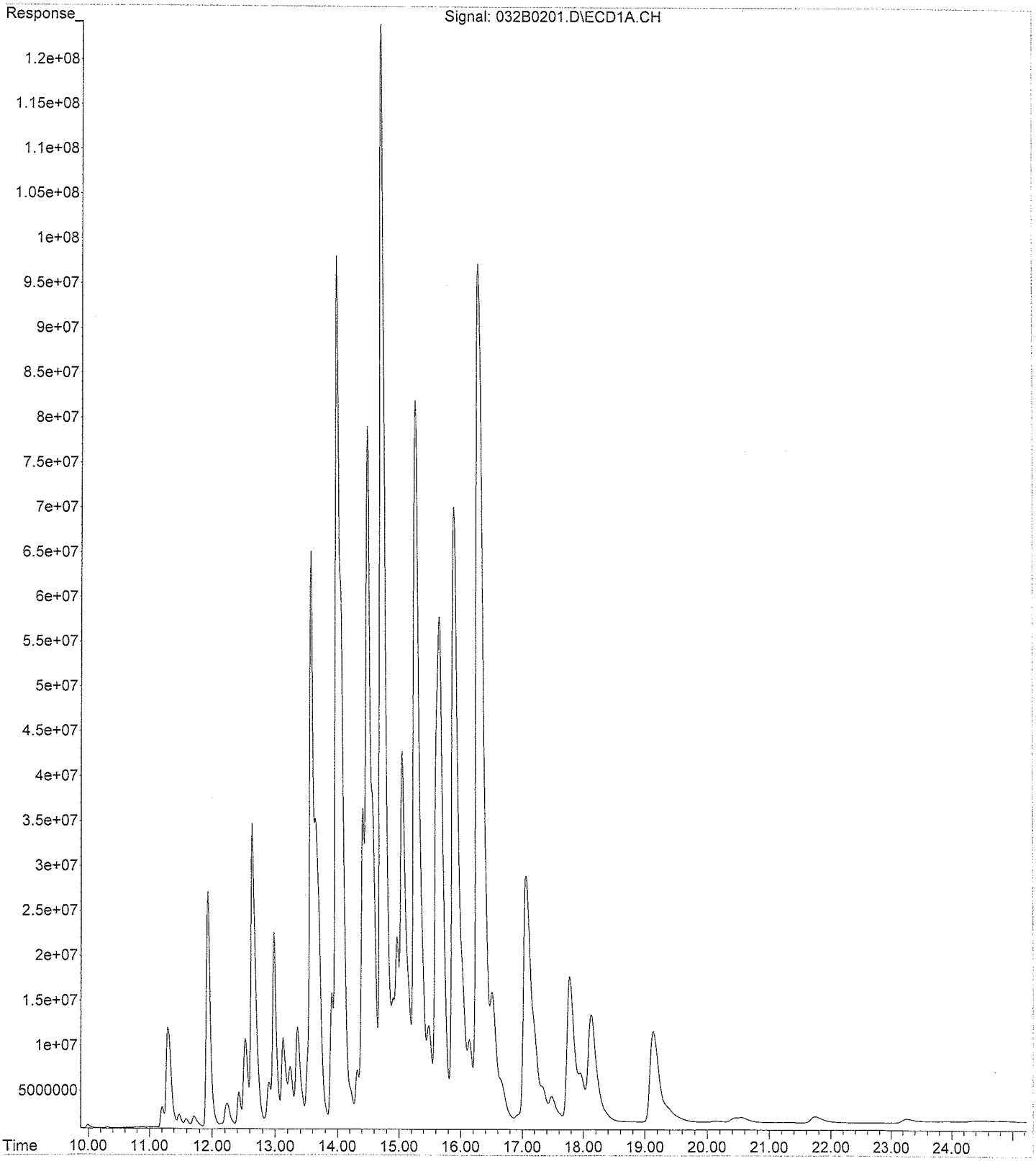
File : H:\1\DATA\072211D\032B0201.D
Operator : rdf
Acquired : 28 Jul 2011 12:06 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-067 L500
Misc Info :
Vial Number: 32



Lab Number:	21206-069
Sample Designation:	TP4-1-W-B
Date Sampled:	07/20/11 1145
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.006
Aroclor 1221	U	0.006
Aroclor 1232	U	0.006
Aroclor 1248	0.023	0.006
Aroclor 1254	0.17	0.006
Aroclor 1260	U	0.006

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	58	30 - 150
decachlorobiphenyl	69	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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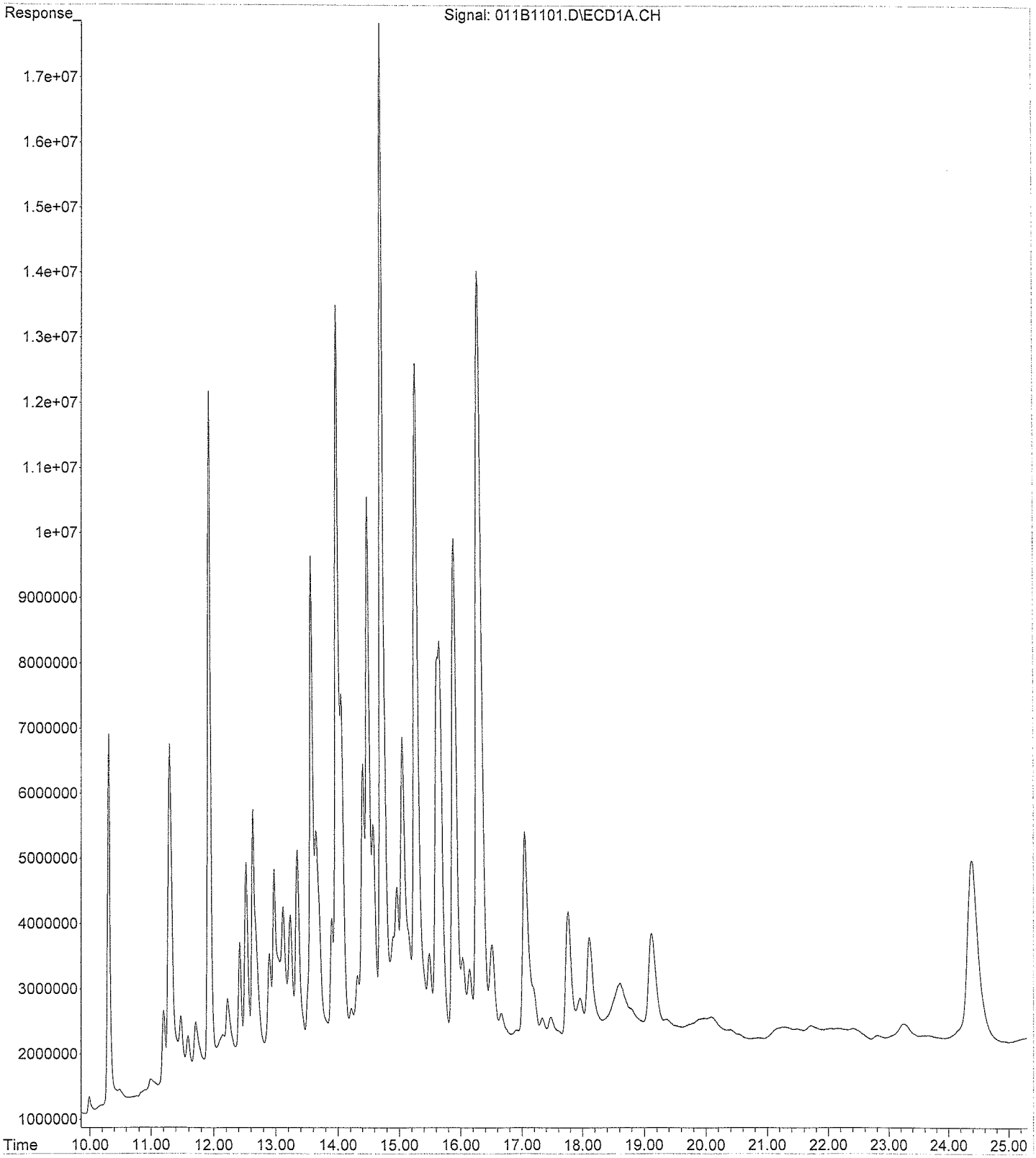
File : H:\1\DATA\072211C\011B1101.D
Operator : rdf
Acquired : 27 Jul 2011 6:00 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: ~~21206-068~~ ARO 21206-069
Misc Info :
Vial Number: 11



Lab Number:	21206-071
Sample Designation:	TP4-2-W
Date Sampled:	07/20/11 1225
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	2000

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	12
Aroclor 1221	U	12
Aroclor 1232	U	12
Aroclor 1248	U	12
Aroclor 1254	480	12
Aroclor 1260	U	12

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	Diluted out	30 - 150
decachlorobiphenyl	Diluted out	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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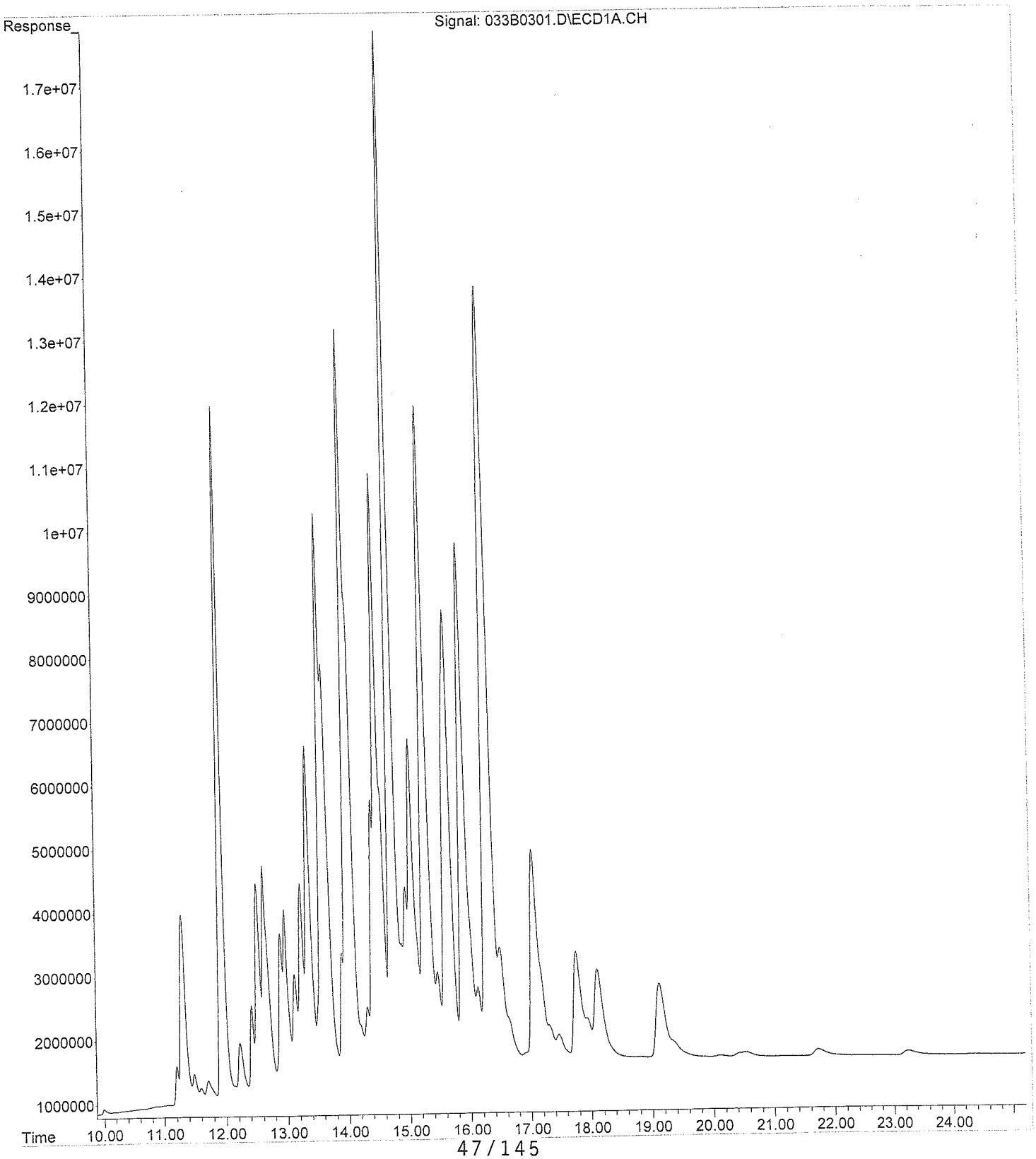
File : H:\1\DATA\072211D\033B0301.D
Operator : rdf
Acquired : 28 Jul 2011 12:43 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-071 L2000
Misc Info :
Vial Number: 33



Lab Number:	21206-073
Sample Designation:	TP9-1-E
Date Sampled:	07/20/11 1400
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	55
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0092
Aroclor 1221	U	0.0092
Aroclor 1232	U	0.0092
Aroclor 1248	U	0.0092
Aroclor 1254	0.014	0.0092
Aroclor 1260	U	0.0092

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	58	30 - 150
decachlorobiphenyl	64	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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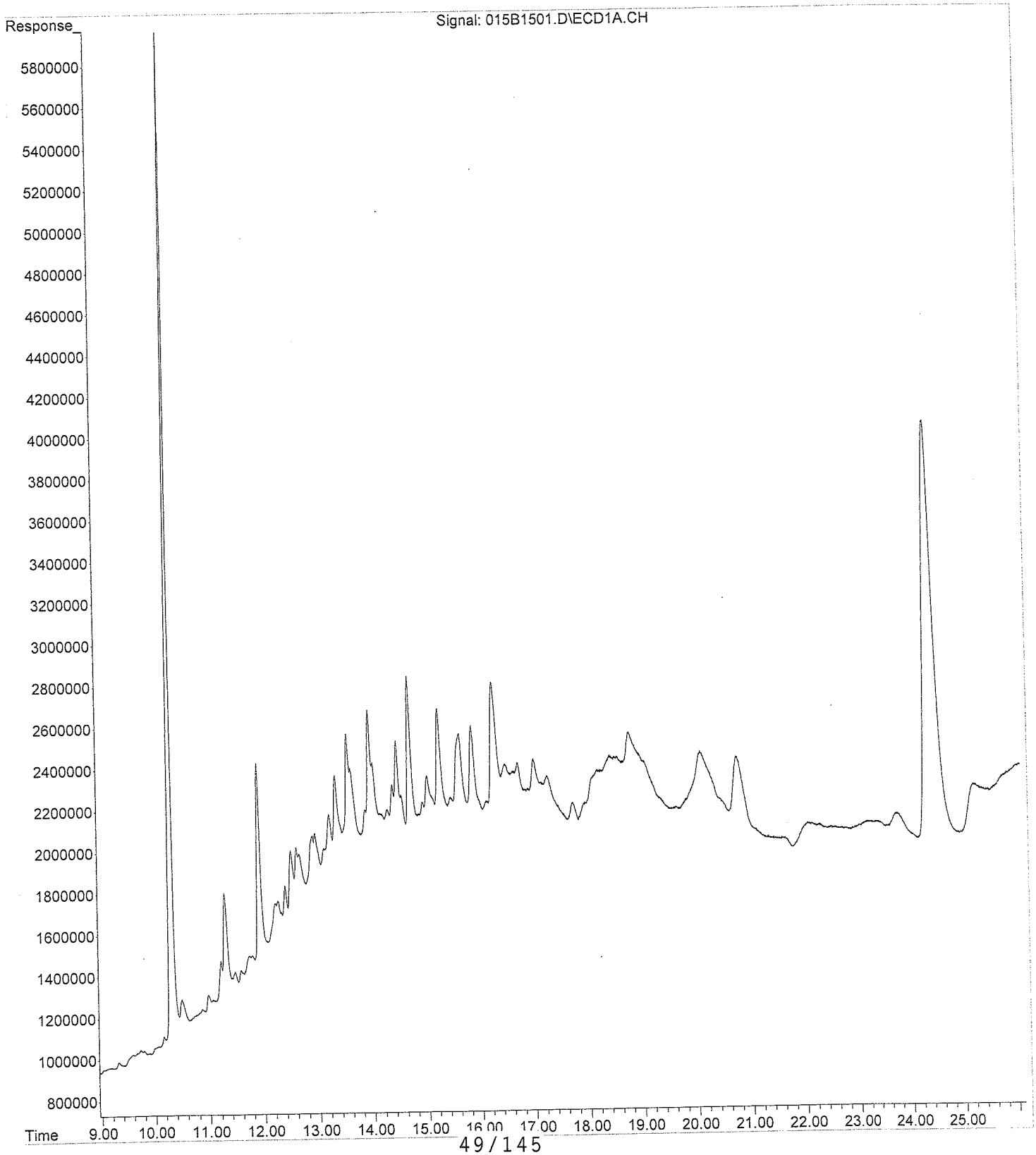
File : H:\1\DATA\072211C\015B1501.D
Operator : rdf
Acquired : 27 Jul 2011 8:29 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-073 ARO
Misc Info :
Vial Number: 15



Lab Number:	21206-074
Sample Designation:	TP9-1-W
Date Sampled:	07/20/11 1420
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	66
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0075
Aroclor 1221	U	0.0075
Aroclor 1232	U	0.0075
Aroclor 1248	0.017	0.0075
Aroclor 1254	0.069	0.0075
Aroclor 1260	U	0.0075

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	61	30 - 150
decachlorobiphenyl	69	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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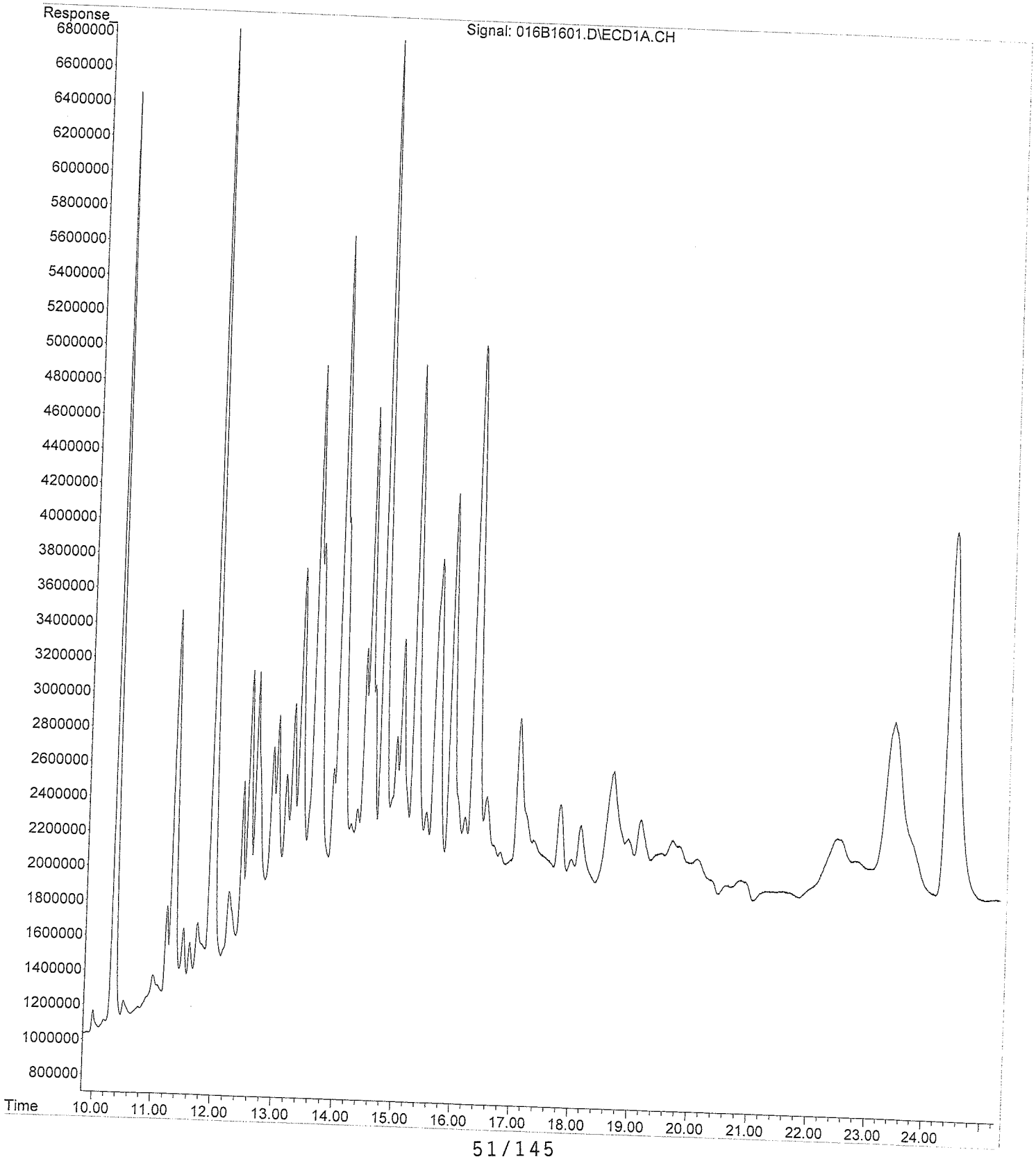
File : H:\1\DATA\072211C\016B1601.D
Operator : rdf
Acquired : 27 Jul 2011 9:07 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-074 ARO
Misc Info :
Vial Number: 16



Lab Number:	21206-075
Sample Designation:	TP9-1-N
Date Sampled:	07/20/11 1430
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	51
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0097
Aroclor 1221	U	0.0097
Aroclor 1232	U	0.0097
Aroclor 1248	U	0.0097
Aroclor 1254	U	0.0097
Aroclor 1260	U	0.0097

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	63	30 - 150
decachlorobiphenyl	74	30 - 150

U = Below quantitation limit

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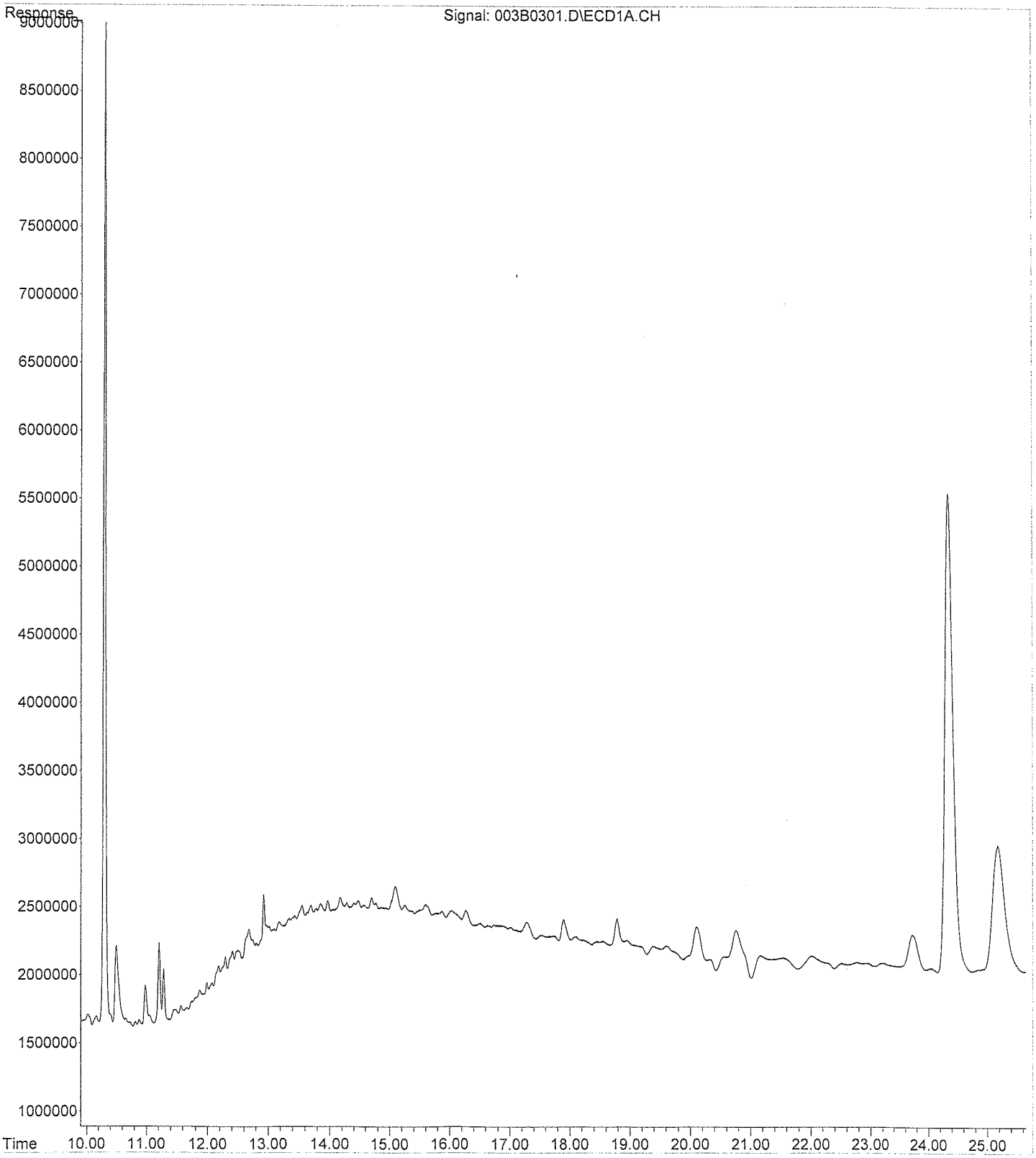
File : H:\1\DATA\072211C\003B0301.D
Operator : rdf
Acquired : 27 Jul 2011 1:03 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-075 ARO
Misc Info :
Vial Number: 3



Lab Number:	21206-076
Sample Designation:	TP9-1-S
Date Sampled:	07/20/11 1500
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	52
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0096
Aroclor 1221	U	0.0096
Aroclor 1232	U	0.0096
Aroclor 1248	U	0.0096
Aroclor 1254	U	0.0096
Aroclor 1260	U	0.0096

sum(

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	57	30 - 150
decachlorobiphenyl	63	30 - 150

U = Below quantitation limit

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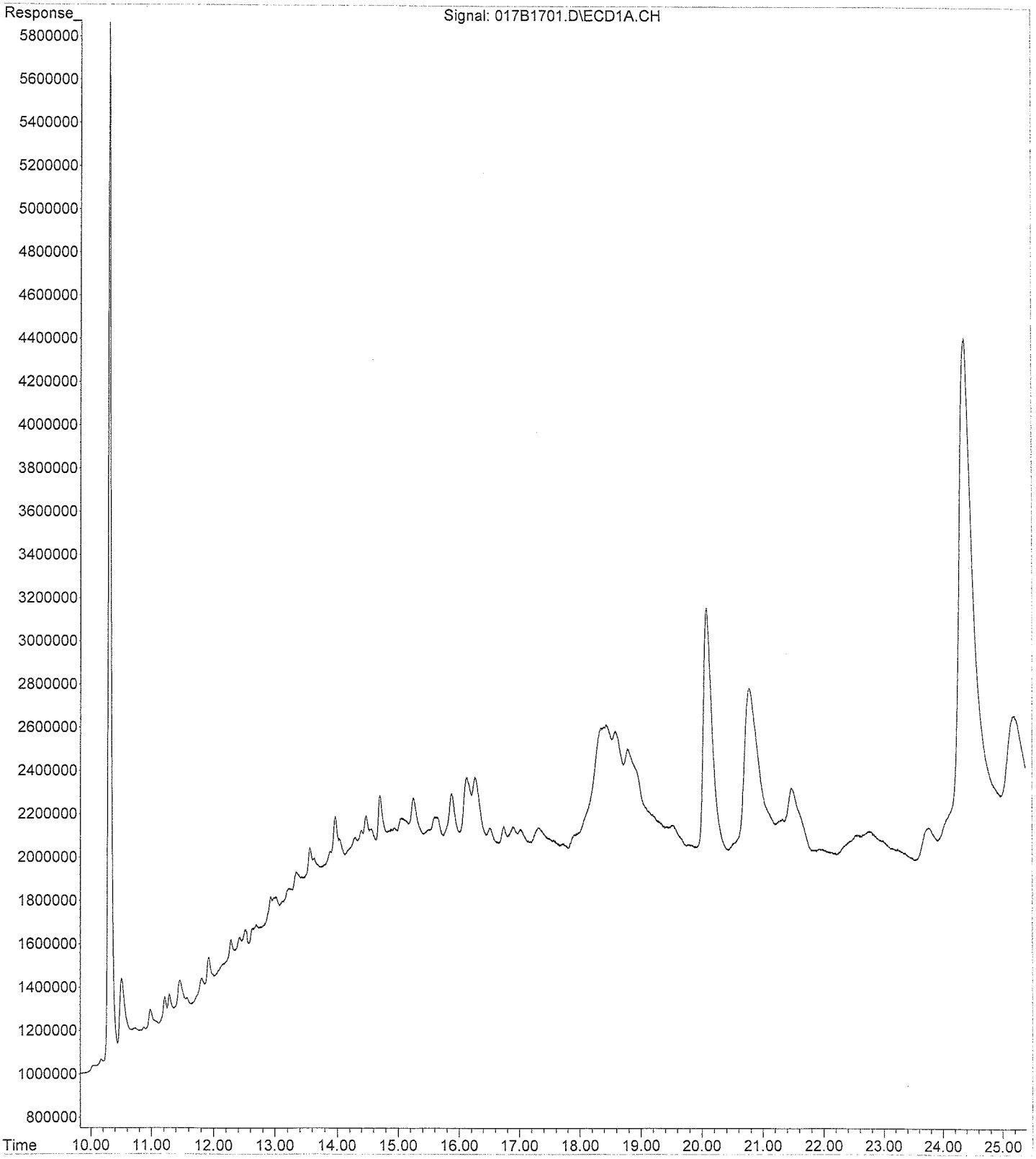
File : H:\1\DATA\072211C\017B1701.D
Operator : rdf
Acquired : 27 Jul 2011 9:44 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-076 ARO
Misc Info :
Vial Number: 17



Lab Number:	21206-077
Sample Designation:	TP13-1-S
Date Sampled:	07/21/11 0800
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	81
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	0.73	0.0061
Aroclor 1260	0.069	0.0061
sum(		

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	Interference	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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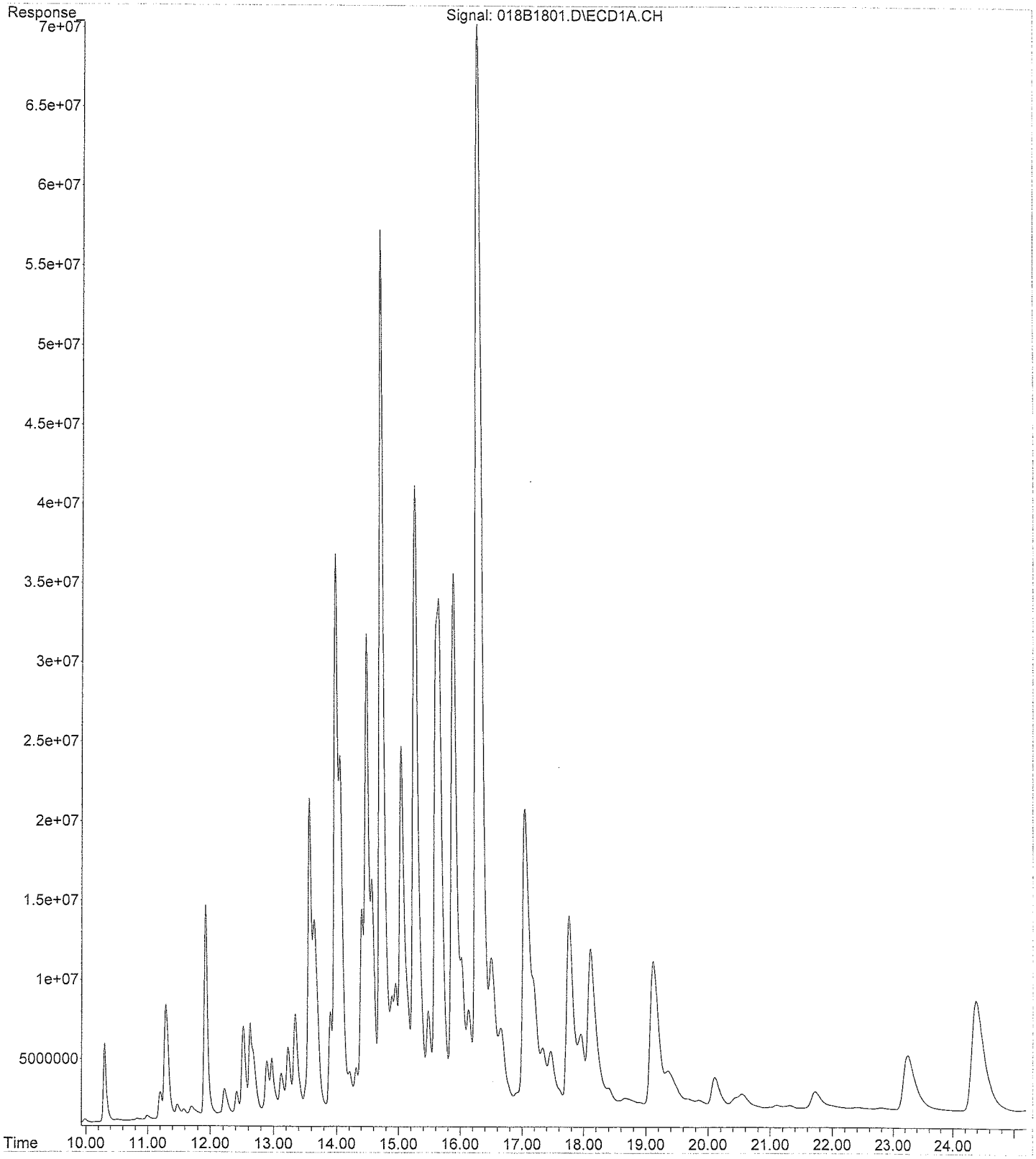
File : H:\1\DATA\072211C\018B1801.D
Operator : rdf
Acquired : 27 Jul 2011 10:21 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-077 ARO
Misc Info :
Vial Number: 18



Lab Number:	21206-078
Sample Designation:	TP13-2-S-A
Date Sampled:	07/21/11 0830
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	95
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0053
Aroclor 1221	U	0.0053
Aroclor 1232	U	0.0053
Aroclor 1248	U	0.0053
Aroclor 1254	0.01	0.0053
Aroclor 1260	U	0.0053

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	61	30 - 150
decachlorobiphenyl	72	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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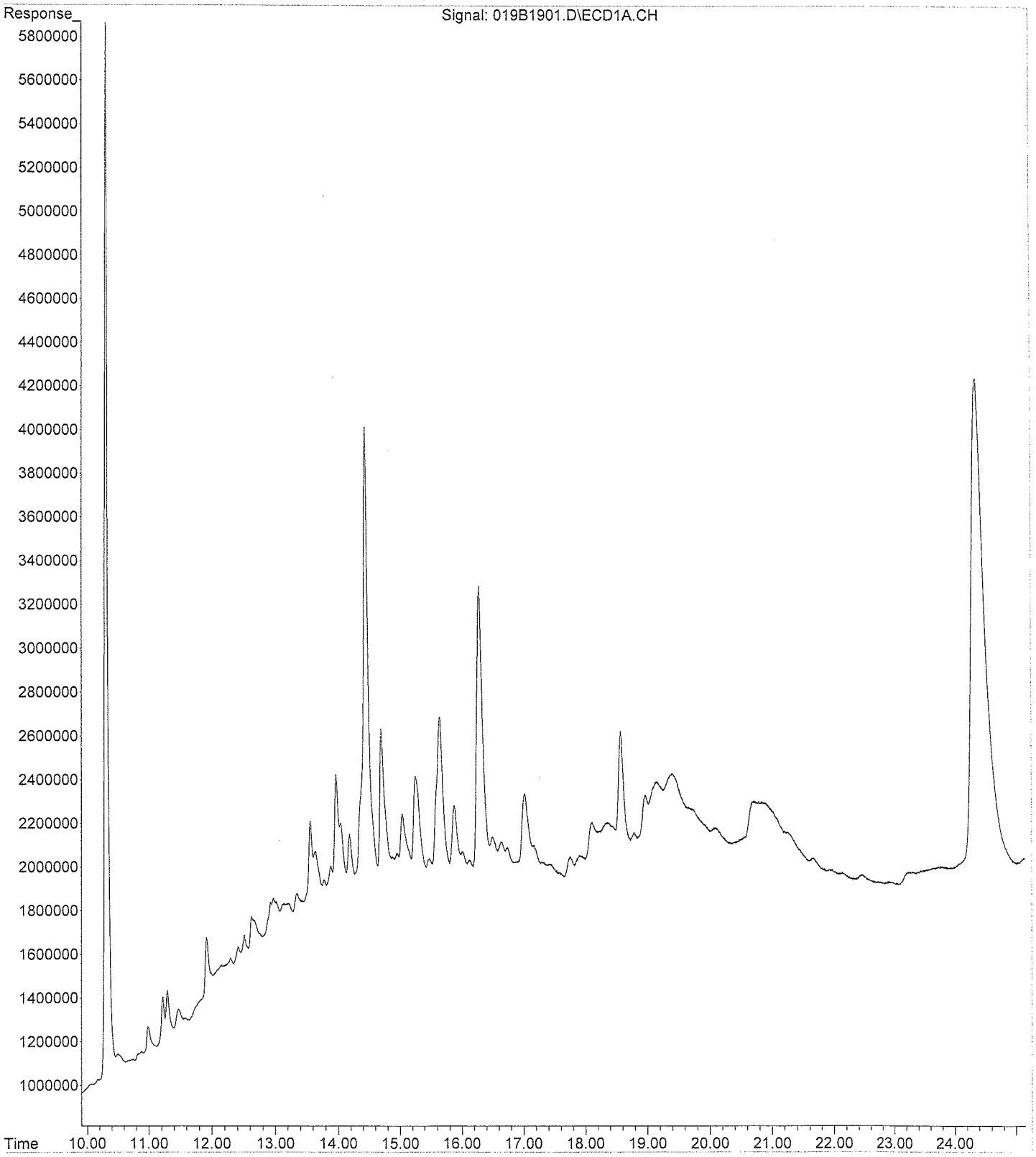
File : H:\1\DATA\072211C\019B1901.D
Operator : rdf
Acquired : 27 Jul 2011 10:58 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-078 ARO
Misc Info :
Vial Number: 19



Lab Number:	21206-079
Sample Designation:	TP13-2-S-M
Date Sampled:	07/21/11 0835
Date Extracted:	07/22/11
Date Analyzed:	07/27/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	77
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	0.013	0.0065
Aroclor 1221	U	0.0065
Aroclor 1232	U	0.0065
Aroclor 1248	0.033	0.0065
Aroclor 1254	0.86	0.0065
Aroclor 1260	0.086	0.0065

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	44	30 - 150
decachlorobiphenyl	69	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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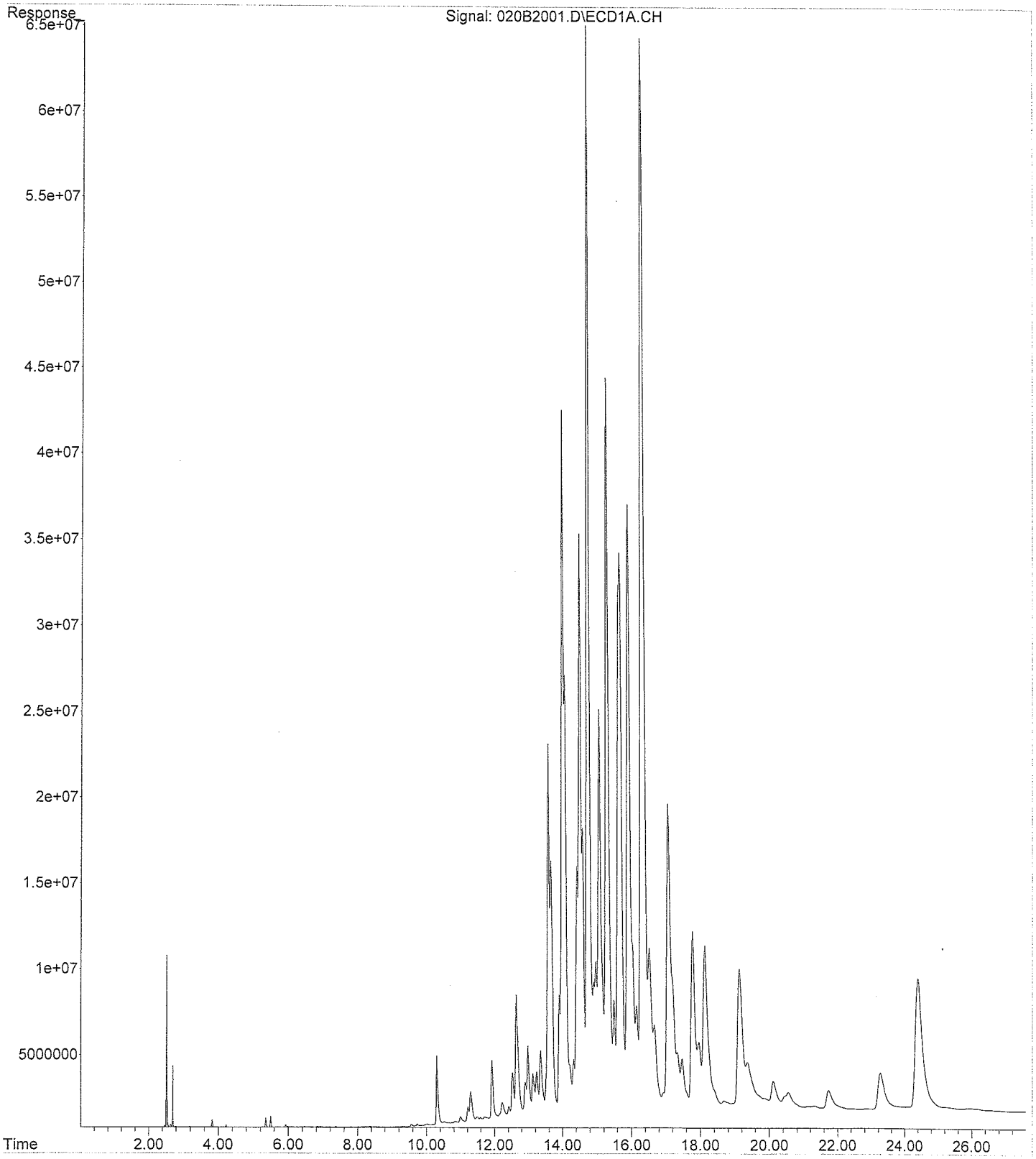
File : H:\1\DATA\072211C\020B2001.D
Operator : rdf
Acquired : 27 Jul 2011 11:35 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-079 ARO
Misc Info :
Vial Number: 20



Lab Number:	21206-080
Sample Designation:	TP13-2-S-B
Date Sampled:	07/21/11 0840
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	67
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0074
Aroclor 1221	U	0.0074
Aroclor 1232	U	0.0074
Aroclor 1248	U	0.0074
Aroclor 1254	U	0.0074
Aroclor 1260	U	0.0074

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	60	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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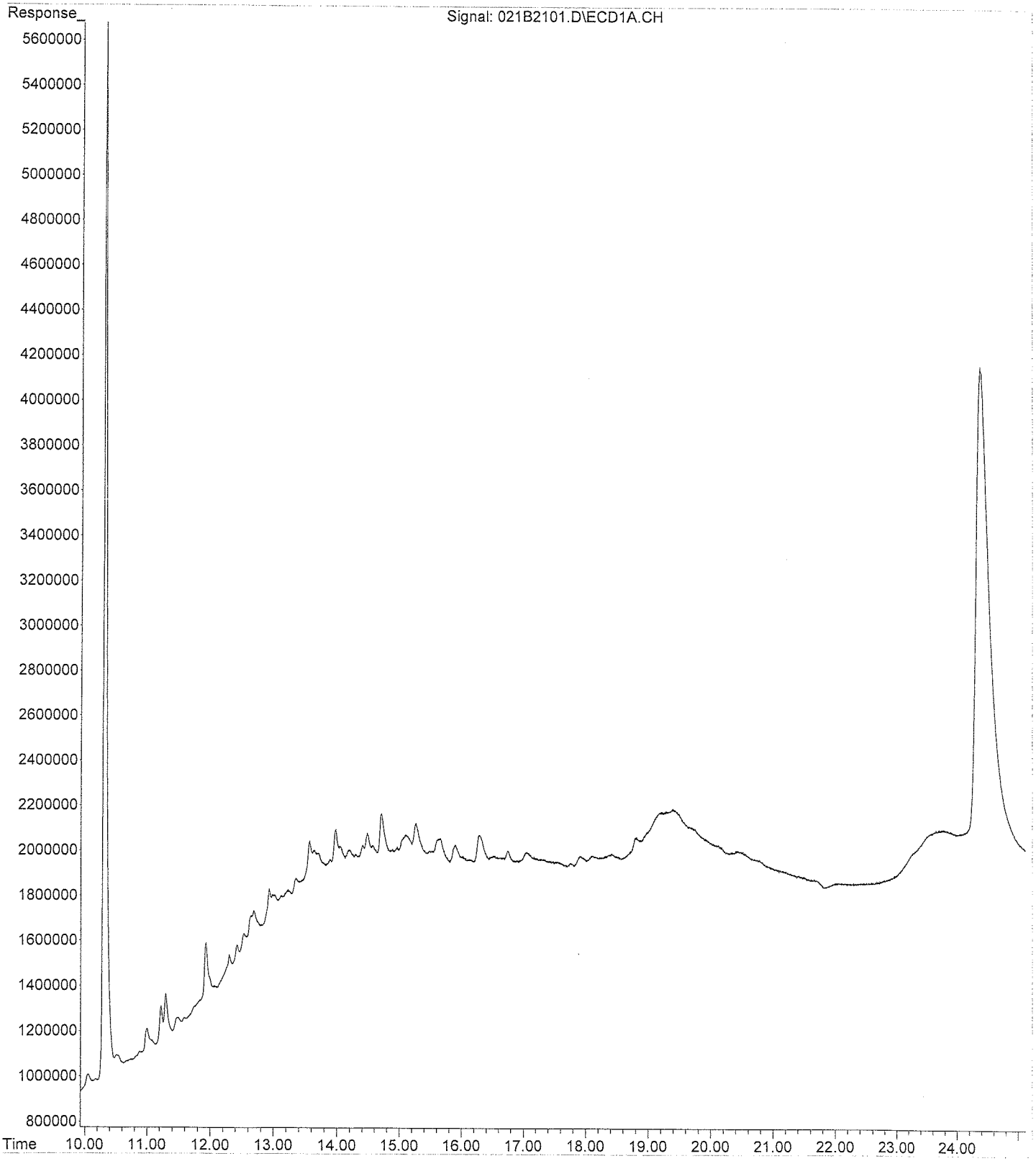
File : H:\1\DATA\072211C\021B2101.D
Operator : rdf
Acquired : 28 Jul 2011 12:13 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-080 ARO
Misc Info :
Vial Number: 21



Lab Number:	21206-081
Sample Designation:	TP17-1-S-A
Date Sampled:	07/21/11 0900
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.54	0.0056
Aroclor 1260	0.031	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	47	30 - 150
decachlorobiphenyl	93	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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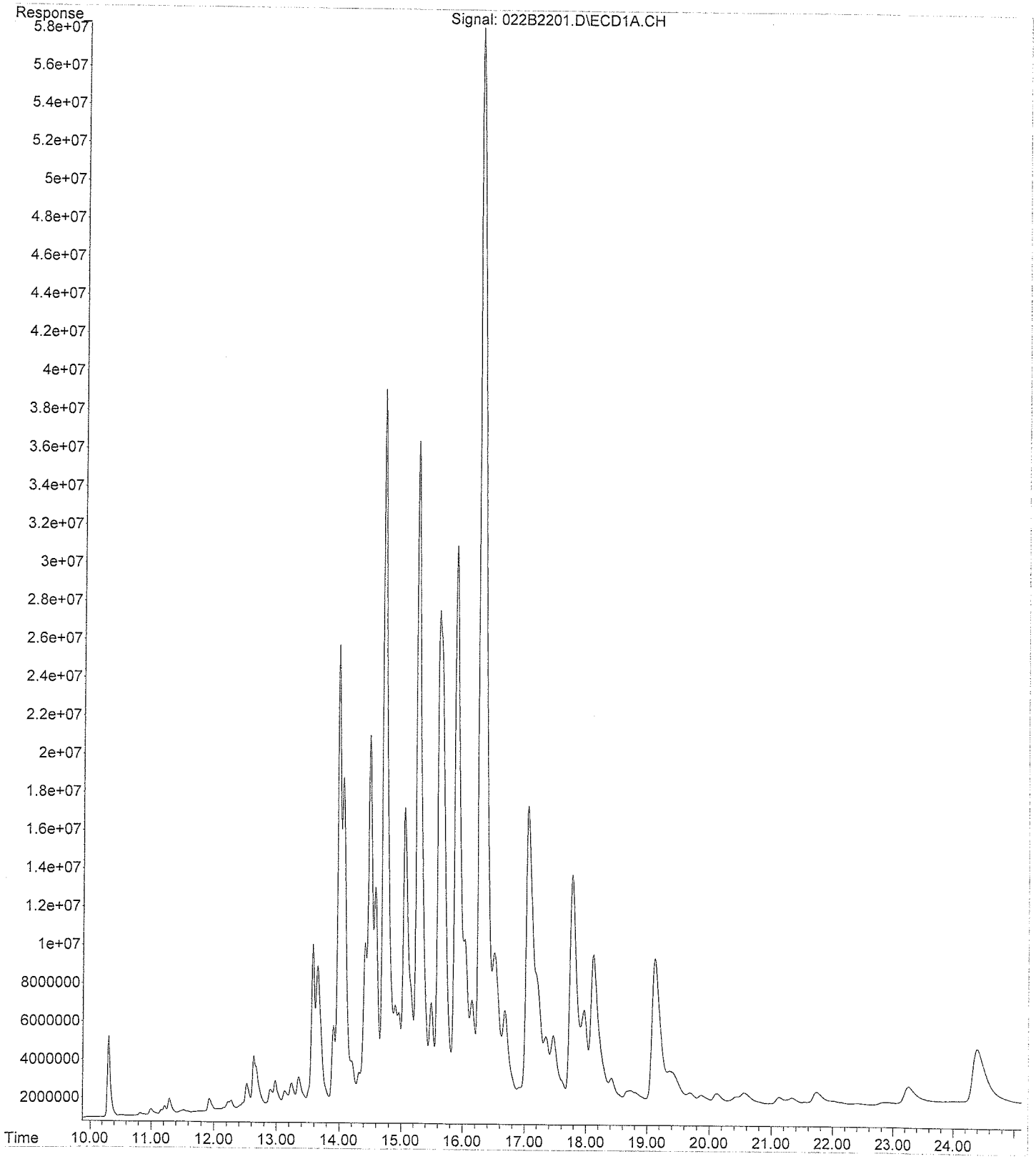
File : H:\1\DATA\072211C\022B2201.D
Operator : rdf
Acquired : 28 Jul 2011 12:50 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-081 ARO
Misc Info :
Vial Number: 22



Lab Number:	21206-082
Sample Designation:	TP17-1-S-M
Date Sampled:	07/21/11 0915
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	74
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.06	0.0067
Aroclor 1260	U	0.0067

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	53	30 - 150
decachlorobiphenyl	69	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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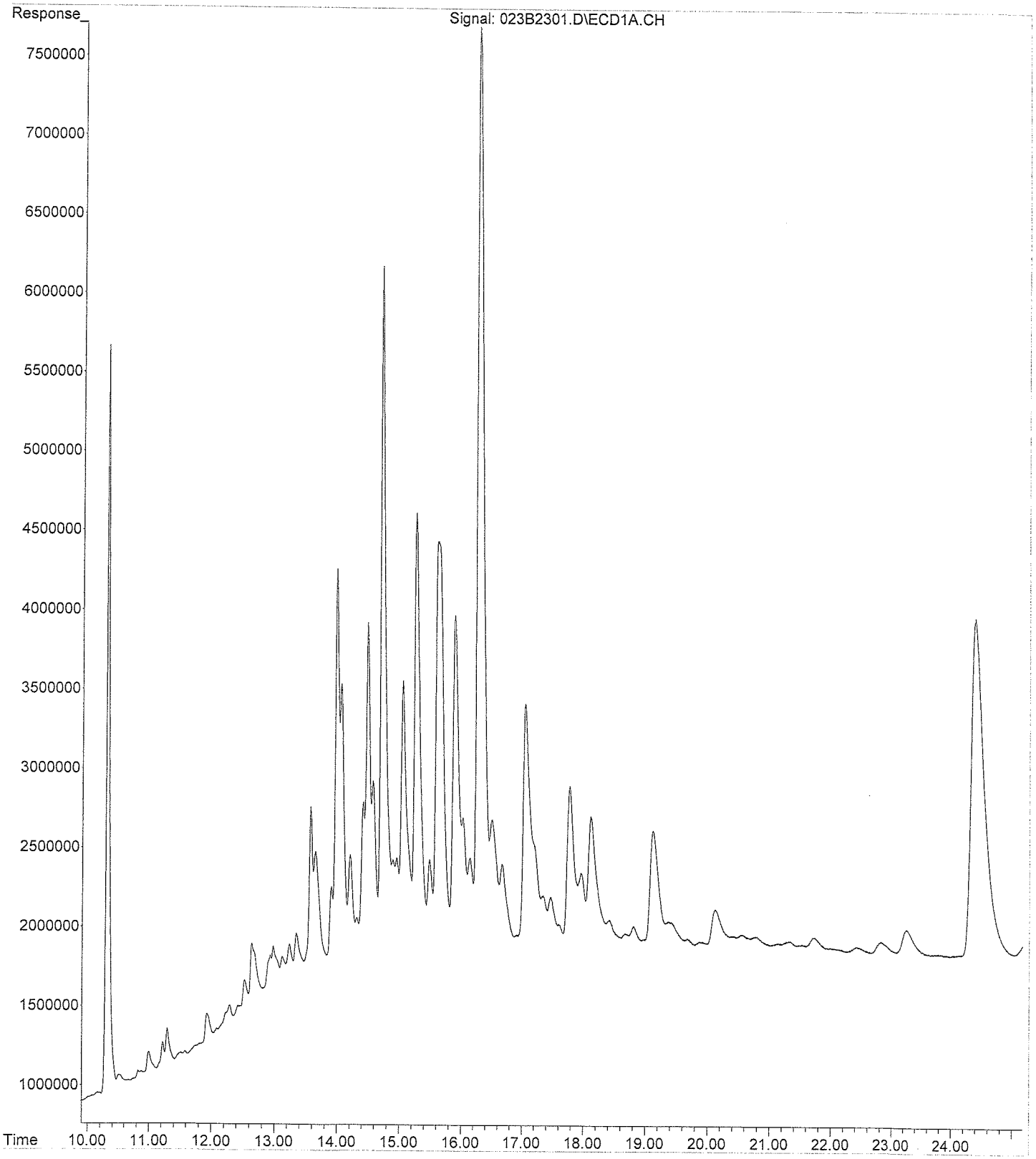
File : H:\1\DATA\072211C\023B2301.D
Operator : rdf
Acquired : 28 Jul 2011 1:27 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-082 ARO
Misc Info :
Vial Number: 23



Lab Number:	21206-083
Sample Designation:	TP17-1-S-B
Date Sampled:	07/21/11 0920
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	U	0.0061
Aroclor 1260	U	0.0061

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	61	30 - 150
decachlorobiphenyl	67	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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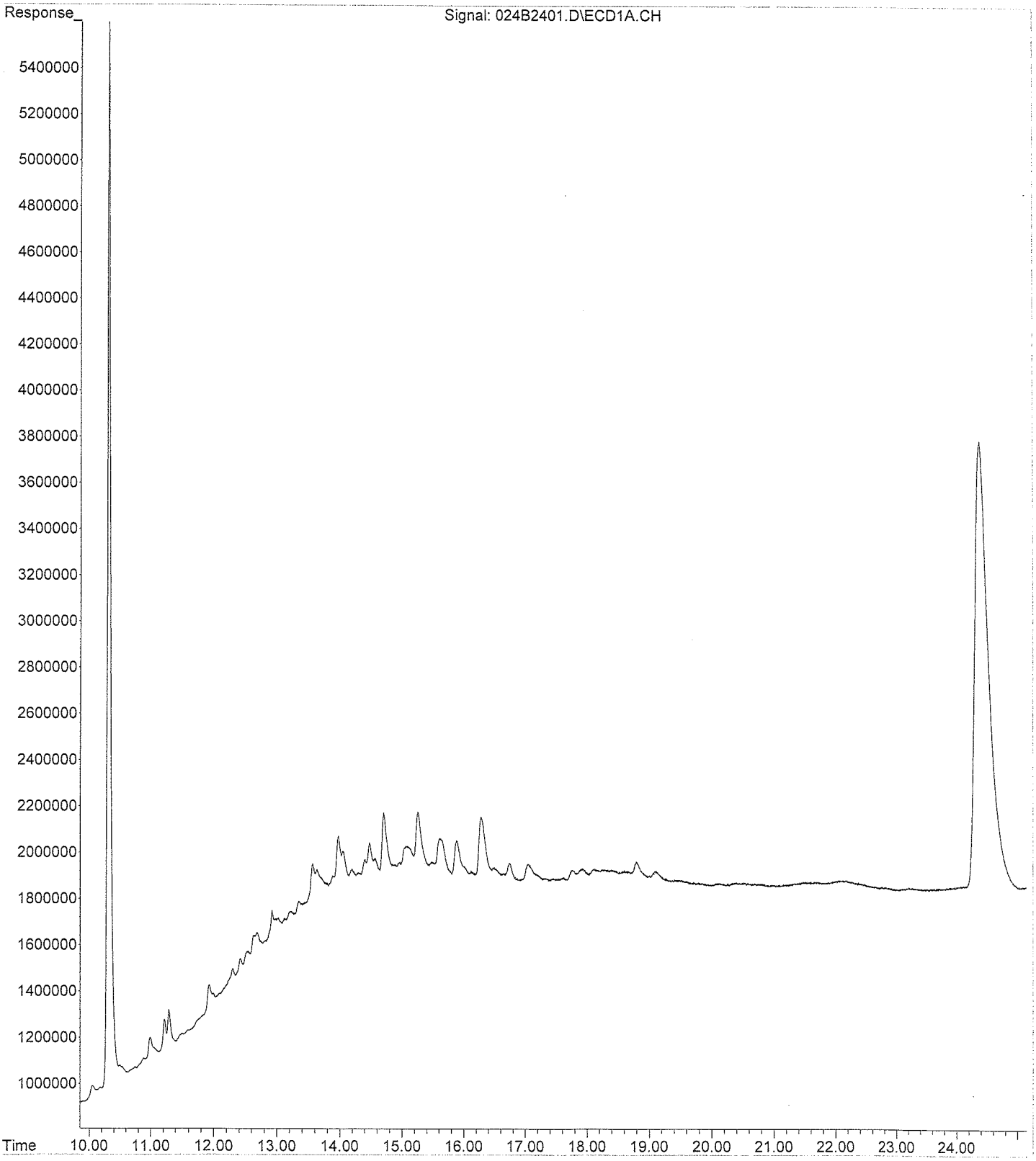
File : H:\1\DATA\072211C\024B2401.D
Operator : rdf
Acquired : 28 Jul 2011 2:04 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-083 ARO
Misc Info :
Vial Number: 24



Lab Number:	21206-084
Sample Designation:	TP13/17-1-C-A
Date Sampled:	07/21/11 0945
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	0.78	0.0059
Aroclor 1260	0.072	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	54	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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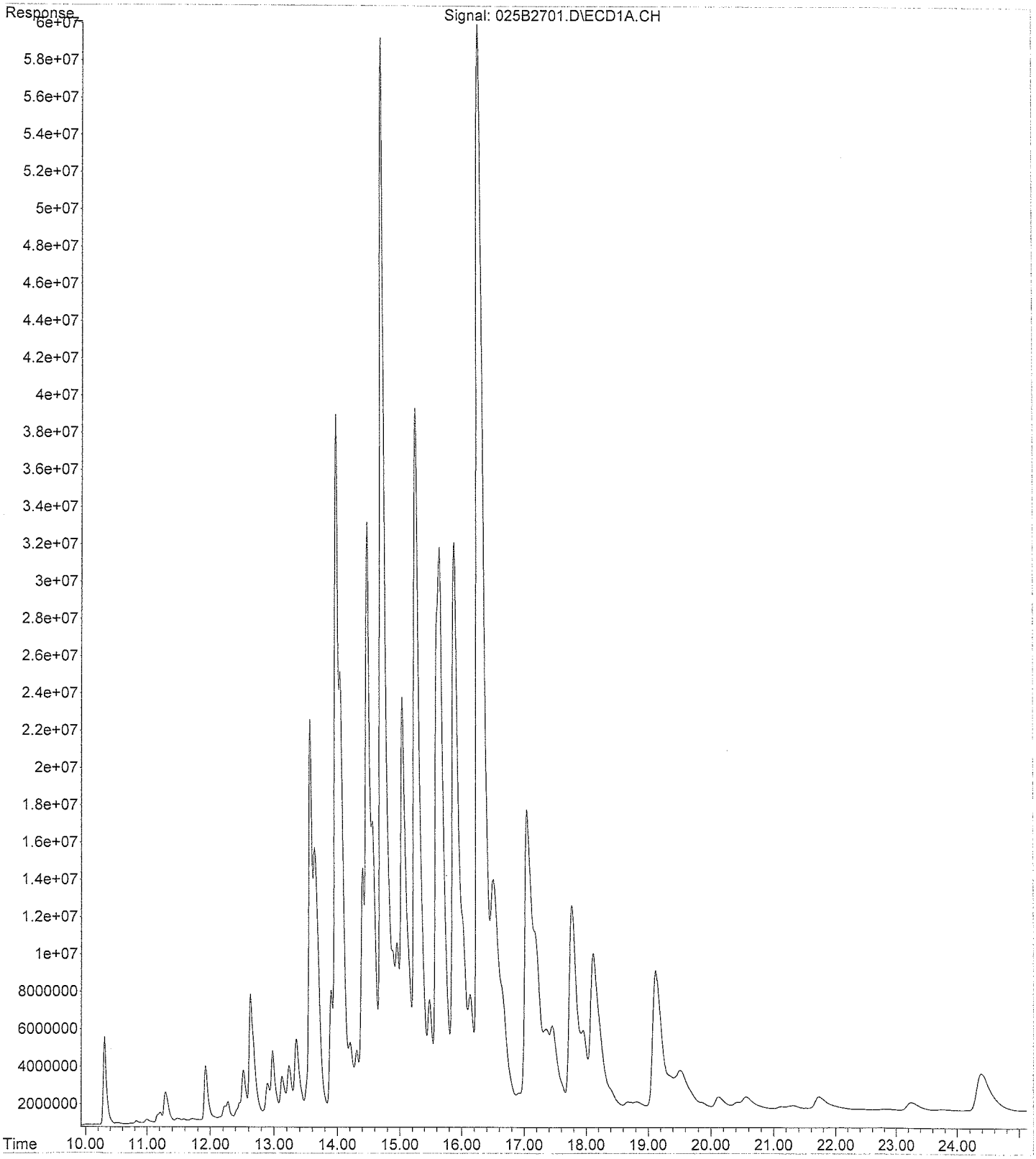
File : H:\1\DATA\072211C\025B2701.D
Operator : rdf
Acquired : 28 Jul 2011 3:55 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-084 ARO
Misc Info :
Vial Number: 25



Lab Number:	21206-085
Sample Designation:	TP13/17-1-C-M
Date Sampled:	07/21/11 0950
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	53
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0094
Aroclor 1221	U	0.0094
Aroclor 1232	U	0.0094
Aroclor 1248	U	0.0094
Aroclor 1254	U	0.0094
Aroclor 1260	U	0.0094

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	54	30 - 150
decachlorobiphenyl	64	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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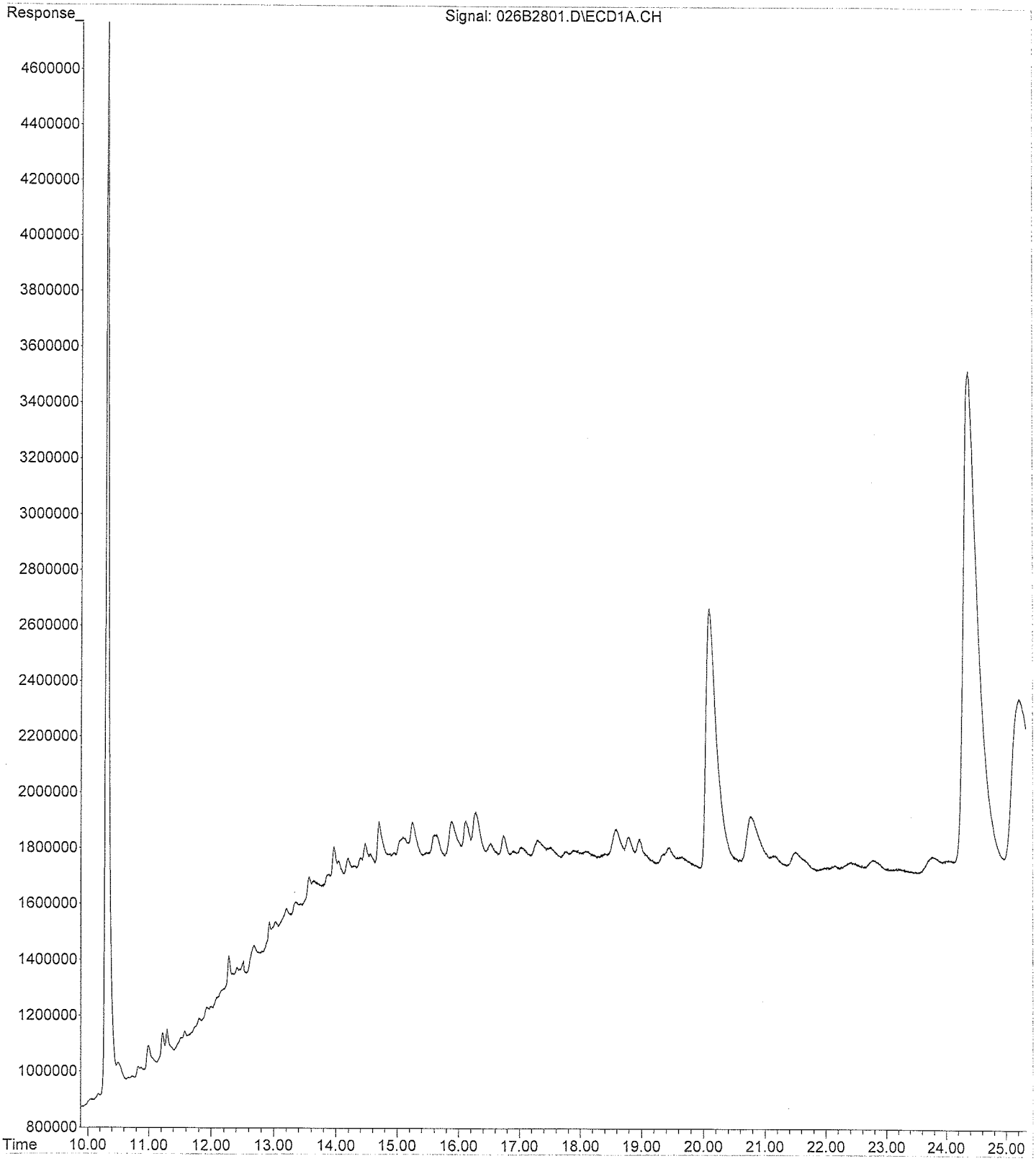
File : H:\1\DATA\072211C\026B2801.D
Operator : rdf
Acquired : 28 Jul 2011 4:32 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-085 ARO
Misc Info :
Vial Number: 26



Lab Number:	21206-086
Sample Designation:	TP13/17-1-C-B
Date Sampled:	07/21/11 0955
Date Extracted:	07/22/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	83
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	0.01	0.0061
Aroclor 1260	U	0.0061

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	62	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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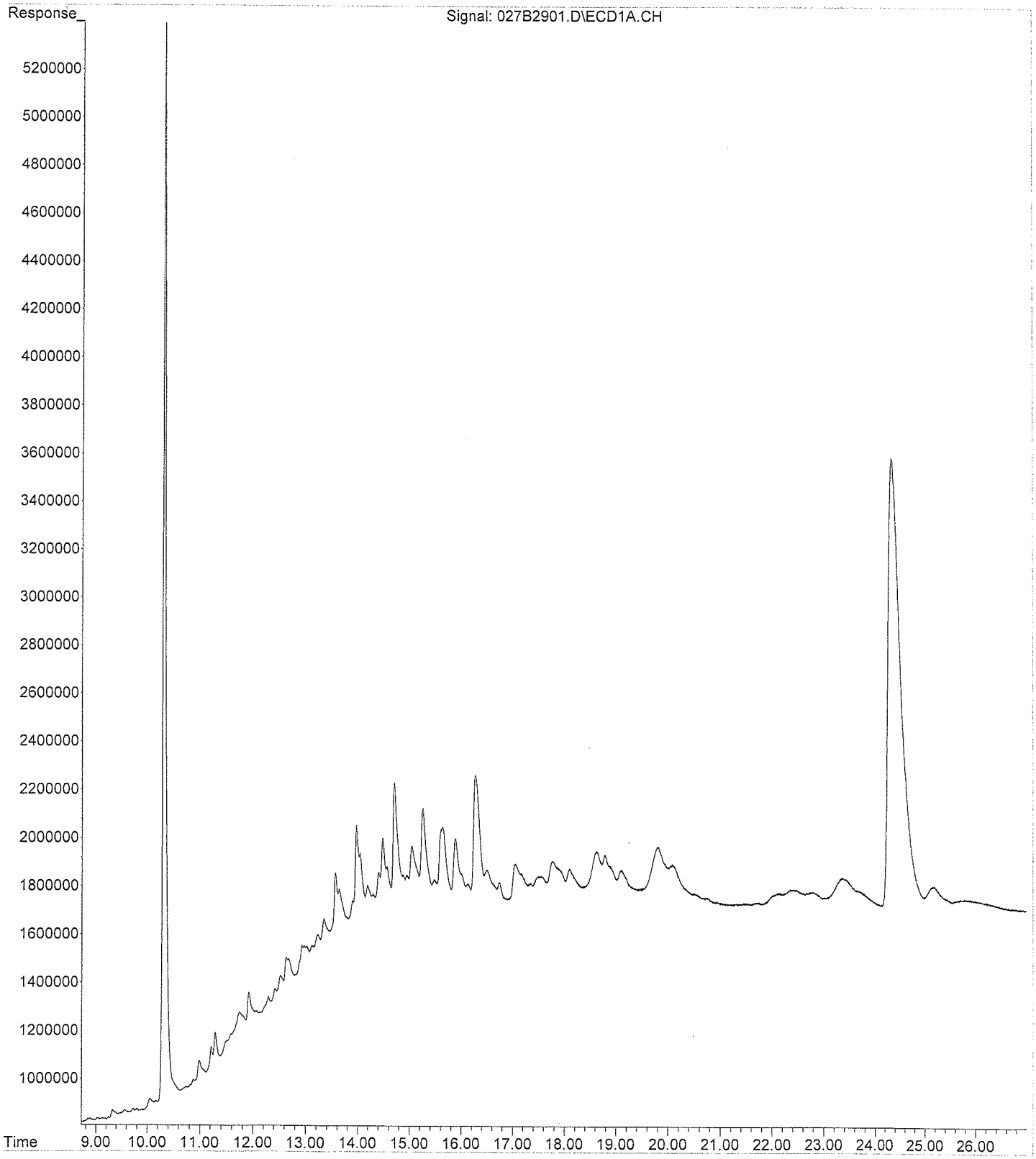
File : H:\1\DATA\072211C\027B2901.D
Operator : rdf
Acquired : 28 Jul 2011 5:08 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-086 ARO
Misc Info :
Vial Number: 27



Lab Number:	21206-087
Sample Designation:	TP13-1-N-A
Date Sampled:	07/21/11 1030
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	0.0059	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	2.10	0.0058
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	39	30 - 150
decachlorobiphenyl	113	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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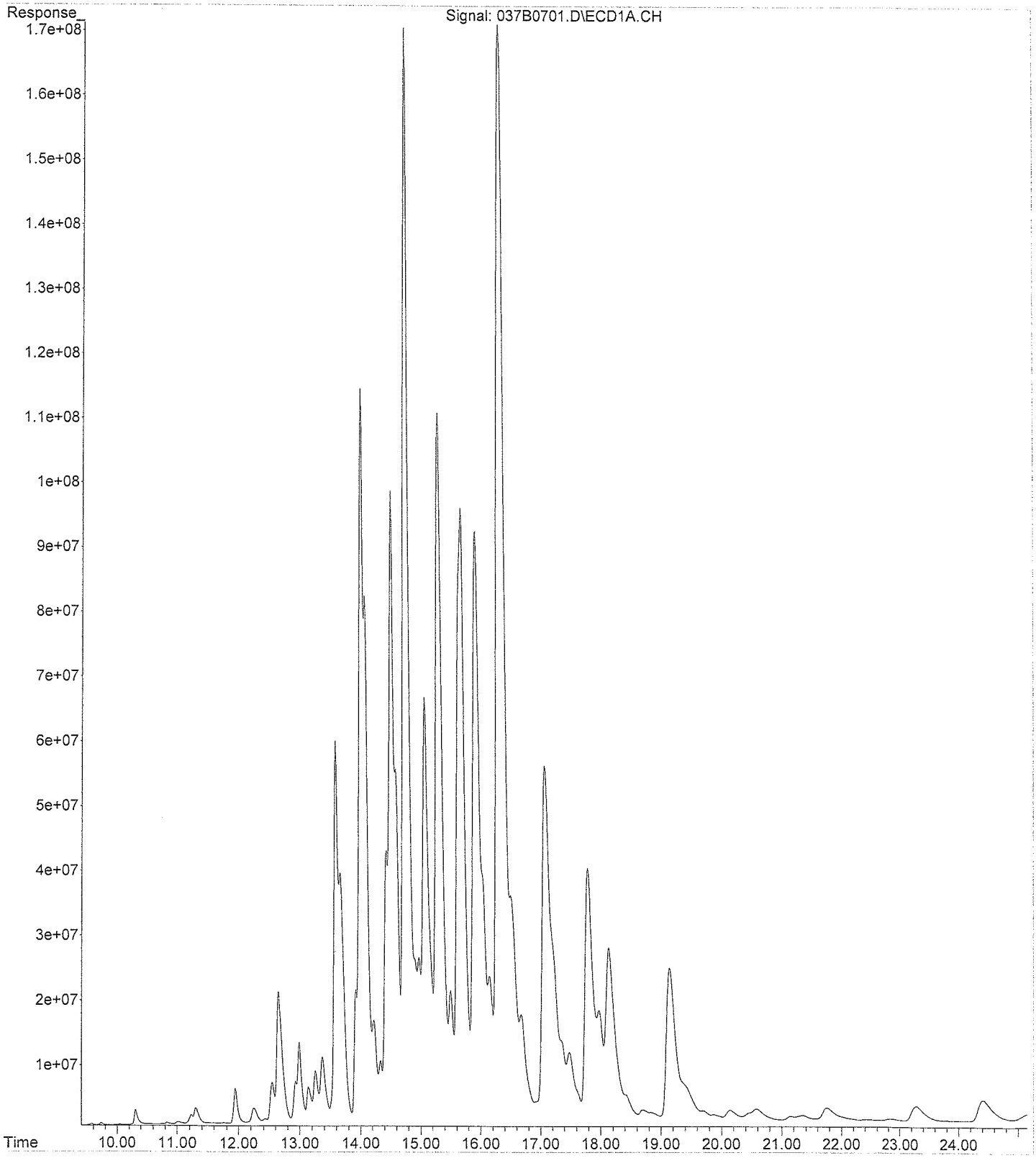
File : H:\1\DATA\072211E\037B0701.D
Operator : rdf
Acquired : 28 Jul 2011 7:38 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-087 ARO
Misc Info :
Vial Number: 37



Lab Number:	21206-088
Sample Designation:	TP13-1-N-M
Date Sampled:	07/21/11 1035
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.26	0.0067
Aroclor 1260	U	0.0067

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	49	30 - 150
decachlorobiphenyl	56	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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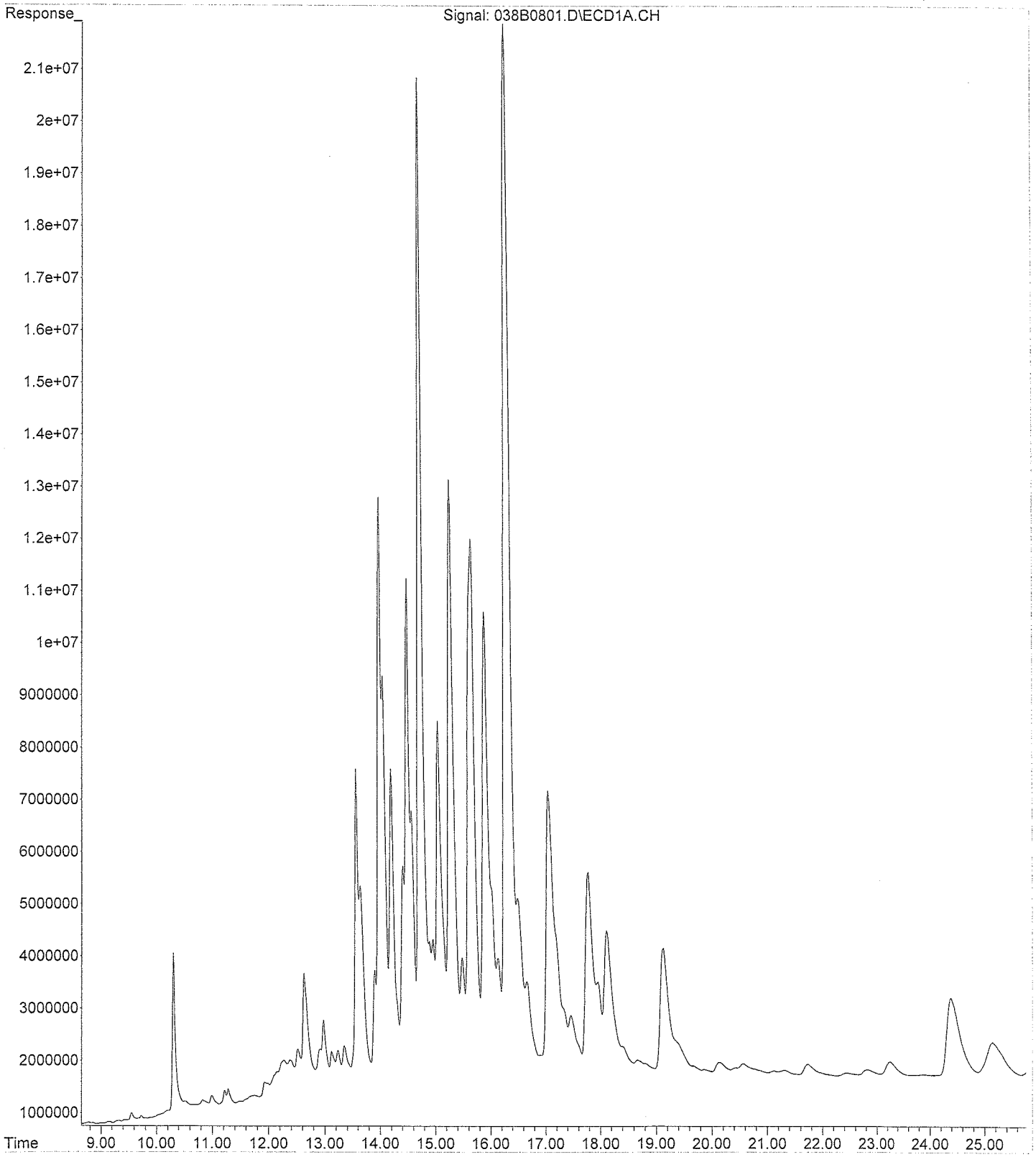
File : H:\1\DATA\072211E\038B0801.D
Operator : rdf
Acquired : 28 Jul 2011 8:15 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-088 ARO
Misc Info :
Vial Number: 38



Lab Number:	21206-089
Sample Designation:	TP13-1-N-B
Date Sampled:	07/21/11 1040
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0067
Aroclor 1221	U	0.0067
Aroclor 1232	U	0.0067
Aroclor 1248	U	0.0067
Aroclor 1254	0.01	0.0067
Aroclor 1260	U	0.0067

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	55	30 - 150
decachlorobiphenyl	65	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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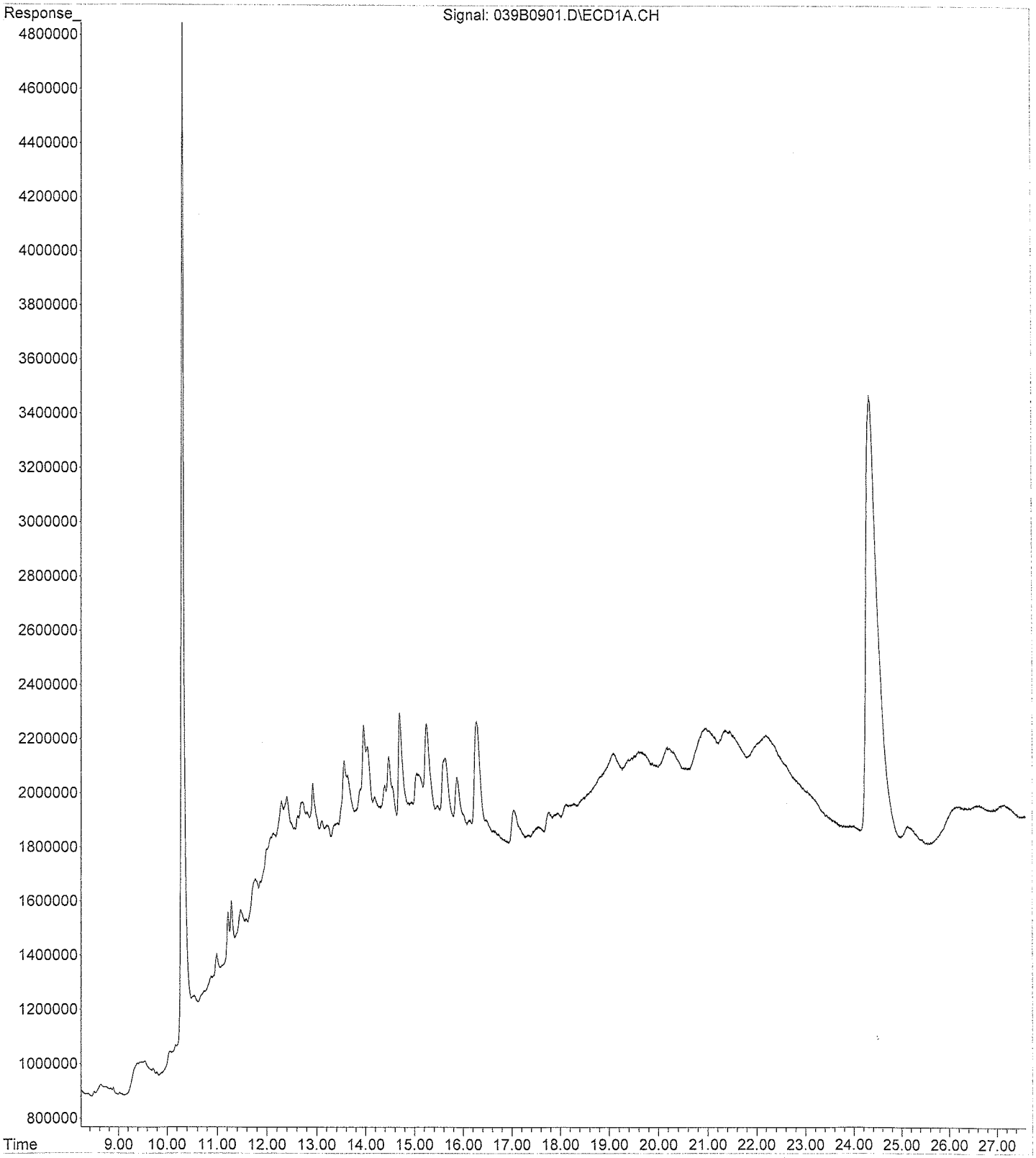
File : H:\1\DATA\072211E\039B0901.D
Operator : rdf
Acquired : 28 Jul 2011 8:52 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-089 ARO
Misc Info :
Vial Number: 39



Lab Number:	21206-090
Sample Designation:	TP17-1-N-A
Date Sampled:	07/21/11 1100
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	0.62	0.0061
Aroclor 1260	0.034	0.0061

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	48	30 - 150
decachlorobiphenyl	99	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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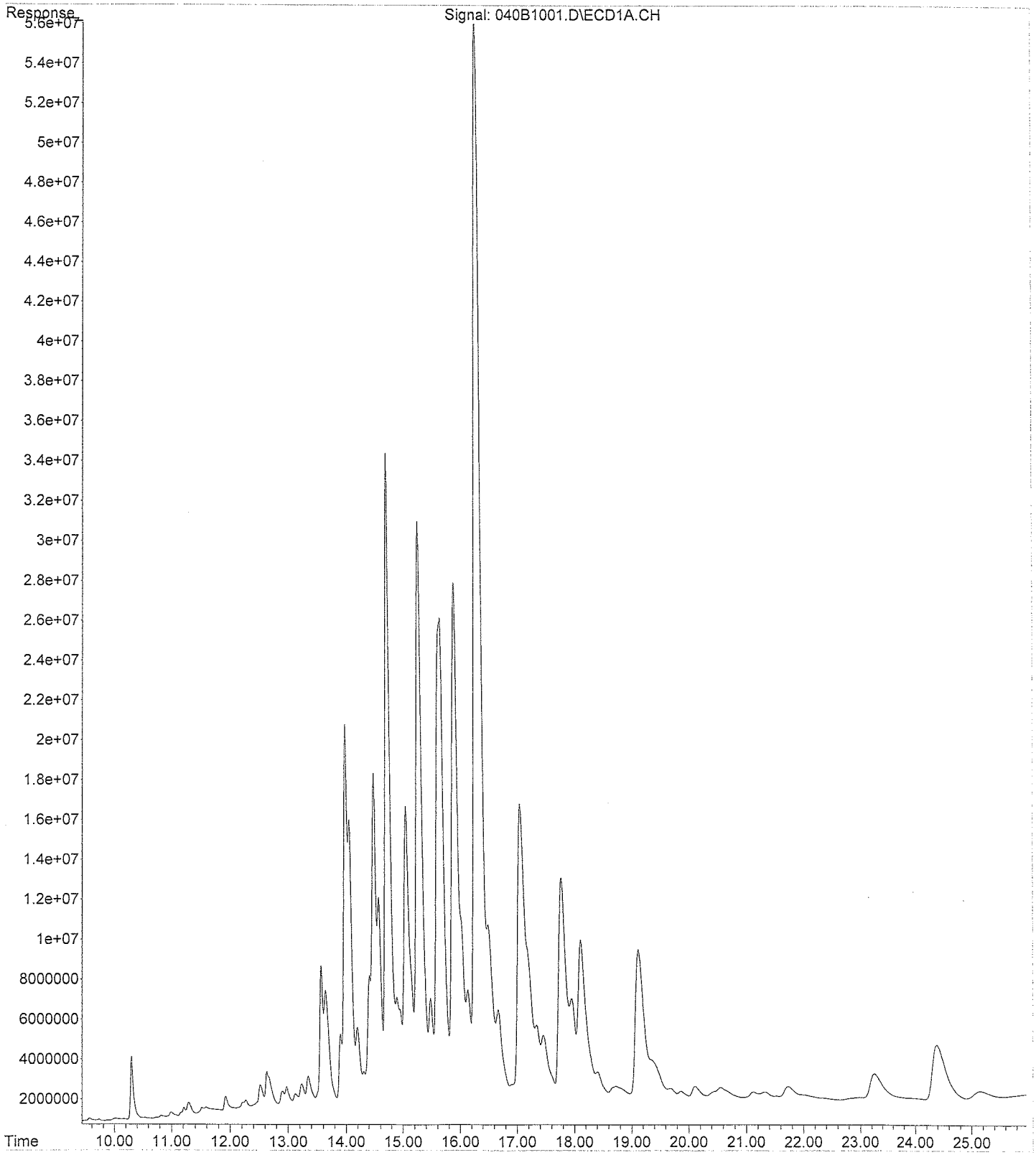
File : H:\1\DATA\072211E\040B1001.D
Operator : rdf
Acquired : 28 Jul 2011 9:29 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-090 ARO
Misc Info :
Vial Number: 40



Lab Number:	21206-091
Sample Designation:	TP17-1-N-M
Date Sampled:	07/21/11 1110
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	82
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0061
Aroclor 1221	U	0.0061
Aroclor 1232	U	0.0061
Aroclor 1248	U	0.0061
Aroclor 1254	U	0.0061
Aroclor 1260	U	0.0061

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	47	30 - 150
decachlorobiphenyl	54	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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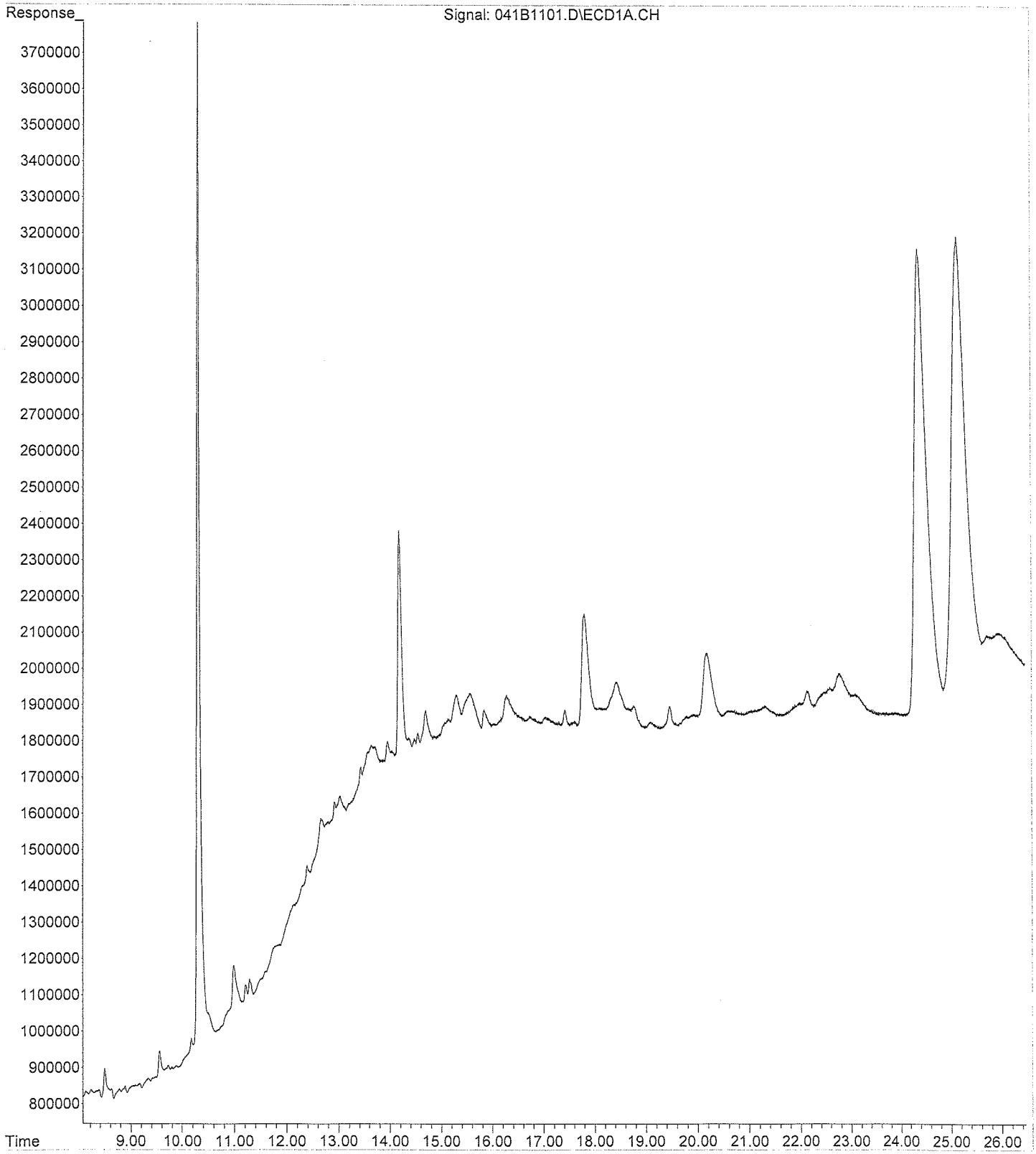
File : H:\1\DATA\072211E\041B1101.D
Operator : rdf
Acquired : 28 Jul 2011 10:06 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-091 ARO
Misc Info :
Vial Number: 41



Lab Number:	21206-092
Sample Designation:	TP17-1-N-B
Date Sampled:	07/21/11 1120
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	64
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0078
Aroclor 1221	U	0.0078
Aroclor 1232	U	0.0078
Aroclor 1248	U	0.0078
Aroclor 1254	U	0.0078
Aroclor 1260	U	0.0078

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	61	30 - 150
decachlorobiphenyl	66	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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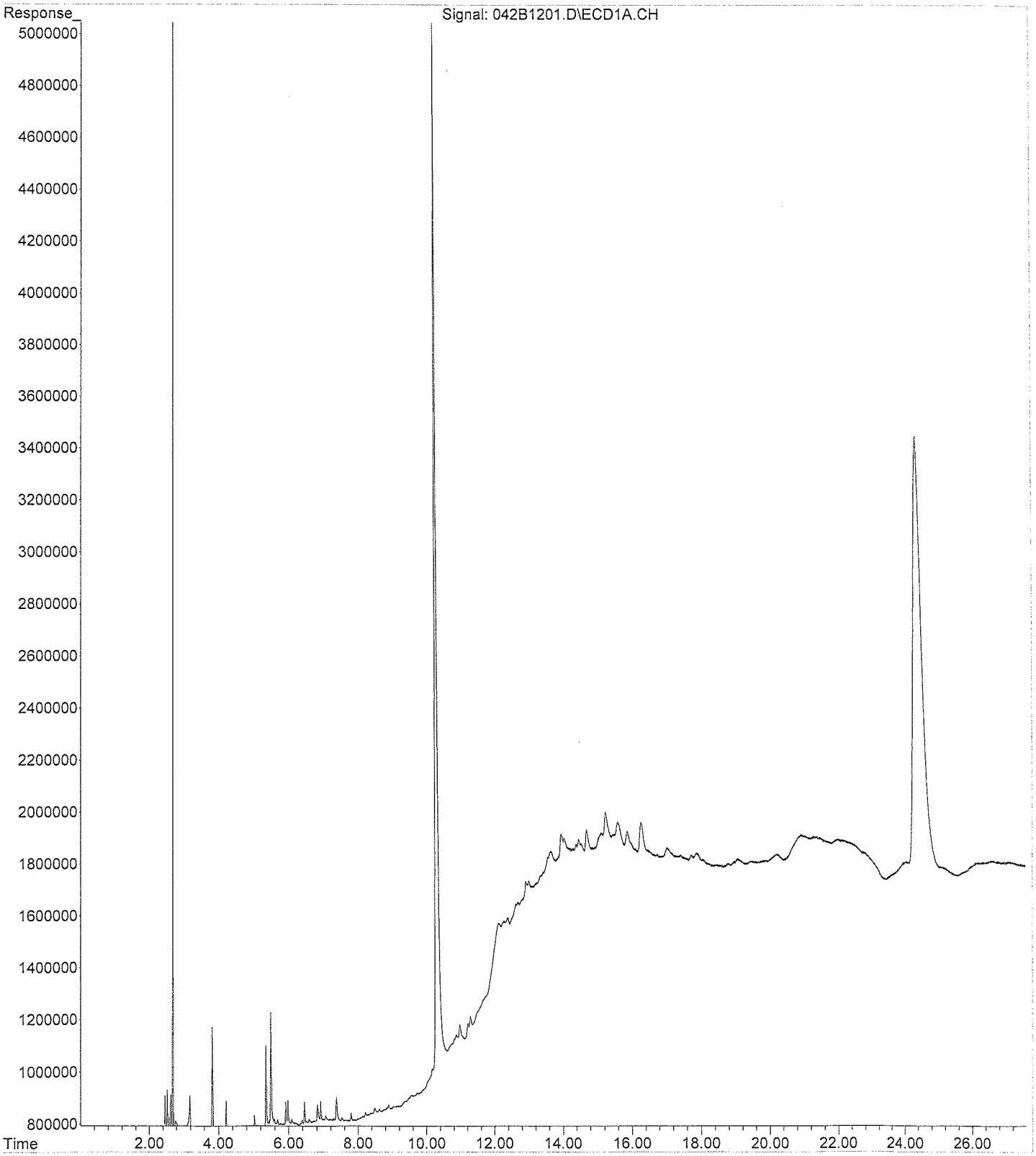
File : H:\1\DATA\072211E\042B1201.D
Operator : rdf
Acquired : 28 Jul 2011 10:43 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-092 ARO
Misc Info :
Vial Number: 42



Lab Number:	21206-093
Sample Designation:	TP6-1-NW-A
Date Sampled:	07/22/11 0800
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	1.70	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	59	30 - 150
decachlorobiphenyl	72	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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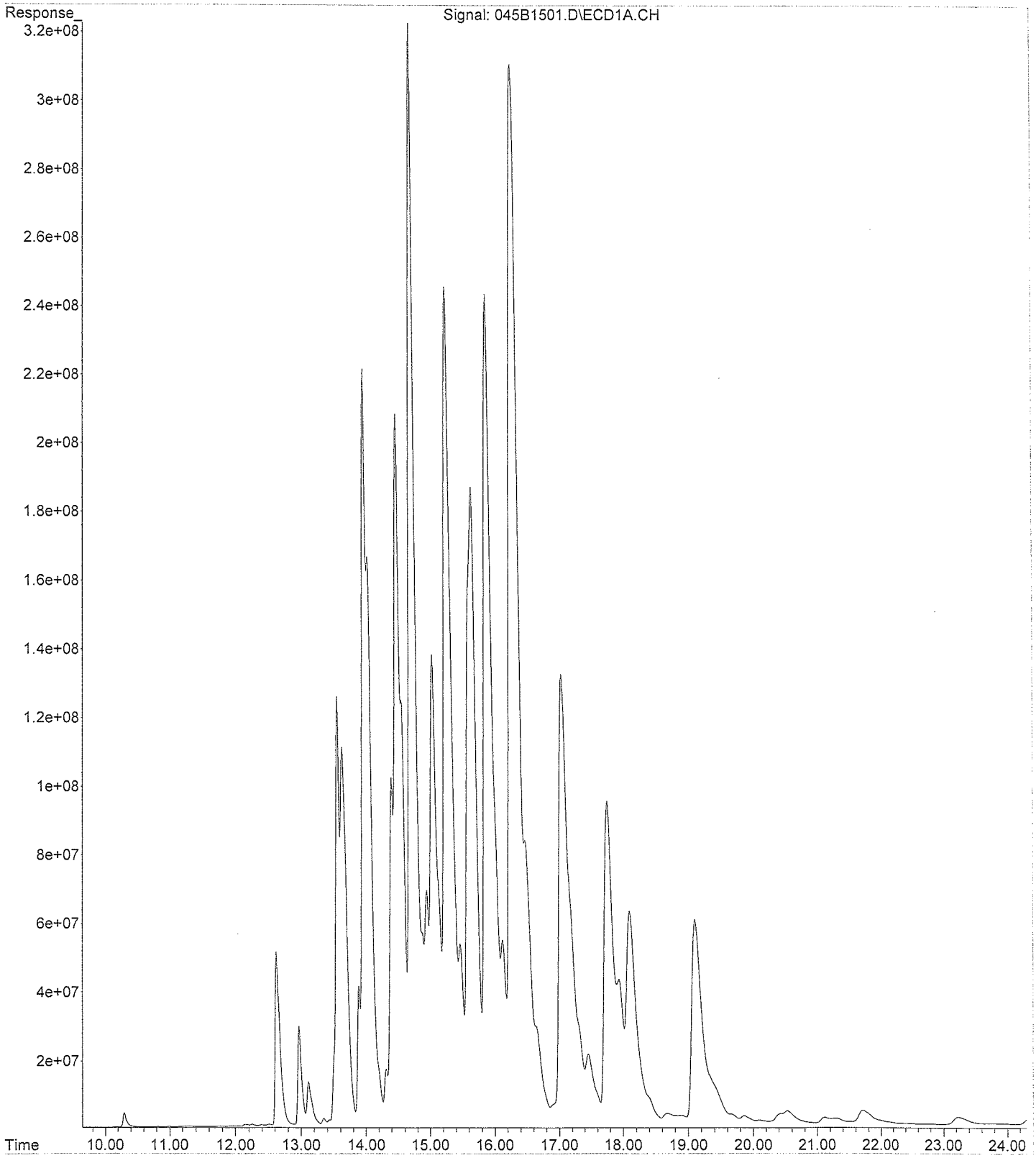
File : H:\1\DATA\072211E\045B1501.D
Operator : rdf
Acquired : 29 Jul 2011 12:33 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-093 ARO
Misc Info :
Vial Number: 45



Lab Number:	21206-095
Sample Designation:	TP6-1-NW-M
Date Sampled:	07/22/11 0810
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	97
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0052
Aroclor 1221	U	0.0052
Aroclor 1232	U	0.0052
Aroclor 1248	U	0.0052
Aroclor 1254	0.28	0.0052
Aroclor 1260	0.14	0.0052

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	62	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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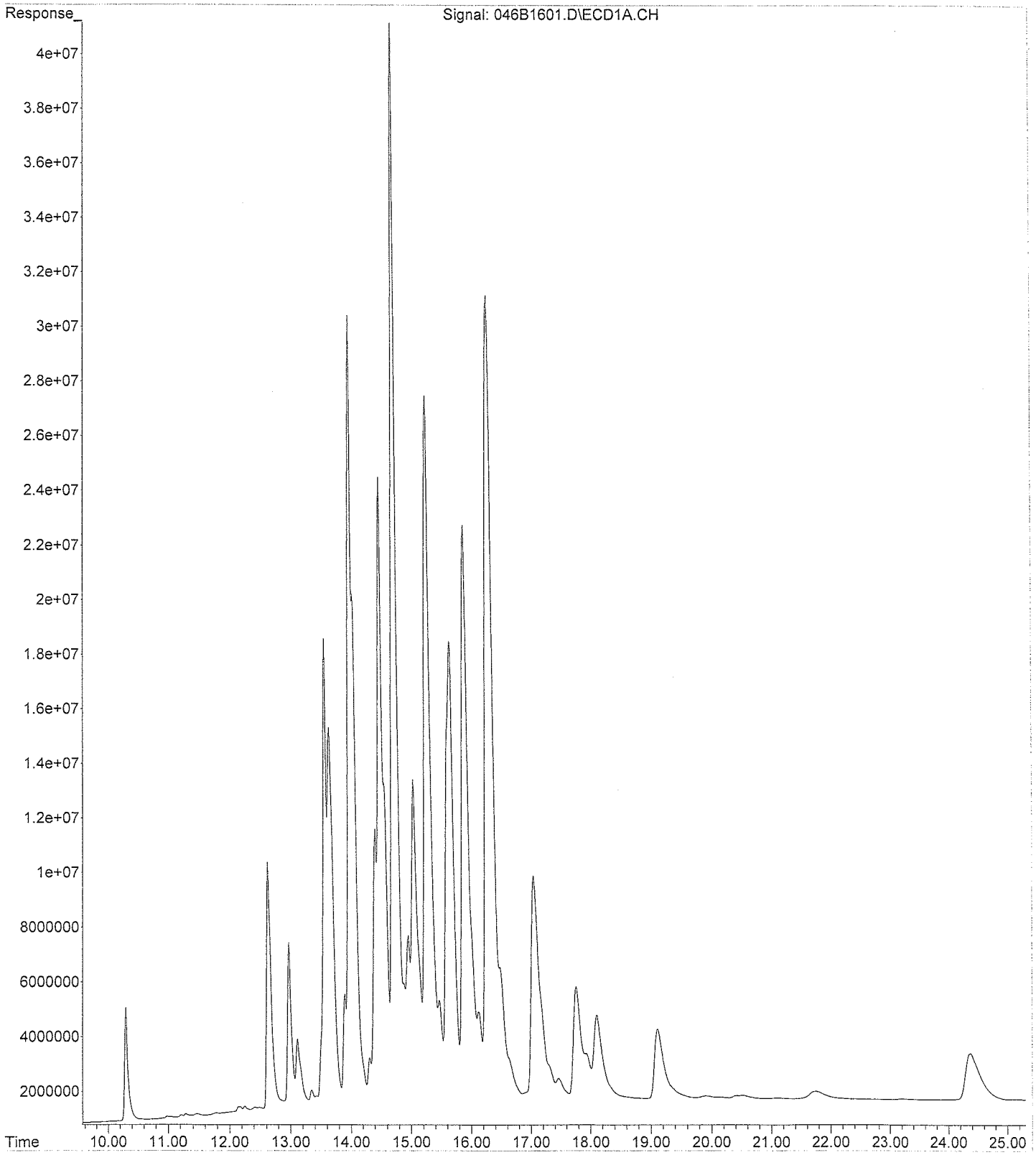
File : H:\1\DATA\072211E\046B1601.D
Operator : rdf
Acquired : 29 Jul 2011 1:10 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-095 ARO
Misc Info :
Vial Number: 46



Lab Number:	21206-097
Sample Designation:	TP6-1-NW-B
Date Sampled:	07/22/11 0820
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	83
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.006
Aroclor 1221	U	0.006
Aroclor 1232	U	0.006
Aroclor 1248	U	0.006
Aroclor 1254	0.05	0.006
Aroclor 1260	U	0.006

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	44	30 - 150
decachlorobiphenyl	46	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

ESI

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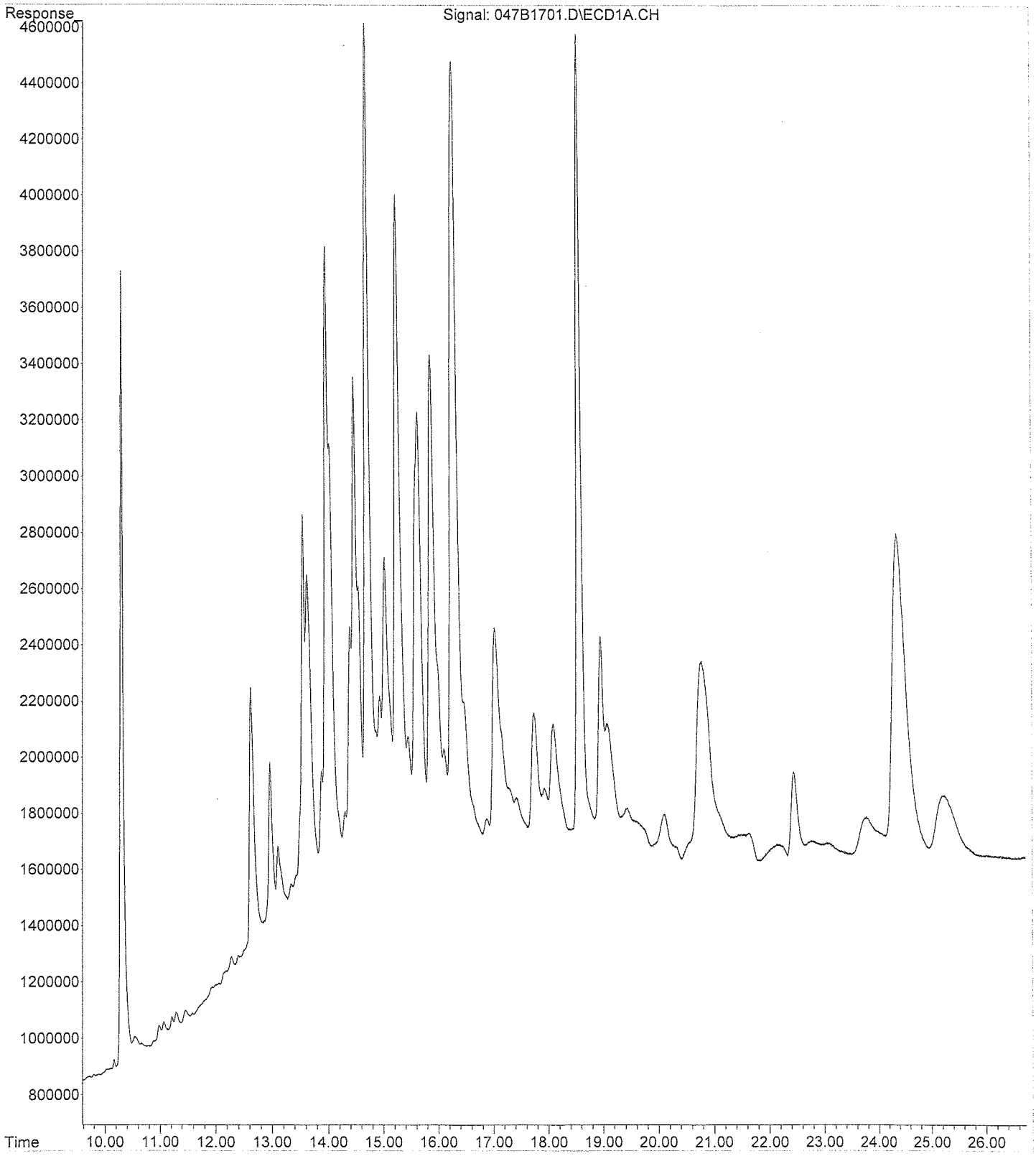
File : H:\1\DATA\072211E\047B1701.D
Operator : rdf
Acquired : 29 Jul 2011 1:47 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-097 ARO
Misc Info :
Vial Number: 47



Lab Number:	21206-099
Sample Designation:	TP6-2-NW-A
Date Sampled:	07/22/11 0900
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	34
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.015
Aroclor 1221	U	0.015
Aroclor 1232	U	0.015
Aroclor 1248	U	0.015
Aroclor 1254	2.30	0.015
Aroclor 1260	0.094	0.015

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	61	30 - 150
decachlorobiphenyl	71	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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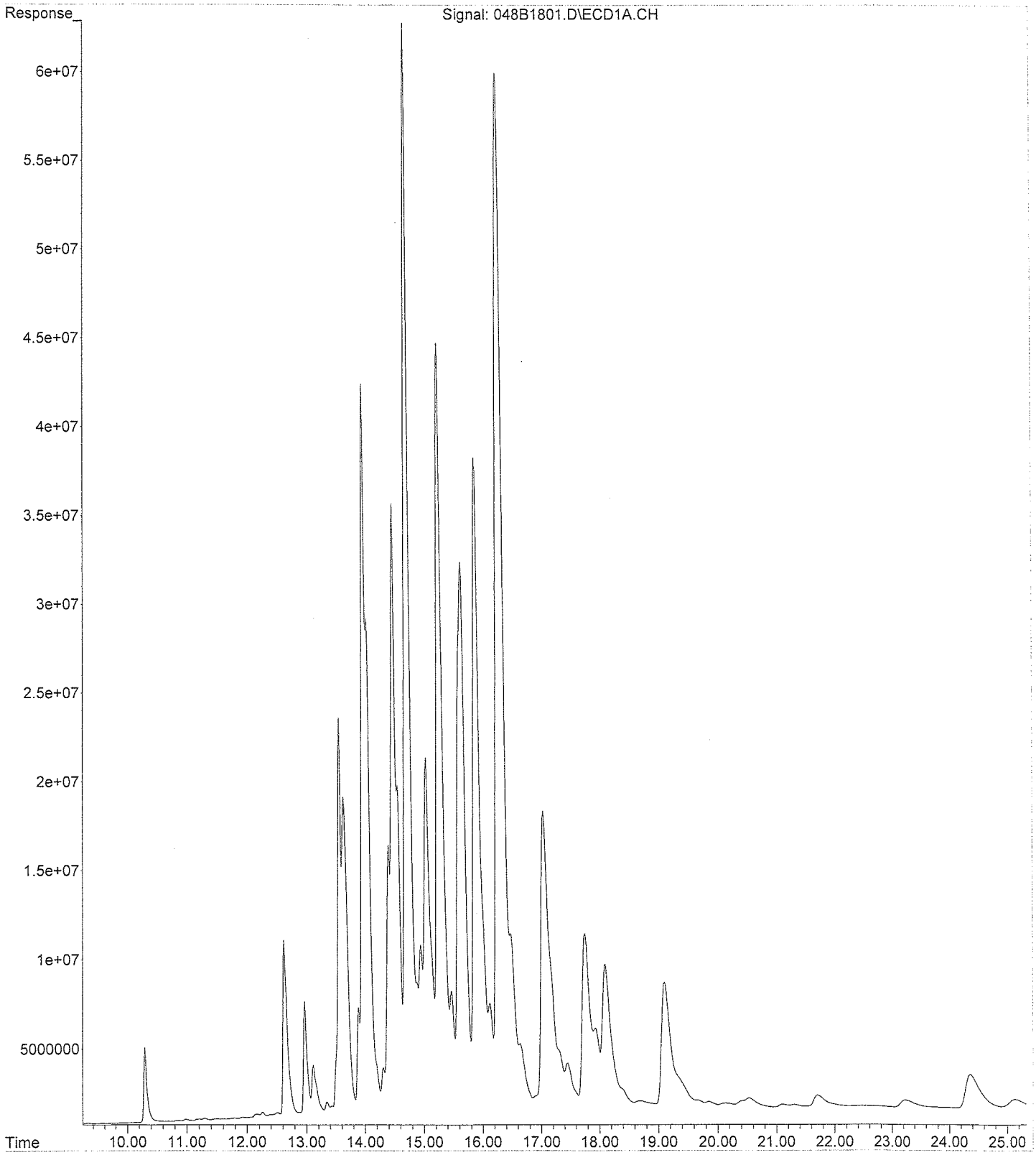
File : H:\1\DATA\072211E\048B1801.D
Operator : rdf
Acquired : 29 Jul 2011 2:23 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-099 ARO
Misc Info :
Vial Number: 48



Lab Number:	21206-101
Sample Designation:	TP6-2-NW-M
Date Sampled:	07/22/11 0910
Date Extracted:	07/26/11
Date Analyzed:	07/28/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	92
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0054
Aroclor 1221	U	0.0054
Aroclor 1232	U	0.0054
Aroclor 1248	U	0.0054
Aroclor 1254	U	0.0054
Aroclor 1260	U	0.0054

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	58	30 - 150
decachlorobiphenyl	66	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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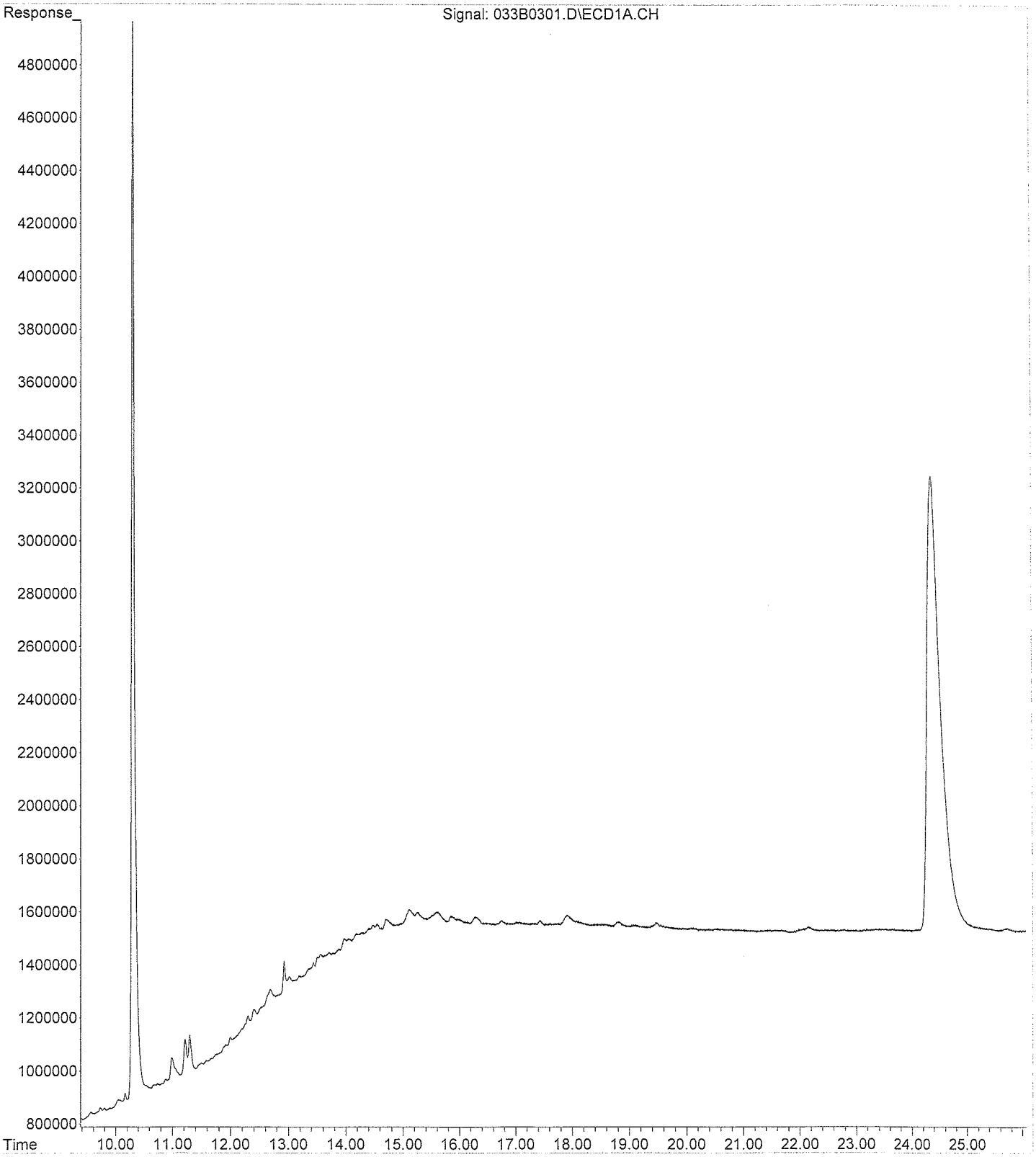
File : H:\1\DATA\072211E\033B0301.D
Operator : rdf
Acquired : 28 Jul 2011 5:11 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-101 ARO
Misc Info :
Vial Number: 33



Lab Number:	21206-103
Sample Designation:	TP6-2-NW-B
Date Sampled:	07/22/11 0920
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	83
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.006
Aroclor 1221	U	0.006
Aroclor 1232	U	0.006
Aroclor 1248	U	0.006
Aroclor 1254	U	0.006
Aroclor 1260	U	0.006

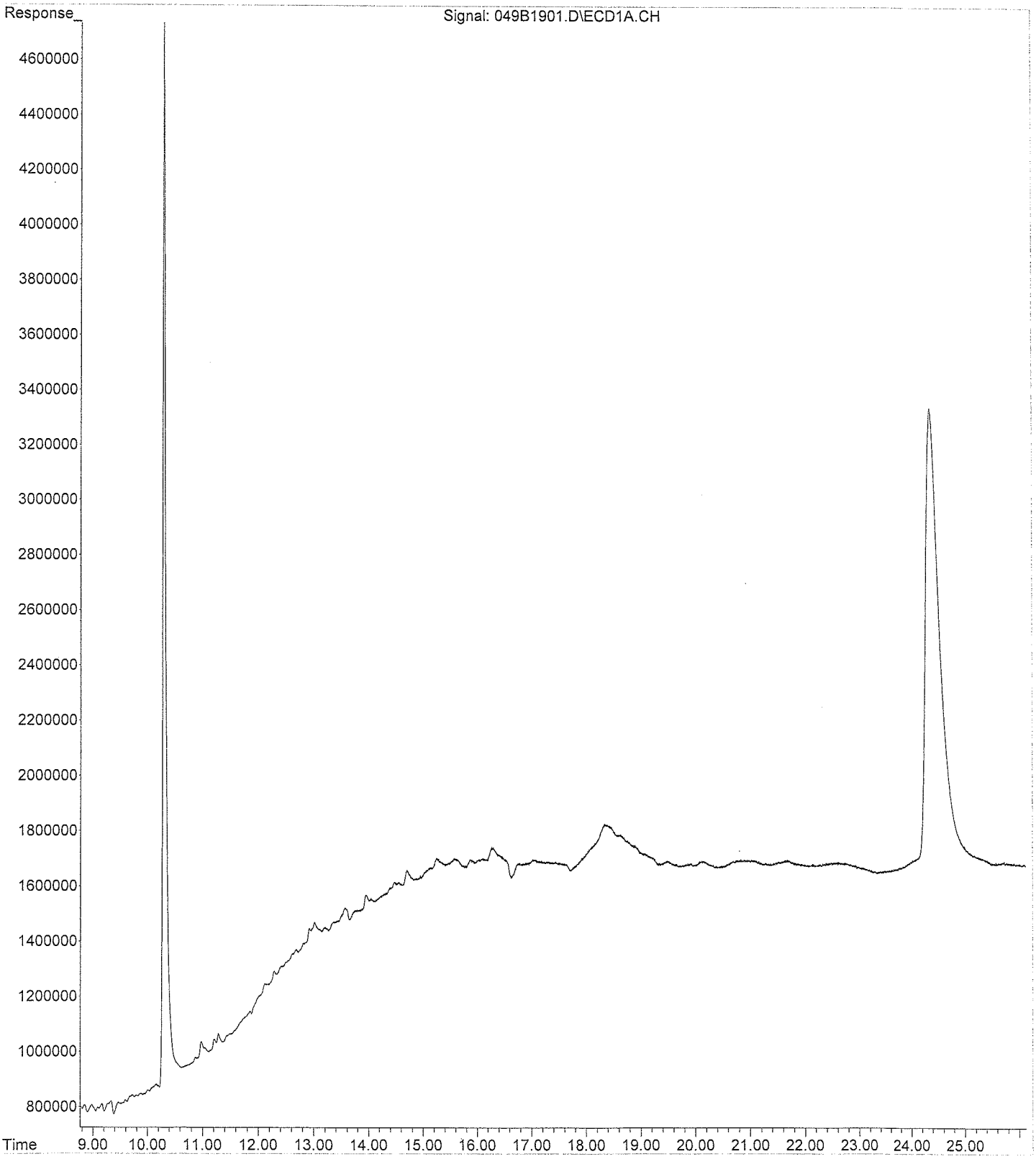
SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	60	30 - 150
decachlorobiphenyl	67	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

File : H:\1\DATA\072211E\049B1901.D
Operator : rdf
Acquired : 29 Jul 2011 3:00 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-103 ARO
Misc Info :
Vial Number: 49



Lab Number:	21206-105
Sample Designation:	TP6-1-NE-A
Date Sampled:	07/22/11 0930
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	97
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0051
Aroclor 1221	U	0.0051
Aroclor 1232	U	0.0051
Aroclor 1248	U	0.0051
Aroclor 1254	0.25	0.0051
Aroclor 1260	0.0096	0.0051

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	64	30 - 150
decachlorobiphenyl	68	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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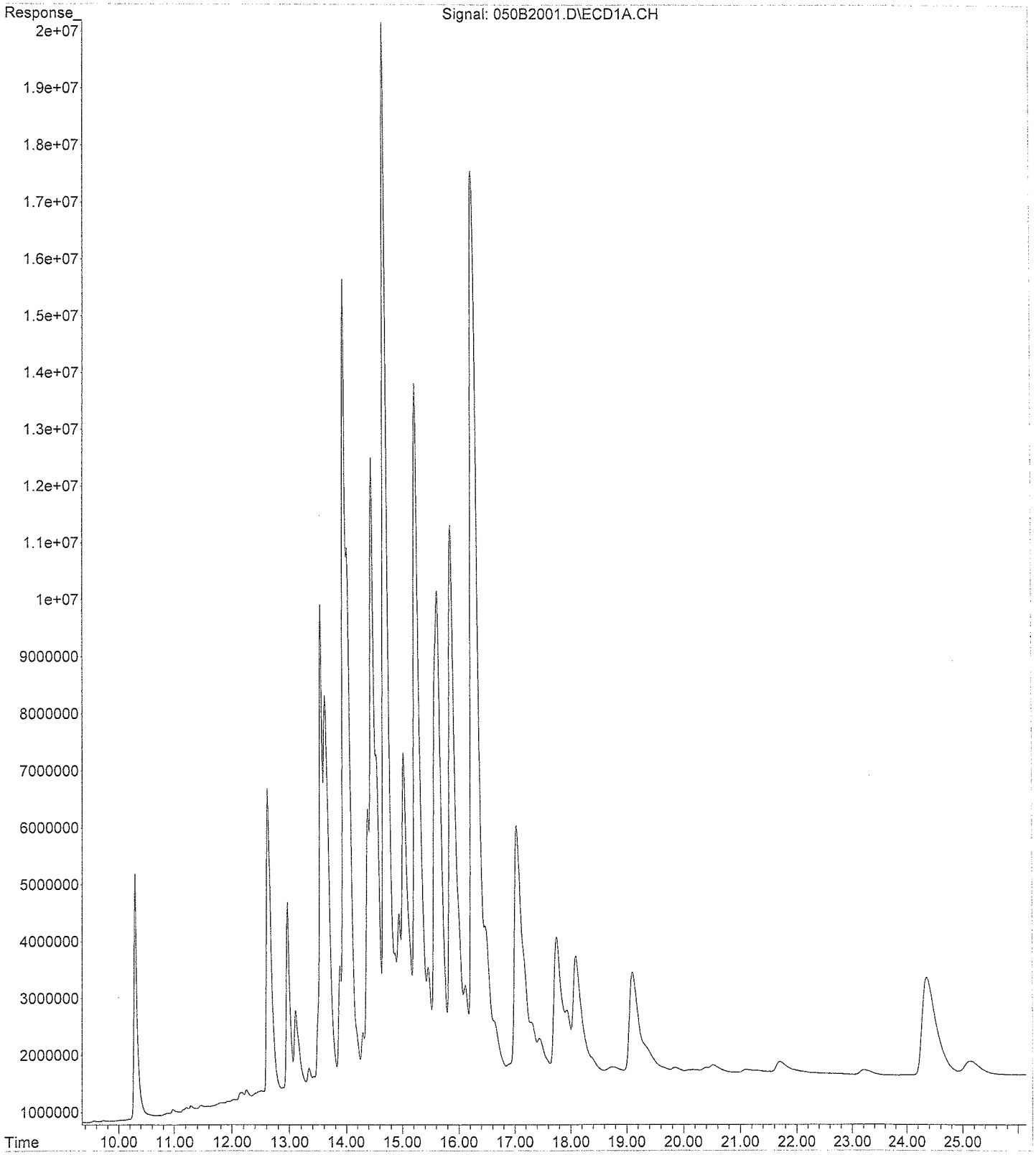
File : H:\1\DATA\072211E\050B2001.D
Operator : rdf
Acquired : 29 Jul 2011 3:37 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-105 ARO
Misc Info :
Vial Number: 50



Lab Number:	21206-107
Sample Designation:	TP6-1-NE-M
Date Sampled:	07/22/11 0935
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	80
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0062
Aroclor 1221	U	0.0062
Aroclor 1232	U	0.0062
Aroclor 1248	U	0.0062
Aroclor 1254	0.35	0.0062
Aroclor 1260	U	0.0062

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	72	30 - 150
decachlorobiphenyl	35	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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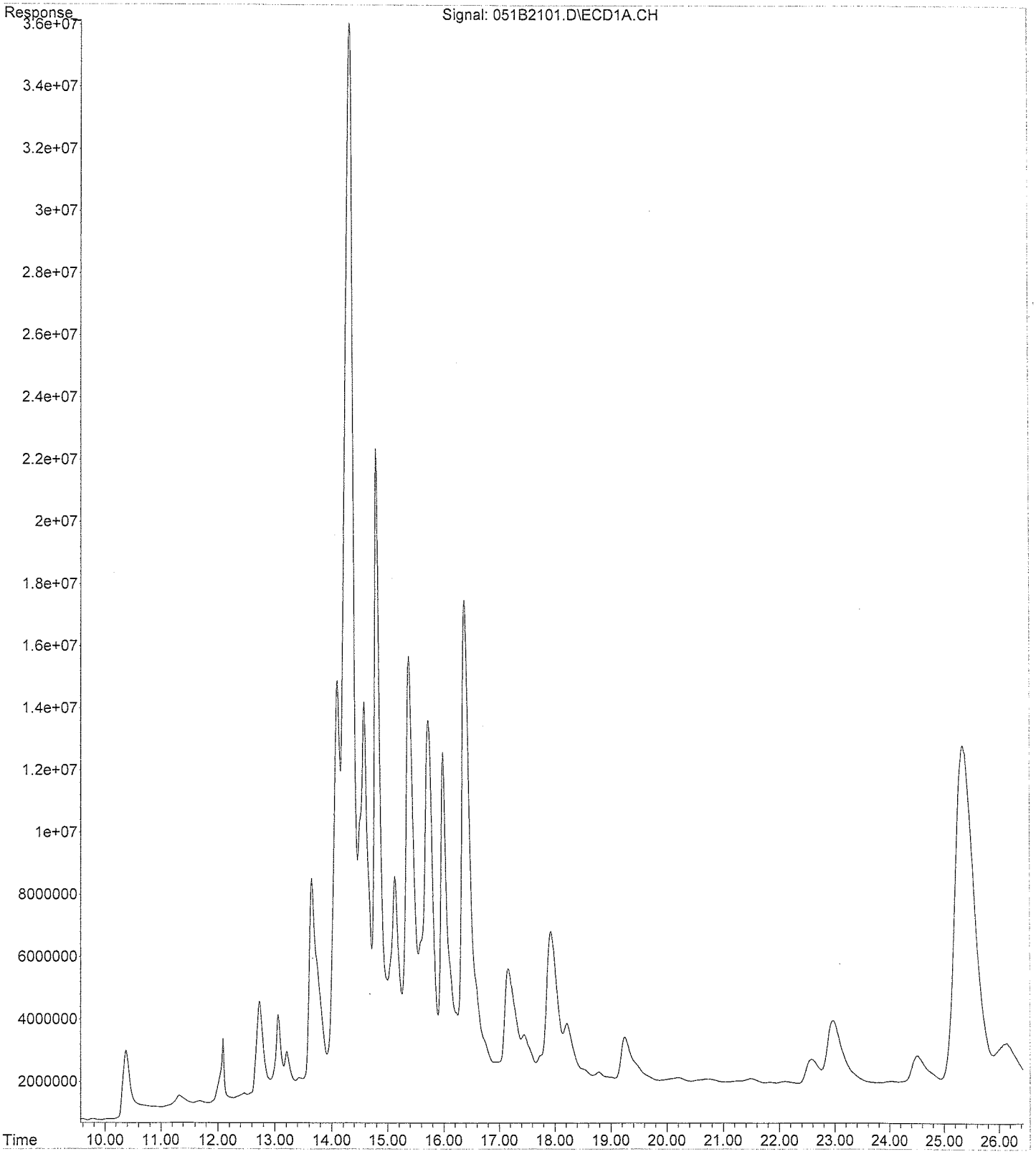
File : H:\1\DATA\072211E\051B2101.D
Operator : rdf
Acquired : 29 Jul 2011 4:14 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-107 ARO
Misc Info :
Vial Number: 51



Lab Number:	21206-109
Sample Designation:	TP6-1-NE-B
Date Sampled:	07/22/11 0940
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	97
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0051
Aroclor 1221	U	0.0051
Aroclor 1232	U	0.0051
Aroclor 1248	U	0.0051
Aroclor 1254	0.03	0.0051
Aroclor 1260	U	0.0051

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	56	30 - 150
decachlorobiphenyl	77	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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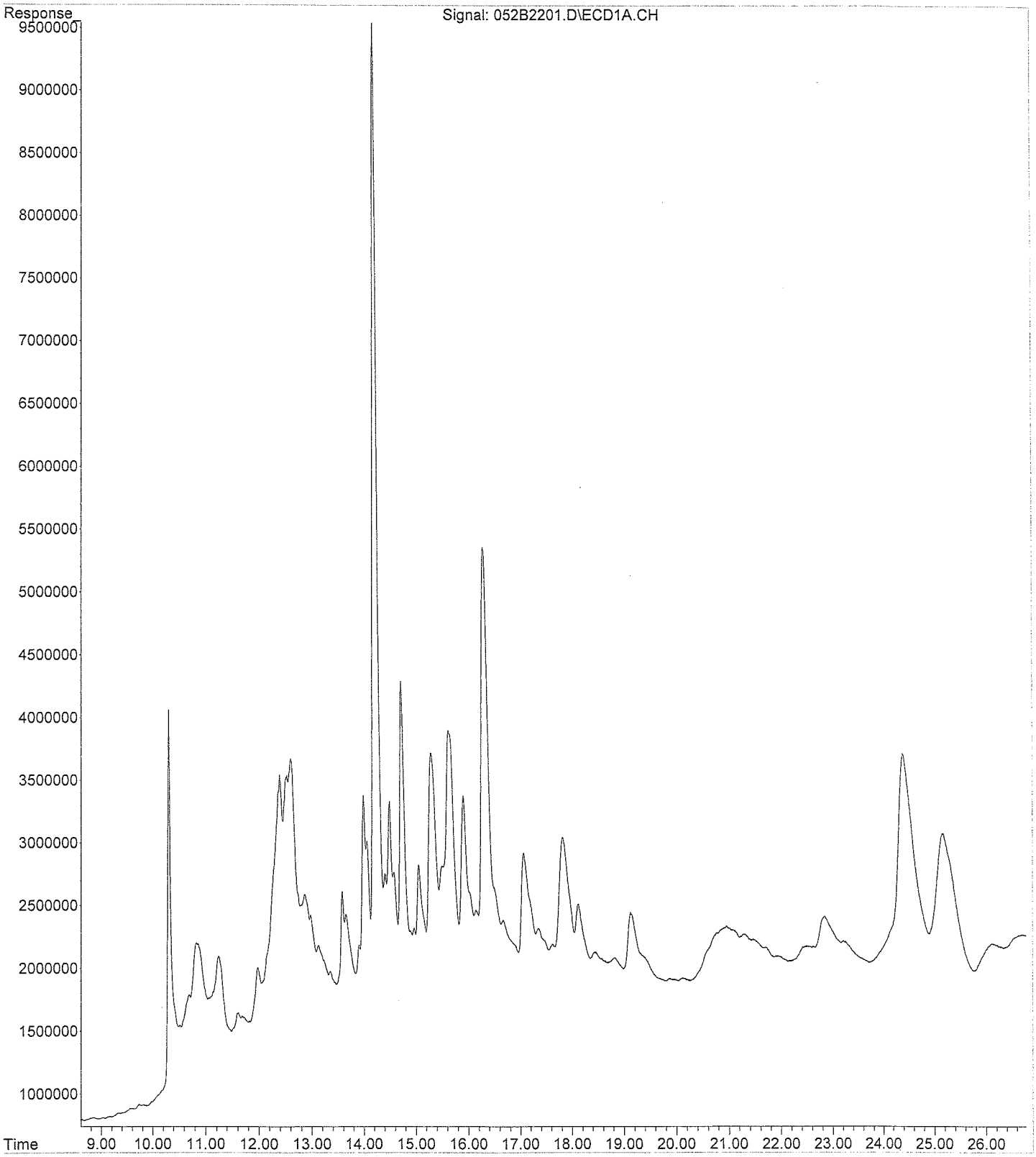
File : H:\1\DATA\072211E\052B2201.D
Operator : rdf
Acquired : 29 Jul 2011 4:50 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-109 ARO
Misc Info :
Vial Number: 52



Lab Number:	21206-111
Sample Designation:	TP6-3-NE-A
Date Sampled:	07/22/11 1100
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	91
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0055
Aroclor 1221	U	0.0055
Aroclor 1232	U	0.0055
Aroclor 1248	U	0.0055
Aroclor 1254	0.03	0.0055
Aroclor 1260	U	0.0055

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	58	30 - 150
decachlorobiphenyl	61	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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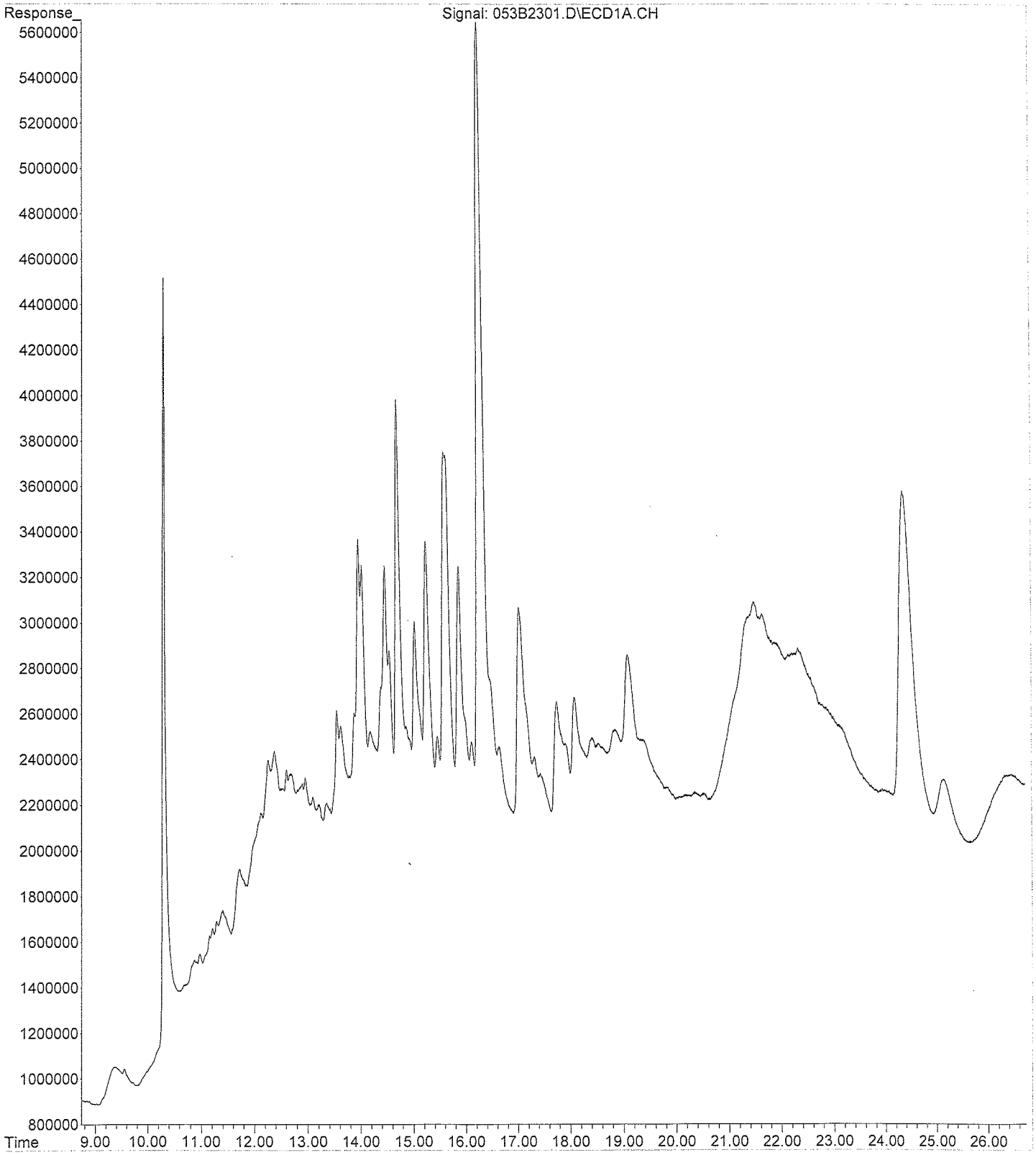
File : H:\1\DATA\072211E\053B2301.D
Operator : rdf
Acquired : 29 Jul 2011 5:27 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-111 ARO
Misc Info :
Vial Number: 53



Lab Number:	21206-113
Sample Designation:	TP6-3-NE-M
Date Sampled:	07/22/11 1110
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	91
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0055
Aroclor 1221	U	0.0055
Aroclor 1232	U	0.0055
Aroclor 1248	U	0.0055
Aroclor 1254	U	0.0055
Aroclor 1260	U	0.0055

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	50	30 - 150
decachlorobiphenyl	59	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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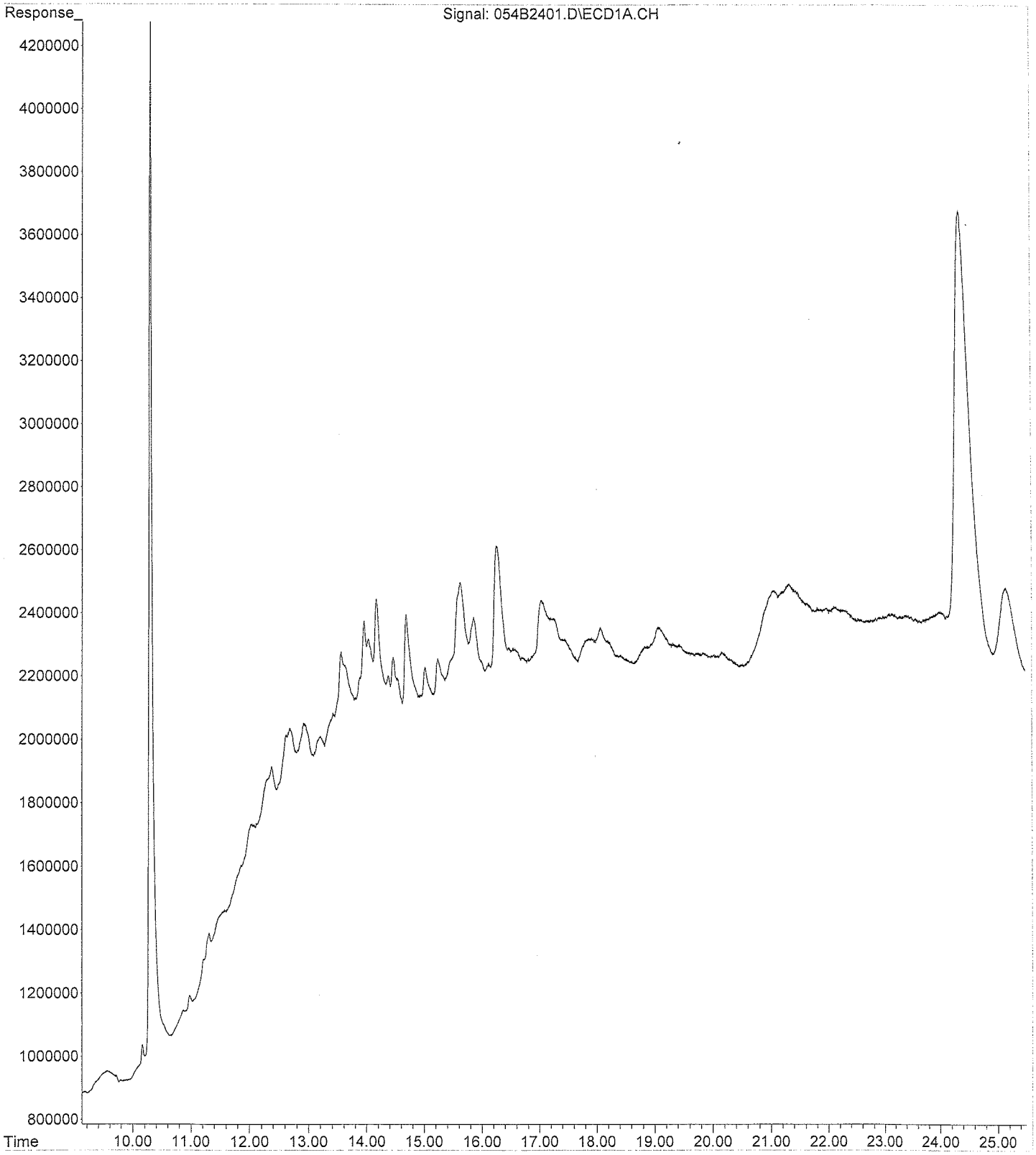
File : H:\1\DATA\072211E\054B2401.D
Operator : rdf
Acquired : 29 Jul 2011 6:04 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-113 ARO
Misc Info :
Vial Number: 54



Lab Number:	21206-115
Sample Designation:	TP6-3-NE-B
Date Sampled:	07/22/11 1120
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	0.02	0.0058
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	42	30 - 150
decachlorobiphenyl	47	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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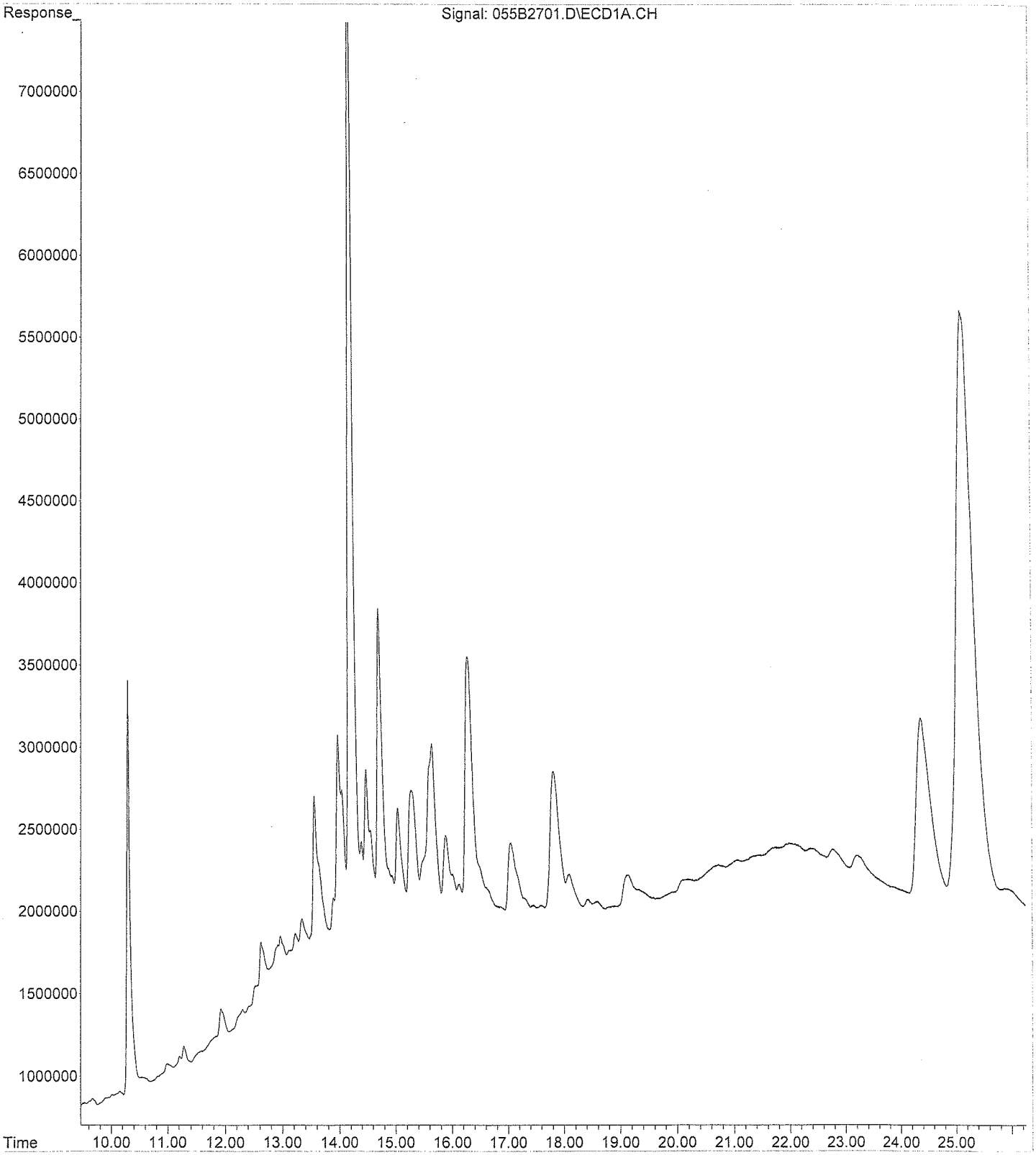
File : H:\1\DATA\072211E\055B2701.D
Operator : rdf
Acquired : 29 Jul 2011 7:54 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-115 ARO
Misc Info :
Vial Number: 55



Lab Number:	21206-117
Sample Designation:	TP6-5-NE-A
Date Sampled:	07/25/11 0950
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	97
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0051
Aroclor 1221	U	0.0051
Aroclor 1232	U	0.0051
Aroclor 1248	U	0.0051
Aroclor 1254	U	0.0051
Aroclor 1260	U	0.0051

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	62	30 - 150
decachlorobiphenyl	64	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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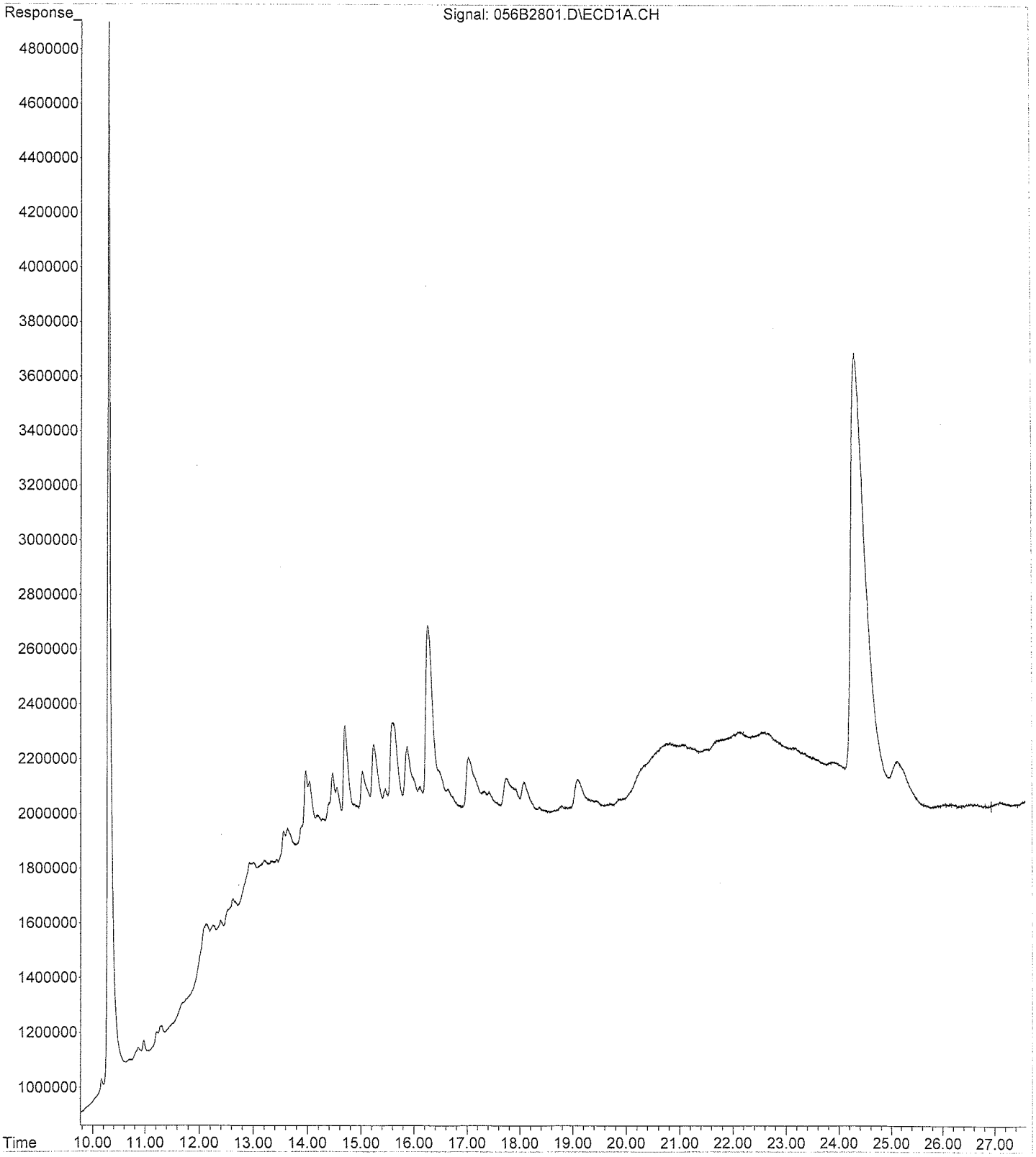
File : H:\1\DATA\072211E\056B2801.D
Operator : rdf
Acquired : 29 Jul 2011 8:31 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-117 ARO
Misc Info :
Vial Number: 56



Lab Number:	21206-118
Sample Designation:	TP6-5-NE-M
Date Sampled:	07/25/11 0955
Date Extracted:	07/26/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	0.04	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	52	30 - 150
decachlorobiphenyl	61	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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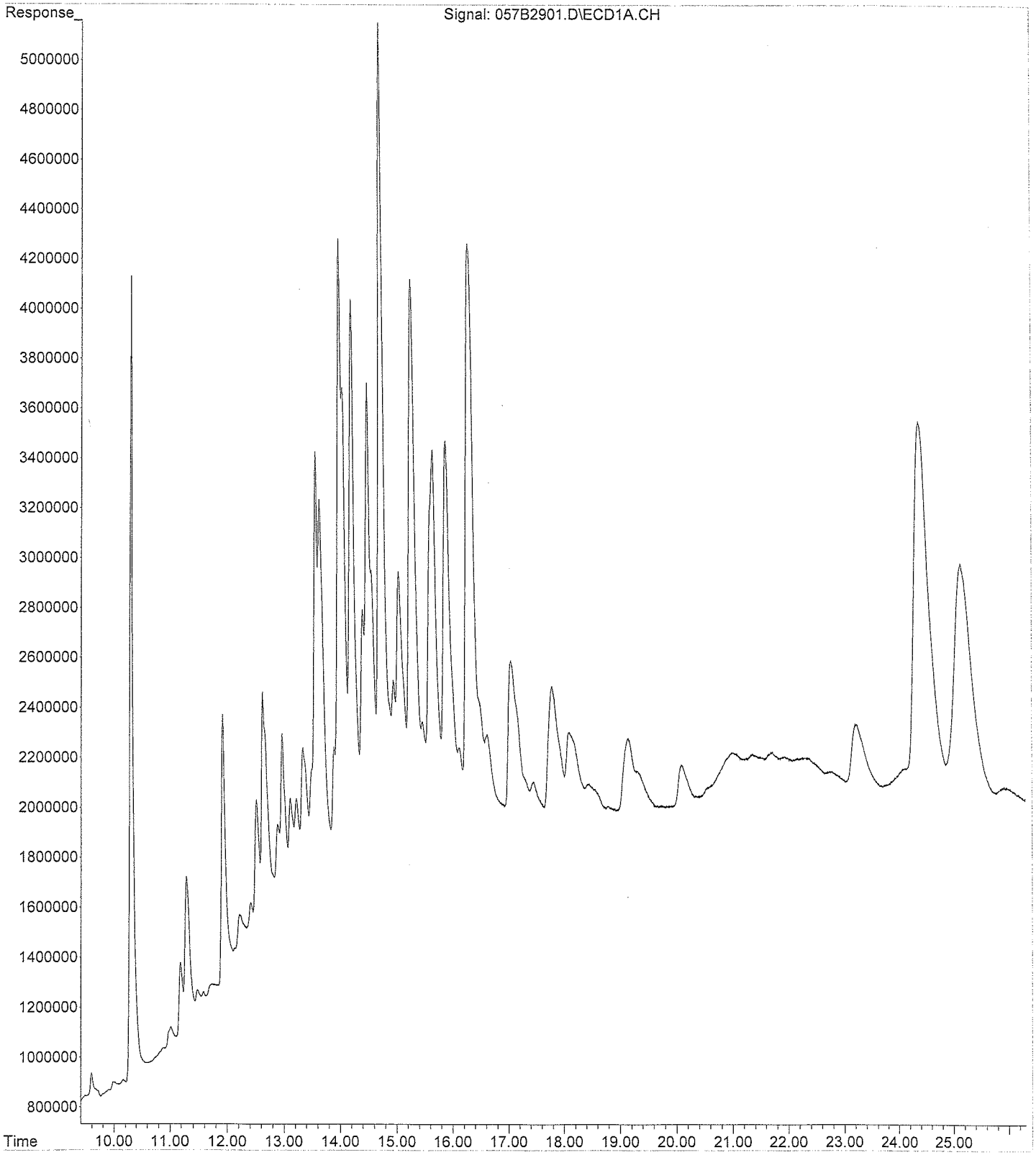
File : H:\1\DATA\072211E\057B2901.D
Operator : rdf
Acquired : 29 Jul 2011 9:08 am using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-118 ARO
Misc Info :
Vial Number: 57



Lab Number:	21206-119
Sample Designation:	TP6-5-NE-B
Date Sampled:	07/25/11 1000
Date Extracted:	07/29/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS

Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0066
Aroclor 1221	U	0.0066
Aroclor 1232	U	0.0066
Aroclor 1248	U	0.0066
Aroclor 1254	U	0.0066
Aroclor 1260	U	0.0066

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	63	30 - 150
decachlorobiphenyl	76	30 - 150

U = Below quantitation limit

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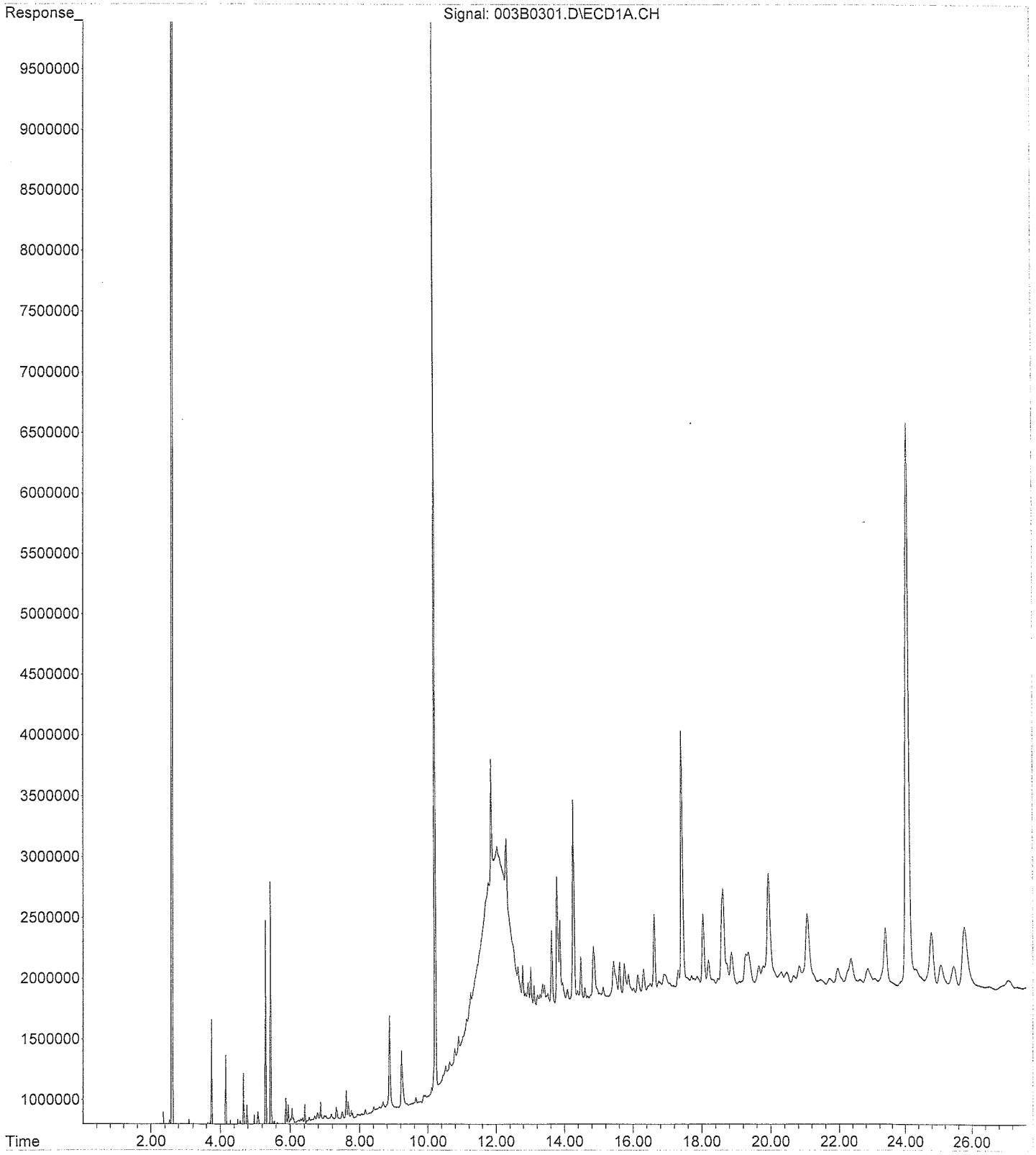
File : H:\1\DATA\072211G\003B0301.D
Operator : rdf
Acquired : 29 Jul 2011 3:38 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-119 ARO
Misc Info :
Vial Number: 3



Lab Number:	21206-120
Sample Designation:	TP6-7-NW-A
Date Sampled:	07/25/11 1030
Date Extracted:	07/29/11
Date Analyzed:	07/29/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.11	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	67	30 - 150
decachlorobiphenyl	107	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Arochlor identification is tentative.

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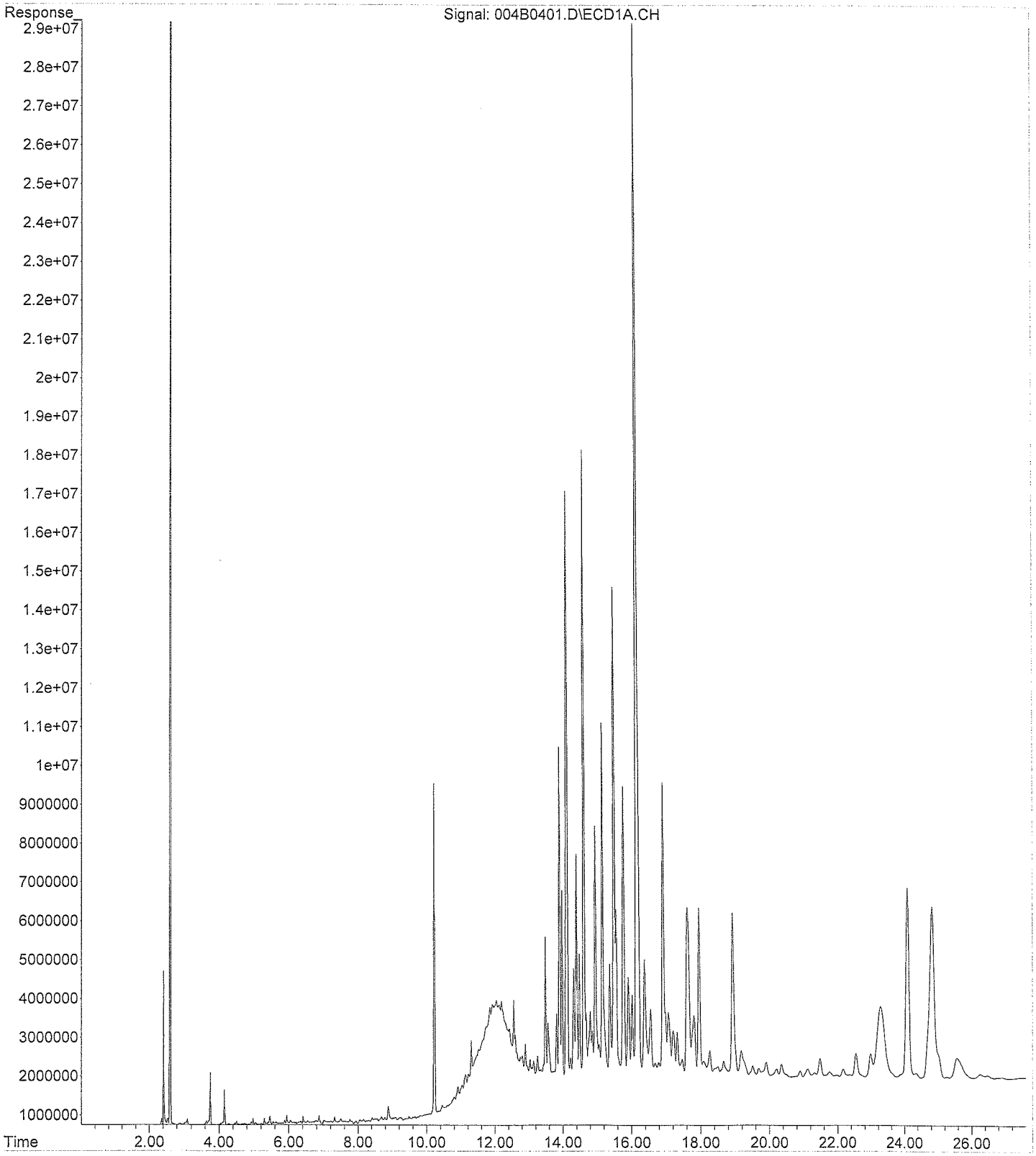
File : H:\1\DATA\072211G\004B0401.D
Operator : rdf
Acquired : 29 Jul 2011 4:15 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-120 ARO
Misc Info :
Vial Number: 4



Lab Number:	21206-121
Sample Designation:	TP6-7-NW-M
Date Sampled:	07/25/11 1035
Date Extracted:	07/29/11
Date Analyzed:	08/01/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0066
Aroclor 1221	U	0.0066
Aroclor 1232	U	0.0066
Aroclor 1248	U	0.0066
Aroclor 1254	U	0.0066
Aroclor 1260	U	0.0066

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	79	30 - 150
decachlorobiphenyl	97	30 - 150

U = Below quantitation limit

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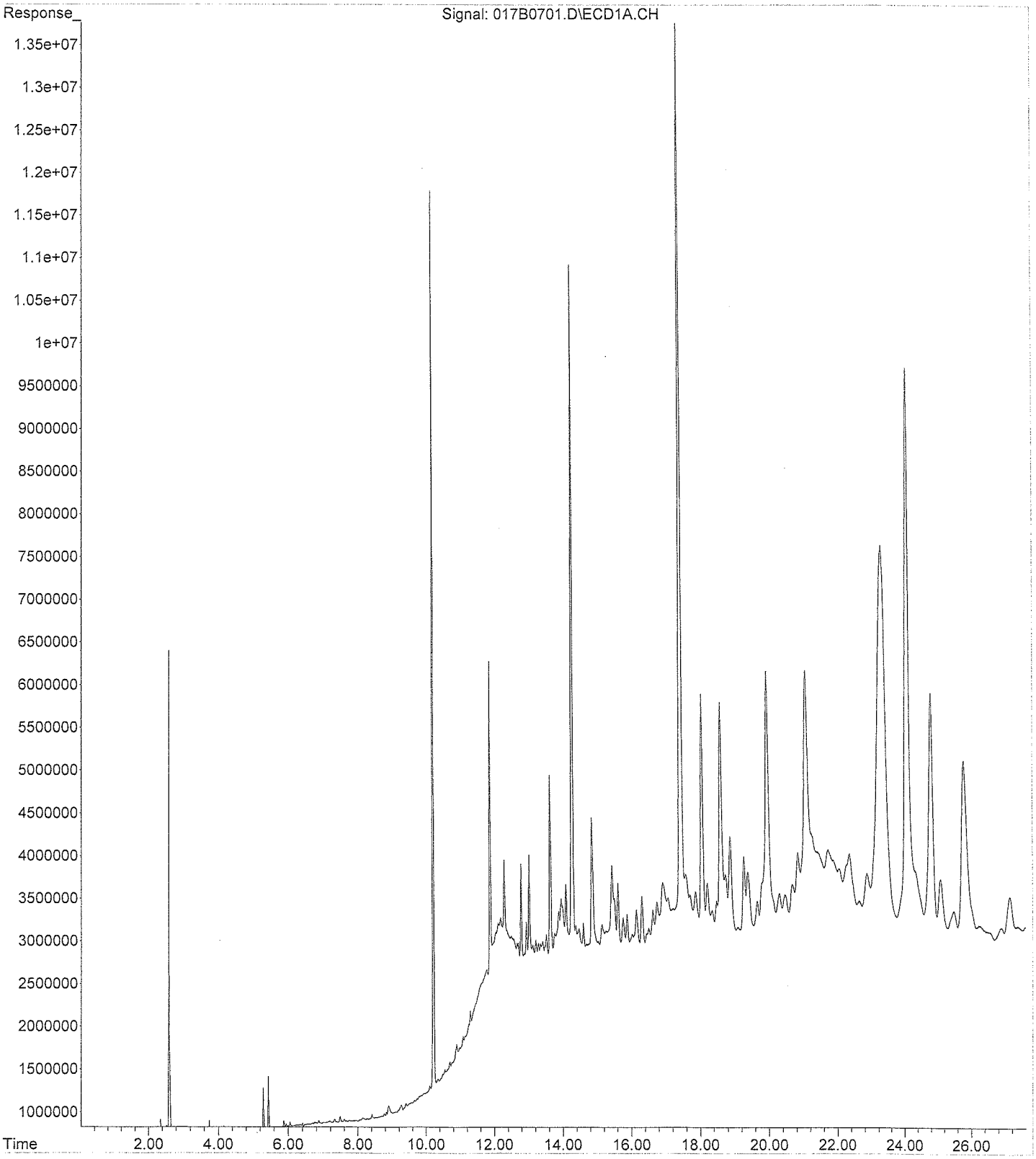
File : H:\1\DATA\072211H\017B0701.D
Operator : rdf
Acquired : 01 Aug 2011 4:19 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-121 ARO
Misc Info :
Vial Number: 17



Lab Number:	21206-122
Sample Designation:	TP6-7-NW-B
Date Sampled:	07/25/11 1040
Date Extracted:	07/29/11
Date Analyzed:	08/01/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0059
Aroclor 1221	U	0.0059
Aroclor 1232	U	0.0059
Aroclor 1248	U	0.0059
Aroclor 1254	U	0.0059
Aroclor 1260	U	0.0059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	57	30 - 150
decachlorobiphenyl	74	30 - 150

U = Below quantitation limit

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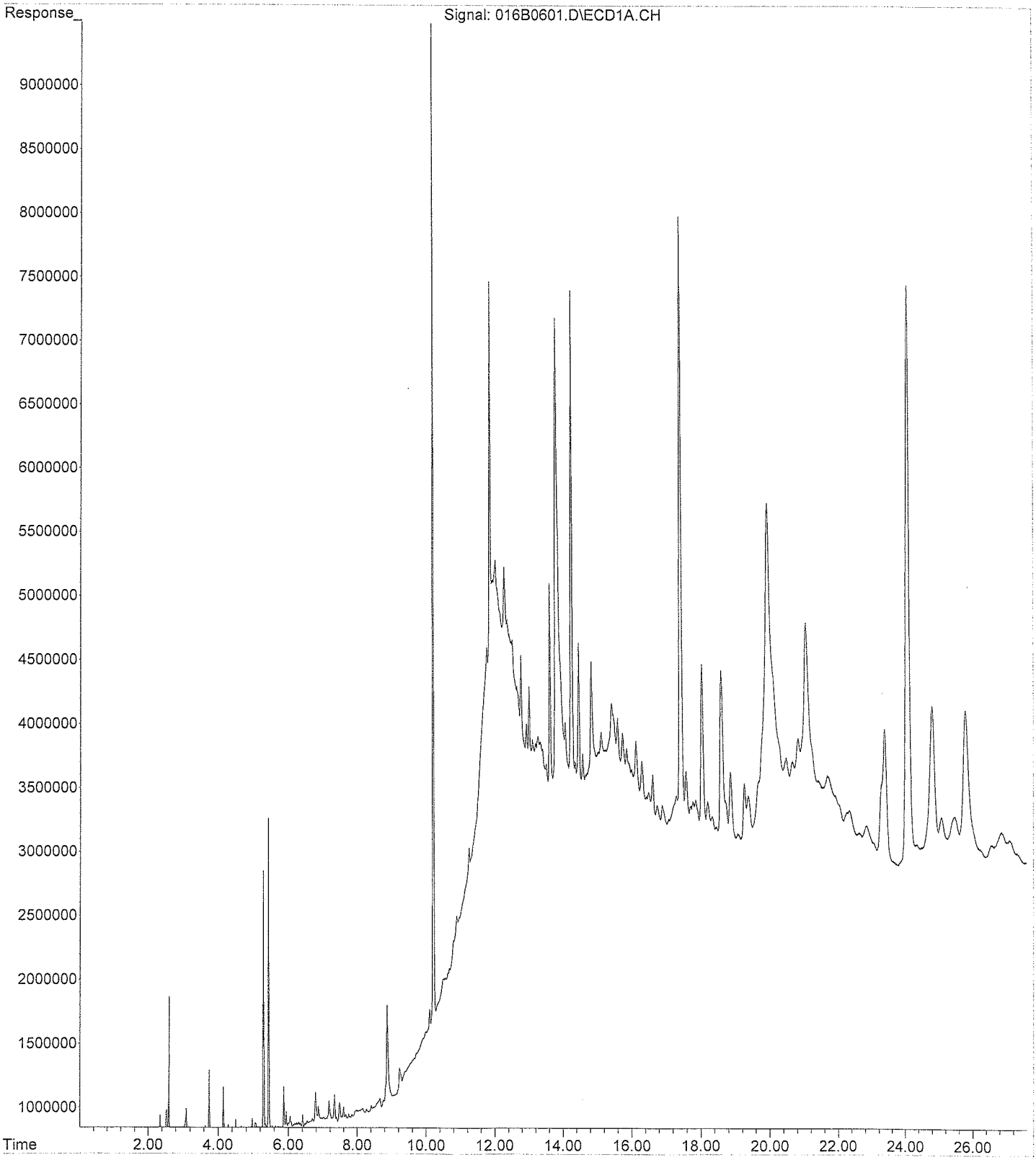
File : H:\1\DATA\072211H\016B0601.D
Operator : rdf
Acquired : 01 Aug 2011 3:42 pm using AcqMethod DUAL_COL.M
Instrument : HP G1530A
Sample Name: 21206-122 ARO
Misc Info :
Vial Number: 16



ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/19/11 0800	Date and TIme Logged into Lab:	07/19/11 1445
Recieved By:	DW	Logged into Lab by:	JEB JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-1-N-H	21206-001	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-1-N-H	21206-002	S	MA EPH	1x9oz g	4C	Yes
TP6-1-N-H	21206-003	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-1-N-H	21206-004	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-N-M	21206-005	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-2-N-M	21206-006	S	MA EPH	1x9oz g	4C	Yes
TP6-2-N-M	21206-007	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-2-N-M	21206-008	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-3-N-A	21206-009	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-3-N-A	21206-010	S	MA EPH	1x9oz g	4C	Yes
TP6-3-N-A	21206-011	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-3-N-A	21206-012	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-3-N-B	21206-013	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-3-N-B	21206-014	S	MA EPH	1x9oz g	4C	Yes
TP6-3-N-B	21206-015	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-3-N-B	21206-016	S	VOC8260LO	2x40ml g	H2O	Yes
TRIP BLANK	21206-017	S	VOC8260LO	1x40ml g	H2O	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/20/11 0800	Date and TIme Logged into Lab:	07/20/11 1405
Recieved By:	DW	Logged into Lab by:	JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	5		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-2-W-A	21206-018	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-A	21206-019	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-A	21206-020	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-A	21206-021	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-W-M	21206-022	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-M	21206-023	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-M	21206-024	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-M	21206-025	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-W-B	21206-026	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-B	21206-027	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-B	21206-028	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-B	21206-029	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-1-W-H	21206-030	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-1-W-H	21206-031	S	MA EPH	1x9oz g	4C	Yes
TP2-1-W-H	21206-032	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-1-W-H	21206-033	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-2-W-M	21206-034	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-2-W-M	21206-035	S	MA EPH	1x9oz g	4C	Yes
TP2-2-W-M	21206-036	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-2-W-M	21206-037	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-4-W-A	21206-038	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-4-W-A	21206-039	S	MA EPH	1x9oz g	4C	Yes
TP2-4-W-A	21206-040	S	VOC8260HI	1x40ml g	MeOH	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/20/11 0800	Date and TIme Logged into Lab:	07/20/11 1405
Recieved By:	DW	Logged into Lab by:	JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	5		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP2-4-W-A	21206-041	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-4-W-B	21206-042	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-4-W-B	21206-043	S	MA EPH	1x9oz g	4C	Yes
TP2-4-W-B	21206-044	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-4-W-B	21206-045	S	VOC8260LO	2x40ml g	H2O	Yes
TP4-1-E	21206-046	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-E	21206-047	S	MA EPH	1x9oz g	4C	Yes
TP4-1-E	21206-048	S	VOC8260HI	1x40ml g	MeOH	Yes
TP4-1-E	21206-049	S	VOC8260LO	2x40ml g	H2O	Yes
TP3-1-S	21206-050	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-1-S	21206-051	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-A	21206-052	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-A	21206-053	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-M	21206-054	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-M	21206-055	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-B	21206-056	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-B	21206-057	S	MA EPH	1x9oz g	4C	Yes
TRIP BLANK	21206-058	S	VOC8260LO	2x40ml g	H2O	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/21/11 0800	Date and TIme Logged into Lab:	07/21/11 1340
Recieved By:	DW	Logged into Lab by:	JEB JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP4-1-S-A	21206-059	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-A	21206-060	S	MA EPH	1x4oz g	4C	Yes
TP4-1-S-M	21206-061	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-M	21206-062	S	MA EPH	1x4oz g	4C	Yes
TP4-1-S-B	21206-063	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-B	21206-064	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-A	21206-065	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-A	21206-066	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-M	21206-067	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-M	21206-068	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-B	21206-069	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-B	21206-070	S	MA EPH	1x4oz g	4C	Yes
TP4-2-W	21206-071	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-2-W	21206-072	S	MA EPH	1x4oz g	4C	Yes
TP9-1-E	21206-073	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-W	21206-074	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-N	21206-075	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-S	21206-076	S	ARO8082;	1x9oz g	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/22/11 0842	Date and TIme Logged into Lab:	07/22/11 1135
Recieved By:	BS	Logged into Lab by:	MES
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP13-1-S	21206-077	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-A	21206-078	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-M	21206-079	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-B	21206-080	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-A	21206-081	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-M	21206-082	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-B	21206-083	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-A	21206-084	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-M	21206-085	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-B	21206-086	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-A	21206-087	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-M	21206-088	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-B	21206-089	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-A	21206-090	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-M	21206-091	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-B	21206-092	S	ARO8082;	1x9oz g	4C	Yes

Notes and qualifications:

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/23/11 0820	Date and TIme Logged into Lab:	07/25/11 0815
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-1-NW-A	21206-093	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-A	21206-094	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NW-M	21206-095	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-M	21206-096	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NW-B	21206-097	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-B	21206-098	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-A	21206-099	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-A	21206-100	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-M	21206-101	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-M	21206-102	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-B	21206-103	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-B	21206-104	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-A	21206-105	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-A	21206-106	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-M	21206-107	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-M	21206-108	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-B	21206-109	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-B	21206-110	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-A	21206-111	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-3-NE-A	21206-112	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-M	21206-113	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-3-NE-M	21206-114	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-B	21206-115	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/23/11 0820	Date and TIme Logged into Lab:	07/25/11 0815
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	Yes
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	Yes
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-3-NE-B	21206-116	S	MA EPH	1x4oz g	4 C	Yes

Notes and qualifications: 21206-116 S MA EPH

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/26/11 0800	Date and TIme Logged into Lab:	07/26/11 1318
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-5-NE-A	21206-117	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-M	21206-118	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-B	21206-119	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-A	21206-120	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-M	21206-121	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-B	21206-122	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-A	21206-123	S	MA EPH	1X4oz G	4C	Yes
TP6-5-NE-M	21206-124	S	MA EPH	1X4oz G	4C	Yes
TP6-5-NE-B	21206-125	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-A	21206-126	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-M	21206-127	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-B	21206-128	S	MA EPH	1X4oz G	4C	Yes

Notes and qualifications:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: Chet Watkins	Project Name: Dewey Terminal	Page 1 of 2
Report to: Chet Watkins	Address: 184 High St. Ste 501	Project Number: 6690	
Invoice to: " "	Address: Boston MA 02110	Project Manager: Chet Watkins	
Voice: 617-728-0070	Fax: 617-728-0050	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	TP6-1-N-H	7/18/11	12:00	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
002	TP6-1-N-H	7/18/11	12:00	GD	C	9oz	G/T		S		MA EPH
003	TP6-1-N-H	7/18/11	12:00	GD	C	40	G/T	MeOH	S		VOC-High (8260)
004	TP6-1-N-H	7/18/11	12:00	GD	C	40	G/T	H_2O	S		VOC-Low (8260)
005	TP6-2-N-M	7/18/11	12:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
006	TP6-2-N-M	7/18/11	12:30	GD	C	9oz	G/T		S		MA EPH
007	TP6-2-N-M	7/18/11	12:30	GD	C	40	G/T	MeOH	S		VOC-High (8260)
008	TP6-2-N-M	7/18/11	12:30	GD	C	40	G/T	H_2O	S		VOC-Low (8260)
009	TP6-3-N-A	7/18/11	13:00	GD	C	9oz	G/T		S		SVOC (8270C) PCB Aroclors
010	TP6-3-N-A	7/18/11	13:00	GD	C	9oz	G/T		S		MA EPH
011	TP6-3-N-A	7/18/11	13:00	GD	C	40	G/T	MeOH	S		VOC-High (8260)
012	TP6-3-N-A	7/18/11	13:00	GD	C	40	G/T	H_2O	S		VOC-Low (8260)

132/145

Relinquished By: [signature]	Date: 7/19/11	Time: 8:00	Received By: [signature] Date: 7/19/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: Chet Mayers	Project Name: South Terminal	Page 2 of 2
Report to: Chet Mayers	Address: 184 High St. Stoneham	Project Number: 66 90	
Invoice to: Chet Mayers	Address: Boston, MA 02210	Project Manager: Chet Mayers	
Voice: 617-728-0090	Fax: 617 728 00 70	email: cmayers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
03	TPG-3-N-B	7/18/11	13:30	GD	G	40z	G/T		S		SVOC (8270C), PCB Aroclors
04	TPG-3-N-B	7/18/11	13:30	GD	G	40z	G/T		S		MA EPH
05	TPG-3-N-B	7/18/11	13:30	GD	G	40	G/T	MeOH	S		VOC - High (8260)
06	TPG-3-N-B	7/18/11	13:30	GD	G	40	G/T	HCl	S		VOC - Low (8260)
07	TRIP BLANK	7/14/11		DS		40	G/T	H2O			VOC - Low (8260)

133/145

Relinquished By: [illegible]	Date: 7/19/11 Time: 8:00	Received By: [illegible]	Date: 7/19/11 Time: 800
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: Chet Matters	Project Name: South Terminal	Page 1 of 5
Report to: Chet Matters	Address: 184 High St. Ste 502	Project Number: 6690	
Invoice to: Chet Matters	Address: Boston, MA 02110	Project Manager: Chet Matters	
Voice: (617) 728-0370	Fax: (617) 728-0050	email: cmatters@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
	TPG-1-W-A	7/19/11	8:00	GD	C	9oz	G/T		S		SVOC (8270C) PCB Aroclors
GAD				GD	C		G/T		S		MA EPH
7/20/11				GD	C	40	G/T	MeOH	S		VOC-HIGH (8260)
				GD	C	40	G/T	H2O	S		~~VOC-LOW (8260)~~
	TPG-2-W-A	7/19/11	9:00	GD	C	9oz	G/T		S		SVOC (8270C) PCB Aroclors
						4oz	G/T		S		MA EPH
						40	G/T		S		VOC-HIGH (8260)
						40	G/T		S		VOC-~~HIGH~~ LOW (8260)
	TPG-2-W-MA	7/19/11	9:15	GD	C	9oz	G/T		S		SVOC (8270C) PCB Aroclors
						9oz					MA EPH
						40		MeOH			VOC-HIGH (8260)
						40		H2O			VOC-LOW (8260)

134/145

Relinquished By: [signature]	Date: 7/20/11	Time: 5:00	Received By: [signature] Date: 7/20/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co LLC	Contact:	Project Name: South Terminal 6690	Page 2 of 5
Report to:	Address:	Project Number:	
Invoice to: S&B	Address: PG	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
035	TP6-2-W-B	7/19/11	9:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB AROCLORS
036	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
037	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
038	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC - LOW (8260)
039	TP2-1-W-H	7/19/11	10:00	GD	C	9oz	G/T		S		SVOC (8270C) PCB AROCLORS
040	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
041	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
042	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC - LOW (8260)
043	TP2-2-W-M	7/19/11	10:30	GD	C	9oz	G/T		S		SVOC (8270), PCB AROCLORS
044	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
045	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC HIGH (8260)
046	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC LOW (8260)

135/145

Relinquished By: [signature]	Date: 7/20/11	Time: 8:00	Received By: [signature] Date: 7/20/11 Time: 800
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

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FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact:	Project Name: South Portsmouth	Page 3 of 5
Report to:	Address:	Project Number: 6690	
Invoice to: SAE	Address: PC	Project Manager:	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
038	TP2-4-W-A	7/19/11	11:00	GD	G	4oz	G/T		S		SVOC (8270C), PCB Aroclors
039	↓	↓	↓	↓	↓	4oz	↓		↓		MA BPH
040	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
041	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)
042	TP2-4-W-B	7/19/11	11:15	GD	C	4oz	G/T		S		SVOC (8270C), PCB Aroclors
043	↓	↓	↓	↓	↓	4oz	↓		↓		MA BPH
044	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
045	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)
046	TP4-1-E	7/19/11	12:00	GD	C	4oz	G/T		S		SVOC (8270), PCB Aroclors
047	↓	↓	↓	↓	↓	4oz	↓		↓		MA BPH
048	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
049	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)

136/145

Relinquished By: [signature]	Date: 7/20/11	Time: 8:00	Received By: [signature] Date: 7/20/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

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ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX CO LLC	Contact:	Project Name: South Berwick	Page 4 of 5
Report to:	Address:	Project Number: 0690	
Invoice to: SEE	Address: PAGE	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
050	TP 3-1-S	7/19/11	1300	GD	C	9 oz	G/T		S		SVOC (8270C), PCB Aroclors
051	↓	↓	↓	↓	↓		↓		↓		MA EPH
052	~~—~~					~~40~~		~~Meoh~~			~~VOC - HIGH (8260)~~
053	~~—~~					~~40~~		~~HCL~~			~~VOC - LOW (8260)~~
054	TP 3-2-S-A	7/19/11	1400	GD	C	9 oz	G/T		S		SVOC (8270C), PCB Aroclors
055	↓	↓	↓	↓	C		↓		S		MA EPH
	~~—~~										
	~~—~~										
056	TP 3-2-S-M	7/19/11	1415		C	9 oz	G/T		S		SVOC (8270C), PCB Aroclors
057	↓		↓		↓	4 oz			↓		MA EPH
	~~—~~										
				↓							

137/145

Relinquished By: [signature] Date: 7/19/11 Time: 5:00 Received By: [signature] Date: 7/20/11 Time: 8:00

Relinquished By: Date: Time: Received at Lab By: Date: Time:

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COC Doc No:

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ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co LLC	Contact:	Project Name: South Terminal	Page 5 of 5
Report to:	Address:	Project Number: 0690	
Invoice to: SEE	Address: PG	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
056	TP3-2-3-B	7/19/11	1430	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
057	↓	↓	↓	GD	C	4oz	G/T		S		MA EPH
058	TRIP BLANK	7/19/11	1500	GD		40	G/T	H_2O			VOC-Low 8260

138/145

Relinquished By: [signature]	Date: 7/20/11 Time: 8:00	Received By: [signature]	Date: 7/20/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

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Sample Delivery Group No: Page of

COC Doc No:

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Hampton, N.H. 03843

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ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co. LLC	Contact: C. MYERS	Project Name: South Terminal	Page 1 of 2
Report to: C. MYERS	Address: 184 High St. Ste 502	Project Number: 6690	
Invoice to: C. MYERS	Address: Boston, MA 02110	Project Manager: C. MYERS	
Voice: (617) 728-0072	Fax: (617) 778-0050	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
059	TP4-1-S-A	7/20/11	1000	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
060	TP4-1-S-A	7/20/11	1000	GD	C	4oz	G/T		S		MVA EPH
061	TP4-1-S-M		1015			9oz					SVOC (8270C), PCB Aroclors
062	TP4-1-S-M		1015			4oz					MA EPH
063	TP4-1-S-B		1020			9oz					SVOC (8270C), PCB Aroclors
064	TP4-1-S-B		1020			4oz					MVA EPH
065	TP4-1-W-A		1130			9oz					SVOC (8270C), PCB Aroclors
066	TP4-1-W-A		1130			4oz					MVA EPH
067	TP4-1-W-M		1140			9oz					SVOC (8270C), PCB Aroclors
068	TP4-1-W-M		1140			4oz					MVA EPH
069	TP4-1-W-B		1145			9oz					SVOC (8270C), PCB Aroclors
070	TP4-1-W-B		1145			4oz					MA EPH

139/145

Relinquished By: [signature]	Date: 7/21/11	Time: 8:00	Received By: [signature] Date: 7/21/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Area Co. LLC	Contact: C. Myers	Project Name: South Terminal	Page 2 of 2
Report to: C. Myers	Address: 184 High St. Ste 502	Project Number: 0690	
Invoice to: C. Myers	Address: Boston, MA 02110	Project Manager: C. Myers	
Voice: (617) 728-0020	Fax: (617) 728-0050	email: cmyers@areaco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
071	TP4-2-W	7/21/11	1225	GO	C	9oz	G/T		S		SVOC (SIM), PCB Aroclors
072	TP4-2-W	↓	1225	↓	↓	4oz	↓		↓		MA EPH
073	TP9-1-E	↓	1400	↓	↓	9oz	↓		↓		PCB Aroclors
074	TP9-1-W	↓	1420	↓	↓	9oz	↓		↓		PCB Aroclors.
075	TP9-1-N	↓	1430	↓	↓	9oz	↓		↓		PCB Aroclors
076	TP9-1-S	↓	1500	↓	↓	9oz	↓		↓		PCB Aroclors

140/145

Relinquished By: D. O	Date: 7/21/11	Time: 8:00	Received By: [illegible] Date: 7/21/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

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COC Doc No:

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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 1 of 2
Report to: C. MYERS	Address: 84 HIGH ST STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: (617) 728-0070	Fax: (617) 728-0070	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
077	TP13-1-S	7/21/11	8:00	GD	C	9oz	G/T		S		PCB AROCLORS
078	TP13-2-S-A		8:30								
079	TP13-2-S-M		8:35								
080	TP13-2-S-B		8:40								
081	TP17-1-S-A		9:00								
082	TP17-1-S-M		9:15								
083	TP17-1-S-B		9:20								
084	TP13/17-1-C-A		9:45								
085	TP13/17-1-C-M		9:50								
086	TP13/17-1-C-B		9:55								

141/145

Relinquished By: [signature]	Date: 7/22/11	Time: 5:30	Received By: [signature] Date: 7/22/11 Time: 5:42
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

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1 Lafayette Road
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact:	Project Name: South Terminal	Page 2 of 2
Report to:	Address:	Project Number: 6690	
Invoice to: SEF	Address: PACOE	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
087	TP13-1-N-A	7/21/11	10:30	GD	G	9oz	G/T		S		PCB Aroclors
088	TP 13-1-N-M	↓	10:35	↓	↓	↓	↓		↓		↓
089	TP-13-1-N-B	↓	10:40	↓	↓	↓	↓		↓		↓
090	TP17-1-N-A	↓	11:00	↓	↓	↓	↓		↓		↓
091	TP17-1-N-M	↓	11:10	↓	↓	↓	↓		↓		↓
092	TP-17-1-N-B	↓	11:26	↓	↓	↓	↓		↓		↓

142/145

Relinquished By: [signature]	Date: 7/22/11 Time: 5:30	Received By: [signature]	Date: 7/22/11 Time: 842
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

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EnviroSystems, Inc.
1 Lafayette Road
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: C. Myers	Project Name: Gov Terminal	Page 1 of 2
Report to: C. Myers	Address: 184 High St. Sixth	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02110	Project Manager: C. Myers	
Voice: 617-728-0070	Fax: 617-728-0080	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
093	TP6-1-NW-A	7/22/11	8:00	GD	G	9oz	G/T		S		SVOC (8270C), PCB Aroclors
094	TP6-1-NW-A		8:00			4oz					MA EPH
095	TP6-1-NW-M		8:10			9oz					SVOC (8270C), PCB Aroclors
096	TP6-1-NW-M		8:10			4oz					MA EPH
097	TP6-1-NW-B		8:20			9oz					SVOC (8270C), PCB Aroclors
098	TP6-1-NW-B		8:20			4oz					MA EPH
099	TP6-2-NW-A		9:00			9oz					SVOC (8270C), PCB Aroclors
100	TP6-2-NW-A		9:00			4oz					MA EPH
101	TP6-2-NW-M		9:10			9oz					SVOC (8270C), PCB Aroclors
102	TP6-2-NW-M		9:10			4oz					MA EPH
103	TP6-2-NW-B		9:20			9oz					SVOC (8270C), PCB Aroclors
104	TP6-2-NW-B	↓	9:20	↓	↓	4oz	↓		↓		MA EPH

143/145

Relinquished By: [signature]	Date: 7/23/11 Time: 8:20	Received By: [signature]	Date: 7/23/11 Time: ~~7/23/11~~ 0820 (3) EAL
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

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COC Doc No:

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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact:	Project Name: South Tremont	Page 2 of 2
Report to:	Address:	Project Number: 6090	
Invoice to: SAME	Address: SHEET	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
105	TP6-1-NE-A	7/22/11	9:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
106	TP6-1-NE-A		9:30			4oz					MA EPH
107	TP6-1-NE-M		9:35			9oz					SVOC (8270C), PCB Aroclors
108	TP6-1-NE-M		9:35			4oz					MA EPH
109	TP6-1-NE-B		9:40			9oz					SVOC (8270C), PCB Aroclors
110	TP6-1-NE-B		9:40			4oz					MA EPH
111	TP6-3-NE-A		11:00			9oz					SVOC (8270C), PCB Aroclors
112	TP6-3-NE-A		11:00			4oz					MA EPH
113	TP6-3-NE-M		11:10			9oz					SVOC (8270C), PCB Aroclors
114	TP-6-3-NE-M		11:10			4oz					MA EPH
115	TP6-3-NE-B		11:20			9oz					SVOC (8270C), PCB Aroclors
116	TP6-3-NE-B		11:20			4oz					MA EPH

1144/1145

Relinquished By: [signature]	Date: 7/23/11	Time: 8:20	Received By: [signature] Date: 7/23/11 Time: 8:20
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

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ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: C. Myers	Project Name: South Terminal	Page 1 of 1
Report to: C. Myers	Address: 184 Aero St, Ste 502	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02210	Project Manager: C. Myers	
Voice: 617-728-0070	Fax: 617-728-0070	email: cmyers@apexlcs.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
117	TPG-5-NE-A	7/25/11	9:50	GD	G	4oz	G/T		S		SVOC (8270), PCB Aroclors
118	TPG-5-NE-M		9:55								
119	TPG-5-NE-B		10:00								
120	TPG-7-NW-A		10:30								
121	TPG-7-NW-M		10:35								
122	TPG-7-NW-B		10:40								
123	TPG-5-NE-A	7/25/11	9:50	GD	G	4oz	G/T		S		MA EPH
124	TPG-5-NE-M		9:55								
125	TPG-5-NE-B		10:00								
126	TPG-7-NW-A		10:30								
127	TPG-7-NW-M		10:35								
128	TPG-7-NW-B		10:40								

145/145

Relinquished By: [signature]	Date: 7/26/11	Time: 8:00	Received By: [signature]	Date: 7/26/11	Time: 5:00
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No:

ESI

EnviroSystems, Inc.
One Lafayette Road
P.O. Box 778
Hampton, N.H. 03843-0778
p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 21206
Date Received: 07/19 - 07/26/11
Date Reported: 08/05/11

Project: South Terminal

Attached please find the volatiles, semi-volatiles, and extractable petroleum hydrocarbons results for analyses performed on samples received on 07/19/11 thru 07/26/11.

The results for aroclors were reported under seperate cover on 07/29/11.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

The results for MA EPH, VOC High, and VOC Low were provided by Alpha Analytical of Westborough, MA.

EnviroSystems, Incorporated

Authorized Signature

Date 8/5/11

Attachment
Report

Lab Number:	21206-001
Sample Designation:	TP6-1-N-H
Date Sampled:	07/18/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	5	2,4-dinitrotoluene	U	10
phenol	U	5	acenaphthene	320	5
2-chlorophenol	U	5	3-nitroaniline	U	5
bis(2-chloroethyl)ether	U	5	2,4-dinitrophenol	U	10
1,3-dichlorobenzene	U	5	dibenzofuran	U	5
1,4-dichlorobenzene	U	5	4-nitrophenol	U	10
1,2-dichlorobenzene	U	5	fluorene	79	5
benzyl alcohol	U	5	4-chlorophenyl phenyl ether	U	5
2-methylphenol (m-cresol)	U	5	diethyl phthalate	U	5
bis(2-chloroisopropyl)ether	U	5	4-nitroaniline	U	5
hexachloroethane	U	5	4,6-dinitro-2-methylphenol	U	50
N-nitroso-di-n-propylamine	U	5	4-bromophenyl-phenylether	U	5
3- and 4-methylphenol (p- and o-cresol)	U	5	N-nitrosodiphenylamine	6.3	5
nitrobenzene	U	5	1,2-diphenylhydrazine (azobenzene)	U	5
isophorone	U	5	4-bromophenyl phenyl ether	U	5
2-nitrophenol	U	5	hexachlorobenzene	U	5
2,4-dimethylphenol	U	5	pentachlorophenol	U	5
bis(2-chloroethoxy)methane	U	5	phenanthrene	650	5
2,4-dichlorophenol	U	5	anthracene	120	5
2,6-dichlorophenol	U	5	carbazole	U	5
1,2,4-trichlorobenzene	U	5	di-n-butylphthalate	U	5
naphthalene	230	5	fluoranthene	86	5
benzoic acid	U	50	benzidine	U	50
4-chloroaniline	U	5	pyrene	180	5
hexachloro-1,3-butadiene	U	5	butylbenzylphthalate	U	5
4-chloro-3-methylphenol	U	5	benzo(a)anthracene	60	5
2-methylnaphthalene	39	5	chrysene	62	5
hexachlorocyclopentadiene	U	10	3,3'-dichlorobenzidine	U	5
2,4,6-trichlorophenol	U	5	bis(2-ethylhexyl)phthalate	U	5
2,4,5-trichlorophenol	U	5	di-n-octylphthalate	U	5
2-chloronaphthalene	U	5	benzo(b)fluoranthene	7.7	5
2-nitroaniline	U	5	benzo(k)fluoranthene	17	5
acenaphthylene	22	5	benzo(a)pyrene	18	5
dimethylphthalate	U	5	indeno(1,2,3-cd)pyrene	7.7	5
2,6-dinitrotoluene	U	5	dibenz(a,h)anthracene	11	5
			benzo(g,h,i)perylene	13	5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	66	21-100	nitrobenzene-d5	73	35-114
phenol-d5	78	10-102	2-fluorobiphenyl	93	43-116
2,4,6-tribromophenol	58	10-123	terphenyl-d14	93	33-141

U = Below quantitation limit

Lab Number:	21206-005
Sample Designation:	TP6-2-N-M
Date Sampled:	07/18/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.8	2,4-dinitrotoluene	U	2
phenol	U	0.8	acenaphthene	U	0.8
2-chlorophenol	U	0.8	3-nitroaniline	U	0.8
bis(2-chloroethyl)ether	U	0.8	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	0.8	dibenzofuran	U	0.8
1,4-dichlorobenzene	U	0.8	4-nitrophenol	U	2
1,2-dichlorobenzene	U	0.8	fluorene	U	0.8
benzyl alcohol	U	0.8	4-chlorophenyl phenyl ether	U	0.8
2-methylphenol (m-cresol)	U	0.8	diethyl phthalate	U	0.8
bis(2-chloroisopropyl)ether	U	0.8	4-nitroaniline	U	0.8
hexachloroethane	U	0.8	4,6-dinitro-2-methylphenol	U	8
N-nitroso-di-n-propylamine	U	0.8	4-bromophenyl-phenylether	U	0.8
3- and 4-methylphenol (p- and o-cresol)	U	0.8	N-nitrosodiphenylamine	U	0.8
nitrobenzene	U	0.8	1,2-diphenylhydrazine (azobenzene)	U	0.8
isophorone	U	0.8	4-bromophenyl phenyl ether	U	0.8
2-nitrophenol	U	0.8	hexachlorobenzene	U	0.8
2,4-dimethylphenol	U	0.8	pentachlorophenol	U	0.8
bis(2-chloroethoxy)methane	U	0.8	phenanthrene	U	0.8
2,4-dichlorophenol	U	0.8	anthracene	U	0.8
2,6-dichlorophenol	U	0.8	carbazole	U	0.8
1,2,4-trichlorobenzene	U	0.8	di-n-butylphthalate	U	0.8
naphthalene	U	0.8	fluoranthene	U	0.8
benzoic acid	U	8	benzidine	U	8
4-chloroaniline	U	0.8	pyrene	U	0.8
hexachloro-1,3-butadiene	U	0.8	butylbenzylphthalate	U	0.8
4-chloro-3-methylphenol	U	0.8	benzo(a)anthracene	U	0.8
2-methylnaphthalene	U	0.8	chrysene	U	0.8
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	0.8
2,4,6-trichlorophenol	U	0.8	bis(2-ethylhexyl)phthalate	U	0.8
2,4,5-trichlorophenol	U	0.8	di-n-octylphthalate	U	0.8
2-chloronaphthalene	U	0.8	benzo(b)fluoranthene	U	0.8
2-nitroaniline	U	0.8	benzo(k)fluoranthene	U	0.8
acenaphthylene	U	0.8	benzo(a)pyrene	U	0.8
dimethylphthalate	U	0.8	indeno(1,2,3-cd)pyrene	U	0.8
2,6-dinitrotoluene	U	0.8	dibenz(a,h)anthracene	U	0.8
			benzo(g,h,i)perylene	U	0.8

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	65	21-100	nitrobenzene-d5	108	35-114
phenol-d5	46	10-102	2-fluorobiphenyl	93	43-116
2,4,6-tribromophenol	74	10-123	terphenyl-d14	90	33-141

U = Below quantitation limit
Detection limit elevated by high organics content.

Lab Number:	21206-009
Sample Designation:	TP6-3-N-A
Date Sampled:	07/18/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.03	2,4-dinitrotoluene	U	0.06
phenol	U	0.03	acenaphthene	U	0.03
2-chlorophenol	U	0.03	3-nitroaniline	U	0.03
bis(2-chloroethyl)ether	U	0.03	2,4-dinitrophenol	U	0.06
1,3-dichlorobenzene	U	0.03	dibenzofuran	U	0.03
1,4-dichlorobenzene	U	0.03	4-nitrophenol	U	0.06
1,2-dichlorobenzene	U	0.03	fluorene	U	0.03
benzyl alcohol	U	0.03	4-chlorophenyl phenyl ether	U	0.03
2-methylphenol (m-cresol)	U	0.03	diethyl phthalate	U	0.03
bis(2-chloroisopropyl)ether	U	0.03	4-nitroaniline	U	0.03
hexachloroethane	U	0.03	4,6-dinitro-2-methylphenol	U	0.3
N-nitroso-di-n-propylamine	U	0.03	4-bromophenyl-phenylether	U	0.03
3- and 4-methylphenol (p- and o-cresol)	U	0.03	N-nitrosodiphenylamine	U	0.03
nitrobenzene	U	0.03	1,2-diphenylhydrazine (azobenzene)	U	0.03
isophorone	U	0.03	4-bromophenyl phenyl ether	U	0.03
2-nitrophenol	U	0.03	hexachlorobenzene	U	0.03
2,4-dimethylphenol	U	0.03	pentachlorophenol	U	0.03
bis(2-chloroethoxy)methane	U	0.03	phenanthrene	0.2	0.03
2,4-dichlorophenol	U	0.03	anthracene	U	0.03
2,6-dichlorophenol	U	0.03	carbazole	U	0.03
1,2,4-trichlorobenzene	U	0.03	di-n-butylphthalate	U	0.03
naphthalene	U	0.03	fluoranthene	0.3	0.03
benzoic acid	U	0.3	benzidine	U	0.3
4-chloroaniline	U	0.03	pyrene	0.3	0.03
hexachloro-1,3-butadiene	U	0.03	butylbenzylphthalate	U	0.03
4-chloro-3-methylphenol	U	0.03	benzo(a)anthracene	0.2	0.03
2-methylnaphthalene	U	0.03	chrysene	0.2	0.03
hexachlorocyclopentadiene	U	0.06	3,3'-dichlorobenzidine	U	0.03
2,4,6-trichlorophenol	U	0.03	bis(2-ethylhexyl)phthalate	U	0.03
2,4,5-trichlorophenol	U	0.03	di-n-octylphthalate	U	0.03
2-chloronaphthalene	U	0.03	benzo(b)fluoranthene	0.1	0.03
2-nitroaniline	U	0.03	benzo(k)fluoranthene	0.2	0.03
acenaphthylene	U	0.03	benzo(a)pyrene	0.2	0.03
dimethylphthalate	U	0.03	indeno(1,2,3-cd)pyrene	0.2	0.03
2,6-dinitrotoluene	U	0.03	dibenz(a,h)anthracene	U	0.03
			benzo(g,h,i)perylene	0.2	0.03

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	60	21-100	nitrobenzene-d5	74	35-114
phenol-d5	60	10-102	2-fluorobiphenyl	69	43-116
2,4,6-tribromophenol	62	10-123	terphenyl-d14	73	33-141

U = Below quantitation limit

Lab Number:	21206-013
Sample Designation:	TP6-3-N-B
Date Sampled:	07/18/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.03	2,4-dinitrotoluene	U	0.06
phenol	U	0.03	acenaphthene	U	0.03
2-chlorophenol	U	0.03	3-nitroaniline	U	0.03
bis(2-chloroethyl)ether	U	0.03	2,4-dinitrophenol	U	0.06
1,3-dichlorobenzene	U	0.03	dibenzofuran	U	0.03
1,4-dichlorobenzene	U	0.03	4-nitrophenol	U	0.06
1,2-dichlorobenzene	U	0.03	fluorene	U	0.03
benzyl alcohol	U	0.03	4-chlorophenyl phenyl ether	U	0.03
2-methylphenol (m-cresol)	U	0.03	diethyl phthalate	U	0.03
bis(2-chloroisopropyl)ether	U	0.03	4-nitroaniline	U	0.03
hexachloroethane	U	0.03	4,6-dinitro-2-methylphenol	U	0.3
N-nitroso-di-n-propylamine	U	0.03	4-bromophenyl-phenylether	U	0.03
3- and 4-methylphenol (p- and o-cresol)	U	0.03	N-nitrosodiphenylamine	U	0.03
nitrobenzene	U	0.03	1,2-diphenylhydrazine (azobenzene)	U	0.03
isophorone	U	0.03	4-bromophenyl phenyl ether	U	0.03
2-nitrophenol	U	0.03	hexachlorobenzene	U	0.03
2,4-dimethylphenol	U	0.03	pentachlorophenol	U	0.03
bis(2-chloroethoxy)methane	U	0.03	phenanthrene	U	0.03
2,4-dichlorophenol	U	0.03	anthracene	U	0.03
2,6-dichlorophenol	U	0.03	carbazole	U	0.03
1,2,4-trichlorobenzene	U	0.03	di-n-butylphthalate	U	0.03
naphthalene	U	0.03	fluoranthene	U	0.03
benzoic acid	U	0.3	benzidine	U	0.3
4-chloroaniline	U	0.03	pyrene	U	0.03
hexachloro-1,3-butadiene	U	0.03	butylbenzylphthalate	U	0.03
4-chloro-3-methylphenol	U	0.03	benzo(a)anthracene	U	0.03
2-methylnaphthalene	U	0.03	chrysene	U	0.03
hexachlorocyclopentadiene	U	0.06	3,3'-dichlorobenzidine	U	0.03
2,4,6-trichlorophenol	U	0.03	bis(2-ethylhexyl)phthalate	U	0.03
2,4,5-trichlorophenol	U	0.03	di-n-octylphthalate	U	0.03
2-chloronaphthalene	U	0.03	benzo(b)fluoranthene	U	0.03
2-nitroaniline	U	0.03	benzo(k)fluoranthene	U	0.03
acenaphthylene	U	0.03	benzo(a)pyrene	U	0.03
dimethylphthalate	U	0.03	indeno(1,2,3-cd)pyrene	U	0.03
2,6-dinitrotoluene	U	0.03	dibenz(a,h)anthracene	U	0.03
			benzo(g,h,i)perylene	U	0.03

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	90	21-100	nitrobenzene-d5	108	35-114
phenol-d5	102	10-102	2-fluorobiphenyl	98	43-116
2,4,6-tribromophenol	87	10-123	terphenyl-d14	106	33-141

U = Below quantitation limit

Lab Number:	21206-018
Sample Designation:	TP6-2-W-A
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	0.4	0.06
2,4-dichlorophenol	U	0.06	anthracene	0.2	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	2.5	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	6	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	2.8	0.06
2-methylnaphthalene	U	0.06	chrysene	3.2	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	2	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	2.9	0.06
acenaphthylene	0.3	0.06	benzo(a)pyrene	5.1	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	4	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	0.8	0.06
			benzo(g,h,i)perylene	4.4	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	57	21-100	nitrobenzene-d5	69	35-114
phenol-d5	61	10-102	2-fluorobiphenyl	65	43-116
2,4,6-tribromophenol	51	10-123	terphenyl-d14	73	33-141

U = Below quantitation limit

Lab Number:	21206-022
Sample Designation:	TP6-2-W-M
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	6	2,4-dinitrotoluene	U	10
phenol	U	6	acenaphthene	U	6
2-chlorophenol	U	6	3-nitroaniline	U	6
bis(2-chloroethyl)ether	U	6	2,4-dinitrophenol	U	10
1,3-dichlorobenzene	U	6	dibenzofuran	U	6
1,4-dichlorobenzene	U	6	4-nitrophenol	U	10
1,2-dichlorobenzene	U	6	fluorene	U	6
benzyl alcohol	U	6	4-chlorophenyl phenyl ether	U	6
2-methylphenol (m-cresol)	U	6	diethyl phthalate	U	6
bis(2-chloroisopropyl)ether	U	6	4-nitroaniline	U	6
hexachloroethane	U	6	4,6-dinitro-2-methylphenol	U	60
N-nitroso-di-n-propylamine	U	6	4-bromophenyl-phenylether	U	6
3- and 4-methylphenol (p- and o-cresol)	U	6	N-nitrosodiphenylamine	U	6
nitrobenzene	U	6	1,2-diphenylhydrazine (azobenzene)	U	6
isophorone	U	6	4-bromophenyl phenyl ether	U	6
2-nitrophenol	U	6	hexachlorobenzene	U	6
2,4-dimethylphenol	U	6	pentachlorophenol	U	6
bis(2-chloroethoxy)methane	U	6	phenanthrene	U	6
2,4-dichlorophenol	U	6	anthracene	16	6
2,6-dichlorophenol	U	6	carbazole	U	6
1,2,4-trichlorobenzene	U	6	di-n-butylphthalate	U	6
naphthalene	U	6	fluoranthene	U	6
benzoic acid	U	60	benzidine	U	60
4-chloroaniline	U	6	pyrene	15	6
hexachloro-1,3-butadiene	U	6	butylbenzylphthalate	U	6
4-chloro-3-methylphenol	U	6	benzo(a)anthracene	U	6
2-methylnaphthalene	U	6	chrysene	13	6
hexachlorocyclopentadiene	U	10	3,3'-dichlorobenzidine	U	6
2,4,6-trichlorophenol	U	6	bis(2-ethylhexyl)phthalate	U	6
2,4,5-trichlorophenol	U	6	di-n-octylphthalate	U	6
2-chloronaphthalene	U	6	benzo(b)fluoranthene	U	6
2-nitroaniline	U	6	benzo(k)fluoranthene	U	6
acenaphthylene	U	6	benzo(a)pyrene	U	6
dimethylphthalate	U	6	indeno(1,2,3-cd)pyrene	U	6
2,6-dinitrotoluene	U	6	dibenz(a,h)anthracene	U	6
			benzo(g,h,i)perylene	U	6

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	79	21-100	nitrobenzene-d5	89	35-114
phenol-d5	84	10-102	2-fluorobiphenyl	88	43-116
2,4,6-tribromophenol	70	10-123	terphenyl-d14	88	33-141

U = Below quantitation limit
Detection limit elevated by high organics and/or moisture content.

Lab Number:	21206-026
Sample Designation:	TP6-2-W-B
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.6	2,4-dinitrotoluene	U	1
phenol	U	0.6	acenaphthene	1.2	0.6
2-chlorophenol	U	0.6	3-nitroaniline	U	0.6
bis(2-chloroethyl)ether	U	0.6	2,4-dinitrophenol	U	1
1,3-dichlorobenzene	U	0.6	dibenzofuran	U	0.6
1,4-dichlorobenzene	U	0.6	4-nitrophenol	U	1
1,2-dichlorobenzene	U	0.6	fluorene	U	0.6
benzyl alcohol	U	0.6	4-chlorophenyl phenyl ether	U	0.6
2-methylphenol (m-cresol)	U	0.6	diethyl phthalate	U	0.6
bis(2-chloroisopropyl)ether	U	0.6	4-nitroaniline	U	0.6
hexachloroethane	U	0.6	4,6-dinitro-2-methylphenol	U	6
N-nitroso-di-n-propylamine	U	0.6	4-bromophenyl-phenylether	U	0.6
3- and 4-methylphenol (p- and o-cresol)	U	0.6	N-nitrosodiphenylamine	U	0.6
nitrobenzene	U	0.6	1,2-diphenylhydrazine (azobenzene)	U	0.6
isophorone	U	0.6	4-bromophenyl phenyl ether	U	0.6
2-nitrophenol	U	0.6	hexachlorobenzene	U	0.6
2,4-dimethylphenol	U	0.6	pentachlorophenol	U	0.6
bis(2-chloroethoxy)methane	U	0.6	phenanthrene	3.6	0.6
2,4-dichlorophenol	U	0.6	anthracene	U	0.6
2,6-dichlorophenol	U	0.6	carbazole	U	0.6
1,2,4-trichlorobenzene	U	0.6	di-n-butylphthalate	U	0.6
naphthalene	U	0.6	fluoranthene	U	0.6
benzoic acid	U	6	benzidine	U	6
4-chloroaniline	U	0.6	pyrene	2.3	0.6
hexachloro-1,3-butadiene	U	0.6	butylbenzylphthalate	U	0.6
4-chloro-3-methylphenol	U	0.6	benzo(a)anthracene	U	0.6
2-methylnaphthalene	U	0.6	chrysene	U	0.6
hexachlorocyclopentadiene	U	1	3,3'-dichlorobenzidine	U	0.6
2,4,6-trichlorophenol	U	0.6	bis(2-ethylhexyl)phthalate	U	0.6
2,4,5-trichlorophenol	U	0.6	di-n-octylphthalate	U	0.6
2-chloronaphthalene	U	0.6	benzo(b)fluoranthene	U	0.6
2-nitroaniline	U	0.6	benzo(k)fluoranthene	U	0.6
acenaphthylene	U	0.6	benzo(a)pyrene	U	0.6
dimethylphthalate	U	0.6	indeno(1,2,3-cd)pyrene	U	0.6
2,6-dinitrotoluene	U	0.6	dibenz(a,h)anthracene	U	0.6
			benzo(g,h,i)perylene	U	0.6

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	87	21-100	nitrobenzene-d5	100	35-114
phenol-d5	96	10-102	2-fluorobiphenyl	91	43-116
2,4,6-tribromophenol	59	10-123	terphenyl-d14	89	33-141

U = Below quantitation limit

Lab Number:	21206-030
Sample Designation:	TP2-1-W-H
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	3	2,4-dinitrotoluene	U	6
phenol	U	3	acenaphthene	110	3
2-chlorophenol	U	3	3-nitroaniline	U	3
bis(2-chloroethyl)ether	U	3	2,4-dinitrophenol	U	6
1,3-dichlorobenzene	U	3	dibenzofuran	U	3
1,4-dichlorobenzene	U	3	4-nitrophenol	U	6
1,2-dichlorobenzene	U	3	fluorene	54	3
benzyl alcohol	U	3	4-chlorophenyl phenyl ether	U	3
2-methylphenol (m-cresol)	U	3	diethyl phthalate	U	3
bis(2-chloroisopropyl)ether	U	3	4-nitroaniline	U	3
hexachloroethane	U	3	4,6-dinitro-2-methylphenol	U	30
N-nitroso-di-n-propylamine	U	3	4-bromophenyl-phenylether	U	3
3- and 4-methylphenol (p- and o-cresol)	U	3	N-nitrosodiphenylamine	U	3
nitrobenzene	U	3	1,2-diphenylhydrazine (azobenzene)	U	3
isophorone	U	3	4-bromophenyl phenyl ether	U	3
2-nitrophenol	U	3	hexachlorobenzene	U	3
2,4-dimethylphenol	U	3	pentachlorophenol	U	3
bis(2-chloroethoxy)methane	U	3	phenanthrene	290	3
2,4-dichlorophenol	U	3	anthracene	60	3
2,6-dichlorophenol	U	3	carbazole	U	3
1,2,4-trichlorobenzene	U	3	di-n-butylphthalate	U	3
naphthalene	410	3	fluoranthene	150	3
benzoic acid	U	30	benzidine	U	30
4-chloroaniline	U	3	pyrene	320	3
hexachloro-1,3-butadiene	U	3	butylbenzylphthalate	U	3
4-chloro-3-methylphenol	U	3	benzo(a)anthracene	120	3
2-methylnaphthalene	150	3	chrysene	120	3
hexachlorocyclopentadiene	U	6	3,3'-dichlorobenzidine	U	3
2,4,6-trichlorophenol	U	3	bis(2-ethylhexyl)phthalate	U	3
2,4,5-trichlorophenol	U	3	di-n-octylphthalate	U	3
2-chloronaphthalene	U	3	benzo(b)fluoranthene	58	3
2-nitroaniline	U	3	benzo(k)fluoranthene	72	3
acenaphthylene	24	3	benzo(a)pyrene	140	3
dimethylphthalate	U	3	indeno(1,2,3-cd)pyrene	92	3
2,6-dinitrotoluene	U	3	dibenz(a,h)anthracene	23	3
			benzo(g,h,i)perylene	100	3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	Diluted out	21-100	nitrobenzene-d5	Diluted out	35-114
phenol-d5	Diluted out	10-102	2-fluorobiphenyl	Diluted out	43-116
2,4,6-tribromophenol	Diluted out	10-123	terphenyl-d14	Diluted out	33-141

U = Below quantitation limit
Detection limit elevated by high organics and/or moisture content.

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Lab Number:	21206-034
Sample Designation:	TP2-2-W-M
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	1	2,4-dinitrotoluene	U	2
phenol	U	1	acenaphthene	22	1
2-chlorophenol	U	1	3-nitroaniline	U	1
bis(2-chloroethyl)ether	U	1	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	1	dibenzofuran	U	1
1,4-dichlorobenzene	U	1	4-nitrophenol	U	2
1,2-dichlorobenzene	U	1	fluorene	8.3	1
benzyl alcohol	U	1	4-chlorophenyl phenyl ether	U	1
2-methylphenol (m-cresol)	U	1	diethyl phthalate	U	1
bis(2-chloroisopropyl)ether	U	1	4-nitroaniline	U	1
hexachloroethane	U	1	4,6-dinitro-2-methylphenol	U	10
N-nitroso-di-n-propylamine	U	1	4-bromophenyl-phenylether	U	1
3- and 4-methylphenol (p- and o-cresol)	U	1	N-nitrosodiphenylamine	U	1
nitrobenzene	U	1	1,2-diphenylhydrazine (azobenzene)	U	1
isophorone	U	1	4-bromophenyl phenyl ether	U	1
2-nitrophenol	U	1	hexachlorobenzene	U	1
2,4-dimethylphenol	U	1	pentachlorophenol	U	1
bis(2-chloroethoxy)methane	U	1	phenanthrene	47	1
2,4-dichlorophenol	U	1	anthracene	13	1
2,6-dichlorophenol	U	1	carbazole	U	1
1,2,4-trichlorobenzene	U	1	di-n-butylphthalate	U	1
naphthalene	65	1	fluoranthene	20	1
benzoic acid	U	10	benzidine	U	10
4-chloroaniline	U	1	pyrene	43	1
hexachloro-1,3-butadiene	U	1	butylbenzylphthalate	U	1
4-chloro-3-methylphenol	U	1	benzo(a)anthracene	15	1
2-methylnaphthalene	43	1	chrysene	15	1
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	1
2,4,6-trichlorophenol	U	1	bis(2-ethylhexyl)phthalate	U	1
2,4,5-trichlorophenol	U	1	di-n-octylphthalate	U	1
2-chloronaphthalene	U	1	benzo(b)fluoranthene	8.7	1
2-nitroaniline	U	1	benzo(k)fluoranthene	6.7	1
acenaphthylene	3.1	1	benzo(a)pyrene	21	1
dimethylphthalate	U	1	indeno(1,2,3-cd)pyrene	13	1
2,6-dinitrotoluene	U	1	dibenz(a,h)anthracene	U	1
			benzo(g,h,i)perylene	17	1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	67	21-100	nitrobenzene-d5	83	35-114
phenol-d5	77	10-102	2-fluorobiphenyl	88	43-116
2,4,6-tribromophenol	59	10-123	terphenyl-d14	87	33-141

U = Below quantitation limit

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Lab Number:	21206-038
Sample Designation:	TP2-4-W-A
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	0.3	0.06
2,4-dichlorophenol	U	0.06	anthracene	U	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	0.6	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	0.6	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	0.3	0.06
2-methylnaphthalene	U	0.06	chrysene	0.4	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	0.2	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	0.3	0.06
acenaphthylene	U	0.06	benzo(a)pyrene	0.3	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	0.2	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	U	0.06
			benzo(g,h,i)perylene	0.3	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	82	21-100	nitrobenzene-d5	103	35-114
phenol-d5	95	10-102	2-fluorobiphenyl	97	43-116
2,4,6-tribromophenol	95	10-123	terphenyl-d14	102	33-141

U = Below quantitation limit

Lab Number:	21206-042
Sample Designation:	TP2-4-W-B
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.03	2,4-dinitrotoluene	U	0.06
phenol	U	0.03	acenaphthene	0.1	0.03
2-chlorophenol	U	0.03	3-nitroaniline	U	0.03
bis(2-chloroethyl)ether	U	0.03	2,4-dinitrophenol	U	0.06
1,3-dichlorobenzene	U	0.03	dibenzofuran	0.07	0.03
1,4-dichlorobenzene	U	0.03	4-nitrophenol	U	0.06
1,2-dichlorobenzene	U	0.03	fluorene	0.1	0.03
benzyl alcohol	U	0.03	4-chlorophenyl phenyl ether	U	0.03
2-methylphenol (m-cresol)	U	0.03	diethyl phthalate	U	0.03
bis(2-chloroisopropyl)ether	U	0.03	4-nitroaniline	U	0.03
hexachloroethane	U	0.03	4,6-dinitro-2-methylphenol	U	0.3
N-nitroso-di-n-propylamine	U	0.03	4-bromophenyl-phenylether	U	0.03
3- and 4-methylphenol (p- and o-cresol)	U	0.03	N-nitrosodiphenylamine	U	0.03
nitrobenzene	U	0.03	1,2-diphenylhydrazine (azobenzene)	U	0.03
isophorone	U	0.03	4-bromophenyl phenyl ether	U	0.03
2-nitrophenol	U	0.03	hexachlorobenzene	U	0.03
2,4-dimethylphenol	U	0.03	pentachlorophenol	U	0.03
bis(2-chloroethoxy)methane	U	0.03	phenanthrene	1.7	0.03
2,4-dichlorophenol	U	0.03	anthracene	0.4	0.03
2,6-dichlorophenol	U	0.03	carbazole	0.1	0.03
1,2,4-trichlorobenzene	U	0.03	di-n-butylphthalate	U	0.03
naphthalene	0.3	0.03	fluoranthene	3	0.03
benzoic acid	U	0.3	benzidine	U	0.3
4-chloroaniline	U	0.03	pyrene	3.4	0.03
hexachloro-1,3-butadiene	U	0.03	butylbenzylphthalate	U	0.03
4-chloro-3-methylphenol	U	0.03	benzo(a)anthracene	1.8	0.03
2-methylnaphthalene	0.06	0.03	chrysene	1.9	0.03
hexachlorocyclopentadiene	U	0.06	3,3'-dichlorobenzidine	U	0.03
2,4,6-trichlorophenol	U	0.03	bis(2-ethylhexyl)phthalate	U	0.03
2,4,5-trichlorophenol	U	0.03	di-n-octylphthalate	U	0.03
2-chloronaphthalene	U	0.03	benzo(b)fluoranthene	1.4	0.03
2-nitroaniline	U	0.03	benzo(k)fluoranthene	1.2	0.03
acenaphthylene	0.3	0.03	benzo(a)pyrene	2	0.03
dimethylphthalate	U	0.03	indeno(1,2,3-cd)pyrene	1.8	0.03
2,6-dinitrotoluene	U	0.03	dibenz(a,h)anthracene	0.3	0.03
			benzo(g,h,i)perylene	2.1	0.03

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	56	21-100	nitrobenzene-d5	69	35-114
phenol-d5	58	10-102	2-fluorobiphenyl	60	43-116
2,4,6-tribromophenol	61	10-123	terphenyl-d14	61	33-141

U = Below quantitation limit

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Lab Number:	21206-046
Sample Designation:	TP4-1-E
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	1	2,4-dinitrotoluene	U	2
phenol	U	1	acenaphthene	U	1
2-chlorophenol	U	1	3-nitroaniline	U	1
bis(2-chloroethyl)ether	U	1	2,4-dinitrophenol	U	2
1,3-dichlorobenzene	U	1	dibenzofuran	U	1
1,4-dichlorobenzene	U	1	4-nitrophenol	U	2
1,2-dichlorobenzene	U	1	fluorene	U	1
benzyl alcohol	U	1	4-chlorophenyl phenyl ether	U	1
2-methylphenol (m-cresol)	U	1	diethyl phthalate	U	1
bis(2-chloroisopropyl)ether	U	1	4-nitroaniline	U	1
hexachloroethane	U	1	4,6-dinitro-2-methylphenol	U	10
N-nitroso-di-n-propylamine	U	1	4-bromophenyl-phenylether	U	1
3- and 4-methylphenol (p- and o-cresol)	U	1	N-nitrosodiphenylamine	U	1
nitrobenzene	U	1	1,2-diphenylhydrazine (azobenzene)	U	1
isophorone	U	1	4-bromophenyl phenyl ether	U	1
2-nitrophenol	U	1	hexachlorobenzene	U	1
2,4-dimethylphenol	U	1	pentachlorophenol	U	1
bis(2-chloroethoxy)methane	U	1	phenanthrene	U	1
2,4-dichlorophenol	U	1	anthracene	U	1
2,6-dichlorophenol	U	1	carbazole	U	1
1,2,4-trichlorobenzene	U	1	di-n-butylphthalate	U	1
naphthalene	2	1	fluoranthene	U	1
benzoic acid	U	10	benzidine	U	10
4-chloroaniline	U	1	pyrene	2.2	1
hexachloro-1,3-butadiene	U	1	butylbenzylphthalate	U	1
4-chloro-3-methylphenol	U	1	benzo(a)anthracene	U	1
2-methylnaphthalene	U	1	chrysene	U	1
hexachlorocyclopentadiene	U	2	3,3'-dichlorobenzidine	U	1
2,4,6-trichlorophenol	U	1	bis(2-ethylhexyl)phthalate	U	1
2,4,5-trichlorophenol	U	1	di-n-octylphthalate	U	1
2-chloronaphthalene	U	1	benzo(b)fluoranthene	U	1
2-nitroaniline	U	1	benzo(k)fluoranthene	U	1
acenaphthylene	U	1	benzo(a)pyrene	U	1
dimethylphthalate	U	1	indeno(1,2,3-cd)pyrene	U	1
2,6-dinitrotoluene	U	1	dibenz(a,h)anthracene	U	1
			benzo(g,h,i)perylene	U	1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	75	21-100	nitrobenzene-d5	86	35-114
phenol-d5	73	10-102	2-fluorobiphenyl	86	43-116
2,4,6-tribromophenol	60	10-123	terphenyl-d14	88	33-141

U = Below quantitation limit

ESI

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Lab Number:	21206-050
Sample Designation:	TP3-1-S
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.07	2,4-dinitrotoluene	U	0.1
phenol	U	0.07	acenaphthene	U	0.07
2-chlorophenol	U	0.07	3-nitroaniline	U	0.07
bis(2-chloroethyl)ether	U	0.07	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.07	dibenzofuran	U	0.07
1,4-dichlorobenzene	U	0.07	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.07	fluorene	U	0.07
benzyl alcohol	U	0.07	4-chlorophenyl phenyl ether	U	0.07
2-methylphenol (m-cresol)	U	0.07	diethyl phthalate	U	0.07
bis(2-chloroisopropyl)ether	U	0.07	4-nitroaniline	U	0.07
hexachloroethane	U	0.07	4,6-dinitro-2-methylphenol	U	0.7
N-nitroso-di-n-propylamine	U	0.07	4-bromophenyl-phenylether	U	0.07
3- and 4-methylphenol (p- and o-cresol)	U	0.07	N-nitrosodiphenylamine	U	0.07
nitrobenzene	U	0.07	1,2-diphenylhydrazine (azobenzene)	U	0.07
isophorone	U	0.07	4-bromophenyl phenyl ether	U	0.07
2-nitrophenol	U	0.07	hexachlorobenzene	U	0.07
2,4-dimethylphenol	U	0.07	pentachlorophenol	U	0.07
bis(2-chloroethoxy)methane	U	0.07	phenanthrene	0.1	0.07
2,4-dichlorophenol	U	0.07	anthracene	U	0.07
2,6-dichlorophenol	U	0.07	carbazole	U	0.07
1,2,4-trichlorobenzene	U	0.07	di-n-butylphthalate	U	0.07
naphthalene	U	0.07	fluoranthene	0.3	0.07
benzoic acid	U	0.7	benzidine	U	0.7
4-chloroaniline	U	0.07	pyrene	0.3	0.07
hexachloro-1,3-butadiene	U	0.07	butylbenzylphthalate	U	0.07
4-chloro-3-methylphenol	U	0.07	benzo(a)anthracene	0.2	0.07
2-methylnaphthalene	U	0.07	chrysene	0.2	0.07
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.07
2,4,6-trichlorophenol	U	0.07	bis(2-ethylhexyl)phthalate	U	0.07
2,4,5-trichlorophenol	U	0.07	di-n-octylphthalate	U	0.07
2-chloronaphthalene	U	0.07	benzo(b)fluoranthene	U	0.07
2-nitroaniline	U	0.07	benzo(k)fluoranthene	0.09	0.07
acenaphthylene	U	0.07	benzo(a)pyrene	0.1	0.07
dimethylphthalate	U	0.07	indeno(1,2,3-cd)pyrene	U	0.07
2,6-dinitrotoluene	U	0.07	dibenz(a,h)anthracene	U	0.07
			benzo(g,h,i)perylene	U	0.07

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	36	21-100	nitrobenzene-d5	45	35-114
phenol-d5	39	10-102	2-fluorobiphenyl	42	43-116
2,4,6-tribromophenol	45	10-123	terphenyl-d14	45	33-141

U = Below quantitation limit

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Lab Number:	21206-052
Sample Designation:	TP3-2-S-A
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	0.7	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	0.5	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	0.8	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	10	0.06
2,4-dichlorophenol	U	0.06	anthracene	2.4	0.06
2,6-dichlorophenol	U	0.06	carbazole	1	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	0.6	0.06	fluoranthene	19	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	17	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	9.8	0.06
2-methylnaphthalene	0.2	0.06	chrysene	8.7	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	8.5	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	4.7	0.06
acenaphthylene	0.8	0.06	benzo(a)pyrene	9.4	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	4.1	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	1.4	0.06
			benzo(g,h,i)perylene	4.5	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	44	21-100	nitrobenzene-d5	58	35-114
phenol-d5	40	10-102	2-fluorobiphenyl	54	43-116
2,4,6-tribromophenol	53	10-123	terphenyl-d14	60	33-141

U = Below quantitation limit

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Lab Number:	21206-054
Sample Designation:	TP3-2-S-M
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.2
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.2
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.2
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	0.6	0.1
2,4-dichlorophenol	U	0.1	anthracene	0.1	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	1.2	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	1	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	0.5	0.1
2-methylnaphthalene	U	0.1	chrysene	0.6	0.1
hexachlorocyclopentadiene	U	0.2	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	0.4	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	0.5	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	0.6	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	0.4	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	0.2	0.1
			benzo(g,h,i)perylene	0.5	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	84	21-100	nitrobenzene-d5	90	35-114
phenol-d5	81	10-102	2-fluorobiphenyl	86	43-116
2,4,6-tribromophenol	81	10-123	terphenyl-d14	84	33-141

U = Below quantitation limit

Lab Number:	21206-056
Sample Designation:	TP3-2-S-B
Date Sampled:	07/19/11
Date Extracted:	07/27/11
Date Analyzed:	08/04/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.03	2,4-dinitrotoluene	U	0.06
phenol	U	0.03	acenaphthene	U	0.03
2-chlorophenol	U	0.03	3-nitroaniline	U	0.03
bis(2-chloroethyl)ether	U	0.03	2,4-dinitrophenol	U	0.06
1,3-dichlorobenzene	U	0.03	dibenzofuran	U	0.03
1,4-dichlorobenzene	U	0.03	4-nitrophenol	U	0.06
1,2-dichlorobenzene	U	0.03	fluorene	U	0.03
benzyl alcohol	U	0.03	4-chlorophenyl phenyl ether	U	0.03
2-methylphenol (m-cresol)	U	0.03	diethyl phthalate	U	0.03
bis(2-chloroisopropyl)ether	U	0.03	4-nitroaniline	U	0.03
hexachloroethane	U	0.03	4,6-dinitro-2-methylphenol	U	0.3
N-nitroso-di-n-propylamine	U	0.03	4-bromophenyl-phenylether	U	0.03
3- and 4-methylphenol (p- and o-cresol)	U	0.03	N-nitrosodiphenylamine	U	0.03
nitrobenzene	U	0.03	1,2-diphenylhydrazine (azobenzene)	U	0.03
isophorone	U	0.03	4-bromophenyl phenyl ether	U	0.03
2-nitrophenol	U	0.03	hexachlorobenzene	U	0.03
2,4-dimethylphenol	U	0.03	pentachlorophenol	U	0.03
bis(2-chloroethoxy)methane	U	0.03	phenanthrene	U	0.03
2,4-dichlorophenol	U	0.03	anthracene	U	0.03
2,6-dichlorophenol	U	0.03	carbazole	U	0.03
1,2,4-trichlorobenzene	U	0.03	di-n-butylphthalate	U	0.03
naphthalene	0.7	0.03	fluoranthene	U	0.03
benzoic acid	U	0.3	benzidine	U	0.3
4-chloroaniline	U	0.03	pyrene	U	0.03
hexachloro-1,3-butadiene	U	0.03	butylbenzylphthalate	U	0.03
4-chloro-3-methylphenol	U	0.03	benzo(a)anthracene	U	0.03
2-methylnaphthalene	U	0.03	chrysene	U	0.03
hexachlorocyclopentadiene	U	0.06	3,3'-dichlorobenzidine	U	0.03
2,4,6-trichlorophenol	U	0.03	bis(2-ethylhexyl)phthalate	U	0.03
2,4,5-trichlorophenol	U	0.03	di-n-octylphthalate	U	0.03
2-chloronaphthalene	U	0.03	benzo(b)fluoranthene	U	0.03
2-nitroaniline	U	0.03	benzo(k)fluoranthene	U	0.03
acenaphthylene	U	0.03	benzo(a)pyrene	U	0.03
dimethylphthalate	U	0.03	indeno(1,2,3-cd)pyrene	U	0.03
2,6-dinitrotoluene	U	0.03	dibenz(a,h)anthracene	U	0.03
			benzo(g,h,i)perylene	U	0.03

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	65	21-100	nitrobenzene-d5	74	35-114
phenol-d5	67	10-102	2-fluorobiphenyl	65	43-116
2,4,6-tribromophenol	55	10-123	terphenyl-d14	65	33-141

U = Below quantitation limit

Lab Number:	21206-059
Sample Designation:	TP4-1-S-A
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.04	2,4-dinitrotoluene	U	0.07
phenol	U	0.04	acenaphthene	0.08	0.04
2-chlorophenol	U	0.04	3-nitroaniline	U	0.04
bis(2-chloroethyl)ether	U	0.04	2,4-dinitrophenol	U	0.07
1,3-dichlorobenzene	U	0.04	dibenzofuran	U	0.04
1,4-dichlorobenzene	U	0.04	4-nitrophenol	U	0.07
1,2-dichlorobenzene	U	0.04	fluorene	0.1	0.04
benzyl alcohol	U	0.04	4-chlorophenyl phenyl ether	U	0.04
2-methylphenol (m-cresol)	U	0.04	diethyl phthalate	U	0.04
bis(2-chloroisopropyl)ether	U	0.04	4-nitroaniline	U	0.04
hexachloroethane	U	0.04	4,6-dinitro-2-methylphenol	U	0.4
N-nitroso-di-n-propylamine	U	0.04	4-bromophenyl-phenylether	U	0.04
3- and 4-methylphenol (p- and o-cresol)	U	0.04	N-nitrosodiphenylamine	U	0.04
nitrobenzene	U	0.04	1,2-diphenylhydrazine (azobenzene)	U	0.04
isophorone	U	0.04	4-bromophenyl phenyl ether	U	0.04
2-nitrophenol	U	0.04	hexachlorobenzene	U	0.04
2,4-dimethylphenol	U	0.04	pentachlorophenol	U	0.04
bis(2-chloroethoxy)methane	U	0.04	phenanthrene	1.1	0.04
2,4-dichlorophenol	U	0.04	anthracene	0.2	0.04
2,6-dichlorophenol	U	0.04	carbazole	0.1	0.04
1,2,4-trichlorobenzene	U	0.04	di-n-butylphthalate	U	0.04
naphthalene	0.09	0.04	fluoranthene	1.8	0.04
benzoic acid	U	0.4	benzidine	U	0.4
4-chloroaniline	U	0.04	pyrene	1.8	0.04
hexachloro-1,3-butadiene	U	0.04	butylbenzylphthalate	U	0.04
4-chloro-3-methylphenol	U	0.04	benzo(a)anthracene	1.1	0.04
2-methylnaphthalene	U	0.04	chrysene	1.1	0.04
hexachlorocyclopentadiene	U	0.07	3,3'-dichlorobenzidine	U	0.04
2,4,6-trichlorophenol	U	0.04	bis(2-ethylhexyl)phthalate	U	0.04
2,4,5-trichlorophenol	U	0.04	di-n-octylphthalate	U	0.04
2-chloronaphthalene	U	0.04	benzo(b)fluoranthene	0.9	0.04
2-nitroaniline	U	0.04	benzo(k)fluoranthene	0.8	0.04
acenaphthylene	0.1	0.04	benzo(a)pyrene	1.2	0.04
dimethylphthalate	U	0.04	indeno(1,2,3-cd)pyrene	0.7	0.04
2,6-dinitrotoluene	U	0.04	dibenz(a,h)anthracene	0.2	0.04
			benzo(g,h,i)perylene	0.7	0.04

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	45	21-100	nitrobenzene-d5	57	35-114
phenol-d5	49	10-102	2-fluorobiphenyl	53	43-116
2,4,6-tribromophenol	51	10-123	terphenyl-d14	51	33-141

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21206-061
Sample Designation:	TP4-1-S-M
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	0.3	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	0.2	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	0.4	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	5.4	0.06
2,4-dichlorophenol	U	0.06	anthracene	1.1	0.06
2,6-dichlorophenol	U	0.06	carbazole	0.3	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	0.7	0.06	fluoranthene	9	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	13	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	7	0.06
2-methylnaphthalene	0.2	0.06	chrysene	7.4	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	5.7	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	4.4	0.06
acenaphthylene	0.9	0.06	benzo(a)pyrene	7.2	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	5.1	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	1.4	0.06
			benzo(g,h,i)perylene	5.6	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	46	21-100	nitrobenzene-d5	63	35-114
phenol-d5	49	10-102	2-fluorobiphenyl	53	43-116
2,4,6-tribromophenol	49	10-123	terphenyl-d14	54	33-141

U = Below quantitation limit

ESI

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Lab Number:	21206-063
Sample Designation:	TP4-1-S-B
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.2
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.2
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.2
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	U	0.1
2,4-dichlorophenol	U	0.1	anthracene	U	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	0.4	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	0.5	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	0.2	0.1
2-methylnaphthalene	U	0.1	chrysene	0.3	0.1
hexachlorocyclopentadiene	U	0.2	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	U	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	U	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	0.4	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	0.3	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	U	0.1
			benzo(g,h,i)perylene	0.4	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	42	21-100	nitrobenzene-d5	52	35-114
phenol-d5	44	10-102	2-fluorobiphenyl	43	43-116
2,4,6-tribromophenol	41	10-123	terphenyl-d14	44	33-141

U = Below quantitation limit

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Lab Number:	21206-065
Sample Designation:	TP4-1-W-A
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	2.7	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	1.9	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	2.5	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	23	0.06
2,4-dichlorophenol	U	0.06	anthracene	5.9	0.06
2,6-dichlorophenol	U	0.06	carbazole	3	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	1.3	0.06	fluoranthene	26	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	22	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	14	0.06
2-methylnaphthalene	0.6	0.06	chrysene	8.8	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	6.5	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	9	0.06
acenaphthylene	0.7	0.06	benzo(a)pyrene	10	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	4.2	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	1.6	0.06
			benzo(g,h,i)perylene	4.5	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	38	21-100	nitrobenzene-d5	57	35-114
phenol-d5	42	10-102	2-fluorobiphenyl	51	43-116
2,4,6-tribromophenol	56	10-123	terphenyl-d14	53	33-141

U = Below quantitation limit

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Lab Number:	21206-067
Sample Designation:	TP4-1-W-M
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	0.2	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	0.1	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	0.3	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	4.3	0.06
2,4-dichlorophenol	U	0.06	anthracene	1.1	0.06
2,6-dichlorophenol	U	0.06	carbazole	0.2	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	0.1	0.06
naphthalene	1.4	0.06	fluoranthene	6.8	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	11	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	5.3	0.06
2-methylnaphthalene	0.4	0.06	chrysene	5.4	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	4.9	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	2.8	0.06
acenaphthylene	1	0.06	benzo(a)pyrene	5.9	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	3.2	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	1.1	0.06
			benzo(g,h,i)perylene	3.6	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	31	21-100	nitrobenzene-d5	47	35-114
phenol-d5	32	10-102	2-fluorobiphenyl	43	43-116
2,4,6-tribromophenol	41	10-123	terphenyl-d14	47	33-141

U = Below quantitation limit

Lab Number:	21206-069
Sample Designation:	TP4-1-W-B
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.5
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	0.6	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	1	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	1.3	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	0.7	0.2
2-methylnaphthalene	U	0.2	chrysene	0.9	0.2
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	U	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	1	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	0.6	0.2
acenaphthylene	0.3	0.2	benzo(a)pyrene	1.7	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	2.5	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	0.3	0.2
			benzo(g,h,i)perylene	2.7	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	80	21-100	nitrobenzene-d5	98	35-114
phenol-d5	82	10-102	2-fluorobiphenyl	87	43-116
2,4,6-tribromophenol	82	10-123	terphenyl-d14	84	33-141

U = Below quantitation limit

Lab Number:	21206-071
Sample Designation:	TP4-2-W
Date Sampled:	07/20/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.5
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	1	0.2
2,4-dichlorophenol	U	0.2	anthracene	0.5	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	1.9	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	3.9	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	1.7	0.2
2-methylnaphthalene	U	0.2	chrysene	2.1	0.2
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	U	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	2.6	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	1.3	0.2
acenaphthylene	1	0.2	benzo(a)pyrene	4.7	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	7.8	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	0.9	0.2
			benzo(g,h,i)perylene	9.2	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	76	21-100	nitrobenzene-d5	91	35-114
phenol-d5	75	10-102	2-fluorobiphenyl	83	43-116
2,4,6-tribromophenol	79	10-123	terphenyl-d14	78	33-141

U = Below quantitation limit

Lab Number:	21206-093
Sample Designation:	TP6-1-NW-A
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	0.1	0.06
2,4-dichlorophenol	U	0.06	anthracene	U	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	0.3	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	0.3	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	0.2	0.06
2-methylnaphthalene	U	0.06	chrysene	0.3	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	0.2	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	0.2	0.06
acenaphthylene	U	0.06	benzo(a)pyrene	0.2	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	0.1	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	0.07	0.06
			benzo(g,h,i)perylene	0.2	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	112	21-100	nitrobenzene-d5	127	35-114
phenol-d5	115	10-102	2-fluorobiphenyl	112	43-116
2,4,6-tribromophenol	114	10-123	terphenyl-d14	106	33-141

U = Below quantitation limit

ESI

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Lab Number:	21206-095
Sample Designation:	TP6-1-NW-M
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	U	0.06
2,4-dichlorophenol	U	0.06	anthracene	U	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	U	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	U	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	U	0.06
2-methylnaphthalene	U	0.06	chrysene	U	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	U	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	U	0.06
acenaphthylene	U	0.06	benzo(a)pyrene	U	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	U	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	U	0.06
			benzo(g,h,i)perylene	U	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	39	21-100	nitrobenzene-d5	44	35-114
phenol-d5	40	10-102	2-fluorobiphenyl	40	43-116
2,4,6-tribromophenol	34	10-123	terphenyl-d14	41	33-141

U = Below quantitation limit

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Lab Number:	21206-097
Sample Designation:	TP6-1-NW-B
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.5
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.5
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.5
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	U	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	0.4	0.2	fluoranthene	U	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	U	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	U	0.2
2-methylnaphthalene	U	0.2	chrysene	U	0.2
hexachlorocyclopentadiene	U	0.5	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	0.3	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	U	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	U	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	U	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	U	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	U	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	47	21-100	nitrobenzene-d5	62	35-114
phenol-d5	43	10-102	2-fluorobiphenyl	55	43-116
2,4,6-tribromophenol	53	10-123	terphenyl-d14	57	33-141

U = Below quantitation limit

Lab Number:	21206-099
Sample Designation:	TP6-2-NW-A
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.3
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.3
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.3
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	1.1	0.1
2,4-dichlorophenol	U	0.1	anthracene	0.2	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	1.6	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	1.5	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	0.8	0.1
2-methylnaphthalene	U	0.1	chrysene	0.9	0.1
hexachlorocyclopentadiene	U	0.3	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	0.6	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	0.8	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	0.9	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	0.4	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	U	0.1
			benzo(g,h,i)perylene	0.5	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	48	21-100	nitrobenzene-d5	60	35-114
phenol-d5	50	10-102	2-fluorobiphenyl	49	43-116
2,4,6-tribromophenol	48	10-123	terphenyl-d14	49	33-141

U = Below quantitation limit

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Lab Number:	21206-101
Sample Designation:	TP6-2-NW-M
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.2
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.2
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.2
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	U	0.1
2,4-dichlorophenol	U	0.1	anthracene	U	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	U	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	U	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	U	0.1
2-methylnaphthalene	U	0.1	chrysene	U	0.1
hexachlorocyclopentadiene	U	0.2	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	U	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	U	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	U	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	U	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	U	0.1
			benzo(g,h,i)perylene	U	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	58	21-100	nitrobenzene-d5	77	35-114
phenol-d5	60	10-102	2-fluorobiphenyl	65	43-116
2,4,6-tribromophenol	59	10-123	terphenyl-d14	66	33-141

U = Below quantitation limit

Lab Number:	21206-103
Sample Designation:	TP6-2-NW-B
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	1	2,4-dinitrotoluene	U	3
phenol	U	1	acenaphthene	U	1
2-chlorophenol	U	1	3-nitroaniline	U	1
bis(2-chloroethyl)ether	U	1	2,4-dinitrophenol	U	3
1,3-dichlorobenzene	U	1	dibenzofuran	U	1
1,4-dichlorobenzene	U	1	4-nitrophenol	U	3
1,2-dichlorobenzene	U	1	fluorene	U	1
benzyl alcohol	U	1	4-chlorophenyl phenyl ether	U	1
2-methylphenol (m-cresol)	U	1	diethyl phthalate	U	1
bis(2-chloroisopropyl)ether	U	1	4-nitroaniline	U	1
hexachloroethane	U	1	4,6-dinitro-2-methylphenol	U	10
N-nitroso-di-n-propylamine	U	1	4-bromophenyl-phenylether	U	1
3- and 4-methylphenol (p- and o-cresol)	U	1	N-nitrosodiphenylamine	U	1
nitrobenzene	U	1	1,2-diphenylhydrazine (azobenzene)	U	1
isophorone	U	1	4-bromophenyl phenyl ether	U	1
2-nitrophenol	U	1	hexachlorobenzene	U	1
2,4-dimethylphenol	U	1	pentachlorophenol	U	1
bis(2-chloroethoxy)methane	U	1	phenanthrene	U	1
2,4-dichlorophenol	U	1	anthracene	U	1
2,6-dichlorophenol	U	1	carbazole	U	1
1,2,4-trichlorobenzene	U	1	di-n-butylphthalate	U	1
naphthalene	U	1	fluoranthene	U	1
benzoic acid	U	10	benzidine	U	10
4-chloroaniline	U	1	pyrene	U	1
hexachloro-1,3-butadiene	U	1	butylbenzylphthalate	U	1
4-chloro-3-methylphenol	U	1	benzo(a)anthracene	U	1
2-methylnaphthalene	U	1	chrysene	U	1
hexachlorocyclopentadiene	U	3	3,3'-dichlorobenzidine	U	1
2,4,6-trichlorophenol	U	1	bis(2-ethylhexyl)phthalate	U	1
2,4,5-trichlorophenol	U	1	di-n-octylphthalate	U	1
2-chloronaphthalene	U	1	benzo(b)fluoranthene	U	1
2-nitroaniline	U	1	benzo(k)fluoranthene	U	1
acenaphthylene	U	1	benzo(a)pyrene	U	1
dimethylphthalate	U	1	indeno(1,2,3-cd)pyrene	U	1
2,6-dinitrotoluene	U	1	dibenz(a,h)anthracene	U	1
			benzo(g,h,i)perylene	U	1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	79	21-100	nitrobenzene-d5	80	35-114
phenol-d5	87	10-102	2-fluorobiphenyl	81	43-116
2,4,6-tribromophenol	51	10-123	terphenyl-d14	82	33-141

U = Below quantitation limit

Lab Number:	21206-105
Sample Designation:	TP6-1-NE-A
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	0.07	0.06
2,4-dichlorophenol	U	0.06	anthracene	U	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	0.2	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	0.1	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	0.08	0.06
2-methylnaphthalene	U	0.06	chrysene	0.09	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	0.07	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	0.07	0.06
acenaphthylene	U	0.06	benzo(a)pyrene	0.09	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	U	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	U	0.06
			benzo(g,h,i)perylene	0.06	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	69	21-100	nitrobenzene-d5	73	35-114
phenol-d5	68	10-102	2-fluorobiphenyl	63	43-116
2,4,6-tribromophenol	63	10-123	terphenyl-d14	59	33-141

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21206-107
Sample Designation:	TP6-1-NE-M
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	7	2,4-dinitrotoluene	U	10
phenol	U	7	acenaphthene	200	7
2-chlorophenol	U	7	3-nitroaniline	U	7
bis(2-chloroethyl)ether	U	7	2,4-dinitrophenol	U	10
1,3-dichlorobenzene	U	7	dibenzofuran	110	7
1,4-dichlorobenzene	U	7	4-nitrophenol	U	10
1,2-dichlorobenzene	U	7	fluorene	230	7
benzyl alcohol	U	7	4-chlorophenyl phenyl ether	U	7
2-methylphenol (m-cresol)	U	7	diethyl phthalate	U	7
bis(2-chloroisopropyl)ether	U	7	4-nitroaniline	U	7
hexachloroethane	U	7	4,6-dinitro-2-methylphenol	U	70
N-nitroso-di-n-propylamine	U	7	4-bromophenyl-phenylether	U	7
3- and 4-methylphenol (p- and o-cresol)	U	7	N-nitrosodiphenylamine	U	7
nitrobenzene	U	7	1,2-diphenylhydrazine (azobenzene)	U	7
isophorone	U	7	4-bromophenyl phenyl ether	U	7
2-nitrophenol	U	7	hexachlorobenzene	U	7
2,4-dimethylphenol	U	7	pentachlorophenol	U	7
bis(2-chloroethoxy)methane	U	7	phenanthrene	1600	7
2,4-dichlorophenol	U	7	anthracene	390	7
2,6-dichlorophenol	U	7	carbazole	150	7
1,2,4-trichlorobenzene	U	7	di-n-butylphthalate	U	7
naphthalene	130	7	fluoranthene	1800	7
benzoic acid	U	70	benzidine	U	70
4-chloroaniline	U	7	pyrene	1700	7
hexachloro-1,3-butadiene	U	7	butylbenzylphthalate	U	7
4-chloro-3-methylphenol	U	7	benzo(a)anthracene	910	7
2-methylnaphthalene	83	7	chrysene	850	7
hexachlorocyclopentadiene	U	10	3,3'-dichlorobenzidine	U	7
2,4,6-trichlorophenol	U	7	bis(2-ethylhexyl)phthalate	U	7
2,4,5-trichlorophenol	U	7	di-n-octylphthalate	U	7
2-chloronaphthalene	U	7	benzo(b)fluoranthene	670	7
2-nitroaniline	U	7	benzo(k)fluoranthene	380	7
acenaphthylene	33	7	benzo(a)pyrene	720	7
dimethylphthalate	U	7	indeno(1,2,3-cd)pyrene	380	7
2,6-dinitrotoluene	U	7	dibenz(a,h)anthracene	120	7
			benzo(g,h,i)perylene	420	7

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	Diluted out	21-100	nitrobenzene-d5	Diluted out	35-114
phenol-d5	Diluted out	10-102	2-fluorobiphenyl	Diluted out	43-116
2,4,6-tribromophenol	Diluted out	10-123	terphenyl-d14	Diluted out	33-141

U = Below quantitation limit
Detection limit elevated by high organics and/or moisture content.

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Lab Number:	21206-109
Sample Designation:	TP6-1-NE-B
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	08/04/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.4
phenol	U	0.2	acenaphthene	0.4	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.4
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.4
1,2-dichlorobenzene	U	0.2	fluorene	0.5	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	4.2	0.2
2,4-dichlorophenol	U	0.2	anthracene	0.8	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	0.2	0.2	fluoranthene	3.6	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	4	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	1.7	0.2
2-methylnaphthalene	0.2	0.2	chrysene	2	0.2
hexachlorocyclopentadiene	U	0.4	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	U	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	1	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	1.4	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	1.9	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	0.9	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	0.4	0.2
			benzo(g,h,i)perylene	1.1	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	69	21-100	nitrobenzene-d5	78	35-114
phenol-d5	62	10-102	2-fluorobiphenyl	71	43-116
2,4,6-tribromophenol	61	10-123	terphenyl-d14	73	33-141

U = Below quantitation limit

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Lab Number:	21206-111
Sample Designation:	TP6-3-NE-A
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.05	2,4-dinitrotoluene	U	0.1
phenol	U	0.05	acenaphthene	U	0.05
2-chlorophenol	U	0.05	3-nitroaniline	U	0.05
bis(2-chloroethyl)ether	U	0.05	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.05	dibenzofuran	U	0.05
1,4-dichlorobenzene	U	0.05	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.05	fluorene	U	0.05
benzyl alcohol	U	0.05	4-chlorophenyl phenyl ether	U	0.05
2-methylphenol (m-cresol)	U	0.05	diethyl phthalate	U	0.05
bis(2-chloroisopropyl)ether	U	0.05	4-nitroaniline	U	0.05
hexachloroethane	U	0.05	4,6-dinitro-2-methylphenol	U	0.5
N-nitroso-di-n-propylamine	U	0.05	4-bromophenyl-phenylether	U	0.05
3- and 4-methylphenol (p- and o-cresol)	U	0.05	N-nitrosodiphenylamine	U	0.05
nitrobenzene	U	0.05	1,2-diphenylhydrazine (azobenzene)	U	0.05
isophorone	U	0.05	4-bromophenyl phenyl ether	U	0.05
2-nitrophenol	U	0.05	hexachlorobenzene	U	0.05
2,4-dimethylphenol	U	0.05	pentachlorophenol	U	0.05
bis(2-chloroethoxy)methane	U	0.05	phenanthrene	U	0.05
2,4-dichlorophenol	U	0.05	anthracene	U	0.05
2,6-dichlorophenol	U	0.05	carbazole	U	0.05
1,2,4-trichlorobenzene	U	0.05	di-n-butylphthalate	U	0.05
naphthalene	U	0.05	fluoranthene	0.08	0.05
benzoic acid	U	0.5	benzidine	U	0.5
4-chloroaniline	U	0.05	pyrene	0.08	0.05
hexachloro-1,3-butadiene	U	0.05	butylbenzylphthalate	U	0.05
4-chloro-3-methylphenol	U	0.05	benzo(a)anthracene	U	0.05
2-methylnaphthalene	U	0.05	chrysene	U	0.05
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.05
2,4,6-trichlorophenol	U	0.05	bis(2-ethylhexyl)phthalate	U	0.05
2,4,5-trichlorophenol	U	0.05	di-n-octylphthalate	U	0.05
2-chloronaphthalene	U	0.05	benzo(b)fluoranthene	U	0.05
2-nitroaniline	U	0.05	benzo(k)fluoranthene	0.06	0.05
acenaphthylene	U	0.05	benzo(a)pyrene	0.06	0.05
dimethylphthalate	U	0.05	indeno(1,2,3-cd)pyrene	U	0.05
2,6-dinitrotoluene	U	0.05	dibenz(a,h)anthracene	U	0.05
			benzo(g,h,i)perylene	U	0.05

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	55	21-100	nitrobenzene-d5	64	35-114
phenol-d5	55	10-102	2-fluorobiphenyl	51	43-116
2,4,6-tribromophenol	55	10-123	terphenyl-d14	50	33-141

U = Below quantitation limit

Lab Number:	21206-113
Sample Designation:	TP6-3-NE-M
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	U	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	U	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	U	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	0.3	0.06
2,4-dichlorophenol	U	0.06	anthracene	U	0.06
2,6-dichlorophenol	U	0.06	carbazole	U	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	U	0.06	fluoranthene	0.4	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	0.3	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	0.2	0.06
2-methylnaphthalene	U	0.06	chrysene	0.2	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	0.1	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	0.1	0.06
acenaphthylene	U	0.06	benzo(a)pyrene	0.2	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	U	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	U	0.06
			benzo(g,h,i)perylene	U	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	60	21-100	nitrobenzene-d5	6	35-114
phenol-d5	61	10-102	2-fluorobiphenyl	59	43-116
2,4,6-tribromophenol	61	10-123	terphenyl-d14	55	33-141

U = Below quantitation limit

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Lab Number:	21206-115
Sample Designation:	TP6-3-NE-B
Date Sampled:	07/22/11
Date Extracted:	07/27/11
Date Analyzed:	08/05/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	5	2,4-dinitrotoluene	U	9
phenol	U	5	acenaphthene	12	5
2-chlorophenol	U	5	3-nitroaniline	U	5
bis(2-chloroethyl)ether	U	5	2,4-dinitrophenol	U	9
1,3-dichlorobenzene	U	5	dibenzofuran	9.5	5
1,4-dichlorobenzene	U	5	4-nitrophenol	U	9
1,2-dichlorobenzene	U	5	fluorene	16	5
benzyl alcohol	U	5	4-chlorophenyl phenyl ether	U	5
2-methylphenol (m-cresol)	U	5	diethyl phthalate	U	5
bis(2-chloroisopropyl)ether	U	5	4-nitroaniline	U	5
hexachloroethane	U	5	4,6-dinitro-2-methylphenol	U	50
N-nitroso-di-n-propylamine	U	5	4-bromophenyl-phenylether	U	5
3- and 4-methylphenol (p- and o-cresol)	U	5	N-nitrosodiphenylamine	U	5
nitrobenzene	U	5	1,2-diphenylhydrazine (azobenzene)	U	5
isophorone	U	5	4-bromophenyl phenyl ether	U	5
2-nitrophenol	U	5	hexachlorobenzene	U	5
2,4-dimethylphenol	U	5	pentachlorophenol	U	5
bis(2-chloroethoxy)methane	U	5	phenanthrene	100	5
2,4-dichlorophenol	U	5	anthracene	37	5
2,6-dichlorophenol	U	5	carbazole	U	5
1,2,4-trichlorobenzene	U	5	di-n-butylphthalate	U	5
naphthalene	U	5	fluoranthene	140	5
benzoic acid	U	50	benzidine	U	50
4-chloroaniline	U	5	pyrene	100	5
hexachloro-1,3-butadiene	U	5	butylbenzylphthalate	U	5
4-chloro-3-methylphenol	U	5	benzo(a)anthracene	52	5
2-methylnaphthalene	U	5	chrysene	53	5
hexachlorocyclopentadiene	U	9	3,3'-dichlorobenzidine	U	5
2,4,6-trichlorophenol	U	5	bis(2-ethylhexyl)phthalate	U	5
2,4,5-trichlorophenol	U	5	di-n-octylphthalate	U	5
2-chloronaphthalene	U	5	benzo(b)fluoranthene	40	5
2-nitroaniline	U	5	benzo(k)fluoranthene	42	5
acenaphthylene	U	5	benzo(a)pyrene	59	5
dimethylphthalate	U	5	indeno(1,2,3-cd)pyrene	30	5
2,6-dinitrotoluene	U	5	dibenz(a,h)anthracene	U	5
			benzo(g,h,i)perylene	26	5

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	96	21-100	nitrobenzene-d5	114	35-114
phenol-d5	105	10-102	2-fluorobiphenyl	107	43-116
2,4,6-tribromophenol	59	10-123	terphenyl-d14	98	33-141

U = Below quantitation limit

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Lab Number:	21206-117
Sample Designation:	TP6-5-NE-A
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	07/29/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.2	2,4-dinitrotoluene	U	0.4
phenol	U	0.2	acenaphthene	U	0.2
2-chlorophenol	U	0.2	3-nitroaniline	U	0.2
bis(2-chloroethyl)ether	U	0.2	2,4-dinitrophenol	U	0.4
1,3-dichlorobenzene	U	0.2	dibenzofuran	U	0.2
1,4-dichlorobenzene	U	0.2	4-nitrophenol	U	0.4
1,2-dichlorobenzene	U	0.2	fluorene	U	0.2
benzyl alcohol	U	0.2	4-chlorophenyl phenyl ether	U	0.2
2-methylphenol (m-cresol)	U	0.2	diethyl phthalate	U	0.2
bis(2-chloroisopropyl)ether	U	0.2	4-nitroaniline	U	0.2
hexachloroethane	U	0.2	4,6-dinitro-2-methylphenol	U	2
N-nitroso-di-n-propylamine	U	0.2	4-bromophenyl-phenylether	U	0.2
3- and 4-methylphenol (p- and o-cresol)	U	0.2	N-nitrosodiphenylamine	U	0.2
nitrobenzene	U	0.2	1,2-diphenylhydrazine (azobenzene)	U	0.2
isophorone	U	0.2	4-bromophenyl phenyl ether	U	0.2
2-nitrophenol	U	0.2	hexachlorobenzene	U	0.2
2,4-dimethylphenol	U	0.2	pentachlorophenol	U	0.2
bis(2-chloroethoxy)methane	U	0.2	phenanthrene	U	0.2
2,4-dichlorophenol	U	0.2	anthracene	U	0.2
2,6-dichlorophenol	U	0.2	carbazole	U	0.2
1,2,4-trichlorobenzene	U	0.2	di-n-butylphthalate	U	0.2
naphthalene	U	0.2	fluoranthene	U	0.2
benzoic acid	U	2	benzidine	U	2
4-chloroaniline	U	0.2	pyrene	U	0.2
hexachloro-1,3-butadiene	U	0.2	butylbenzylphthalate	U	0.2
4-chloro-3-methylphenol	U	0.2	benzo(a)anthracene	U	0.2
2-methylnaphthalene	U	0.2	chrysene	U	0.2
hexachlorocyclopentadiene	U	0.4	3,3'-dichlorobenzidine	U	0.2
2,4,6-trichlorophenol	U	0.2	bis(2-ethylhexyl)phthalate	U	0.2
2,4,5-trichlorophenol	U	0.2	di-n-octylphthalate	U	0.2
2-chloronaphthalene	U	0.2	benzo(b)fluoranthene	U	0.2
2-nitroaniline	U	0.2	benzo(k)fluoranthene	U	0.2
acenaphthylene	U	0.2	benzo(a)pyrene	U	0.2
dimethylphthalate	U	0.2	indeno(1,2,3-cd)pyrene	U	0.2
2,6-dinitrotoluene	U	0.2	dibenz(a,h)anthracene	U	0.2
			benzo(g,h,i)perylene	U	0.2

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	89	21-100	nitrobenzene-d5	110	35-114
phenol-d5	93	10-102	2-fluorobiphenyl	94	43-116
2,4,6-tribromophenol	86	10-123	terphenyl-d14	93	33-141

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21206-118
Sample Designation:	TP6-5-NE-M
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	07/28/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	3	2,4-dinitrotoluene	U	5
phenol	U	3	acenaphthene	6.9	3
2-chlorophenol	U	3	3-nitroaniline	U	3
bis(2-chloroethyl)ether	U	3	2,4-dinitrophenol	U	5
1,3-dichlorobenzene	U	3	dibenzofuran	U	3
1,4-dichlorobenzene	U	3	4-nitrophenol	U	5
1,2-dichlorobenzene	U	3	fluorene	7.4	3
benzyl alcohol	U	3	4-chlorophenyl phenyl ether	U	3
2-methylphenol (m-cresol)	U	3	diethyl phthalate	U	3
bis(2-chloroisopropyl)ether	U	3	4-nitroaniline	U	3
hexachloroethane	U	3	4,6-dinitro-2-methylphenol	U	30
N-nitroso-di-n-propylamine	U	3	4-bromophenyl-phenylether	U	3
3- and 4-methylphenol (p- and o-cresol)	U	3	N-nitrosodiphenylamine	U	3
nitrobenzene	U	3	1,2-diphenylhydrazine (azobenzene)	U	3
isophorone	U	3	4-bromophenyl phenyl ether	U	3
2-nitrophenol	U	3	hexachlorobenzene	U	3
2,4-dimethylphenol	U	3	pentachlorophenol	U	3
bis(2-chloroethoxy)methane	U	3	phenanthrene	57	3
2,4-dichlorophenol	U	3	anthracene	13	3
2,6-dichlorophenol	U	3	carbazole	8.8	3
1,2,4-trichlorobenzene	U	3	di-n-butylphthalate	U	3
naphthalene	U	3	fluoranthene	60	3
benzoic acid	U	30	benzidine	U	30
4-chloroaniline	U	3	pyrene	49	3
hexachloro-1,3-butadiene	U	3	butylbenzylphthalate	U	3
4-chloro-3-methylphenol	U	3	benzo(a)anthracene	26	3
2-methylnaphthalene	U	3	chrysene	24	3
hexachlorocyclopentadiene	U	5	3,3'-dichlorobenzidine	U	3
2,4,6-trichlorophenol	U	3	bis(2-ethylhexyl)phthalate	U	3
2,4,5-trichlorophenol	U	3	di-n-octylphthalate	U	3
2-chloronaphthalene	U	3	benzo(b)fluoranthene	16	3
2-nitroaniline	U	3	benzo(k)fluoranthene	16	3
acenaphthylene	U	3	benzo(a)pyrene	22	3
dimethylphthalate	U	3	indeno(1,2,3-cd)pyrene	11	3
2,6-dinitrotoluene	U	3	dibenz(a,h)anthracene	U	3
			benzo(g,h,i)perylene	12	3

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	73	21-100	nitrobenzene-d5	94	35-114
phenol-d5	68	10-102	2-fluorobiphenyl	86	43-116
2,4,6-tribromophenol	64	10-123	terphenyl-d14	87	33-141

U = Below quantitation limit
Detection limit elevated by high organics and/or moisture content.

Lab Number:	21206-119
Sample Designation:	TP6-5-NE-B
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.3
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.3
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.3
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	U	0.1
2,4-dichlorophenol	U	0.1	anthracene	U	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	0.3	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	0.4	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	U	0.1
2-methylnaphthalene	U	0.1	chrysene	U	0.1
hexachlorocyclopentadiene	U	0.3	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	U	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	U	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	U	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	U	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	U	0.1
			benzo(g,h,i)perylene	U	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	42	21-100	nitrobenzene-d5	47	35-114
phenol-d5	39	10-102	2-fluorobiphenyl	46	43-116
2,4,6-tribromophenol	41	10-123	terphenyl-d14	49	33-141

U = Below quantitation limit

Lab Number:	21206-120
Sample Designation:	TP6-7-NW-A
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.06	2,4-dinitrotoluene	U	0.1
phenol	U	0.06	acenaphthene	1.9	0.06
2-chlorophenol	U	0.06	3-nitroaniline	U	0.06
bis(2-chloroethyl)ether	U	0.06	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.06	dibenzofuran	1	0.06
1,4-dichlorobenzene	U	0.06	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.06	fluorene	2.2	0.06
benzyl alcohol	U	0.06	4-chlorophenyl phenyl ether	U	0.06
2-methylphenol (m-cresol)	U	0.06	diethyl phthalate	U	0.06
bis(2-chloroisopropyl)ether	U	0.06	4-nitroaniline	U	0.06
hexachloroethane	U	0.06	4,6-dinitro-2-methylphenol	U	0.6
N-nitroso-di-n-propylamine	U	0.06	4-bromophenyl-phenylether	U	0.06
3- and 4-methylphenol (p- and o-cresol)	U	0.06	N-nitrosodiphenylamine	U	0.06
nitrobenzene	U	0.06	1,2-diphenylhydrazine (azobenzene)	U	0.06
isophorone	U	0.06	4-bromophenyl phenyl ether	U	0.06
2-nitrophenol	U	0.06	hexachlorobenzene	U	0.06
2,4-dimethylphenol	U	0.06	pentachlorophenol	U	0.06
bis(2-chloroethoxy)methane	U	0.06	phenanthrene	22	0.06
2,4-dichlorophenol	U	0.06	anthracene	5.5	0.06
2,6-dichlorophenol	U	0.06	carbazole	2.2	0.06
1,2,4-trichlorobenzene	U	0.06	di-n-butylphthalate	U	0.06
naphthalene	1.2	0.06	fluoranthene	38	0.06
benzoic acid	U	0.6	benzidine	U	0.6
4-chloroaniline	U	0.06	pyrene	35	0.06
hexachloro-1,3-butadiene	U	0.06	butylbenzylphthalate	U	0.06
4-chloro-3-methylphenol	U	0.06	benzo(a)anthracene	23	0.06
2-methylnaphthalene	0.6	0.06	chrysene	14	0.06
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.06
2,4,6-trichlorophenol	U	0.06	bis(2-ethylhexyl)phthalate	U	0.06
2,4,5-trichlorophenol	U	0.06	di-n-octylphthalate	U	0.06
2-chloronaphthalene	U	0.06	benzo(b)fluoranthene	17	0.06
2-nitroaniline	U	0.06	benzo(k)fluoranthene	6.3	0.06
acenaphthylene	2	0.06	benzo(a)pyrene	16	0.06
dimethylphthalate	U	0.06	indeno(1,2,3-cd)pyrene	5.4	0.06
2,6-dinitrotoluene	U	0.06	dibenz(a,h)anthracene	2	0.06
			benzo(g,h,i)perylene	5.5	0.06

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	42	21-100	nitrobenzene-d5	61	35-114
phenol-d5	48	10-102	2-fluorobiphenyl	62	43-116
2,4,6-tribromophenol	73	10-123	terphenyl-d14	68	33-141

U = Below quantitation limit

ESI

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Lab Number:	21206-121
Sample Designation:	TP6-7-NW-M
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	07/30/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.07	2,4-dinitrotoluene	U	0.1
phenol	U	0.07	acenaphthene	0.4	0.07
2-chlorophenol	U	0.07	3-nitroaniline	U	0.07
bis(2-chloroethyl)ether	U	0.07	2,4-dinitrophenol	U	0.1
1,3-dichlorobenzene	U	0.07	dibenzofuran	U	0.07
1,4-dichlorobenzene	U	0.07	4-nitrophenol	U	0.1
1,2-dichlorobenzene	U	0.07	fluorene	0.3	0.07
benzyl alcohol	U	0.07	4-chlorophenyl phenyl ether	U	0.07
2-methylphenol (m-cresol)	U	0.07	diethyl phthalate	U	0.07
bis(2-chloroisopropyl)ether	U	0.07	4-nitroaniline	U	0.07
hexachloroethane	U	0.07	4,6-dinitro-2-methylphenol	U	0.7
N-nitroso-di-n-propylamine	U	0.07	4-bromophenyl-phenylether	U	0.07
3- and 4-methylphenol (p- and o-cresol)	U	0.07	N-nitrosodiphenylamine	U	0.07
nitrobenzene	U	0.07	1,2-diphenylhydrazine (azobenzene)	U	0.07
isophorone	U	0.07	4-bromophenyl phenyl ether	U	0.07
2-nitrophenol	U	0.07	hexachlorobenzene	U	0.07
2,4-dimethylphenol	U	0.07	pentachlorophenol	U	0.07
bis(2-chloroethoxy)methane	U	0.07	phenanthrene	3.6	0.07
2,4-dichlorophenol	U	0.07	anthracene	0.6	0.07
2,6-dichlorophenol	U	0.07	carbazole	0.3	0.07
1,2,4-trichlorobenzene	U	0.07	di-n-butylphthalate	U	0.07
naphthalene	0.2	0.07	fluoranthene	3.3	0.07
benzoic acid	U	0.7	benzidine	U	0.7
4-chloroaniline	U	0.07	pyrene	3.2	0.07
hexachloro-1,3-butadiene	U	0.07	butylbenzylphthalate	U	0.07
4-chloro-3-methylphenol	U	0.07	benzo(a)anthracene	1.5	0.07
2-methylnaphthalene	0.1	0.07	chrysene	1.7	0.07
hexachlorocyclopentadiene	U	0.1	3,3'-dichlorobenzidine	U	0.07
2,4,6-trichlorophenol	U	0.07	bis(2-ethylhexyl)phthalate	U	0.07
2,4,5-trichlorophenol	U	0.07	di-n-octylphthalate	U	0.07
2-chloronaphthalene	U	0.07	benzo(b)fluoranthene	1.1	0.07
2-nitroaniline	U	0.07	benzo(k)fluoranthene	1	0.07
acenaphthylene	U	0.07	benzo(a)pyrene	1.4	0.07
dimethylphthalate	U	0.07	indeno(1,2,3-cd)pyrene	0.6	0.07
2,6-dinitrotoluene	U	0.07	dibenz(a,h)anthracene	0.2	0.07
			benzo(g,h,i)perylene	0.7	0.07

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	41	21-100	nitrobenzene-d5	53	35-114
phenol-d5	42	10-102	2-fluorobiphenyl	45	43-116
2,4,6-tribromophenol	50	10-123	terphenyl-d14	47	33-141

U = Below quantitation limit

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Lab Number:	21206-122
Sample Designation:	TP6-7-NW-B
Date Sampled:	07/25/11
Date Extracted:	07/27/11
Date Analyzed:	08/03/11
Matrix:	Solid

SEMIVOLATILE ORGANICS
Method Reference: SW846 8270

	Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt		Concentration mg/Kg dry wt	Reporting Limit mg/Kg dry wt
N-nitrosodimethylamine	U	0.1	2,4-dinitrotoluene	U	0.2
phenol	U	0.1	acenaphthene	U	0.1
2-chlorophenol	U	0.1	3-nitroaniline	U	0.1
bis(2-chloroethyl)ether	U	0.1	2,4-dinitrophenol	U	0.2
1,3-dichlorobenzene	U	0.1	dibenzofuran	U	0.1
1,4-dichlorobenzene	U	0.1	4-nitrophenol	U	0.2
1,2-dichlorobenzene	U	0.1	fluorene	U	0.1
benzyl alcohol	U	0.1	4-chlorophenyl phenyl ether	U	0.1
2-methylphenol (m-cresol)	U	0.1	diethyl phthalate	U	0.1
bis(2-chloroisopropyl)ether	U	0.1	4-nitroaniline	U	0.1
hexachloroethane	U	0.1	4,6-dinitro-2-methylphenol	U	1
N-nitroso-di-n-propylamine	U	0.1	4-bromophenyl-phenylether	U	0.1
3- and 4-methylphenol (p- and o-cresol)	U	0.1	N-nitrosodiphenylamine	U	0.1
nitrobenzene	U	0.1	1,2-diphenylhydrazine (azobenzene)	U	0.1
isophorone	U	0.1	4-bromophenyl phenyl ether	U	0.1
2-nitrophenol	U	0.1	hexachlorobenzene	U	0.1
2,4-dimethylphenol	U	0.1	pentachlorophenol	U	0.1
bis(2-chloroethoxy)methane	U	0.1	phenanthrene	U	0.1
2,4-dichlorophenol	U	0.1	anthracene	U	0.1
2,6-dichlorophenol	U	0.1	carbazole	U	0.1
1,2,4-trichlorobenzene	U	0.1	di-n-butylphthalate	U	0.1
naphthalene	U	0.1	fluoranthene	U	0.1
benzoic acid	U	1	benzidine	U	1
4-chloroaniline	U	0.1	pyrene	U	0.1
hexachloro-1,3-butadiene	U	0.1	butylbenzylphthalate	U	0.1
4-chloro-3-methylphenol	U	0.1	benzo(a)anthracene	U	0.1
2-methylnaphthalene	U	0.1	chrysene	U	0.1
hexachlorocyclopentadiene	U	0.2	3,3'-dichlorobenzidine	U	0.1
2,4,6-trichlorophenol	U	0.1	bis(2-ethylhexyl)phthalate	U	0.1
2,4,5-trichlorophenol	U	0.1	di-n-octylphthalate	U	0.1
2-chloronaphthalene	U	0.1	benzo(b)fluoranthene	U	0.1
2-nitroaniline	U	0.1	benzo(k)fluoranthene	U	0.1
acenaphthylene	U	0.1	benzo(a)pyrene	U	0.1
dimethylphthalate	U	0.1	indeno(1,2,3-cd)pyrene	U	0.1
2,6-dinitrotoluene	U	0.1	dibenz(a,h)anthracene	U	0.1
			benzo(g,h,i)perylene	U	0.1

SURROGATE STANDARDS

	Recovery (%)	Acceptance Limits (%)		Recovery (%)	Acceptance Limits (%)
2-fluorophenol	36	21-100	nitrobenzene-d5	43	35-114
phenol-d5	41	10-102	2-fluorobiphenyl	39	43-116
2,4,6-tribromophenol	35	10-123	terphenyl-d14	42	33-141

U = Below quantitation limit

ESI

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ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/19/11 0800	Date and TIme Logged into Lab:	07/19/11 1445
Recieved By:	DW	Logged into Lab by:	JEB JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	6	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-1-N-H	21206-001	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-1-N-H	21206-002	S	MA EPH	1x9oz g	4C	Yes
TP6-1-N-H	21206-003	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-1-N-H	21206-004	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-N-M	21206-005	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-2-N-M	21206-006	S	MA EPH	1x9oz g	4C	Yes
TP6-2-N-M	21206-007	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-2-N-M	21206-008	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-3-N-A	21206-009	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-3-N-A	21206-010	S	MA EPH	1x9oz g	4C	Yes
TP6-3-N-A	21206-011	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-3-N-A	21206-012	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-3-N-B	21206-013	S	SVOC8270C, ARO8082;	1x9oz g	4C	Yes
TP6-3-N-B	21206-014	S	MA EPH	1x9oz g	4C	Yes
TP6-3-N-B	21206-015	S	VOC8260HIGH	1x40ml g	MeOH	Yes
TP6-3-N-B	21206-016	S	VOC8260LO	2x40ml g	H2O	Yes
TRIP BLANK	21206-017	S	VOC8260LO	1x40ml g	H2O	Yes

Notes and qualifications:

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/20/11 0800	Date and TIme Logged into Lab:	07/20/11 1405
Recieved By:	DW	Logged into Lab by:	JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	5		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-2-W-A	21206-018	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-A	21206-019	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-A	21206-020	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-A	21206-021	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-W-M	21206-022	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-M	21206-023	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-M	21206-024	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-M	21206-025	S	VOC8260LO	2x40ml g	H2O	Yes
TP6-2-W-B	21206-026	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP6-2-W-B	21206-027	S	MA EPH	1x9oz g	4C	Yes
TP6-2-W-B	21206-028	S	VOC8260HI	1x40ml g	MeOH	Yes
TP6-2-W-B	21206-029	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-1-W-H	21206-030	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-1-W-H	21206-031	S	MA EPH	1x9oz g	4C	Yes
TP2-1-W-H	21206-032	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-1-W-H	21206-033	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-2-W-M	21206-034	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-2-W-M	21206-035	S	MA EPH	1x9oz g	4C	Yes
TP2-2-W-M	21206-036	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-2-W-M	21206-037	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-4-W-A	21206-038	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-4-W-A	21206-039	S	MA EPH	1x9oz g	4C	Yes
TP2-4-W-A	21206-040	S	VOC8260HI	1x40ml g	MeOH	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/20/11 0800	Date and TIme Logged into Lab:	07/20/11 1405
Recieved By:	DW	Logged into Lab by:	JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	5		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP2-4-W-A	21206-041	S	VOC8260LO	2x40ml g	H2O	Yes
TP2-4-W-B	21206-042	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP2-4-W-B	21206-043	S	MA EPH	1x9oz g	4C	Yes
TP2-4-W-B	21206-044	S	VOC8260HI	1x40ml g	MeOH	Yes
TP2-4-W-B	21206-045	S	VOC8260LO	2x40ml g	H2O	Yes
TP4-1-E	21206-046	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-E	21206-047	S	MA EPH	1x9oz g	4C	Yes
TP4-1-E	21206-048	S	VOC8260HI	1x40ml g	MeOH	Yes
TP4-1-E	21206-049	S	VOC8260LO	2x40ml g	H2O	Yes
TP3-1-S	21206-050	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-1-S	21206-051	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-A	21206-052	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-A	21206-053	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-M	21206-054	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-M	21206-055	S	MA EPH	1x9oz g	4C	Yes
TP3-2-S-B	21206-056	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP3-2-S-B	21206-057	S	MA EPH	1x9oz g	4C	Yes
TRIP BLANK	21206-058	S	VOC8260LO	2x40ml g	H2O	Yes

Notes and qualifications:

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hamp[illegible]42-0778 (603) 926-3345 fax (603) 926-3521 www.envirosystems.com

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/21/11 0800	Date and TIme Logged into Lab:	07/21/11 1340
Recieved By:	DW	Logged into Lab by:	JEB JEB
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP4-1-S-A	21206-059	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-A	21206-060	S	MA EPH	1x4oz g	4C	Yes
TP4-1-S-M	21206-061	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-M	21206-062	S	MA EPH	1x4oz g	4C	Yes
TP4-1-S-B	21206-063	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-S-B	21206-064	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-A	21206-065	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-A	21206-066	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-M	21206-067	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-M	21206-068	S	MA EPH	1x4oz g	4C	Yes
TP4-1-W-B	21206-069	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-1-W-B	21206-070	S	MA EPH	1x4oz g	4C	Yes
TP4-2-W	21206-071	S	SVOC8270C,ARO8082;	1x9oz g	4C	Yes
TP4-2-W	21206-072	S	MA EPH	1x4oz g	4C	Yes
TP9-1-E	21206-073	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-W	21206-074	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-N	21206-075	S	ARO8082;	1x9oz g	4C	Yes
TP9-1-S	21206-076	S	ARO8082;	1x9oz g	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/22/11 0842	Date and Time Logged into Lab:	07/22/11 1135
Recieved By:	BS	Logged into Lab by:	MES
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	5	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP13-1-S	21206-077	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-A	21206-078	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-M	21206-079	S	ARO8082;	1x9oz g	4C	Yes
TP13-2-S-B	21206-080	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-A	21206-081	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-M	21206-082	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-S-B	21206-083	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-A	21206-084	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-M	21206-085	S	ARO8082;	1x9oz g	4C	Yes
TP13/17-1-C-B	21206-086	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-A	21206-087	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-M	21206-088	S	ARO8082;	1x9oz g	4C	Yes
TP13-1-N-B	21206-089	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-A	21206-090	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-M	21206-091	S	ARO8082;	1x9oz g	4C	Yes
TP17-1-N-B	21206-092	S	ARO8082;	1x9oz g	4C	Yes

Notes and qualifications:

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/23/11 0820	Date and TIme Logged into Lab:	07/25/11 0815
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	NA
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-1-NW-A	21206-093	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-A	21206-094	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NW-M	21206-095	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-M	21206-096	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NW-B	21206-097	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NW-B	21206-098	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-A	21206-099	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-A	21206-100	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-M	21206-101	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-M	21206-102	S	MA EPH	1x4oz g	4 C	Yes
TP6-2-NW-B	21206-103	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-2-NW-B	21206-104	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-A	21206-105	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-A	21206-106	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-M	21206-107	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-M	21206-108	S	MA EPH	1x4oz g	4 C	Yes
TP6-1-NE-B	21206-109	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-1-NE-B	21206-110	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-A	21206-111	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-3-NE-A	21206-112	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-M	21206-113	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes
TP6-3-NE-M	21206-114	S	MA EPH	1x4oz g	4 C	Yes
TP6-3-NE-B	21206-115	S	SVOC8270C,ARO8082;	1x9oz g	4 C	Yes

Notes and qualifications:

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ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/23/11 0820	Date and TIme Logged into Lab:	07/25/11 0815
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	Yes
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	Yes
Number of COC Pages:	2		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-3-NE-B	21206-116	S	MA EPH	1x4oz g	4 C	Yes

Notes and qualifications: 21206-116 S MA EPH

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21206		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	07/26/11 0800	Date and TIme Logged into Lab:	07/26/11 1318
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	4C	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-5-NE-A	21206-117	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-M	21206-118	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-B	21206-119	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-A	21206-120	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-M	21206-121	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-7-NW-B	21206-122	S	SVOC8270C,ARO8082;	1x9oz G	4C	Yes
TP6-5-NE-A	21206-123	S	MA EPH	1X4oz G	4C	Yes
TP6-5-NE-M	21206-124	S	MA EPH	1X4oz G	4C	Yes
TP6-5-NE-B	21206-125	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-A	21206-126	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-M	21206-127	S	MA EPH	1X4oz G	4C	Yes
TP6-7-NW-B	21206-128	S	MA EPH	1X4oz G	4C	Yes

Notes and qualifications:

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ESI
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1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co. LLC	Contact: CHET MYERS	Project Name: SOUTH TERMINAL	Page 1 of 2
Report to: CHET MYERS	Address: 184 High St. Ste 502	Project Number: 6690	
Invoice to: " "	Address: Boston MA 02110	Project Manager: CHET MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: cmyers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	TP6-1-N-H	7/18/11	12:00	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
002	TP6-1-N-H	7/18/11	12:00	GD	C	9oz	G/T		S		MA EPH
003	TP6-1-N-H	7/18/11	12:00	GD	C	40	G/T	MeOH	S		VOC-HIGH (8260)
004	TP6-1-N-H	7/18/11	12:00	GD	C	40	G/T	H_2O	S		VOC-LOW (8260)
005	TP6-2-N-M	7/18/11	12:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
006	TP6-2-N-M	7/18/11	12:30	GD	C	9oz	G/T		S		MA EPH
007	TP6-2-N-M	7/18/11	12:30	GD	C	40	G/T	MeOH	S		VOC-HIGH (8260)
008	TP6-2-N-M	7/18/11	12:30	GD	C	40	G/T	H_2O	S		VOC-LOW (8260)
009	TP6-3-N-A	7/18/11	13:00	GD	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
010	TP6-3-N-A	7/18/11	13:00	GD	C	9oz	G/T		S		MA EPH
011	TP6-3-N-A	7/18/11	13:00	GD	C	40	G/T	MeOH	S		VOC-HIGH (8260)
012	TP6-3-N-A	7/18/11	13:00	GD	C	40	G/T	H_2O	S		VOC-LOW (8260)

Relinquished By: [signature]	Date: 7/19/11 Time: 8:00	Received By: [signature]	Date: 7/19/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

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QC Doc No: 1.6.4.5

ESI
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: Chet Myers	Project Name: South Terminal	Page 2 of 2
Report to: Chet Myers	Address: 184 High St. Suite 402	Project Number: 6690	
Invoice to: Chet Myers	Address: Boston, MA 02210	Project Manager: Chet Myers	
Voice: 617-728-0090	Fax: 617 728 0070	email: cmyers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
013	TP6-3-N-B	7/18/11	13:30	GD	C	40z	G/T		S		SVOC (8270C), PCB Aroclors
014	TP6-3-N-B	7/18/11	13:30	GD	C	40z	G/T		S		MA EPH
015	TP6-3-N-B	7/18/11	13:30	GD	C	40	G/T	MeOH	S		VOC - High (8260)
016	TP6-3-N-B	7/18/11	13:30	GD	C	40	G/T	H2O	S		VOC - Low (8260)
017	TRIP BLANK	7/14/11		DS		40	G/T	H2O			VOC - Low (8260)

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Relinquished By: [signature]	Date: 7/19/11 Time: 8:00	Received By: [signature]	Date: 7/19/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No:	Page of

COC Doc No: 1681

ESI
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P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co. LLC	Contact: CHET MYERS	Project Name: SOUTH TERMINAL	Page 1 of 5
Report to: CHET MYERS	Address: 184 HIGH ST. STE 502	Project Number: 6690	
Invoice to: CHET MYERS	Address: BOSTON, MA 02110	Project Manager: CHET MYERS	
Voice: (617) 728-0070	Fax: (617) 728-0070	email: cmyers@apexes.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
	~~TPG-1-W-H~~	~~7/19/11~~	~~8:00~~	~~GD~~	~~C~~	~~902~~	~~G/T~~		~~S~~		~~SVOC (8270C) PCB AROCLORS~~
GAD				~~GD~~	~~C~~		~~G/T~~		~~S~~		~~MA EPH~~
7/20/11				~~GD~~	~~C~~	~~40~~	~~G/T~~	~~MeOH~~	~~S~~		~~VOC-HIGH (8260)~~
				~~GD~~	~~C~~	~~40~~	~~G/T~~	~~H2O~~	~~S~~		~~VOC-LOW (8260)~~
018	TPG-2-W-A	7/19/11	9:00	GD	C	902	G/T		S		SVOC (8270C) PCB AROCLORS
019						402	G/T		S		MA EPH
020						40	G/T		S		VOC-HIGH (8260)
021						40	G/T		S		VOC-~~HIGH~~ LOW (8260)
022	TPG-2-W-MA	7/19/11	9:15	GD	C	902	G/T		S		SVOC (8270C) PCB AROCLORS
023						902					MA EPH
024						40		MeOH			VOC-HIGH (8260)
025						40		H2O			VOC-LOW (8260)

Relinquished By: [signature]	Date: 7/20/11	Time: 8:00	Received By: [signature] Date: 7/20/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

QC Doc No: 4644

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co LLC	Contact:	Project Name: South Terminal 6690	Page 2 of 5
Report to:	Address:	Project Number:	
Invoice to: S&B	Address: PG	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
026	TP6-2-W-B	7/19/11	9:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB AROCLORS
027	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
028	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
029	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC - LOW (8260)
030	TP2-1-W-H	7/19/11	10:00	GD	C	9oz	G/T		S		SVOC (8270C) PCB AROCLORS
031	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
032	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - HIGH (8260)
033	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC - LOW (8260)
034	TP2-2-W-M	7/19/11	10:30	GD	C	9oz	G/T		S		SVOC (8270), PCB AROCLORS
035	↓	↓	↓	↓	↓	4oz	↓		↓		MA EPH
036	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC HIGH (8260)
037	↓	↓	↓	↓	↓	40	↓	H_2O	↓		VOC LOW (8260)

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Relinquished By: D. O'[illegible]	Date: 7/20/11	Time: 8:00	Received By: [illegible] Date: 7/20/11 Time: [illegible]
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: [illegible]

ESI
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ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact:	Project Name: South Tenaway	Page 3 of 5
Report to:	Address:	Project Number: 6690	
Invoice to: SRL	Address: PG	Project Manager:	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
038	TP2-4-W-A	7/19/11	11:00	GD	G	4oz	G/T		S		SVOC (8270C), PCB, Aroclors
039	↓	↓	↓	↓	↓	4oz	↓		↓		MVA BPH
040	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - High (8260)
041	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)
042	TP2-4-W-B	7/19/11	11:15	GD	C	4oz	G/T		S		SVOC (8270C), PCB Aroclors
043	↓	↓	↓	↓	↓	4oz	↓		↓		MVA BPH
044	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - High (8260)
045	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)
046	TP4-1-E	7/19/11	12:00	GD	C	4oz	G/T		S		SVOC (8260), PCB Aroclors
047	↓	↓	↓	↓	↓	4oz	↓		↓		MVA BPH
048	↓	↓	↓	↓	↓	40	↓	MeOH	↓		VOC - High (8260)
049	↓	↓	↓	↓	↓	40	↓	H2O	↓		VOC - Low (8260)

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Relinquished By: [signature]	Date: 7/20/11	Time: 8:00	Received By: [signature] Date: 7/20/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

QC Doc No: 4647

ESI
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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX CO LLC	Contact:	Project Name: SOUTH PENNINGTON	Page 4 of 5
Report to:	Address:	Project Number: 6690	
Invoice to: SEE	Address: PAGE	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
050	TP3-1-S	7/19/11	1300	GD	C	9oz	G/T		S		SVOC (8270C), PCB ARoclor
051	↓	↓	↓	↓	↓		↓		↓		MA EPH
GAD7	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~40~~	~~↓~~	~~MeOH~~	~~↓~~		~~VOC - HIGH (8260)~~
7/19/11 056	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~40~~	~~↓~~	~~H2O~~	~~↓~~		~~VOC - LOW (8260)~~
052	TP3-2-S-A	7/19/11	1400	GD	C	9oz	G/T		S		SVOC (8270C), PCB ARoclor
053	↓	↓	↓	↓	C		↓		S		MA EPH
	↓	↓	↓	↓	↓		↓		↓		
	↓	↓	↓	↓	↓		↓		↓		
GAD054	TP3-2-S-M	7/19/11	1415	↓	C	9oz	G/T		S		SVOC (8270C), PCB ARoclor
7/20/11 055	↓		↓	↓	↓	4oz			↓		MA EPH
	↓		↓	↓	↓						
				↓							

Relinquished By: [signature]	Date: 7/20/11 Time: 8:00	Received By: [signature]	Date: 7/20/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

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COC Doc No: 4648

ESI
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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APCX Co LLC	Contact:	Project Name: South Terminal	Page 5 of 5
Report to:	Address:	Project Number: 0690	
Invoice to: SEE	Address: PG	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
056	TP3-2-5-B	7/19/11	1430	GD	C	9oz	G/T		S		SVOC (8270C), PCB ARO CLOSED
057	↓	↓	↓	GD	C	4oz	G/T		S		MA EPH
058	TRIP BLANK	7/19/11	1500	GD		40	G/T	H_2O			VOC-LOW 8260

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Relinquished By: [signature]	Date: 7/20/11 Time: 8:00	Received By: [signature]	Date: 7/20/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

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COC Doc No: 4810

ESI
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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX CO. LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 1 of 2
Report to: C. MYERS	Address: 184 HIGH ST. STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: (617) 728-0072	Fax: (617) 728-0050	email: cmyers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
059	TP4-1-S-A	7/20/11	1000	GD	C	9oz	G/T		S		SVOC (8270C), PCB AROCLORS
060	TP4-1-S-A	7/20/11	1000	GD	C	4oz	G/T		S		MVA EPH
061	TP4-1-S-M		1015			9oz					SVOC (8270C), PCB AROCLORS
062	TP4-1-S-M		1015			4oz					MVA EPH
063	TP4-1-S-B		1020			9oz					SVOC (8270C), PCB AROCLORS
064	TP4-1-S-B		1020			4oz					MVA EPH
065	TP4-1-W-A		1130			9oz					SVOC (8270C), PCB AROCLORS
066	TP4-1-W-A		1130			4oz					MVA EPH
067	TP4-1-W-M		1140			9oz					SVOC (8270C), PCB AROCLORS
068	TP4-1-W-M		1140			4oz					MVA EPH
069	TP4-1-W-B		1145			9oz					SVOC (8270C), PCB AROCLORS
070	TP4-1-W-B		1145			4oz					MVA EPH

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Relinquished By: [signature]	Date: 7/21/11 Time: 8:00	Received By: [signature]	Date: 7/21/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Rev No: 4.05.1

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FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: C. Myers	Project Name: South Terminal	Page 2 of 2
Report to: C. Myers	Address: 184 High St. Ste 502	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02110	Project Manager: C. Myers	
Voice: (617) 728-0070	Fax: (617) 783-0080	email: cmyers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
071	TP4-2-W	7/20/11	1225	GO	C	9oz	G/T		S		SVOC (8270C), PCB Aroclors
072	TP4-2-W	↓	1225	↓	↓	4oz	↓		↓		MA EPH
073	TP9-1-E		1400			9oz					PCB Aroclors
074	TP9-1-W		1420			9oz					PCB Aroclors
075	TP9-1-N		1430			9oz					PCB Aroclors
076	TP9-1-S	↓	1500	↓	↓	9oz	↓		↓		PCB Aroclors

Relinquished By: D. O[illegible] Date: 7/21/11 Time: 8:00

Received By: D[illegible] Date: 7/21/11 Time: 8:00

Relinquished By: Date: Time:

Received at Lab By: Date: Time:

Comments:

Sample Delivery Group No: Page of

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ISO Doc No: 4250

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FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 1 of 2
Report to: C. MYERS	Address: 184 HIGH ST. STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: (617) 728-0070	Fax: (617) 728-0070	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
077	TP13-1-S	7/21/11	8:00	GD	C	902	G/T		S		PCB AROCLORS
078	TP13-2-S-A		8:30								
079	TP13-2-S-M		8:35								
080	TP13-2-S-B		8:40								
081	TP17-1-S-A		9:00								
082	TP17-1-S-M		9:15								
083	TP17-1-S-B		9:20								
084	TP13/17-1-C-A		9:45								
085	TP13/17-1-C-M		9:50								
086	TP13/17-1-C-B		9:55								

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Relinquished By: [signature]	Date: 7/22/11 Time: 5:30	Received By: [signature]	Date: 7/22/11 Time: 8:42
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 4852

ESI
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FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co LLC	Contact:	Project Name: South Terminal	Page 2 of 2
Report to:	Address:	Project Number: 6690	
Invoice to: SKE	Address: PAGE	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
087	TP13-1-N-A	7/21/11	10:30	GD	G	9oz	G/T		S		PCB AROCLORS
088	TP13-1-N-M	↓	10:35	↓	↓	↓	↓		↓		↓
089	TP-13-1-N-B		10:40								
090	TP17-1-N-A		11:00								
091	TP17-1-N-M		11:10								
092	TP-17-1-N-B	↓	11:20	↓	↓	↓	↓		↓		↓

Relinquished By: [signature]	Date: 7/22/11 Time: 5:30	Received By: [signature]	Date: 7/22/11 Time: 842
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

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COC Doc No: 1683

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ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: C. Myers	Project Name: South Terminal	Page 1 of 2
Report to: C. Myers	Address: 184 High St. Suite	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02110	Project Manager: C. Myers	
Voice: 617-728-0070	Fax: 617-728-0080	email: cmyers@apexco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
093	TPG-1-NW-A	7/22/11	8:00	GD	G	9oz	G/T		S		SVOC (8270C), PCB Aroclors
094	TPG-1-NW-A		8:00			4oz					MA EPH
095	TPG-1-NW-M		8:10			9oz					SVOC (8270C), PCB Aroclors
096	TPG-1-NW-M		8:10			4oz					MA EPH
097	TPG-1-NW-B		8:20			9oz					SVOC (8270C), PCB Aroclors
098	TPG-1-NW-B		8:20			4oz					MA EPH
099	TPG-2-NW-A		9:00			9oz					SVOC (8270C), PCB Aroclors
100	TPG-2-NW-A		9:00			4oz					MA EPH
101	TPG-2-NW-M		9:10			9oz					SVOC (8270C), PCB Aroclors
102	TPG-2-NW-M		9:10			4oz					MA EPH
103	TPG-2-NW-B		9:20			9oz					SVOC (8270C), PCB Aroc.
104	TPG-2-NW-B		9:20			4oz					MA EPH

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Relinquished By: [signature]	Date: 7/23/11 Time: 8:20	Received By: [signature]	Date: 7/23/11 Time: ~~7/23/11~~ 0820 EAL
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments:

Sample Delivery Group No: Page of

COC Doc No: 1054

ESI
EnviroSystems, Inc.
1 Lafayette Road
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Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX CO LLC	Contact:	Project Name: SOUTH TERMINAL	Page 2 of 2
Report to:	Address:	Project Number: 6690	
Invoice to: SAME	Address: SHEET	Project Manager: /	
Voice:	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
105	TP6-1-NE-A	7/22/11	9:30	GD	C	9oz	G/T		S		SVOC (8270C), PCB AROCLORS
106	TP6-1-NE-A		9:30			4oz					MA EPH
107	TP6-1-NE-M		9:35			9oz					SVOC (8270C), PCB AROCLORS
108	TP6-1-NE-M		9:35			4oz					MA EPH
109	TP6-1-NE-B		9:40			9oz					SVOC (8270C), PCB AROCLORS
110	TP6-1-NE-B		9:40			4oz					MA EPH
111	TP6-3-NE-A		11:00			9oz					SVOC (8270C), PCB AROCLORS
112	TP6-3-NE-A		11:00			4oz					MA EPH
113	TP6-3-NE-M		11:10			9oz					SVOC (8270C), PCB AROCLORS
114	TP-6-3-NE-M		11:10			4oz					MA EPH
115	TP6-3-NE-B		11:20			9oz					SVOC (8270C), PCB AROCLORS
116	TP6-3-NE-B		11:20			4oz					MA EPH

Relinquished By: [signature] Date: 7/23/11 Time: 8:20 Received By: [signature] Date: 7/23/11 Time: 8:20

Relinquished By: Date: Time: Received at Lab By: Date: Time:

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Sample Delivery Group No: Page of

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ESI
EnviroSystems, Inc.
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21206

CHAIN OF CUSTODY DOCUMENTATION

Client: Apex Co. LLC	Contact: C. Myers	Project Name: South Terminal	Page 1 of 1
Report to: C. Myers	Address: 184 Aero St, Ste 500	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02210	Project Manager: C. Myers	
Voice: 617-728-0070	Fax: 617-728-0070	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
117	TPG-5-NE-A	7/25/11	9:50	GD	C	40z	G/T		S		SVOC (8270), PCB Aroclors
118	TPG-5-NE-M		9:55								
119	TPG-5-NE-B		10:00								
120	TPG-7-NW-A		10:30								
121	TPG-7-NW-M		10:35								
122	TPG-7-NW-B		10:40								
123	TPG-5-NE-A	7/25/11	9:50	GD	C	4oz	G/T		S		MA EPH
124	TPG-5-NE-M		9:55								
125	TPG-5-NE-B		10:00								
126	TPG-7-NW-A		10:30								
127	TPG-7-NW-M		10:35								
128	TPG-7-NW-B		10:40								

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Relinquished By: [signature]	Date: 7/26/11	Time: 8:00	Received By: [signature]	Date: 7/26/11	Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments:

Sample Delivery Group No:	Page of

ANALYTICAL REPORT

Lab Number:	L1111004
Client:	Envirosystems, Inc. 1 Lafayette Road PO Box 778 Hampton, NH 03843
ATTN:	Megan Scott
Phone:	(603) 926-3345
Project Name:	21206
Project Number:	Not Specified
Report Date:	08/02/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

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Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1111004-01	21206-002,003,004	Not Specified	07/18/11 12:00
L1111004-02	21206-006,007,008	Not Specified	07/18/11 12:30
L1111004-03	21206-010,011,012	Not Specified	07/18/11 13:00
L1111004-04	21206-014,015,016	Not Specified	07/18/11 13:30
L1111004-05	21206-017	Not Specified	07/18/11 00:00
L1111004-06	21206-019,020,021	Not Specified	07/19/11 09:00
L1111004-07	21206-023,024,025	Not Specified	07/19/11 09:15
L1111004-08	21206-027,028,029	Not Specified	07/19/11 09:30
L1111004-09	21206-031,032,033	Not Specified	07/19/11 10:00
L1111004-10	21206-035,036,037	Not Specified	07/19/11 10:30
L1111004-11	21206-039,040,041	Not Specified	07/19/11 11:00
L1111004-12	21206-043,044,045	Not Specified	07/19/11 11:15
L1111004-13	21206-047,048,049	Not Specified	07/19/11 12:00
L1111004-14	21206-051	Not Specified	07/19/11 13:00
L1111004-15	21206-053	Not Specified	07/19/11 14:00
L1111004-16	21206-055	Not Specified	07/19/11 14:15
L1111004-17	21206-057	Not Specified	07/19/11 14:30
L1111004-18	21206-058	Not Specified	07/19/11 15:00

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: 21206 **Lab Number:** L1111004
Project Number: Not Specified **Report Date:** 08/02/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Report Submission

This final report replaces the partial report issued July 29, 2011 and includes the results of all requested analyses.

Volatile Organics by GC/MS

In reference to Question G:

L1111004-01 and -10 have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1111004-02: The analysis of Volatile Organics by EPA Method 5035/8260B Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample. The high level analysis was reported.

Project Name: 21206 **Lab Number:** L1111004
Project Number: Not Specified **Report Date:** 08/02/11

Case Narrative (continued)

L1111004-09 was re-analyzed on dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound that exceeded the calibration range.

In reference to Question H:
The initial calibration, associated with L1111004-01, 09 and 02, did not meet the method required minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00293), as well as the average response factor for 1,4-Dioxane. In addition, a quadratic fit was utilized for Acetone.
The WG481271-1/-2 LCS/LCSD recoveries, associated with L1111004-01,09,02, are below the acceptance criteria for Chloromethane (LCS 66%), Dichlorodifluoromethane (67%)/(68%), Acetone (LCS 65%); however, they have been identified as "difficult" analytes and are within the 40-160% acceptance limits. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for these compounds. The WG481271-2 LCS/LCSD RPD(s), associated with L1111004-01,09,02, are above the acceptance criteria for Naphthalene (22%); however, the individual LCS/LCSD recoveries are within method limits. In addition, the associated WG481271-2 LCS/LCSD RPD(s) are above the acceptance criteria for Acetone(23%).
The initial calibration, associated with L1111004-09,10,13, 07 and 08 did not meet the method required minimum response factors on the lowest calibration standards for 1,4-Dioxane (0.00290), as well as the average response factor for 1,4-Dioxane. In addition, a quadratic fit was utilized for Chloroethane, Acetone, and 4-Methyl-2-Pentanone.
The WG481271-5 LCS/LCSD recoveries, associated with L1111004-09,10,13,07 and 08, are below the acceptance criteria for Dichlorodifluoromethane (69%); however, they have been identified as "difficult" analytes and are within the 40-160% acceptance limits. The results of the associated samples are reported; however, all results are considered to have a potentially low bias for these compounds. The WG481271-5 LCS/LCSD RPD(s), associated with L1111004-09,10,13,07 and 08, are above the acceptance criteria for 2-Butanone (21%) and Tetrahydrofuran (22%); however, the individual LCS/LCSD recoveries are within method limits.

Project Name: 21206 **Lab Number:** L1111004
Project Number: Not Specified **Report Date:** 08/02/11

Case Narrative (continued)

The continuing calibration standard, associated with L1111004-01,09 and 02, is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.
The continuing calibration standard, associated with L1111004-09,10,13,07 and 08 is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

EPH

In Reference to Question G:
L1111004-01 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the target compounds present in the sample. The surrogate recoveries for L1111004-01 are below the acceptance criteria for chloro-octadecane (0%) and o-terphenyl (0%) due to the dilution required. Re-extraction was not required; therefore, the results of the original analysis are reported.
L1111004-06 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.
L1111004-09 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample. The surrogate recoveries for L1111004-09 are outside the acceptance criteria for o-terphenyl (240%); however, the sample was not re-extracted due to coelution with obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.
L1111004-10 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the target compounds present in the sample.
L1111004-15 has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample. The surrogate recoveries for L1111004-15 are outside the acceptance

Project Name: 21206 **Lab Number:** L1111004
Project Number: Not Specified **Report Date:** 08/02/11

Case Narrative (continued)

criteria for o-terphenyl (166%); however, the sample was not re-extracted due to coelution with obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

In Reference to Question H:
The surrogate recoveries for the WG480776-2 LCS, associated with L1111004-17,14 and 16 are above the acceptance criteria for chloro-Octadecane (165%) and o-Terphenyl (161%). The associated LCS spike compounds are within overall acceptance criteria, therefore, no further action was taken.
The WG481797-2/-3 LCS/LCSD RPDs, associated with L1111004-01 through -04 and 06 through -13, are above the acceptance criteria for several compounds; however, the individual LCS/LCSD recoveries are within method limits.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cynthia McQueen

Title: Technical Director/Representative Date: 08/02/11

ORGANICS

VOLATILES

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-01	D	Date Collected:	07/18/11 12:00
Client ID:	21206-002,003,004		Date Received:	07/21/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	07/26/11 13:35			
Analyst:	MM			
Percent Solids:	49%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	66000	--	25
1,1-Dichloroethane	ND		ug/kg	9900	--	25
Chloroform	ND		ug/kg	9900	--	25
Carbon tetrachloride	ND		ug/kg	6600	--	25
1,2-Dichloropropane	ND		ug/kg	23000	--	25
Dibromochloromethane	ND		ug/kg	6600	--	25
1,1,2-Trichloroethane	ND		ug/kg	9900	--	25
Tetrachloroethene	ND		ug/kg	6600	--	25
Chlorobenzene	ND		ug/kg	6600	--	25
Trichlorofluoromethane	ND		ug/kg	26000	--	25
1,2-Dichloroethane	ND		ug/kg	6600	--	25
1,1,1-Trichloroethane	ND		ug/kg	6600	--	25
Bromodichloromethane	ND		ug/kg	6600	--	25
trans-1,3-Dichloropropene	ND		ug/kg	6600	--	25
cis-1,3-Dichloropropene	ND		ug/kg	6600	--	25
1,1-Dichloropropene	ND		ug/kg	26000	--	25
Bromoform	ND		ug/kg	26000	--	25
1,1,2,2-Tetrachloroethane	ND		ug/kg	6600	--	25
Benzene	ND		ug/kg	6600	--	25
Toluene	ND		ug/kg	9900	--	25
Ethylbenzene	39000		ug/kg	6600	--	25
Chloromethane	ND		ug/kg	26000	--	25
Bromomethane	ND		ug/kg	13000	--	25
Vinyl chloride	ND		ug/kg	13000	--	25
Chloroethane	ND		ug/kg	13000	--	25
1,1-Dichloroethene	ND		ug/kg	6600	--	25
trans-1,2-Dichloroethene	ND		ug/kg	9900	--	25
Trichloroethene	ND		ug/kg	6600	--	25
1,2-Dichlorobenzene	ND		ug/kg	26000	--	25
1,3-Dichlorobenzene	ND		ug/kg	26000	--	25
1,4-Dichlorobenzene	ND		ug/kg	26000	--	25

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-01 D Date Collected: 07/18/11 12:00

Client ID: 21206-002,003,004 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	13000	--	25
p/m-Xylene	15000		ug/kg	13000	--	25
o-Xylene	18000		ug/kg	13000	--	25
cis-1,2-Dichloroethene	ND		ug/kg	6600	--	25
Dibromomethane	ND		ug/kg	26000	--	25
1,2,3-Trichloropropane	ND		ug/kg	26000	--	25
Styrene	ND		ug/kg	13000	--	25
Dichlorodifluoromethane	ND		ug/kg	66000	--	25
Acetone	ND		ug/kg	240000	--	25
Carbon disulfide	ND		ug/kg	26000	--	25
2-Butanone	ND		ug/kg	66000	--	25
4-Methyl-2-pentanone	ND		ug/kg	66000	--	25
2-Hexanone	ND		ug/kg	66000	--	25
Bromochloromethane	ND		ug/kg	26000	--	25
Tetrahydrofuran	ND		ug/kg	26000	--	25
2,2-Dichloropropane	ND		ug/kg	33000	--	25
1,2-Dibromoethane	ND		ug/kg	26000	--	25
1,3-Dichloropropane	ND		ug/kg	26000	--	25
1,1,1,2-Tetrachloroethane	ND		ug/kg	6600	--	25
Bromobenzene	ND		ug/kg	33000	--	25
n-Butylbenzene	ND		ug/kg	6600	--	25
sec-Butylbenzene	ND		ug/kg	6600	--	25
tert-Butylbenzene	ND		ug/kg	26000	--	25
o-Chlorotoluene	ND		ug/kg	26000	--	25
p-Chlorotoluene	ND		ug/kg	26000	--	25
1,2-Dibromo-3-chloropropane	ND		ug/kg	26000	--	25
Hexachlorobutadiene	ND		ug/kg	26000	--	25
Isopropylbenzene	38000		ug/kg	6600	--	25
p-Isopropyltoluene	43000		ug/kg	6600	--	25
Naphthalene	470000		ug/kg	26000	--	25
n-Propylbenzene	ND		ug/kg	6600	--	25
1,2,3-Trichlorobenzene	ND		ug/kg	26000	--	25
1,2,4-Trichlorobenzene	ND		ug/kg	26000	--	25
1,3,5-Trimethylbenzene	ND		ug/kg	26000	--	25
1,2,4-Trimethylbenzene	40000		ug/kg	26000	--	25
Ethyl ether	ND		ug/kg	33000	--	25
Isopropyl Ether	ND		ug/kg	26000	--	25
Ethyl-Tert-Butyl-Ether	ND		ug/kg	26000	--	25
Tertiary-Amyl Methyl Ether	ND		ug/kg	26000	--	25

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-01	D	Date Collected:	07/18/11 12:00
Client ID:	21206-002,003,004		Date Received:	07/21/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	660000	--	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-02	Date Collected:	07/18/11 12:30
Client ID:	21206-006,007,008	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/26/11 14:07		
Analyst:	MM		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	1300	--	1
1,1-Dichloroethane	ND		ug/kg	190	--	1
Chloroform	ND		ug/kg	190	--	1
Carbon tetrachloride	ND		ug/kg	130	--	1
1,2-Dichloropropane	ND		ug/kg	440	--	1
Dibromochloromethane	ND		ug/kg	130	--	1
1,1,2-Trichloroethane	ND		ug/kg	190	--	1
Tetrachloroethene	ND		ug/kg	130	--	1
Chlorobenzene	ND		ug/kg	130	--	1
Trichlorofluoromethane	ND		ug/kg	510	--	1
1,2-Dichloroethane	ND		ug/kg	130	--	1
1,1,1-Trichloroethane	ND		ug/kg	130	--	1
Bromodichloromethane	ND		ug/kg	130	--	1
trans-1,3-Dichloropropene	ND		ug/kg	130	--	1
cis-1,3-Dichloropropene	ND		ug/kg	130	--	1
1,1-Dichloropropene	ND		ug/kg	510	--	1
Bromoform	ND		ug/kg	510	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	130	--	1
Benzene	ND		ug/kg	130	--	1
Toluene	ND		ug/kg	190	--	1
Ethylbenzene	ND		ug/kg	130	--	1
Chloromethane	ND		ug/kg	510	--	1
Bromomethane	ND		ug/kg	250	--	1
Vinyl chloride	ND		ug/kg	250	--	1
Chloroethane	ND		ug/kg	250	--	1
1,1-Dichloroethene	ND		ug/kg	130	--	1
trans-1,2-Dichloroethene	ND		ug/kg	190	--	1
Trichloroethene	ND		ug/kg	130	--	1
1,2-Dichlorobenzene	ND		ug/kg	510	--	1
1,3-Dichlorobenzene	ND		ug/kg	510	--	1
1,4-Dichlorobenzene	ND		ug/kg	510	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-02 Date Collected: 07/18/11 12:30

Client ID: 21206-006,007,008 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	250	--	1
p/m-Xylene	ND		ug/kg	250	--	1
o-Xylene	ND		ug/kg	250	--	1
cis-1,2-Dichloroethene	ND		ug/kg	130	--	1
Dibromomethane	ND		ug/kg	510	--	1
1,2,3-Trichloropropane	ND		ug/kg	510	--	1
Styrene	ND		ug/kg	250	--	1
Dichlorodifluoromethane	ND		ug/kg	1300	--	1
Acetone	ND		ug/kg	4600	--	1
Carbon disulfide	ND		ug/kg	510	--	1
2-Butanone	ND		ug/kg	1300	--	1
4-Methyl-2-pentanone	ND		ug/kg	1300	--	1
2-Hexanone	ND		ug/kg	1300	--	1
Bromochloromethane	ND		ug/kg	510	--	1
Tetrahydrofuran	ND		ug/kg	510	--	1
2,2-Dichloropropane	ND		ug/kg	630	--	1
1,2-Dibromoethane	ND		ug/kg	510	--	1
1,3-Dichloropropane	ND		ug/kg	510	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	130	--	1
Bromobenzene	ND		ug/kg	630	--	1
n-Butylbenzene	ND		ug/kg	130	--	1
sec-Butylbenzene	ND		ug/kg	130	--	1
tert-Butylbenzene	ND		ug/kg	510	--	1
o-Chlorotoluene	ND		ug/kg	510	--	1
p-Chlorotoluene	ND		ug/kg	510	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	510	--	1
Hexachlorobutadiene	ND		ug/kg	510	--	1
Isopropylbenzene	ND		ug/kg	130	--	1
p-Isopropyltoluene	ND		ug/kg	130	--	1
Naphthalene	ND		ug/kg	510	--	1
n-Propylbenzene	ND		ug/kg	130	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	510	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	510	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	510	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	510	--	1
Ethyl ether	ND		ug/kg	630	--	1
Isopropyl Ether	ND		ug/kg	510	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	510	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	510	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-02	Date Collected:	07/18/11 12:30
Client ID:	21206-006,007,008	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	13000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	94		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-03	Date Collected:	07/18/11 13:00
Client ID:	21206-010,011,012	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 10:45		
Analyst:	BN		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	13	--	1
1,1-Dichloroethane	ND		ug/kg	2.0	--	1
Chloroform	ND		ug/kg	2.0	--	1
Carbon tetrachloride	ND		ug/kg	1.3	--	1
1,2-Dichloropropane	ND		ug/kg	4.6	--	1
Dibromochloromethane	ND		ug/kg	1.3	--	1
1,1,2-Trichloroethane	ND		ug/kg	2.0	--	1
Tetrachloroethene	ND		ug/kg	1.3	--	1
Chlorobenzene	ND		ug/kg	1.3	--	1
Trichlorofluoromethane	ND		ug/kg	5.3	--	1
1,2-Dichloroethane	ND		ug/kg	1.3	--	1
1,1,1-Trichloroethane	ND		ug/kg	1.3	--	1
Bromodichloromethane	ND		ug/kg	1.3	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	--	1
cis-1,3-Dichloropropene	ND		ug/kg	1.3	--	1
1,1-Dichloropropene	ND		ug/kg	5.3	--	1
Bromoform	ND		ug/kg	5.3	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.3	--	1
Benzene	ND		ug/kg	1.3	--	1
Toluene	ND		ug/kg	2.0	--	1
Ethylbenzene	ND		ug/kg	1.3	--	1
Chloromethane	ND		ug/kg	5.3	--	1
Bromomethane	ND		ug/kg	2.6	--	1
Vinyl chloride	ND		ug/kg	2.6	--	1
Chloroethane	ND		ug/kg	2.6	--	1
1,1-Dichloroethene	ND		ug/kg	1.3	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	--	1
Trichloroethene	ND		ug/kg	1.3	--	1
1,2-Dichlorobenzene	ND		ug/kg	5.3	--	1
1,3-Dichlorobenzene	ND		ug/kg	5.3	--	1
1,4-Dichlorobenzene	ND		ug/kg	5.3	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-03 Date Collected: 07/18/11 13:00

Client ID: 21206-010,011,012 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.6	--	1
p/m-Xylene	ND		ug/kg	2.6	--	1
o-Xylene	ND		ug/kg	2.6	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.3	--	1
Dibromomethane	ND		ug/kg	5.3	--	1
1,2,3-Trichloropropane	ND		ug/kg	5.3	--	1
Styrene	ND		ug/kg	2.6	--	1
Dichlorodifluoromethane	ND		ug/kg	13	--	1
Acetone	ND		ug/kg	48	--	1
Carbon disulfide	ND		ug/kg	5.3	--	1
2-Butanone	ND		ug/kg	13	--	1
4-Methyl-2-pentanone	ND		ug/kg	13	--	1
2-Hexanone	ND		ug/kg	13	--	1
Bromochloromethane	ND		ug/kg	5.3	--	1
Tetrahydrofuran	ND		ug/kg	5.3	--	1
2,2-Dichloropropane	ND		ug/kg	6.6	--	1
1,2-Dibromoethane	ND		ug/kg	5.3	--	1
1,3-Dichloropropane	ND		ug/kg	5.3	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.3	--	1
Bromobenzene	ND		ug/kg	6.6	--	1
n-Butylbenzene	ND		ug/kg	1.3	--	1
sec-Butylbenzene	ND		ug/kg	1.3	--	1
tert-Butylbenzene	ND		ug/kg	5.3	--	1
o-Chlorotoluene	ND		ug/kg	5.3	--	1
p-Chlorotoluene	ND		ug/kg	5.3	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.3	--	1
Hexachlorobutadiene	ND		ug/kg	5.3	--	1
Isopropylbenzene	ND		ug/kg	1.3	--	1
p-Isopropyltoluene	ND		ug/kg	1.3	--	1
Naphthalene	ND		ug/kg	5.3	--	1
n-Propylbenzene	ND		ug/kg	1.3	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	5.3	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	5.3	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	5.3	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	5.3	--	1
Ethyl ether	ND		ug/kg	6.6	--	1
Isopropyl Ether	ND		ug/kg	5.3	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	5.3	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	5.3	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-03	Date Collected:	07/18/11 13:00
Client ID:	21206-010,011,012	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	53	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-04	Date Collected:	07/18/11 13:30
Client ID:	21206-014,015,016	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 11:11		
Analyst:	BN		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	9.5	--	1
1,1-Dichloroethane	ND		ug/kg	1.4	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.95	--	1
1,2-Dichloropropane	ND		ug/kg	3.3	--	1
Dibromochloromethane	ND		ug/kg	0.95	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.4	--	1
Tetrachloroethene	ND		ug/kg	0.95	--	1
Chlorobenzene	ND		ug/kg	0.95	--	1
Trichlorofluoromethane	ND		ug/kg	3.8	--	1
1,2-Dichloroethane	ND		ug/kg	0.95	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.95	--	1
Bromodichloromethane	ND		ug/kg	0.95	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.95	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.95	--	1
1,1-Dichloropropene	ND		ug/kg	3.8	--	1
Bromoform	ND		ug/kg	3.8	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.95	--	1
Benzene	ND		ug/kg	0.95	--	1
Toluene	ND		ug/kg	1.4	--	1
Ethylbenzene	ND		ug/kg	0.95	--	1
Chloromethane	ND		ug/kg	3.8	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	1.9	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.95	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1
Trichloroethene	ND		ug/kg	0.95	--	1
1,2-Dichlorobenzene	ND		ug/kg	3.8	--	1
1,3-Dichlorobenzene	ND		ug/kg	3.8	--	1
1,4-Dichlorobenzene	ND		ug/kg	3.8	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-04 Date Collected: 07/18/11 13:30

Client ID: 21206-014,015,016 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	1.9	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.95	--	1
Dibromomethane	ND		ug/kg	3.8	--	1
1,2,3-Trichloropropane	ND		ug/kg	3.8	--	1
Styrene	ND		ug/kg	1.9	--	1
Dichlorodifluoromethane	ND		ug/kg	9.5	--	1
Acetone	50		ug/kg	34	--	1
Carbon disulfide	4.3		ug/kg	3.8	--	1
2-Butanone	ND		ug/kg	9.5	--	1
4-Methyl-2-pentanone	ND		ug/kg	9.5	--	1
2-Hexanone	ND		ug/kg	9.5	--	1
Bromochloromethane	ND		ug/kg	3.8	--	1
Tetrahydrofuran	ND		ug/kg	3.8	--	1
2,2-Dichloropropane	ND		ug/kg	4.7	--	1
1,2-Dibromoethane	ND		ug/kg	3.8	--	1
1,3-Dichloropropane	ND		ug/kg	3.8	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.95	--	1
Bromobenzene	ND		ug/kg	4.7	--	1
n-Butylbenzene	ND		ug/kg	0.95	--	1
sec-Butylbenzene	ND		ug/kg	0.95	--	1
tert-Butylbenzene	ND		ug/kg	3.8	--	1
o-Chlorotoluene	ND		ug/kg	3.8	--	1
p-Chlorotoluene	ND		ug/kg	3.8	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.8	--	1
Hexachlorobutadiene	ND		ug/kg	3.8	--	1
Isopropylbenzene	ND		ug/kg	0.95	--	1
p-Isopropyltoluene	ND		ug/kg	0.95	--	1
Naphthalene	ND		ug/kg	3.8	--	1
n-Propylbenzene	ND		ug/kg	0.95	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	3.8	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.8	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.8	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.8	--	1
Ethyl ether	ND		ug/kg	4.7	--	1
Isopropyl Ether	ND		ug/kg	3.8	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	3.8	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	3.8	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-04	Date Collected:	07/18/11 13:30
Client ID:	21206-014,015,016	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	38	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-05	Date Collected:	07/18/11 00:00
Client ID:	21206-017	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 11:38		
Analyst:	BN		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	10	--	1
1,1-Dichloroethane	ND		ug/kg	1.5	--	1
Chloroform	ND		ug/kg	1.5	--	1
Carbon tetrachloride	ND		ug/kg	1.0	--	1
1,2-Dichloropropane	ND		ug/kg	3.5	--	1
Dibromochloromethane	ND		ug/kg	1.0	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.5	--	1
Tetrachloroethene	ND		ug/kg	1.0	--	1
Chlorobenzene	ND		ug/kg	1.0	--	1
Trichlorofluoromethane	ND		ug/kg	4.0	--	1
1,2-Dichloroethane	ND		ug/kg	1.0	--	1
1,1,1-Trichloroethane	ND		ug/kg	1.0	--	1
Bromodichloromethane	ND		ug/kg	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
1,1-Dichloropropene	ND		ug/kg	4.0	--	1
Bromoform	ND		ug/kg	4.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--	1
Benzene	ND		ug/kg	1.0	--	1
Toluene	ND		ug/kg	1.5	--	1
Ethylbenzene	ND		ug/kg	1.0	--	1
Chloromethane	ND		ug/kg	4.0	--	1
Bromomethane	ND		ug/kg	2.0	--	1
Vinyl chloride	ND		ug/kg	2.0	--	1
Chloroethane	ND		ug/kg	2.0	--	1
1,1-Dichloroethene	ND		ug/kg	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--	1
Trichloroethene	ND		ug/kg	1.0	--	1
1,2-Dichlorobenzene	ND		ug/kg	4.0	--	1
1,3-Dichlorobenzene	ND		ug/kg	4.0	--	1
1,4-Dichlorobenzene	ND		ug/kg	4.0	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-05 Date Collected: 07/18/11 00:00

Client ID: 21206-017 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.0	--	1
p/m-Xylene	ND		ug/kg	2.0	--	1
o-Xylene	ND		ug/kg	2.0	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--	1
Dibromomethane	ND		ug/kg	4.0	--	1
1,2,3-Trichloropropane	ND		ug/kg	4.0	--	1
Styrene	ND		ug/kg	2.0	--	1
Dichlorodifluoromethane	ND		ug/kg	10	--	1
Acetone	ND		ug/kg	36	--	1
Carbon disulfide	ND		ug/kg	4.0	--	1
2-Butanone	ND		ug/kg	10	--	1
4-Methyl-2-pentanone	ND		ug/kg	10	--	1
2-Hexanone	ND		ug/kg	10	--	1
Bromochloromethane	ND		ug/kg	4.0	--	1
Tetrahydrofuran	ND		ug/kg	4.0	--	1
2,2-Dichloropropane	ND		ug/kg	5.0	--	1
1,2-Dibromoethane	ND		ug/kg	4.0	--	1
1,3-Dichloropropane	ND		ug/kg	4.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--	1
Bromobenzene	ND		ug/kg	5.0	--	1
n-Butylbenzene	ND		ug/kg	1.0	--	1
sec-Butylbenzene	ND		ug/kg	1.0	--	1
tert-Butylbenzene	ND		ug/kg	4.0	--	1
o-Chlorotoluene	ND		ug/kg	4.0	--	1
p-Chlorotoluene	ND		ug/kg	4.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	--	1
Hexachlorobutadiene	ND		ug/kg	4.0	--	1
Isopropylbenzene	ND		ug/kg	1.0	--	1
p-Isopropyltoluene	ND		ug/kg	1.0	--	1
Naphthalene	ND		ug/kg	4.0	--	1
n-Propylbenzene	ND		ug/kg	1.0	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	4.0	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	4.0	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	4.0	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	4.0	--	1
Ethyl ether	ND		ug/kg	5.0	--	1
Isopropyl Ether	ND		ug/kg	4.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-05	Date Collected:	07/18/11 00:00
Client ID:	21206-017	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	40	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-06	Date Collected:	07/19/11 09:00
Client ID:	21206-019,020,021	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 12:04		
Analyst:	BN		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	25	--	1
1,1-Dichloroethane	ND		ug/kg	3.8	--	1
Chloroform	ND		ug/kg	3.8	--	1
Carbon tetrachloride	ND		ug/kg	2.5	--	1
1,2-Dichloropropane	ND		ug/kg	8.8	--	1
Dibromochloromethane	ND		ug/kg	2.5	--	1
1,1,2-Trichloroethane	ND		ug/kg	3.8	--	1
Tetrachloroethene	ND		ug/kg	2.5	--	1
Chlorobenzene	ND		ug/kg	2.5	--	1
Trichlorofluoromethane	ND		ug/kg	10	--	1
1,2-Dichloroethane	ND		ug/kg	2.5	--	1
1,1,1-Trichloroethane	ND		ug/kg	2.5	--	1
Bromodichloromethane	ND		ug/kg	2.5	--	1
trans-1,3-Dichloropropene	ND		ug/kg	2.5	--	1
cis-1,3-Dichloropropene	ND		ug/kg	2.5	--	1
1,1-Dichloropropene	ND		ug/kg	10	--	1
Bromoform	ND		ug/kg	10	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	2.5	--	1
Benzene	ND		ug/kg	2.5	--	1
Toluene	ND		ug/kg	3.8	--	1
Ethylbenzene	ND		ug/kg	2.5	--	1
Chloromethane	ND		ug/kg	10	--	1
Bromomethane	ND		ug/kg	5.0	--	1
Vinyl chloride	ND		ug/kg	5.0	--	1
Chloroethane	ND		ug/kg	5.0	--	1
1,1-Dichloroethene	ND		ug/kg	2.5	--	1
trans-1,2-Dichloroethene	ND		ug/kg	3.8	--	1
Trichloroethene	ND		ug/kg	2.5	--	1
1,2-Dichlorobenzene	ND		ug/kg	10	--	1
1,3-Dichlorobenzene	ND		ug/kg	10	--	1
1,4-Dichlorobenzene	ND		ug/kg	10	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-06 Date Collected: 07/19/11 09:00

Client ID: 21206-019,020,021 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	5.0	--	1
p/m-Xylene	ND		ug/kg	5.0	--	1
o-Xylene	ND		ug/kg	5.0	--	1
cis-1,2-Dichloroethene	ND		ug/kg	2.5	--	1
Dibromomethane	ND		ug/kg	10	--	1
1,2,3-Trichloropropane	ND		ug/kg	10	--	1
Styrene	ND		ug/kg	5.0	--	1
Dichlorodifluoromethane	ND		ug/kg	25	--	1
Acetone	ND		ug/kg	91	--	1
Carbon disulfide	ND		ug/kg	10	--	1
2-Butanone	ND		ug/kg	25	--	1
4-Methyl-2-pentanone	ND		ug/kg	25	--	1
2-Hexanone	ND		ug/kg	25	--	1
Bromochloromethane	ND		ug/kg	10	--	1
Tetrahydrofuran	ND		ug/kg	10	--	1
2,2-Dichloropropane	ND		ug/kg	13	--	1
1,2-Dibromoethane	ND		ug/kg	10	--	1
1,3-Dichloropropane	ND		ug/kg	10	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	2.5	--	1
Bromobenzene	ND		ug/kg	13	--	1
n-Butylbenzene	ND		ug/kg	2.5	--	1
sec-Butylbenzene	ND		ug/kg	2.5	--	1
tert-Butylbenzene	ND		ug/kg	10	--	1
o-Chlorotoluene	ND		ug/kg	10	--	1
p-Chlorotoluene	ND		ug/kg	10	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	10	--	1
Hexachlorobutadiene	ND		ug/kg	10	--	1
Isopropylbenzene	ND		ug/kg	2.5	--	1
p-Isopropyltoluene	ND		ug/kg	2.5	--	1
Naphthalene	ND		ug/kg	10	--	1
n-Propylbenzene	ND		ug/kg	2.5	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	10	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	10	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	10	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	10	--	1
Ethyl ether	ND		ug/kg	13	--	1
Isopropyl Ether	ND		ug/kg	10	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	10	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	10	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-06	Date Collected:	07/19/11 09:00
Client ID:	21206-019,020,021	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-07	Date Collected:	07/19/11 09:15
Client ID:	21206-023,024,025	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 09:47		
Analyst:	MM		
Percent Solids:	26%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	7200	--	1
1,1-Dichloroethane	ND		ug/kg	1100	--	1
Chloroform	ND		ug/kg	1100	--	1
Carbon tetrachloride	ND		ug/kg	720	--	1
1,2-Dichloropropane	ND		ug/kg	2500	--	1
Dibromochloromethane	ND		ug/kg	720	--	1
1,1,2-Trichloroethane	ND		ug/kg	1100	--	1
Tetrachloroethene	ND		ug/kg	720	--	1
Chlorobenzene	ND		ug/kg	720	--	1
Trichlorofluoromethane	ND		ug/kg	2900	--	1
1,2-Dichloroethane	ND		ug/kg	720	--	1
1,1,1-Trichloroethane	ND		ug/kg	720	--	1
Bromodichloromethane	ND		ug/kg	720	--	1
trans-1,3-Dichloropropene	ND		ug/kg	720	--	1
cis-1,3-Dichloropropene	ND		ug/kg	720	--	1
1,1-Dichloropropene	ND		ug/kg	2900	--	1
Bromoform	ND		ug/kg	2900	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	720	--	1
Benzene	2100		ug/kg	720	--	1
Toluene	ND		ug/kg	1100	--	1
Ethylbenzene	5600		ug/kg	720	--	1
Chloromethane	ND		ug/kg	2900	--	1
Bromomethane	ND		ug/kg	1400	--	1
Vinyl chloride	ND		ug/kg	1400	--	1
Chloroethane	ND		ug/kg	1400	--	1
1,1-Dichloroethene	ND		ug/kg	720	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1100	--	1
Trichloroethene	ND		ug/kg	720	--	1
1,2-Dichlorobenzene	ND		ug/kg	2900	--	1
1,3-Dichlorobenzene	ND		ug/kg	2900	--	1
1,4-Dichlorobenzene	ND		ug/kg	2900	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-07 Date Collected: 07/19/11 09:15

Client ID: 21206-023,024,025 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	1400	--	1
p/m-Xylene	4300		ug/kg	1400	--	1
o-Xylene	2000		ug/kg	1400	--	1
cis-1,2-Dichloroethene	ND		ug/kg	720	--	1
Dibromomethane	ND		ug/kg	2900	--	1
1,2,3-Trichloropropane	ND		ug/kg	2900	--	1
Styrene	ND		ug/kg	1400	--	1
Dichlorodifluoromethane	ND		ug/kg	7200	--	1
Acetone	ND		ug/kg	26000	--	1
Carbon disulfide	ND		ug/kg	2900	--	1
2-Butanone	ND		ug/kg	7200	--	1
4-Methyl-2-pentanone	ND		ug/kg	7200	--	1
2-Hexanone	ND		ug/kg	7200	--	1
Bromochloromethane	ND		ug/kg	2900	--	1
Tetrahydrofuran	ND		ug/kg	2900	--	1
2,2-Dichloropropane	ND		ug/kg	3600	--	1
1,2-Dibromoethane	ND		ug/kg	2900	--	1
1,3-Dichloropropane	ND		ug/kg	2900	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	720	--	1
Bromobenzene	ND		ug/kg	3600	--	1
n-Butylbenzene	ND		ug/kg	720	--	1
sec-Butylbenzene	ND		ug/kg	720	--	1
tert-Butylbenzene	ND		ug/kg	2900	--	1
o-Chlorotoluene	ND		ug/kg	2900	--	1
p-Chlorotoluene	ND		ug/kg	2900	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2900	--	1
Hexachlorobutadiene	ND		ug/kg	2900	--	1
Isopropylbenzene	ND		ug/kg	720	--	1
p-Isopropyltoluene	ND		ug/kg	720	--	1
Naphthalene	ND		ug/kg	2900	--	1
n-Propylbenzene	ND		ug/kg	720	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	2900	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2900	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2900	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2900	--	1
Ethyl ether	ND		ug/kg	3600	--	1
Isopropyl Ether	ND		ug/kg	2900	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2900	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2900	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-07	Date Collected:	07/19/11 09:15
Client ID:	21206-023,024,025	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	72000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	118		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-08	Date Collected:	07/19/11 09:30
Client ID:	21206-027,028,029	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 10:20		
Analyst:	MM		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	870	--	1
1,1-Dichloroethane	ND		ug/kg	130	--	1
Chloroform	ND		ug/kg	130	--	1
Carbon tetrachloride	ND		ug/kg	87	--	1
1,2-Dichloropropane	ND		ug/kg	300	--	1
Dibromochloromethane	ND		ug/kg	87	--	1
1,1,2-Trichloroethane	ND		ug/kg	130	--	1
Tetrachloroethene	ND		ug/kg	87	--	1
Chlorobenzene	ND		ug/kg	87	--	1
Trichlorofluoromethane	ND		ug/kg	350	--	1
1,2-Dichloroethane	ND		ug/kg	87	--	1
1,1,1-Trichloroethane	ND		ug/kg	87	--	1
Bromodichloromethane	ND		ug/kg	87	--	1
trans-1,3-Dichloropropene	ND		ug/kg	87	--	1
cis-1,3-Dichloropropene	ND		ug/kg	87	--	1
1,1-Dichloropropene	ND		ug/kg	350	--	1
Bromoform	ND		ug/kg	350	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	87	--	1
Benzene	ND		ug/kg	87	--	1
Toluene	ND		ug/kg	130	--	1
Ethylbenzene	ND		ug/kg	87	--	1
Chloromethane	ND		ug/kg	350	--	1
Bromomethane	ND		ug/kg	170	--	1
Vinyl chloride	ND		ug/kg	170	--	1
Chloroethane	ND		ug/kg	170	--	1
1,1-Dichloroethene	ND		ug/kg	87	--	1
trans-1,2-Dichloroethene	ND		ug/kg	130	--	1
Trichloroethene	ND		ug/kg	87	--	1
1,2-Dichlorobenzene	ND		ug/kg	350	--	1
1,3-Dichlorobenzene	ND		ug/kg	350	--	1
1,4-Dichlorobenzene	ND		ug/kg	350	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-08 Date Collected: 07/19/11 09:30

Client ID: 21206-027,028,029 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	170	--	1
p/m-Xylene	ND		ug/kg	170	--	1
o-Xylene	ND		ug/kg	170	--	1
cis-1,2-Dichloroethene	ND		ug/kg	87	--	1
Dibromomethane	ND		ug/kg	350	--	1
1,2,3-Trichloropropane	ND		ug/kg	350	--	1
Styrene	ND		ug/kg	170	--	1
Dichlorodifluoromethane	ND		ug/kg	870	--	1
Acetone	ND		ug/kg	3100	--	1
Carbon disulfide	ND		ug/kg	350	--	1
2-Butanone	ND		ug/kg	870	--	1
4-Methyl-2-pentanone	ND		ug/kg	870	--	1
2-Hexanone	ND		ug/kg	870	--	1
Bromochloromethane	ND		ug/kg	350	--	1
Tetrahydrofuran	ND		ug/kg	350	--	1
2,2-Dichloropropane	ND		ug/kg	440	--	1
1,2-Dibromoethane	ND		ug/kg	350	--	1
1,3-Dichloropropane	ND		ug/kg	350	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	87	--	1
Bromobenzene	ND		ug/kg	440	--	1
n-Butylbenzene	ND		ug/kg	87	--	1
sec-Butylbenzene	ND		ug/kg	87	--	1
tert-Butylbenzene	ND		ug/kg	350	--	1
o-Chlorotoluene	ND		ug/kg	350	--	1
p-Chlorotoluene	ND		ug/kg	350	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	350	--	1
Hexachlorobutadiene	ND		ug/kg	350	--	1
Isopropylbenzene	ND		ug/kg	87	--	1
p-Isopropyltoluene	ND		ug/kg	87	--	1
Naphthalene	450		ug/kg	350	--	1
n-Propylbenzene	ND		ug/kg	87	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	350	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	350	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	350	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	350	--	1
Ethyl ether	ND		ug/kg	440	--	1
Isopropyl Ether	ND		ug/kg	350	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	350	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	350	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-08	Date Collected:	07/19/11 09:30
Client ID:	21206-027,028,029	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	8700	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	118		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-09	Date Collected:	07/19/11 10:00
Client ID:	21206-031,032,033	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/26/11 15:45		
Analyst:	MM		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	1000	--	1
1,1-Dichloroethane	ND		ug/kg	160	--	1
Chloroform	ND		ug/kg	160	--	1
Carbon tetrachloride	ND		ug/kg	100	--	1
1,2-Dichloropropane	ND		ug/kg	370	--	1
Dibromochloromethane	ND		ug/kg	100	--	1
1,1,2-Trichloroethane	300		ug/kg	160	--	1
Tetrachloroethene	ND		ug/kg	100	--	1
Chlorobenzene	ND		ug/kg	100	--	1
Trichlorofluoromethane	ND		ug/kg	420	--	1
1,2-Dichloroethane	ND		ug/kg	100	--	1
1,1,1-Trichloroethane	ND		ug/kg	100	--	1
Bromodichloromethane	ND		ug/kg	100	--	1
trans-1,3-Dichloropropene	ND		ug/kg	100	--	1
cis-1,3-Dichloropropene	ND		ug/kg	100	--	1
1,1-Dichloropropene	ND		ug/kg	420	--	1
Bromoform	ND		ug/kg	420	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	100	--	1
Benzene	380		ug/kg	100	--	1
Toluene	320		ug/kg	160	--	1
Ethylbenzene	4600		ug/kg	100	--	1
Chloromethane	ND		ug/kg	420	--	1
Bromomethane	ND		ug/kg	210	--	1
Vinyl chloride	ND		ug/kg	210	--	1
Chloroethane	ND		ug/kg	210	--	1
1,1-Dichloroethene	ND		ug/kg	100	--	1
trans-1,2-Dichloroethene	ND		ug/kg	160	--	1
Trichloroethene	ND		ug/kg	100	--	1
1,2-Dichlorobenzene	ND		ug/kg	420	--	1
1,3-Dichlorobenzene	ND		ug/kg	420	--	1
1,4-Dichlorobenzene	ND		ug/kg	420	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-09 Date Collected: 07/19/11 10:00

Client ID: 21206-031,032,033 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	210	--	1
p/m-Xylene	5400		ug/kg	210	--	1
o-Xylene	2800		ug/kg	210	--	1
cis-1,2-Dichloroethene	ND		ug/kg	100	--	1
Dibromomethane	ND		ug/kg	420	--	1
1,2,3-Trichloropropane	ND		ug/kg	420	--	1
Styrene	ND		ug/kg	210	--	1
Dichlorodifluoromethane	ND		ug/kg	1000	--	1
Acetone	ND		ug/kg	3800	--	1
Carbon disulfide	ND		ug/kg	420	--	1
2-Butanone	ND		ug/kg	1000	--	1
4-Methyl-2-pentanone	ND		ug/kg	1000	--	1
2-Hexanone	ND		ug/kg	1000	--	1
Bromochloromethane	ND		ug/kg	420	--	1
Tetrahydrofuran	ND		ug/kg	420	--	1
2,2-Dichloropropane	ND		ug/kg	520	--	1
1,2-Dibromoethane	ND		ug/kg	420	--	1
1,3-Dichloropropane	ND		ug/kg	420	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	100	--	1
Bromobenzene	ND		ug/kg	520	--	1
n-Butylbenzene	1300		ug/kg	100	--	1
sec-Butylbenzene	100		ug/kg	100	--	1
tert-Butylbenzene	ND		ug/kg	420	--	1
o-Chlorotoluene	ND		ug/kg	420	--	1
p-Chlorotoluene	ND		ug/kg	420	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	420	--	1
Hexachlorobutadiene	ND		ug/kg	420	--	1
Isopropylbenzene	1500		ug/kg	100	--	1
p-Isopropyltoluene	1300		ug/kg	100	--	1
Naphthalene	340000	E	ug/kg	420	--	1
n-Propylbenzene	770		ug/kg	100	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	420	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	420	--	1
1,3,5-Trimethylbenzene	4700		ug/kg	420	--	1
1,2,4-Trimethylbenzene	8800		ug/kg	420	--	1
Ethyl ether	ND		ug/kg	520	--	1
Isopropyl Ether	ND		ug/kg	420	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	420	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	420	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-09	Date Collected:	07/19/11 10:00
Client ID:	21206-031,032,033	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	10000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-09	D	Date Collected:	07/19/11 10:00
Client ID:	21206-031,032,033		Date Received:	07/21/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	07/27/11 10:52			
Analyst:	MM			
Percent Solids:	86%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Naphthalene	600000		ug/kg	74000	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	113		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-10	D	Date Collected:	07/19/11 10:30
Client ID:	21206-035,036,037		Date Received:	07/21/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil			
Analytical Method:	97,8260B			
Analytical Date:	07/27/11 11:25			
Analyst:	MM			
Percent Solids:	85%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	18000	--	20
1,1-Dichloroethane	ND		ug/kg	2800	--	20
Chloroform	ND		ug/kg	2800	--	20
Carbon tetrachloride	ND		ug/kg	1800	--	20
1,2-Dichloropropane	ND		ug/kg	6400	--	20
Dibromochloromethane	ND		ug/kg	1800	--	20
1,1,2-Trichloroethane	ND		ug/kg	2800	--	20
Tetrachloroethene	ND		ug/kg	1800	--	20
Chlorobenzene	ND		ug/kg	1800	--	20
Trichlorofluoromethane	ND		ug/kg	7400	--	20
1,2-Dichloroethane	ND		ug/kg	1800	--	20
1,1,1-Trichloroethane	ND		ug/kg	1800	--	20
Bromodichloromethane	ND		ug/kg	1800	--	20
trans-1,3-Dichloropropene	ND		ug/kg	1800	--	20
cis-1,3-Dichloropropene	ND		ug/kg	1800	--	20
1,1-Dichloropropene	ND		ug/kg	7400	--	20
Bromoform	ND		ug/kg	7400	--	20
1,1,2,2-Tetrachloroethane	ND		ug/kg	1800	--	20
Benzene	ND		ug/kg	1800	--	20
Toluene	ND		ug/kg	2800	--	20
Ethylbenzene	2900		ug/kg	1800	--	20
Chloromethane	ND		ug/kg	7400	--	20
Bromomethane	ND		ug/kg	3700	--	20
Vinyl chloride	ND		ug/kg	3700	--	20
Chloroethane	ND		ug/kg	3700	--	20
1,1-Dichloroethene	ND		ug/kg	1800	--	20
trans-1,2-Dichloroethene	ND		ug/kg	2800	--	20
Trichloroethene	ND		ug/kg	1800	--	20
1,2-Dichlorobenzene	ND		ug/kg	7400	--	20
1,3-Dichlorobenzene	ND		ug/kg	7400	--	20
1,4-Dichlorobenzene	ND		ug/kg	7400	--	20

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-10 D Date Collected: 07/19/11 10:30

Client ID: 21206-035,036,037 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	3700	--	20
p/m-Xylene	ND		ug/kg	3700	--	20
o-Xylene	ND		ug/kg	3700	--	20
cis-1,2-Dichloroethene	ND		ug/kg	1800	--	20
Dibromomethane	ND		ug/kg	7400	--	20
1,2,3-Trichloropropane	ND		ug/kg	7400	--	20
Styrene	ND		ug/kg	3700	--	20
Dichlorodifluoromethane	ND		ug/kg	18000	--	20
Acetone	ND		ug/kg	66000	--	20
Carbon disulfide	ND		ug/kg	7400	--	20
2-Butanone	ND		ug/kg	18000	--	20
4-Methyl-2-pentanone	ND		ug/kg	18000	--	20
2-Hexanone	ND		ug/kg	18000	--	20
Bromochloromethane	ND		ug/kg	7400	--	20
Tetrahydrofuran	ND		ug/kg	7400	--	20
2,2-Dichloropropane	ND		ug/kg	9200	--	20
1,2-Dibromoethane	ND		ug/kg	7400	--	20
1,3-Dichloropropane	ND		ug/kg	7400	--	20
1,1,1,2-Tetrachloroethane	ND		ug/kg	1800	--	20
Bromobenzene	ND		ug/kg	9200	--	20
n-Butylbenzene	ND		ug/kg	1800	--	20
sec-Butylbenzene	ND		ug/kg	1800	--	20
tert-Butylbenzene	ND		ug/kg	7400	--	20
o-Chlorotoluene	ND		ug/kg	7400	--	20
p-Chlorotoluene	ND		ug/kg	7400	--	20
1,2-Dibromo-3-chloropropane	ND		ug/kg	7400	--	20
Hexachlorobutadiene	ND		ug/kg	7400	--	20
Isopropylbenzene	ND		ug/kg	1800	--	20
p-Isopropyltoluene	ND		ug/kg	1800	--	20
Naphthalene	92000		ug/kg	7400	--	20
n-Propylbenzene	ND		ug/kg	1800	--	20
1,2,3-Trichlorobenzene	ND		ug/kg	7400	--	20
1,2,4-Trichlorobenzene	ND		ug/kg	7400	--	20
1,3,5-Trimethylbenzene	ND		ug/kg	7400	--	20
1,2,4-Trimethylbenzene	ND		ug/kg	7400	--	20
Ethyl ether	ND		ug/kg	9200	--	20
Isopropyl Ether	ND		ug/kg	7400	--	20
Ethyl-Tert-Butyl-Ether	ND		ug/kg	7400	--	20
Tertiary-Amyl Methyl Ether	ND		ug/kg	7400	--	20

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-10	D	Date Collected:	07/19/11 10:30
Client ID:	21206-035,036,037		Date Received:	07/21/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	180000	--	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	115		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-11	Date Collected:	07/19/11 11:00
Client ID:	21206-039,040,041	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 12:57		
Analyst:	BN		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	16	--	1
1,1-Dichloroethane	ND		ug/kg	2.3	--	1
Chloroform	ND		ug/kg	2.3	--	1
Carbon tetrachloride	ND		ug/kg	1.6	--	1
1,2-Dichloropropane	ND		ug/kg	5.4	--	1
Dibromochloromethane	ND		ug/kg	1.6	--	1
1,1,2-Trichloroethane	ND		ug/kg	2.3	--	1
Tetrachloroethene	ND		ug/kg	1.6	--	1
Chlorobenzene	ND		ug/kg	1.6	--	1
Trichlorofluoromethane	ND		ug/kg	6.2	--	1
1,2-Dichloroethane	ND		ug/kg	1.6	--	1
1,1,1-Trichloroethane	ND		ug/kg	1.6	--	1
Bromodichloromethane	ND		ug/kg	1.6	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	--	1
cis-1,3-Dichloropropene	ND		ug/kg	1.6	--	1
1,1-Dichloropropene	ND		ug/kg	6.2	--	1
Bromoform	ND		ug/kg	6.2	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.6	--	1
Benzene	ND		ug/kg	1.6	--	1
Toluene	ND		ug/kg	2.3	--	1
Ethylbenzene	ND		ug/kg	1.6	--	1
Chloromethane	ND		ug/kg	6.2	--	1
Bromomethane	ND		ug/kg	3.1	--	1
Vinyl chloride	ND		ug/kg	3.1	--	1
Chloroethane	ND		ug/kg	3.1	--	1
1,1-Dichloroethene	ND		ug/kg	1.6	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.3	--	1
Trichloroethene	ND		ug/kg	1.6	--	1
1,2-Dichlorobenzene	ND		ug/kg	6.2	--	1
1,3-Dichlorobenzene	ND		ug/kg	6.2	--	1
1,4-Dichlorobenzene	ND		ug/kg	6.2	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-11 Date Collected: 07/19/11 11:00

Client ID: 21206-039,040,041 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	3.1	--	1
p/m-Xylene	ND		ug/kg	3.1	--	1
o-Xylene	ND		ug/kg	3.1	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	--	1
Dibromomethane	ND		ug/kg	6.2	--	1
1,2,3-Trichloropropane	ND		ug/kg	6.2	--	1
Styrene	ND		ug/kg	3.1	--	1
Dichlorodifluoromethane	ND		ug/kg	16	--	1
Acetone	ND		ug/kg	56	--	1
Carbon disulfide	ND		ug/kg	6.2	--	1
2-Butanone	ND		ug/kg	16	--	1
4-Methyl-2-pentanone	ND		ug/kg	16	--	1
2-Hexanone	ND		ug/kg	16	--	1
Bromochloromethane	ND		ug/kg	6.2	--	1
Tetrahydrofuran	ND		ug/kg	6.2	--	1
2,2-Dichloropropane	ND		ug/kg	7.8	--	1
1,2-Dibromoethane	ND		ug/kg	6.2	--	1
1,3-Dichloropropane	ND		ug/kg	6.2	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.6	--	1
Bromobenzene	ND		ug/kg	7.8	--	1
n-Butylbenzene	ND		ug/kg	1.6	--	1
sec-Butylbenzene	ND		ug/kg	1.6	--	1
tert-Butylbenzene	ND		ug/kg	6.2	--	1
o-Chlorotoluene	ND		ug/kg	6.2	--	1
p-Chlorotoluene	ND		ug/kg	6.2	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.2	--	1
Hexachlorobutadiene	ND		ug/kg	6.2	--	1
Isopropylbenzene	ND		ug/kg	1.6	--	1
p-Isopropyltoluene	ND		ug/kg	1.6	--	1
Naphthalene	ND		ug/kg	6.2	--	1
n-Propylbenzene	ND		ug/kg	1.6	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	6.2	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	6.2	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	6.2	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	6.2	--	1
Ethyl ether	ND		ug/kg	7.8	--	1
Isopropyl Ether	ND		ug/kg	6.2	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	6.2	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	6.2	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-11	Date Collected:	07/19/11 11:00
Client ID:	21206-039,040,041	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	62	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-12	Date Collected:	07/19/11 11:15
Client ID:	21206-043,044,045	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 12:30		
Analyst:	BN		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	19	--	1
1,1-Dichloroethane	ND		ug/kg	2.8	--	1
Chloroform	ND		ug/kg	2.8	--	1
Carbon tetrachloride	ND		ug/kg	1.9	--	1
1,2-Dichloropropane	ND		ug/kg	6.5	--	1
Dibromochloromethane	ND		ug/kg	1.9	--	1
1,1,2-Trichloroethane	ND		ug/kg	2.8	--	1
Tetrachloroethene	ND		ug/kg	1.9	--	1
Chlorobenzene	ND		ug/kg	1.9	--	1
Trichlorofluoromethane	ND		ug/kg	7.5	--	1
1,2-Dichloroethane	ND		ug/kg	1.9	--	1
1,1,1-Trichloroethane	ND		ug/kg	1.9	--	1
Bromodichloromethane	ND		ug/kg	1.9	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.9	--	1
cis-1,3-Dichloropropene	ND		ug/kg	1.9	--	1
1,1-Dichloropropene	ND		ug/kg	7.5	--	1
Bromoform	ND		ug/kg	7.5	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.9	--	1
Benzene	ND		ug/kg	1.9	--	1
Toluene	ND		ug/kg	2.8	--	1
Ethylbenzene	ND		ug/kg	1.9	--	1
Chloromethane	ND		ug/kg	7.5	--	1
Bromomethane	ND		ug/kg	3.7	--	1
Vinyl chloride	ND		ug/kg	3.7	--	1
Chloroethane	ND		ug/kg	3.7	--	1
1,1-Dichloroethene	ND		ug/kg	1.9	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.8	--	1
Trichloroethene	ND		ug/kg	1.9	--	1
1,2-Dichlorobenzene	ND		ug/kg	7.5	--	1
1,3-Dichlorobenzene	ND		ug/kg	7.5	--	1
1,4-Dichlorobenzene	ND		ug/kg	7.5	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-12 Date Collected: 07/19/11 11:15

Client ID: 21206-043,044,045 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	3.7	--	1
p/m-Xylene	ND		ug/kg	3.7	--	1
o-Xylene	ND		ug/kg	3.7	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.9	--	1
Dibromomethane	ND		ug/kg	7.5	--	1
1,2,3-Trichloropropane	ND		ug/kg	7.5	--	1
Styrene	ND		ug/kg	3.7	--	1
Dichlorodifluoromethane	ND		ug/kg	19	--	1
Acetone	ND		ug/kg	67	--	1
Carbon disulfide	ND		ug/kg	7.5	--	1
2-Butanone	ND		ug/kg	19	--	1
4-Methyl-2-pentanone	ND		ug/kg	19	--	1
2-Hexanone	ND		ug/kg	19	--	1
Bromochloromethane	ND		ug/kg	7.5	--	1
Tetrahydrofuran	ND		ug/kg	7.5	--	1
2,2-Dichloropropane	ND		ug/kg	9.4	--	1
1,2-Dibromoethane	ND		ug/kg	7.5	--	1
1,3-Dichloropropane	ND		ug/kg	7.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.9	--	1
Bromobenzene	ND		ug/kg	9.4	--	1
n-Butylbenzene	ND		ug/kg	1.9	--	1
sec-Butylbenzene	ND		ug/kg	1.9	--	1
tert-Butylbenzene	ND		ug/kg	7.5	--	1
o-Chlorotoluene	ND		ug/kg	7.5	--	1
p-Chlorotoluene	ND		ug/kg	7.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	7.5	--	1
Hexachlorobutadiene	ND		ug/kg	7.5	--	1
Isopropylbenzene	ND		ug/kg	1.9	--	1
p-Isopropyltoluene	3.4		ug/kg	1.9	--	1
Naphthalene	ND		ug/kg	7.5	--	1
n-Propylbenzene	ND		ug/kg	1.9	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	7.5	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	7.5	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	7.5	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	7.5	--	1
Ethyl ether	ND		ug/kg	9.4	--	1
Isopropyl Ether	ND		ug/kg	7.5	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	7.5	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	7.5	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-12	Date Collected:	07/19/11 11:15
Client ID:	21206-043,044,045	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	75	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-13	Date Collected:	07/19/11 12:00
Client ID:	21206-047,048,049	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 09:15		
Analyst:	MM		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	1600	--	1
1,1-Dichloroethane	ND		ug/kg	240	--	1
Chloroform	ND		ug/kg	240	--	1
Carbon tetrachloride	ND		ug/kg	160	--	1
1,2-Dichloropropane	ND		ug/kg	550	--	1
Dibromochloromethane	ND		ug/kg	160	--	1
1,1,2-Trichloroethane	ND		ug/kg	240	--	1
Tetrachloroethene	ND		ug/kg	160	--	1
Chlorobenzene	ND		ug/kg	160	--	1
Trichlorofluoromethane	ND		ug/kg	630	--	1
1,2-Dichloroethane	ND		ug/kg	160	--	1
1,1,1-Trichloroethane	ND		ug/kg	160	--	1
Bromodichloromethane	ND		ug/kg	160	--	1
trans-1,3-Dichloropropene	ND		ug/kg	160	--	1
cis-1,3-Dichloropropene	ND		ug/kg	160	--	1
1,1-Dichloropropene	ND		ug/kg	630	--	1
Bromoform	ND		ug/kg	630	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	160	--	1
Benzene	3300		ug/kg	160	--	1
Toluene	360		ug/kg	240	--	1
Ethylbenzene	ND		ug/kg	160	--	1
Chloromethane	ND		ug/kg	630	--	1
Bromomethane	ND		ug/kg	320	--	1
Vinyl chloride	ND		ug/kg	320	--	1
Chloroethane	ND		ug/kg	320	--	1
1,1-Dichloroethene	ND		ug/kg	160	--	1
trans-1,2-Dichloroethene	ND		ug/kg	240	--	1
Trichloroethene	ND		ug/kg	160	--	1
1,2-Dichlorobenzene	ND		ug/kg	630	--	1
1,3-Dichlorobenzene	ND		ug/kg	630	--	1
1,4-Dichlorobenzene	ND		ug/kg	630	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-13 Date Collected: 07/19/11 12:00

Client ID: 21206-047,048,049 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	320	--	1
p/m-Xylene	ND		ug/kg	320	--	1
o-Xylene	ND		ug/kg	320	--	1
cis-1,2-Dichloroethene	ND		ug/kg	160	--	1
Dibromomethane	ND		ug/kg	630	--	1
1,2,3-Trichloropropane	ND		ug/kg	630	--	1
Styrene	ND		ug/kg	320	--	1
Dichlorodifluoromethane	ND		ug/kg	1600	--	1
Acetone	ND		ug/kg	5700	--	1
Carbon disulfide	ND		ug/kg	630	--	1
2-Butanone	ND		ug/kg	1600	--	1
4-Methyl-2-pentanone	ND		ug/kg	1600	--	1
2-Hexanone	ND		ug/kg	1600	--	1
Bromochloromethane	ND		ug/kg	630	--	1
Tetrahydrofuran	ND		ug/kg	630	--	1
2,2-Dichloropropane	ND		ug/kg	790	--	1
1,2-Dibromoethane	ND		ug/kg	630	--	1
1,3-Dichloropropane	ND		ug/kg	630	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	160	--	1
Bromobenzene	ND		ug/kg	790	--	1
n-Butylbenzene	ND		ug/kg	160	--	1
sec-Butylbenzene	ND		ug/kg	160	--	1
tert-Butylbenzene	ND		ug/kg	630	--	1
o-Chlorotoluene	ND		ug/kg	630	--	1
p-Chlorotoluene	ND		ug/kg	630	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	630	--	1
Hexachlorobutadiene	ND		ug/kg	630	--	1
Isopropylbenzene	ND		ug/kg	160	--	1
p-Isopropyltoluene	ND		ug/kg	160	--	1
Naphthalene	ND		ug/kg	630	--	1
n-Propylbenzene	ND		ug/kg	160	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	630	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	630	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	630	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	630	--	1
Ethyl ether	ND		ug/kg	790	--	1
Isopropyl Ether	ND		ug/kg	630	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	630	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	630	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-13	Date Collected:	07/19/11 12:00
Client ID:	21206-047,048,049	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	16000	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	112		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-18	Date Collected:	07/19/11 15:00
Client ID:	21206-058	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	97,8260B		
Analytical Date:	07/27/11 13:23		
Analyst:	BN		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methylene chloride	ND		ug/kg	10	--	1
1,1-Dichloroethane	ND		ug/kg	1.5	--	1
Chloroform	ND		ug/kg	1.5	--	1
Carbon tetrachloride	ND		ug/kg	1.0	--	1
1,2-Dichloropropane	ND		ug/kg	3.5	--	1
Dibromochloromethane	ND		ug/kg	1.0	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.5	--	1
Tetrachloroethene	ND		ug/kg	1.0	--	1
Chlorobenzene	ND		ug/kg	1.0	--	1
Trichlorofluoromethane	ND		ug/kg	4.0	--	1
1,2-Dichloroethane	ND		ug/kg	1.0	--	1
1,1,1-Trichloroethane	ND		ug/kg	1.0	--	1
Bromodichloromethane	ND		ug/kg	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
1,1-Dichloropropene	ND		ug/kg	4.0	--	1
Bromoform	ND		ug/kg	4.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--	1
Benzene	ND		ug/kg	1.0	--	1
Toluene	ND		ug/kg	1.5	--	1
Ethylbenzene	ND		ug/kg	1.0	--	1
Chloromethane	ND		ug/kg	4.0	--	1
Bromomethane	ND		ug/kg	2.0	--	1
Vinyl chloride	ND		ug/kg	2.0	--	1
Chloroethane	ND		ug/kg	2.0	--	1
1,1-Dichloroethene	ND		ug/kg	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--	1
Trichloroethene	ND		ug/kg	1.0	--	1
1,2-Dichlorobenzene	ND		ug/kg	4.0	--	1
1,3-Dichlorobenzene	ND		ug/kg	4.0	--	1
1,4-Dichlorobenzene	ND		ug/kg	4.0	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-18 Date Collected: 07/19/11 15:00

Client ID: 21206-058 Date Received: 07/21/11

Sample Location: Not Specified Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.0	--	1
p/m-Xylene	ND		ug/kg	2.0	--	1
o-Xylene	ND		ug/kg	2.0	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--	1
Dibromomethane	ND		ug/kg	4.0	--	1
1,2,3-Trichloropropane	ND		ug/kg	4.0	--	1
Styrene	ND		ug/kg	2.0	--	1
Dichlorodifluoromethane	ND		ug/kg	10	--	1
Acetone	ND		ug/kg	36	--	1
Carbon disulfide	ND		ug/kg	4.0	--	1
2-Butanone	ND		ug/kg	10	--	1
4-Methyl-2-pentanone	ND		ug/kg	10	--	1
2-Hexanone	ND		ug/kg	10	--	1
Bromochloromethane	ND		ug/kg	4.0	--	1
Tetrahydrofuran	ND		ug/kg	4.0	--	1
2,2-Dichloropropane	ND		ug/kg	5.0	--	1
1,2-Dibromoethane	ND		ug/kg	4.0	--	1
1,3-Dichloropropane	ND		ug/kg	4.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--	1
Bromobenzene	ND		ug/kg	5.0	--	1
n-Butylbenzene	ND		ug/kg	1.0	--	1
sec-Butylbenzene	ND		ug/kg	1.0	--	1
tert-Butylbenzene	ND		ug/kg	4.0	--	1
o-Chlorotoluene	ND		ug/kg	4.0	--	1
p-Chlorotoluene	ND		ug/kg	4.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	--	1
Hexachlorobutadiene	ND		ug/kg	4.0	--	1
Isopropylbenzene	ND		ug/kg	1.0	--	1
p-Isopropyltoluene	ND		ug/kg	1.0	--	1
Naphthalene	ND		ug/kg	4.0	--	1
n-Propylbenzene	ND		ug/kg	1.0	--	1
1,2,3-Trichlorobenzene	ND		ug/kg	4.0	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	4.0	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	4.0	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	4.0	--	1
Ethyl ether	ND		ug/kg	5.0	--	1
Isopropyl Ether	ND		ug/kg	4.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-18	Date Collected:	07/19/11 15:00
Client ID:	21206-058	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by 8260B/5035 - Westborough Lab						
1,4-Dioxane	ND		ug/kg	40	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/26/11 08:10
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01-02,09 Batch: WG481271-3					
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/26/11 08:10
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01-02,09 Batch: WG481271-3					
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
2-Butanone	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/26/11 08:10
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 01-02,09 Batch: WG481271-3					
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Ethyl ether	ND		ug/kg	250	--
Isopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 08:43
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 07-10,13 Batch: WG481271-6					
Methylene chloride	ND		ug/kg	500	--
1,1-Dichloroethane	ND		ug/kg	75	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	180	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	75	--
Tetrachloroethene	ND		ug/kg	50	--
Chlorobenzene	ND		ug/kg	50	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	50	--
Bromodichloromethane	ND		ug/kg	50	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	50	--
1,1-Dichloropropene	ND		ug/kg	200	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	50	--
Benzene	ND		ug/kg	50	--
Toluene	ND		ug/kg	75	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	100	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	50	--
1,2-Dichlorobenzene	ND		ug/kg	200	--
1,3-Dichlorobenzene	ND		ug/kg	200	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 08:43
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 07-10,13 Batch: WG481271-6					
1,4-Dichlorobenzene	ND		ug/kg	200	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	100	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	200	--
1,2,3-Trichloropropane	ND		ug/kg	200	--
Styrene	ND		ug/kg	100	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	1800	--
Carbon disulfide	ND		ug/kg	200	--
2-Butanone	ND		ug/kg	500	--
4-Methyl-2-pentanone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	200	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	250	--
1,2-Dibromoethane	ND		ug/kg	200	--
1,3-Dichloropropane	ND		ug/kg	200	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	50	--
Bromobenzene	ND		ug/kg	250	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	200	--
o-Chlorotoluene	ND		ug/kg	200	--
p-Chlorotoluene	ND		ug/kg	200	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 08:43
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 07-10,13 Batch: WG481271-6					
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	200	--
1,2,4-Trichlorobenzene	ND		ug/kg	200	--
1,3,5-Trimethylbenzene	ND		ug/kg	200	--
1,2,4-Trimethylbenzene	ND		ug/kg	200	--
Ethyl ether	ND		ug/kg	250	--
Isopropyl Ether	ND		ug/kg	200	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	200	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	200	--
1,4-Dioxane	ND		ug/kg	5000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 07:41
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 03-06,11-12,18 Batch: WG481308-3					
Methylene chloride	ND		ug/kg	10	--
1,1-Dichloroethane	ND		ug/kg	1.5	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	3.5	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.5	--
Tetrachloroethene	ND		ug/kg	1.0	--
Chlorobenzene	ND		ug/kg	1.0	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	1.0	--
Bromodichloromethane	ND		ug/kg	1.0	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	1.0	--
1,1-Dichloropropene	ND		ug/kg	4.0	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	--
Benzene	ND		ug/kg	1.0	--
Toluene	ND		ug/kg	1.5	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	2.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	1.0	--
1,2-Dichlorobenzene	ND		ug/kg	4.0	--
1,3-Dichlorobenzene	ND		ug/kg	4.0	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 07:41
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 03-06,11-12,18 Batch: WG481308-3					
1,4-Dichlorobenzene	ND		ug/kg	4.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	2.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	4.0	--
1,2,3-Trichloropropane	ND		ug/kg	4.0	--
Styrene	ND		ug/kg	2.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	36	--
Carbon disulfide	ND		ug/kg	4.0	--
2-Butanone	ND		ug/kg	10	--
4-Methyl-2-pentanone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	4.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	5.0	--
1,2-Dibromoethane	ND		ug/kg	4.0	--
1,3-Dichloropropane	ND		ug/kg	4.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	--
Bromobenzene	ND		ug/kg	5.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	4.0	--
o-Chlorotoluene	ND		ug/kg	4.0	--
p-Chlorotoluene	ND		ug/kg	4.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260B
Analytical Date: 07/27/11 07:41
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by 8260B/5035 - Westborough Lab for sample(s): 03-06,11-12,18 Batch: WG481308-3					
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	4.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	4.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	4.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	4.0	--
Ethyl ether	ND		ug/kg	5.0	--
Isopropyl Ether	ND		ug/kg	4.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	--
1,4-Dioxane	ND		ug/kg	40	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01-02,09 Batch: WG481271-1 WG481271-2								
Methylene chloride	95		96		70-130	1		20
1,1-Dichloroethane	90		95		70-130	5		20
Chloroform	94		99		70-130	5		20
Carbon tetrachloride	94		101		70-130	7		20
1,2-Dichloropropane	87		94		70-130	8		20
Dibromochloromethane	82		95		70-130	15		20
1,1,2-Trichloroethane	86		100		70-130	15		20
Tetrachloroethene	95		104		70-130	9		20
Chlorobenzene	90		96		70-130	6		20
Trichlorofluoromethane	96		103		70-130	7		20
1,2-Dichloroethane	89		96		70-130	8		20
1,1,1-Trichloroethane	95		98		70-130	3		20
Bromodichloromethane	86		94		70-130	9		20
trans-1,3-Dichloropropene	88		96		70-130	9		20
cis-1,3-Dichloropropene	88		95		70-130	8		20
1,1-Dichloropropene	95		98		70-130	3		20
Bromoform	82		100		70-130	20		20
1,1,2,2-Tetrachloroethane	86		104		70-130	19		20
Benzene	93		100		70-130	7		20
Toluene	92		98		70-130	6		20
Ethylbenzene	93		101		70-130	8		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01-02,09 Batch: WG481271-1 WG481271-2								
Chloromethane	**66**	Q	70		70-130	6		20
Bromomethane	74		72		70-130	3		20
Vinyl chloride	81		88		70-130	8		20
Chloroethane	89		92		70-130	3		20
1,1-Dichloroethene	93		98		70-130	5		20
trans-1,2-Dichloroethene	94		97		70-130	3		20
Trichloroethene	96		101		70-130	5		20
1,2-Dichlorobenzene	91		101		70-130	10		20
1,3-Dichlorobenzene	92		103		70-130	11		20
1,4-Dichlorobenzene	92		101		70-130	9		20
Methyl tert butyl ether	81		90		70-130	11		20
p/m-Xylene	94		100		70-130	6		20
o-Xylene	92		99		70-130	7		20
cis-1,2-Dichloroethene	96		98		70-130	2		20
Dibromomethane	94		103		70-130	9		20
1,2,3-Trichloropropane	90		108		70-130	18		20
Styrene	91		98		70-130	7		20
Dichlorodifluoromethane	**67**	Q	**68**	Q	70-130	1		20
Acetone	**65**	Q	82		70-130	**23**	Q	20
Carbon disulfide	94		96		70-130	2		20
2-Butanone	87		102		70-130	16		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01-02,09 Batch: WG481271-1 WG481271-2								
4-Methyl-2-pentanone	87		106		70-130	20		20
2-Hexanone	79		97		70-130	20		20
Bromochloromethane	94		101		70-130	7		20
Tetrahydrofuran	80		94		70-130	16		20
2,2-Dichloropropane	99		103		70-130	4		20
1,2-Dibromoethane	87		98		70-130	12		20
1,3-Dichloropropane	87		96		70-130	10		20
1,1,1,2-Tetrachloroethane	88		96		70-130	9		20
Bromobenzene	93		102		70-130	9		20
n-Butylbenzene	90		100		70-130	11		20
sec-Butylbenzene	91		100		70-130	9		20
tert-Butylbenzene	93		100		70-130	7		20
o-Chlorotoluene	90		100		70-130	11		20
p-Chlorotoluene	92		103		70-130	11		20
1,2-Dibromo-3-chloropropane	84		102		70-130	19		20
Hexachlorobutadiene	101		107		70-130	6		20
Isopropylbenzene	92		100		70-130	8		20
p-Isopropyltoluene	94		106		70-130	12		20
Naphthalene	88		110		70-130	**22**	Q	20
n-Propylbenzene	94		103		70-130	9		20
1,2,3-Trichlorobenzene	90		108		70-130	18		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 01-02,09 Batch: WG481271-1 WG481271-2								
1,2,4-Trichlorobenzene	96		109		70-130	13		20
1,3,5-Trimethylbenzene	92		101		70-130	9		20
1,2,4-Trimethylbenzene	95		102		70-130	7		20
Ethyl ether	90		102		70-130	13		20
Isopropyl Ether	85		93		70-130	9		20
Ethyl-Tert-Butyl-Ether	84		94		70-130	11		20
Tertiary-Amyl Methyl Ether	89		102		70-130	14		20
1,4-Dioxane	111		128		70-130	14		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		100		70-130
Toluene-d8	98		101		70-130
4-Bromofluorobenzene	102		104		70-130
Dibromofluoromethane	101		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 07-10,13 Batch: WG481271-4 WG481271-5								
Methylene chloride	102		100		70-130	2		20
1,1-Dichloroethane	102		98		70-130	4		20
Chloroform	100		96		70-130	4		20
Carbon tetrachloride	93		91		70-130	2		20
1,2-Dichloropropane	96		90		70-130	6		20
Dibromochloromethane	88		78		70-130	12		20
1,1,2-Trichloroethane	93		83		70-130	11		20
Tetrachloroethene	96		89		70-130	8		20
Chlorobenzene	93		87		70-130	7		20
Trichlorofluoromethane	98		97		70-130	1		20
1,2-Dichloroethane	99		96		70-130	3		20
1,1,1-Trichloroethane	104		104		70-130	0		20
Bromodichloromethane	97		90		70-130	7		20
trans-1,3-Dichloropropene	91		85		70-130	7		20
cis-1,3-Dichloropropene	90		87		70-130	3		20
1,1-Dichloropropene	97		93		70-130	4		20
Bromoform	90		86		70-130	5		20
1,1,2,2-Tetrachloroethane	99		92		70-130	7		20
Benzene	98		94		70-130	4		20
Toluene	91		91		70-130	0		20
Ethylbenzene	97		92		70-130	5		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 07-10,13 Batch: WG481271-4 WG481271-5								
Chloromethane	80		78		70-130	3		20
Bromomethane	85		84		70-130	1		20
Vinyl chloride	82		80		70-130	2		20
Chloroethane	91		91		70-130	0		20
1,1-Dichloroethene	91		87		70-130	4		20
trans-1,2-Dichloroethene	104		102		70-130	2		20
Trichloroethene	93		92		70-130	1		20
1,2-Dichlorobenzene	92		91		70-130	1		20
1,3-Dichlorobenzene	94		89		70-130	5		20
1,4-Dichlorobenzene	96		92		70-130	4		20
Methyl tert butyl ether	93		86		70-130	8		20
p/m-Xylene	99		91		70-130	8		20
o-Xylene	96		90		70-130	6		20
cis-1,2-Dichloroethene	106		100		70-130	6		20
Dibromomethane	110		102		70-130	8		20
1,2,3-Trichloropropane	99		94		70-130	5		20
Styrene	98		93		70-130	5		20
Dichlorodifluoromethane	72		**69**	Q	70-130	4		20
Acetone	102		91		70-130	11		20
Carbon disulfide	97		97		70-130	0		20
2-Butanone	112		91		70-130	**21**	Q	20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 07-10,13 Batch: WG481271-4 WG481271-5								
4-Methyl-2-pentanone	103		106		70-130	3		20
2-Hexanone	110		97		70-130	13		20
Bromochloromethane	114		103		70-130	10		20
Tetrahydrofuran	109		87		70-130	**22**	Q	20
2,2-Dichloropropane	106		101		70-130	5		20
1,2-Dibromoethane	96		87		70-130	10		20
1,3-Dichloropropane	93		85		70-130	9		20
1,1,1,2-Tetrachloroethane	90		89		70-130	1		20
Bromobenzene	96		95		70-130	1		20
n-Butylbenzene	97		87		70-130	11		20
sec-Butylbenzene	94		87		70-130	8		20
tert-Butylbenzene	95		88		70-130	8		20
o-Chlorotoluene	93		88		70-130	6		20
p-Chlorotoluene	86		83		70-130	4		20
1,2-Dibromo-3-chloropropane	98		95		70-130	3		20
Hexachlorobutadiene	93		95		70-130	2		20
Isopropylbenzene	98		90		70-130	9		20
p-Isopropyltoluene	97		89		70-130	9		20
Naphthalene	102		91		70-130	11		20
n-Propylbenzene	95		91		70-130	4		20
1,2,3-Trichlorobenzene	97		88		70-130	10		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 07-10,13 Batch: WG481271-4 WG481271-5								
1,2,4-Trichlorobenzene	98		89		70-130	10		20
1,3,5-Trimethylbenzene	90		88		70-130	2		20
1,2,4-Trimethylbenzene	94		91		70-130	3		20
Ethyl ether	105		97		70-130	8		20
Isopropyl Ether	91		87		70-130	4		20
Ethyl-Tert-Butyl-Ether	92		85		70-130	8		20
Tertiary-Amyl Methyl Ether	99		94		70-130	5		20
1,4-Dioxane	81		87		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		100		70-130
Toluene-d8	98		94		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	105		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 03-06,11-12,18 Batch: WG481308-1 WG481308-2								
Methylene chloride	102		98		70-130	4		20
1,1-Dichloroethane	97		92		70-130	5		20
Chloroform	100		95		70-130	5		20
Carbon tetrachloride	96		90		70-130	6		20
1,2-Dichloropropane	102		95		70-130	7		20
Dibromochloromethane	97		96		70-130	1		20
1,1,2-Trichloroethane	104		106		70-130	2		20
Tetrachloroethene	102		94		70-130	8		20
Chlorobenzene	98		93		70-130	5		20
Trichlorofluoromethane	104		94		70-130	10		20
1,2-Dichloroethane	97		95		70-130	2		20
1,1,1-Trichloroethane	98		89		70-130	10		20
Bromodichloromethane	96		93		70-130	3		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	97		97		70-130	0		20
1,1-Dichloropropene	100		92		70-130	8		20
Bromoform	98		102		70-130	4		20
1,1,2,2-Tetrachloroethane	100		103		70-130	3		20
Benzene	100		95		70-130	5		20
Toluene	97		91		70-130	6		20
Ethylbenzene	102		95		70-130	7		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 03-06,11-12,18 Batch: WG481308-1 WG481308-2								
Chloromethane	95		89		70-130	7		20
Bromomethane	96		87		70-130	10		20
Vinyl chloride	104		95		70-130	9		20
Chloroethane	101		95		70-130	6		20
1,1-Dichloroethene	98		91		70-130	7		20
trans-1,2-Dichloroethene	99		94		70-130	5		20
Trichloroethene	100		93		70-130	7		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	103		99		70-130	4		20
1,4-Dichlorobenzene	102		98		70-130	4		20
Methyl tert butyl ether	87		88		70-130	1		20
p/m-Xylene	104		95		70-130	9		20
o-Xylene	102		96		70-130	6		20
cis-1,2-Dichloroethene	101		96		70-130	5		20
Dibromomethane	102		102		70-130	0		20
1,2,3-Trichloropropane	101		107		70-130	6		20
Styrene	102		97		70-130	5		20
Dichlorodifluoromethane	112		103		70-130	8		20
Acetone	88		98		70-130	11		20
Carbon disulfide	85		78		70-130	9		20
2-Butanone	101		105		70-130	4		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 03-06,11-12,18 Batch: WG481308-1 WG481308-2								
4-Methyl-2-pentanone	100		106		70-130	6		20
2-Hexanone	97		101		70-130	4		20
Bromochloromethane	105		104		70-130	1		20
Tetrahydrofuran	82		96		70-130	16		20
2,2-Dichloropropane	98		90		70-130	9		20
1,2-Dibromoethane	99		99		70-130	0		20
1,3-Dichloropropane	104		101		70-130	3		20
1,1,1,2-Tetrachloroethane	102		97		70-130	5		20
Bromobenzene	101		96		70-130	5		20
n-Butylbenzene	103		95		70-130	8		20
sec-Butylbenzene	102		94		70-130	8		20
tert-Butylbenzene	102		95		70-130	7		20
o-Chlorotoluene	102		97		70-130	5		20
p-Chlorotoluene	102		98		70-130	4		20
1,2-Dibromo-3-chloropropane	101		110		70-130	9		20
Hexachlorobutadiene	95		86		70-130	10		20
Isopropylbenzene	101		94		70-130	7		20
p-Isopropyltoluene	106		98		70-130	8		20
Naphthalene	99		102		70-130	3		20
n-Propylbenzene	103		96		70-130	7		20
1,2,3-Trichlorobenzene	101		99		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by 8260B/5035 - Westborough Lab Associated sample(s): 03-06,11-12,18 Batch: WG481308-1 WG481308-2								
1,2,4-Trichlorobenzene	102		100		70-130	2		20
1,3,5-Trimethylbenzene	102		95		70-130	7		20
1,2,4-Trimethylbenzene	106		99		70-130	7		20
Ethyl ether	94		96		70-130	2		20
Isopropyl Ether	93		91		70-130	2		20
Ethyl-Tert-Butyl-Ether	90		91		70-130	1		20
Tertiary-Amyl Methyl Ether	94		95		70-130	1		20
1,4-Dioxane	101		106		70-130	5		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	99		102		70-130
Dibromofluoromethane	98		98		70-130

PETROLEUM HYDROCARBONS

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-01 D	Date Collected:	07/18/11 12:00
Client ID:	21206-002,003,004	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	08/01/11 21:12	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	49%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	643	--	50
C19-C36 Aliphatics	ND		mg/kg	643	--	50
C11-C22 Aromatics	20600		mg/kg	643	--	50
C11-C22 Aromatics, Adjusted	17800		mg/kg	643	--	50
Naphthalene	343		mg/kg	32.2	--	50
2-Methylnaphthalene	152		mg/kg	32.2	--	50
Acenaphthylene	ND		mg/kg	32.2	--	50
Acenaphthene	410		mg/kg	32.2	--	50
Fluorene	528		mg/kg	32.2	--	50
Phenanthrene	850		mg/kg	32.2	--	50
Anthracene	154		mg/kg	32.2	--	50
Fluoranthene	73.6		mg/kg	32.2	--	50
Pyrene	157		mg/kg	32.2	--	50
Benzo(a)anthracene	50.6		mg/kg	32.2	--	50
Chrysene	60.1		mg/kg	32.2	--	50
Benzo(b)fluoranthene	ND		mg/kg	32.2	--	50
Benzo(k)fluoranthene	ND		mg/kg	32.2	--	50
Benzo(a)pyrene	34.3		mg/kg	32.2	--	50
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	32.2	--	50
Dibenzo(a,h)anthracene	ND		mg/kg	32.2	--	50
Benzo(ghi)perylene	ND		mg/kg	32.2	--	50

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-01 D	Date Collected:	07/18/11 12:00
Client ID:	21206-002,003,004	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	82		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-02	Date Collected:	07/18/11 12:30
Client ID:	21206-006,007,008	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 21:14	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	77%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	1070		mg/kg	8.57	--	1
C19-C36 Aliphatics	970		mg/kg	8.57	--	1
C11-C22 Aromatics	1100		mg/kg	8.57	--	1
C11-C22 Aromatics, Adjusted	1100		mg/kg	8.57	--	1
Naphthalene	ND		mg/kg	0.428	--	1
2-Methylnaphthalene	1.28		mg/kg	0.428	--	1
Acenaphthylene	0.648		mg/kg	0.428	--	1
Acenaphthene	ND		mg/kg	0.428	--	1
Fluorene	ND		mg/kg	0.428	--	1
Phenanthrene	2.04		mg/kg	0.428	--	1
Anthracene	ND		mg/kg	0.428	--	1
Fluoranthene	0.561		mg/kg	0.428	--	1
Pyrene	ND		mg/kg	0.428	--	1
Benzo(a)anthracene	ND		mg/kg	0.428	--	1
Chrysene	ND		mg/kg	0.428	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.428	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.428	--	1
Benzo(a)pyrene	ND		mg/kg	0.428	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.428	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.428	--	1
Benzo(ghi)perylene	ND		mg/kg	0.428	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-02	Date Collected:	07/18/11 12:30
Client ID:	21206-006,007,008	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	79		40-140
o-Terphenyl	60		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	115		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-03	Date Collected:	07/18/11 13:00
Client ID:	21206-010,011,012	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/31/11 01:25	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	86%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.54	--	1
C19-C36 Aliphatics	ND		mg/kg	7.54	--	1
C11-C22 Aromatics	30.0		mg/kg	7.54	--	1
C11-C22 Aromatics, Adjusted	22.2		mg/kg	7.54	--	1
Naphthalene	ND		mg/kg	0.377	--	1
2-Methylnaphthalene	ND		mg/kg	0.377	--	1
Acenaphthylene	ND		mg/kg	0.377	--	1
Acenaphthene	ND		mg/kg	0.377	--	1
Fluorene	ND		mg/kg	0.377	--	1
Phenanthrene	1.20		mg/kg	0.377	--	1
Anthracene	ND		mg/kg	0.377	--	1
Fluoranthene	1.20		mg/kg	0.377	--	1
Pyrene	1.31		mg/kg	0.377	--	1
Benzo(a)anthracene	0.535		mg/kg	0.377	--	1
Chrysene	0.829		mg/kg	0.377	--	1
Benzo(b)fluoranthene	0.544		mg/kg	0.377	--	1
Benzo(k)fluoranthene	0.500		mg/kg	0.377	--	1
Benzo(a)pyrene	0.576		mg/kg	0.377	--	1
Indeno(1,2,3-cd)Pyrene	0.432		mg/kg	0.377	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.377	--	1
Benzo(ghi)perylene	0.669		mg/kg	0.377	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-03	Date Collected:	07/18/11 13:00
Client ID:	21206-010,011,012	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	81		40-140
o-Terphenyl	96		40-140
2-Fluorobiphenyl	85		40-140
2-Bromonaphthalene	83		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-04	Date Collected:	07/18/11 13:30
Client ID:	21206-014,015,016	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 21:45	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	81%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.42	--	1
C19-C36 Aliphatics	ND		mg/kg	7.42	--	1
C11-C22 Aromatics	ND		mg/kg	7.42	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.42	--	1
Naphthalene	ND		mg/kg	0.371	--	1
2-Methylnaphthalene	ND		mg/kg	0.371	--	1
Acenaphthylene	ND		mg/kg	0.371	--	1
Acenaphthene	ND		mg/kg	0.371	--	1
Fluorene	ND		mg/kg	0.371	--	1
Phenanthrene	ND		mg/kg	0.371	--	1
Anthracene	ND		mg/kg	0.371	--	1
Fluoranthene	ND		mg/kg	0.371	--	1
Pyrene	ND		mg/kg	0.371	--	1
Benzo(a)anthracene	ND		mg/kg	0.371	--	1
Chrysene	ND		mg/kg	0.371	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.371	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.371	--	1
Benzo(a)pyrene	ND		mg/kg	0.371	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.371	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.371	--	1
Benzo(ghi)perylene	ND		mg/kg	0.371	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-04	Date Collected:	07/18/11 13:30
Client ID:	21206-014,015,016	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	48		40-140
o-Terphenyl	68		40-140
2-Fluorobiphenyl	72		40-140
2-Bromonaphthalene	68		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-06 D	Date Collected:	07/19/11 09:00
Client ID:	21206-019,020,021	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 14:23	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	86%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	36.9	--	5
C19-C36 Aliphatics	54.8		mg/kg	36.9	--	5
C11-C22 Aromatics	322		mg/kg	36.9	--	5
C11-C22 Aromatics, Adjusted	253		mg/kg	36.9	--	5
Naphthalene	ND		mg/kg	1.85	--	5
2-Methylnaphthalene	ND		mg/kg	1.85	--	5
Acenaphthylene	ND		mg/kg	1.85	--	5
Acenaphthene	ND		mg/kg	1.85	--	5
Fluorene	ND		mg/kg	1.85	--	5
Phenanthrene	3.11		mg/kg	1.85	--	5
Anthracene	ND		mg/kg	1.85	--	5
Fluoranthene	10.6		mg/kg	1.85	--	5
Pyrene	13.5		mg/kg	1.85	--	5
Benzo(a)anthracene	7.26		mg/kg	1.85	--	5
Chrysene	8.30		mg/kg	1.85	--	5
Benzo(b)fluoranthene	5.68		mg/kg	1.85	--	5
Benzo(k)fluoranthene	4.62		mg/kg	1.85	--	5
Benzo(a)pyrene	7.38		mg/kg	1.85	--	5
Indeno(1,2,3-cd)Pyrene	4.15		mg/kg	1.85	--	5
Dibenzo(a,h)anthracene	ND		mg/kg	1.85	--	5
Benzo(ghi)perylene	4.81		mg/kg	1.85	--	5

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-06 D	Date Collected:	07/19/11 09:00
Client ID:	21206-019,020,021	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	80		40-140
o-Terphenyl	126		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	67		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-07	Date Collected:	07/19/11 09:15
Client ID:	21206-023,024,025	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/31/11 00:23	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	26%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	25.4	--	1
C19-C36 Aliphatics	29.4		mg/kg	25.4	--	1
C11-C22 Aromatics	112		mg/kg	25.4	--	1
C11-C22 Aromatics, Adjusted	90.8		mg/kg	25.4	--	1
Naphthalene	ND		mg/kg	1.27	--	1
2-Methylnaphthalene	ND		mg/kg	1.27	--	1
Acenaphthylene	ND		mg/kg	1.27	--	1
Acenaphthene	ND		mg/kg	1.27	--	1
Fluorene	ND		mg/kg	1.27	--	1
Phenanthrene	2.33		mg/kg	1.27	--	1
Anthracene	ND		mg/kg	1.27	--	1
Fluoranthene	1.94		mg/kg	1.27	--	1
Pyrene	4.06		mg/kg	1.27	--	1
Benzo(a)anthracene	1.71		mg/kg	1.27	--	1
Chrysene	1.80		mg/kg	1.27	--	1
Benzo(b)fluoranthene	1.40		mg/kg	1.27	--	1
Benzo(k)fluoranthene	1.40		mg/kg	1.27	--	1
Benzo(a)pyrene	2.16		mg/kg	1.27	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	1.27	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	1.27	--	1
Benzo(ghi)perylene	4.15		mg/kg	1.27	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-07	Date Collected:	07/19/11 09:15
Client ID:	21206-023,024,025	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	74		40-140
2-Bromonaphthalene	72		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-08	Date Collected:	07/19/11 09:30
Client ID:	21206-027,028,029	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/31/11 00:54	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	91%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.18	--	1
C19-C36 Aliphatics	ND		mg/kg	7.18	--	1
C11-C22 Aromatics	56.1		mg/kg	7.18	--	1
C11-C22 Aromatics, Adjusted	38.9		mg/kg	7.18	--	1
Naphthalene	ND		mg/kg	0.359	--	1
2-Methylnaphthalene	0.411		mg/kg	0.359	--	1
Acenaphthylene	ND		mg/kg	0.359	--	1
Acenaphthene	1.13		mg/kg	0.359	--	1
Fluorene	0.757		mg/kg	0.359	--	1
Phenanthrene	4.57		mg/kg	0.359	--	1
Anthracene	1.00		mg/kg	0.359	--	1
Fluoranthene	1.54		mg/kg	0.359	--	1
Pyrene	2.99		mg/kg	0.359	--	1
Benzo(a)anthracene	0.908		mg/kg	0.359	--	1
Chrysene	0.867		mg/kg	0.359	--	1
Benzo(b)fluoranthene	0.515		mg/kg	0.359	--	1
Benzo(k)fluoranthene	0.468		mg/kg	0.359	--	1
Benzo(a)pyrene	0.978		mg/kg	0.359	--	1
Indeno(1,2,3-cd)Pyrene	0.424		mg/kg	0.359	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.359	--	1
Benzo(ghi)perylene	0.644		mg/kg	0.359	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-08	Date Collected:	07/19/11 09:30
Client ID:	21206-027,028,029	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	81		40-140
o-Terphenyl	106		40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	80		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-09 D	Date Collected:	07/19/11 10:00
Client ID:	21206-031,032,033	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 16:32	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	86%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	130		mg/kg	115	--	15
C19-C36 Aliphatics	286		mg/kg	115	--	15
C11-C22 Aromatics	2840		mg/kg	115	--	15
C11-C22 Aromatics, Adjusted	1870		mg/kg	115	--	15
Naphthalene	75.4		mg/kg	5.76	--	15
2-Methylnaphthalene	65.7		mg/kg	5.76	--	15
Acenaphthylene	9.58		mg/kg	5.76	--	15
Acenaphthene	68.9		mg/kg	5.76	--	15
Fluorene	36.4		mg/kg	5.76	--	15
Phenanthrene	166		mg/kg	5.76	--	15
Anthracene	40.2		mg/kg	5.76	--	15
Fluoranthene	70.5		mg/kg	5.76	--	15
Pyrene	147		mg/kg	5.76	--	15
Benzo(a)anthracene	48.1		mg/kg	5.76	--	15
Chrysene	48.3		mg/kg	5.76	--	15
Benzo(b)fluoranthene	29.6		mg/kg	5.76	--	15
Benzo(k)fluoranthene	31.2		mg/kg	5.76	--	15
Benzo(a)pyrene	62.7		mg/kg	5.76	--	15
Indeno(1,2,3-cd)Pyrene	26.7		mg/kg	5.76	--	15
Dibenzo(a,h)anthracene	ND		mg/kg	5.76	--	15
Benzo(ghi)perylene	38.7		mg/kg	5.76	--	15

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-09 D	Date Collected:	07/19/11 10:00
Client ID:	21206-031,032,033	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	104		40-140
o-Terphenyl	**240**	Q	40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	109		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-10 D	Date Collected:	07/19/11 10:30
Client ID:	21206-035,036,037	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	08/02/11 01:40	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	85%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	84.6		mg/kg	30.6	--	4
C19-C36 Aliphatics	44.0		mg/kg	30.6	--	4
C11-C22 Aromatics	837		mg/kg	30.6	--	4
C11-C22 Aromatics, Adjusted	558		mg/kg	30.6	--	4
Naphthalene	35.1		mg/kg	1.53	--	4
2-Methylnaphthalene	29.6		mg/kg	1.53	--	4
Acenaphthylene	2.35		mg/kg	1.53	--	4
Acenaphthene	15.6		mg/kg	1.53	--	4
Fluorene	10.9		mg/kg	1.53	--	4
Phenanthrene	49.8		mg/kg	1.53	--	4
Anthracene	11.8		mg/kg	1.53	--	4
Fluoranthene	18.0		mg/kg	1.53	--	4
Pyrene	37.0		mg/kg	1.53	--	4
Benzo(a)anthracene	10.3		mg/kg	1.53	--	4
Chrysene	10.6		mg/kg	1.53	--	4
Benzo(b)fluoranthene	7.18		mg/kg	1.53	--	4
Benzo(k)fluoranthene	8.06		mg/kg	1.53	--	4
Benzo(a)pyrene	13.8		mg/kg	1.53	--	4
Indeno(1,2,3-cd)Pyrene	7.29		mg/kg	1.53	--	4
Dibenzo(a,h)anthracene	2.25		mg/kg	1.53	--	4
Benzo(ghi)perylene	9.78		mg/kg	1.53	--	4

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-10 D	Date Collected:	07/19/11 10:30
Client ID:	21206-035,036,037	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	126		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	69		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-11	Date Collected:	07/19/11 11:00
Client ID:	21206-039,040,041	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 12:08	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	87%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.57	--	1
C19-C36 Aliphatics	65.9		mg/kg	7.57	--	1
C11-C22 Aromatics	47.9		mg/kg	7.57	--	1
C11-C22 Aromatics, Adjusted	47.0		mg/kg	7.57	--	1
Naphthalene	ND		mg/kg	0.378	--	1
2-Methylnaphthalene	ND		mg/kg	0.378	--	1
Acenaphthylene	ND		mg/kg	0.378	--	1
Acenaphthene	ND		mg/kg	0.378	--	1
Fluorene	ND		mg/kg	0.378	--	1
Phenanthrene	ND		mg/kg	0.378	--	1
Anthracene	ND		mg/kg	0.378	--	1
Fluoranthene	0.454		mg/kg	0.378	--	1
Pyrene	0.430		mg/kg	0.378	--	1
Benzo(a)anthracene	ND		mg/kg	0.378	--	1
Chrysene	ND		mg/kg	0.378	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.378	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.378	--	1
Benzo(a)pyrene	ND		mg/kg	0.378	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.378	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.378	--	1
Benzo(ghi)perylene	ND		mg/kg	0.378	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-11	Date Collected:	07/19/11 11:00
Client ID:	21206-039,040,041	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	79		40-140
o-Terphenyl	88		40-140
2-Fluorobiphenyl	87		40-140
2-Bromonaphthalene	84		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-12	Date Collected:	07/19/11 11:15
Client ID:	21206-043,044,045	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/31/11 02:28	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	81%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.80	--	1
C19-C36 Aliphatics	12.4		mg/kg	7.80	--	1
C11-C22 Aromatics	88.9		mg/kg	7.80	--	1
C11-C22 Aromatics, Adjusted	66.3		mg/kg	7.80	--	1
Naphthalene	ND		mg/kg	0.390	--	1
2-Methylnaphthalene	ND		mg/kg	0.390	--	1
Acenaphthylene	ND		mg/kg	0.390	--	1
Acenaphthene	ND		mg/kg	0.390	--	1
Fluorene	ND		mg/kg	0.390	--	1
Phenanthrene	1.79		mg/kg	0.390	--	1
Anthracene	ND		mg/kg	0.390	--	1
Fluoranthene	3.09		mg/kg	0.390	--	1
Pyrene	3.85		mg/kg	0.390	--	1
Benzo(a)anthracene	1.79		mg/kg	0.390	--	1
Chrysene	2.17		mg/kg	0.390	--	1
Benzo(b)fluoranthene	1.79		mg/kg	0.390	--	1
Benzo(k)fluoranthene	1.50		mg/kg	0.390	--	1
Benzo(a)pyrene	2.21		mg/kg	0.390	--	1
Indeno(1,2,3-cd)Pyrene	1.75		mg/kg	0.390	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.390	--	1
Benzo(ghi)perylene	2.65		mg/kg	0.390	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-12	Date Collected:	07/19/11 11:15
Client ID:	21206-043,044,045	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	96		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	71		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-13	Date Collected:	07/19/11 12:00
Client ID:	21206-047,048,049	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 10:36
Analytical Date:	07/30/11 23:51	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/30/11
Percent Solids:	77%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	15.5		mg/kg	8.49	--	1
C19-C36 Aliphatics	10.3		mg/kg	8.49	--	1
C11-C22 Aromatics	63.9		mg/kg	8.49	--	1
C11-C22 Aromatics, Adjusted	61.6		mg/kg	8.49	--	1
Naphthalene	0.466		mg/kg	0.424	--	1
2-Methylnaphthalene	ND		mg/kg	0.424	--	1
Acenaphthylene	ND		mg/kg	0.424	--	1
Acenaphthene	ND		mg/kg	0.424	--	1
Fluorene	ND		mg/kg	0.424	--	1
Phenanthrene	0.574		mg/kg	0.424	--	1
Anthracene	ND		mg/kg	0.424	--	1
Fluoranthene	ND		mg/kg	0.424	--	1
Pyrene	0.452		mg/kg	0.424	--	1
Benzo(a)anthracene	ND		mg/kg	0.424	--	1
Chrysene	0.784		mg/kg	0.424	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.424	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.424	--	1
Benzo(a)pyrene	ND		mg/kg	0.424	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.424	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.424	--	1
Benzo(ghi)perylene	ND		mg/kg	0.424	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-13	Date Collected:	07/19/11 12:00
Client ID:	21206-047,048,049	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	50		40-140
o-Terphenyl	82		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	70		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-14	Date Collected:	07/19/11 13:00
Client ID:	21206-051	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/24/11 11:31
Analytical Date:	07/27/11 06:46	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	07/26/11
Percent Solids:	68%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.24	--	1
C19-C36 Aliphatics	ND		mg/kg	9.24	--	1
C11-C22 Aromatics	42.5		mg/kg	9.24	--	1
C11-C22 Aromatics, Adjusted	25.8		mg/kg	9.24	--	1
Naphthalene	ND		mg/kg	0.462	--	1
2-Methylnaphthalene	ND		mg/kg	0.462	--	1
Acenaphthylene	ND		mg/kg	0.462	--	1
Acenaphthene	ND		mg/kg	0.462	--	1
Fluorene	ND		mg/kg	0.462	--	1
Phenanthrene	2.42		mg/kg	0.462	--	1
Anthracene	ND		mg/kg	0.462	--	1
Fluoranthene	3.17		mg/kg	0.462	--	1
Pyrene	3.00		mg/kg	0.462	--	1
Benzo(a)anthracene	1.27		mg/kg	0.462	--	1
Chrysene	1.52		mg/kg	0.462	--	1
Benzo(b)fluoranthene	1.23		mg/kg	0.462	--	1
Benzo(k)fluoranthene	1.02		mg/kg	0.462	--	1
Benzo(a)pyrene	1.30		mg/kg	0.462	--	1
Indeno(1,2,3-cd)Pyrene	0.914		mg/kg	0.462	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.462	--	1
Benzo(ghi)perylene	0.907		mg/kg	0.462	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-14	Date Collected:	07/19/11 13:00
Client ID:	21206-051	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	75		40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	80		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-15	Date Collected:	07/19/11 14:00
Client ID:	21206-053	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/24/11 11:31
Analytical Date:	07/27/11 03:40	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	07/26/11
Percent Solids:	85%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	38.3	--	5
C19-C36 Aliphatics	135		mg/kg	38.3	--	5
C11-C22 Aromatics	558		mg/kg	38.3	--	5
C11-C22 Aromatics, Adjusted	392		mg/kg	38.3	--	5
Naphthalene	ND		mg/kg	1.91	--	5
2-Methylnaphthalene	ND		mg/kg	1.91	--	5
Acenaphthylene	ND		mg/kg	1.91	--	5
Acenaphthene	ND		mg/kg	1.91	--	5
Fluorene	ND		mg/kg	1.91	--	5
Phenanthrene	19.8		mg/kg	1.91	--	5
Anthracene	3.96		mg/kg	1.91	--	5
Fluoranthene	31.0		mg/kg	1.91	--	5
Pyrene	26.7		mg/kg	1.91	--	5
Benzo(a)anthracene	13.0		mg/kg	1.91	--	5
Chrysene	14.7		mg/kg	1.91	--	5
Benzo(b)fluoranthene	12.8		mg/kg	1.91	--	5
Benzo(k)fluoranthene	11.2		mg/kg	1.91	--	5
Benzo(a)pyrene	14.4		mg/kg	1.91	--	5
Indeno(1,2,3-cd)Pyrene	9.28		mg/kg	1.91	--	5
Dibenzo(a,h)anthracene	ND		mg/kg	1.91	--	5
Benzo(ghi)perylene	9.61		mg/kg	1.91	--	5

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-15	Date Collected:	07/19/11 14:00
Client ID:	21206-053	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	**166**	Q	40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	85		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-16	Date Collected:	07/19/11 14:15
Client ID:	21206-055	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/24/11 11:31
Analytical Date:	07/27/11 07:17	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	07/26/11
Percent Solids:	89%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.83	--	1
C19-C36 Aliphatics	7.80		mg/kg	6.83	--	1
C11-C22 Aromatics	34.8		mg/kg	6.83	--	1
C11-C22 Aromatics, Adjusted	25.5		mg/kg	6.83	--	1
Naphthalene	ND		mg/kg	0.341	--	1
2-Methylnaphthalene	ND		mg/kg	0.341	--	1
Acenaphthylene	ND		mg/kg	0.341	--	1
Acenaphthene	ND		mg/kg	0.341	--	1
Fluorene	ND		mg/kg	0.341	--	1
Phenanthrene	0.981		mg/kg	0.341	--	1
Anthracene	ND		mg/kg	0.341	--	1
Fluoranthene	1.93		mg/kg	0.341	--	1
Pyrene	1.71		mg/kg	0.341	--	1
Benzo(a)anthracene	0.833		mg/kg	0.341	--	1
Chrysene	0.902		mg/kg	0.341	--	1
Benzo(b)fluoranthene	0.583		mg/kg	0.341	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.341	--	1
Benzo(a)pyrene	0.921		mg/kg	0.341	--	1
Indeno(1,2,3-cd)Pyrene	0.681		mg/kg	0.341	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.341	--	1
Benzo(ghi)perylene	0.751		mg/kg	0.341	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-16	Date Collected:	07/19/11 14:15
Client ID:	21206-055	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	69		40-140
2-Fluorobiphenyl	70		40-140
2-Bromonaphthalene	76		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-17	Date Collected:	07/19/11 14:30
Client ID:	21206-057	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/24/11 11:31
Analytical Date:	07/27/11 08:20	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	07/26/11
Percent Solids:	88%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.98	--	1
C19-C36 Aliphatics	ND		mg/kg	6.98	--	1
C11-C22 Aromatics	ND		mg/kg	6.98	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.98	--	1
Naphthalene	0.626		mg/kg	0.349	--	1
2-Methylnaphthalene	ND		mg/kg	0.349	--	1
Acenaphthylene	ND		mg/kg	0.349	--	1
Acenaphthene	ND		mg/kg	0.349	--	1
Fluorene	ND		mg/kg	0.349	--	1
Phenanthrene	ND		mg/kg	0.349	--	1
Anthracene	ND		mg/kg	0.349	--	1
Fluoranthene	ND		mg/kg	0.349	--	1
Pyrene	ND		mg/kg	0.349	--	1
Benzo(a)anthracene	ND		mg/kg	0.349	--	1
Chrysene	ND		mg/kg	0.349	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.349	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.349	--	1
Benzo(a)pyrene	ND		mg/kg	0.349	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.349	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.349	--	1
Benzo(ghi)perylene	ND		mg/kg	0.349	--	1

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111004-17	Date Collected:	07/19/11 14:30
Client ID:	21206-057	Date Received:	07/21/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	67		40-140
2-Fluorobiphenyl	72		40-140
2-Bromonaphthalene	79		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 07/27/11 06:15
Analyst: NH

Extraction Method: EPA 3546
Extraction Date: 07/24/11 11:31
Cleanup Method1: EPH-04-1
Cleanup Date1: 07/26/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 14-17 Batch: WG480776-1					
C9-C18 Aliphatics	ND		mg/kg	6.39	--
C19-C36 Aliphatics	ND		mg/kg	6.39	--
C11-C22 Aromatics	ND		mg/kg	6.39	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.39	--
Naphthalene	ND		mg/kg	0.319	--
2-Methylnaphthalene	ND		mg/kg	0.319	--
Acenaphthylene	ND		mg/kg	0.319	--
Acenaphthene	ND		mg/kg	0.319	--
Fluorene	ND		mg/kg	0.319	--
Phenanthrene	ND		mg/kg	0.319	--
Anthracene	ND		mg/kg	0.319	--
Fluoranthene	ND		mg/kg	0.319	--
Pyrene	ND		mg/kg	0.319	--
Benzo(a)anthracene	ND		mg/kg	0.319	--
Chrysene	ND		mg/kg	0.319	--
Benzo(b)fluoranthene	ND		mg/kg	0.319	--
Benzo(k)fluoranthene	ND		mg/kg	0.319	--
Benzo(a)pyrene	ND		mg/kg	0.319	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.319	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.319	--
Benzo(ghi)perylene	ND		mg/kg	0.319	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	44		40-140
2-Fluorobiphenyl	45		40-140
2-Bromonaphthalene	50		40-140

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 07/30/11 19:40
Analyst: MW

Extraction Method: EPA 3546
Extraction Date: 07/29/11 10:36
Cleanup Method1: EPH-04-1
Cleanup Date1: 07/30/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-04,06-13 Batch: WG481797-1					
C9-C18 Aliphatics	ND		mg/kg	6.66	--
C19-C36 Aliphatics	ND		mg/kg	6.66	--
C11-C22 Aromatics	ND		mg/kg	6.66	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.66	--
Naphthalene	ND		mg/kg	0.333	--
2-Methylnaphthalene	ND		mg/kg	0.333	--
Acenaphthylene	ND		mg/kg	0.333	--
Acenaphthene	ND		mg/kg	0.333	--
Fluorene	ND		mg/kg	0.333	--
Phenanthrene	ND		mg/kg	0.333	--
Anthracene	ND		mg/kg	0.333	--
Fluoranthene	ND		mg/kg	0.333	--
Pyrene	ND		mg/kg	0.333	--
Benzo(a)anthracene	ND		mg/kg	0.333	--
Chrysene	ND		mg/kg	0.333	--
Benzo(b)fluoranthene	ND		mg/kg	0.333	--
Benzo(k)fluoranthene	ND		mg/kg	0.333	--
Benzo(a)pyrene	ND		mg/kg	0.333	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.333	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.333	--
Benzo(ghi)perylene	ND		mg/kg	0.333	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	78		40-140
2-Bromonaphthalene	75		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 14-17 Batch: WG480776-2 WG480776-3								
C9-C18 Aliphatics	64		64		40-140	0		25
C19-C36 Aliphatics	75		78		40-140	4		25
C11-C22 Aromatics	74		79		40-140	7		25
Naphthalene	72		71		40-140	1		25
2-Methylnaphthalene	76		76		40-140	0		25
Acenaphthylene	65		66		40-140	2		25
Acenaphthene	74		75		40-140	1		25
Fluorene	73		74		40-140	1		25
Phenanthrene	75		77		40-140	3		25
Anthracene	73		76		40-140	4		25
Fluoranthene	76		80		40-140	5		25
Pyrene	78		83		40-140	6		25
Benzo(a)anthracene	72		77		40-140	7		25
Chrysene	74		80		40-140	8		25
Benzo(b)fluoranthene	75		80		40-140	6		25
Benzo(k)fluoranthene	75		82		40-140	9		25
Benzo(a)pyrene	70		75		40-140	7		25
Indeno(1,2,3-cd)Pyrene	73		81		40-140	10		25
Dibenzo(a,h)anthracene	69		76		40-140	10		25
Benzo(ghi)perylene	72		79		40-140	9		25
Nonane (C9)	56		55		30-140	2		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 14-17 Batch: WG480776-2 WG480776-3								
Decane (C10)	64		63		40-140	2		25
Dodecane (C12)	69		68		40-140	1		25
Tetradecane (C14)	71		70		40-140	1		25
Hexadecane (C16)	74		74		40-140	0		25
Octadecane (C18)	78		79		40-140	1		25
Nonadecane (C19)	78		81		40-140	4		25
Eicosane (C20)	78		80		40-140	3		25
Docosane (C22)	77		80		40-140	4		25
Tetracosane (C24)	77		80		40-140	4		25
Hexacosane (C26)	77		80		40-140	4		25
Octacosane (C28)	76		79		40-140	4		25
Triacontane (C30)	79		82		40-140	4		25
Hexatriacontane (C36)	83		87		40-140	5		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	165	Q	80		40-140
o-Terphenyl	161	Q	83		40-140
2-Fluorobiphenyl	83		81		40-140
2-Bromonaphthalene	87		88		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-04,06-13 Batch: WG481797-2 WG481797-3								
C9-C18 Aliphatics	53		67		40-140	23		25
C19-C36 Aliphatics	62		81		40-140	**27**	Q	25
C11-C22 Aromatics	64		84		40-140	**27**	Q	25
Naphthalene	56		71		40-140	24		25
2-Methylnaphthalene	60		77		40-140	25		25
Acenaphthylene	58		76		40-140	**27**	Q	25
Acenaphthene	60		78		40-140	**26**	Q	25
Fluorene	61		82		40-140	**29**	Q	25
Phenanthrene	62		83		40-140	**29**	Q	25
Anthracene	62		82		40-140	**28**	Q	25
Fluoranthene	64		85		40-140	**28**	Q	25
Pyrene	65		86		40-140	**28**	Q	25
Benzo(a)anthracene	63		84		40-140	**29**	Q	25
Chrysene	64		86		40-140	**29**	Q	25
Benzo(b)fluoranthene	66		87		40-140	**27**	Q	25
Benzo(k)fluoranthene	66		87		40-140	**27**	Q	25
Benzo(a)pyrene	65		86		40-140	**28**	Q	25
Indeno(1,2,3-cd)Pyrene	66		87		40-140	**27**	Q	25
Dibenzo(a,h)anthracene	63		82		40-140	**26**	Q	25
Benzo(ghi)perylene	65		86		40-140	**28**	Q	25
Nonane (C9)	48		58		30-140	19		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-04,06-13 Batch: WG481797-2 WG481797-3								
Decane (C10)	54		65		40-140	18		25
Dodecane (C12)	56		70		40-140	22		25
Tetradecane (C14)	58		75		40-140	**26**	Q	25
Hexadecane (C16)	60		79		40-140	**27**	Q	25
Octadecane (C18)	63		82		40-140	**26**	Q	25
Nonadecane (C19)	63		83		40-140	**27**	Q	25
Eicosane (C20)	63		82		40-140	**26**	Q	25
Docosane (C22)	62		81		40-140	**27**	Q	25
Tetracosane (C24)	62		81		40-140	**27**	Q	25
Hexacosane (C26)	63		82		40-140	**26**	Q	25
Octacosane (C28)	62		81		40-140	**27**	Q	25
Triacontane (C30)	66		86		40-140	**26**	Q	25
Hexatriacontane (C36)	75		96		40-140	25		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	64		75		40-140
o-Terphenyl	70		79		40-140
2-Fluorobiphenyl	70		76		40-140
2-Bromonaphthalene	70		76		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

INORGANICS
&
MISCELLANEOUS

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-01
Client ID: 21206-002,003,004
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/18/11 12:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	49		%	0.10	NA	1	-	07/22/11 08:50	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-02
Client ID: 21206-006,007,008
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/18/11 12:30
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77		%	0.10	NA	1	-	07/22/11 08:50	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-03
Client ID: 21206-010,011,012
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/18/11 13:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86		%	0.10	NA	1	-	07/22/11 08:50	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-04
Client ID: 21206-014,015,016
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/18/11 13:30
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-06
Client ID: 21206-019,020,021
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 09:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-07
Client ID: 21206-023,024,025
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 09:15
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	26		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-08
Client ID: 21206-027,028,029
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 09:30
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-09
Client ID: 21206-031,032,033
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 10:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-10
Client ID: 21206-035,036,037
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 10:30
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-11
Client ID: 21206-039,040,041
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 11:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-12
Client ID: 21206-043,044,045
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 11:15
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-13
Client ID: 21206-047,048,049
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 12:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-14
Client ID: 21206-051
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 13:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-15
Client ID: 21206-053
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 14:00
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-16
Client ID: 21206-055
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 14:15
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111004-17
Client ID: 21206-057
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/19/11 14:30
Date Received: 07/21/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	07/22/11 09:10	30,2540G	JC

Lab Duplicate Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG480509-1 QC Sample: L1110933-04 Client ID: DUP Sample						
Solids, Total	88	88	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 04,06-17 QC Batch ID: WG480510-1 QC Sample: L1111004-04 Client ID: 21206-014,015,016						
Solids, Total	81	82	%	1		20

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: 07/21/2011 20:43

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1111004-01A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-01B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-01C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-01D	Amber 250ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-02A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-02B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-02C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-02D	Amber 250ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-03A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-03B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-03C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-03D	Amber 250ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-04A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-04B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-04C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-04D	Amber 250ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-05A	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-05B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-06A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-06B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-06C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-06D	Amber 250ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-07A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-07B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-07C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-07D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-08A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)

*Values in parentheses indicate holding time in days

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111004
Report Date: 08/02/11

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1111004-08B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-08C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-08D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-09A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-09B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-09C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-09D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-10A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-10B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-10C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-10D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-11A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-11B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-11C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-11D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-12A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-12B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-12C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-12D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-13A	Vial MeOH preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-13B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-13C	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-13D	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-14A	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-15A	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-16A	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-17A	Amber 120ml unpreserved	A	N/A	4	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111004-18A	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)
L1111004-18B	Vial water preserved	A	N/A	4	Y	Absent	MCP-8260HLW-10(14)

*Values in parentheses indicate holding time in days

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report

Project Name: 21206 **Lab Number:** L1111004

Project Number: Not Specified **Report Date:** 08/02/11

Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: 21206 **Lab Number:** L1111004
Project Number: Not Specified **Report Date:** 08/02/11

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 28, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B**,** 3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^{-}$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

ALPHA Job # L1111004

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

...e: ESI	Contact: Megan Scott	Project Name: 21206	Page 1 of 4
...port to:	Address:	Project Number:	
...voice to:	Address:	Project Manager:	
...ice:	Fax:	email: mscott@envirosystems.com	P.O. No: Quote No:

...otocol: RCRA SDWA NPDES USCOE Other

...b Number (...signed lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
004.1	21206-002	7/18/11	12:00	GD	C	9oz	G		S		MA EPH
1	21206-003	↓	↓	↓	↓	40	G	MeOH	S		VOC High
1	21206-004	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
2	21206-006	7/18/11	12:30	GD	C	9oz	G		S		MA EPH
2	21206-007	↓	↓	↓	↓	40	G	MeOH	S		VOC High
2	21206-008	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
3	21206-010	7/18/11	13:00	GD	C	9oz	G		S		MA EPH
3	21206-011	↓	↓	↓	↓	40	G	MeOH	S		VOC High
3	21206-012	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
4	21206-014	7/18/11	13:30	GD	C	9oz	G		S		MA EPH
4	21206-015	↓	↓	↓	↓	↓	G	MeOH	S		VOC High
4	21206-016	↓	↓	↓	↓	↓	G	H_2O	S		VOC Low

...linquished By: D White	Date: 7/21/11	Time: 10:30	Received By: [illegible] Date: 7/21/11 Time: 1030
...linquished By:	Date:	Time:	Received at Lab By: Date: Time:

...omments: To Alpha

All VOC (High + Lo) 5 day TAT please MA EPH 10 day TAT

Sample Delivery Group No:	Page of

...OC Doc No: 4599

ESI

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ALPHA Job # L1111004

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FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

ent: ESI	Contact: Megan Scott	Project Name: 21206	Page 2 of 4
port to:	Address:	Project Number:	
voice to:	Address:	Project Manager:	
ice:	Fax:	email: mscott@envirosystems.com	P.O. No: Quote No:

otocol: RCRA SDWA NPDES USCOE Other

ab Number (signed lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
004.5	21206-017	7/14/11				40	G	H_2O			VOC Low
6	21206-019	7/19/11	0900	GD	C	9oz	G		S		MA EPH
6	21206-020	↓	↓	↓	↓	40	G	MeOH	S		VOC High
6	21206-021	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
7	21206-023	7/19/11	09:15	GD	C	9oz	G		S		MA EPH
7	21206-024	↓	↓	↓	↓	40	G	MeOH	S		VOC High
7	21206-025	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
8	21206-027	7/19/11	09:30	GD	C	9oz	G		S		MA EPH
8	21206-028	↓	↓	↓	↓	40	G	MeOH	S		VOC High
8	21206-029	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
9	~~2102~~ 21206-031	7/19/11	10:00	GD	C	9oz	G		S		MA EPH
9	21206-032	↓	↓	↓	↓	40	G	MeOH	S		VOC High

linquished By: D Cebrette Date: 7/20/11 Time: 10:30 Received By: [illegible] Date: 7/21/11 Time: 1030

linquished By: Date: Time: Received at Lab By: Date: Time:

omments: To Alpha

All VOC (High + Low) 5 day TAT please MA EPH 10 day TAT

Sample Delivery Group No: Page of

OC Doc No: 4600

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 745
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ALPHA Job # L1111004

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

Client: ESI	Contact: Megan Scott	Project Name: 21206	Page 3 of 4
Report to: ↓	Address:	Project Number:	
Invoice to: ↓	Address:	Project Manager:	
Voice: ↓	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned / lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
004.9	21206-033	7/19/11	10:00	GD	C	4oz	G	H_2O	S		VOC Low
10	21206-035	7/19/11	10:30	GD	C	9oz	G		S		MA EPH
10	21206-036	↓	↓	↓	↓	40	G	MeOH	S		VOC High
10	21206-037	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
11	21206-039	7/19/11	11:00	GD	C	9oz	G		S		MA EPH
11	21206-040	↓	↓	↓	↓	40	G	MeOH	S		VOC High
11	21206-041	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
12	21206-043	7/19/11	11:15	GD	C	4oz	G		S		MA EPH
12	21206-044	↓	↓	↓	↓	40	G	MeOH	S		VOC High
12	21206-045	↓	↓	↓	↓	40	G	H_2O	S		VOC Low
13	21206-047	7/19/11	12:00	GD	C	4oz	G		S		MA EPH
13	21206-048	↓	↓	↓	↓	40	G	MeOH	S		VOC High

Relinquished By: [signature]	Date: 7/21/11	Time: 10:30	Received By: [signature] Date: 7/21/11 Time: 1030
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments: To Alpha

All VOC (High + Low) 5 day TAT please MA EPH 10 day TAT

Sample Delivery Group No: Page of

DOC Doc No: 4596

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

ALPHA Job # L1111004

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

Serial No:80211633

Client: ESI	Contact: Megan Scott	Project Name: 21206	Page 4 of 4
Report to: ↓	Address:	Project Number:	
Invoice to: ↓	Address:	Project Manager:	
Invoice: ↓	Fax:	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
004.13	21206-049	7/19/11	12:00	GD	C	40	G	H_2O	S		VOC LOW
14	21206-051	7/19/11	13:00	GD	C	4oz	G		S		MA EPH
15	21206-053	7/19/11	1400	GD	C	4oz	G		S		MA EPH
16	21206-055	7/19/11	14:15	GD	C	4oz	G		S		MA EPH
17	21206-057	7/19/11	14:30	GD	C	4oz	G		S		MA EPH
18	21206-058	7/19/11	15:00	GD		40	G	H_2O			VOC LOW

Relinquished By: D White Date: 7/21/11 Time: 10:30 Received By: [illegible] Date: 7/21/11 Time: 1030

Relinquished By: Date: Time: Received at Lab By: Date: Time:

Comments: To Alpha

All VOC (High + Low) 5 day TAT please MA EPH 10 day TAT

COC Doc No: 4595

Sample Delivery Group No: Page of

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 26-JUL-2011 Time: 06:32

Lab File ID: 0726A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.51464	.34323	.1	33	20	F
chloromethane	.72395	.48007	.1	34	20	F
vinyl chloride	.64051	.52156	.1	19	20	
bromomethane	.35522	.26133	.1	26	20	F
chloroethane	.36316	.32386	.1	11	20	
trichlorofluoromethane	.76783	.74132	.1	3	20	
ethyl ether	.2548	.22837	.05	10	20	
1,1,-dichloroethene	.52577	.49086	.1	7	20	
carbon disulfide	1.4189	1.3302	.1	6	20	
freon-113	.50328	.50195	.1	0	20	
iodomethane	.76333	.38406	.05	50	20	F
acrolien	.00529	.03867	.05	-631	20	F
methylene chloride	.58411	.55381	.1	5	20	
acetone	100	65.206	.1	35	20	F
trans-1,2-dichloroethene	.58756	.5546	.1	6	20	
methyl acetate	.24556	.2132	.1	13	20	
methyl tert butyl ether	1.3085	1.0642	.1	19	20	
tert butyl alcohol	.04112	.03586	.05	13	20	F
Diisopropyl Ether	1.7281	1.4646	.01	15	20	
1,1-dichloroethane	1.0440	.94363	.2	10	20	
Halothane	.45395	.40741	.05	10	20	
Ethyl-Tert-Butyl-Ether	1.5709	1.3240	.05	16	20	
vinyl acetate	.91019	.8061	.05	11	20	
cis-1,2-dichloroethene	.6364	.61016	.1	4	20	
2,2-dichloropropane	.8103	.80152	.05	1	20	
bromochloromethane	.29365	.27699	.05	6	20	
chloroform	.97072	.91615	.2	6	20	
carbontetrachloride	.74515	.69848	.1	6	20	
ethyl acetate	.35091	.30317	.05	14	20	
tetrahydrofuran	.11977	.09616	.05	20	20	
1,1,1-trichloroethane	.85602	.81445	.1	5	20	
1,1-dichloropropene	.82562	.78456	.05	5	20	
2-butanone	.15979	.13966	.1	13	20	
benzene	2.4862	2.3230	.5	7	20	
Tertiary-Amyl Methyl Ether	1.3512	1.2019	.05	11	20	
1,2-dichloroethane	.60644	.53932	.1	11	20	
trichloroethene	.6214	.59576	.2	4	20	
dibromomethane	.29164	.27273	.05	6	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 26-JUL-2011 Time: 06:32

Lab File ID: 0726A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
1,2-dichloropropane	.61786	.53912	.1	13	20	
bromodichloromethane	.83554	.71481	.2	14	20	
1,4-dioxane	.00293	.00325	.05	-11	20	F
2-chloroethylvinyl ether	.2818	.2573	.05	9	20	
cis-1,3-dichloropropene	.90971	.8048	.2	12	20	
toluene	2.0650	1.8923	.4	8	20	
tetrachloroethene	.96842	.92188	.2	5	20	
4-methyl-2-pentanone	.14621	.12779	.1	13	20	
trans-1,3-dichloropropene	.98043	.85987	.1	12	20	
1,1,2-trichloroethane	.48814	.42148	.1	14	20	
chlorodibromomethane	.68897	.56226	.1	18	20	
1,3-dichloropropane	.99242	.85987	.05	13	20	
1,2-dibromoethane	.5844	.50602	.1	13	20	
2-hexanone	.30316	.24026	.1	21	20	F
chlorobenzene	2.2881	2.0481	.5	10	20	
ethyl benzene	3.8858	3.5985	.1	7	20	
1,1,1,2-tetrachloroethane	.77094	.67916	.05	12	20	
p/m xylene	1.5531	1.4579	.1	6	20	
o xylene	1.5037	1.3783	.3	8	20	
bromoform	.73129	.59771	.1	18	20	
styrene	2.4717	2.2562	.3	9	20	
isopropylbenzene	3.8629	3.5473	.1	8	20	
bromobenzene	1.7372	1.6079	.05	7	20	
n-propylbenzene	7.3574	6.9425	.05	6	20	
1,1,2,2,-tetrachloroethane	1.1510	.9874	.3	14	20	
4-ethyltoluene	6.6346	5.4553	.05	18	20	
2-chlorotoluene	5.0241	4.5173	.05	10	20	
1,2,3-trichloropropane	.84982	.76525	.05	10	20	
1,3,5-trimethybenzene	5.0630	4.6630	.05	8	20	
trans-1,4-dichloro-2-butene	.28106	.22609	.05	20	20	
4-chorotoluene	4.4986	4.1604	.05	8	20	
1,2,4-trimethylbenzene	5.1280	4.8569	.05	5	20	
sec-butylbenzene	6.1442	5.5819	.01	9	20	
tert-butylbenzene	4.4234	4.0949	.05	7	20	
p-isopropyltoluene	5.0070	4.7306	.05	6	20	
1,3-dichlorobenzene	3.0830	2.8309	.6	8	20	
1,4-dichlorobenzene	3.1175	2.8637	.5	8	20	
p-diethylbenzene	3.0895	2.5026	.05	19	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 26-JUL-2011 Time: 06:32

Lab File ID: 0726A01 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 07:57 13:55

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
n-butylbenzene	4.0357	3.6514	.05	10	20
1,2-dichlorobenzene	2.8281	2.5699	.4	9	20
1,2,4,5-tetramethylbenzene	4.3658	3.5277	.05	19	20
1,2-dibromo-3-chloropropane	.15112	.12696	.05	16	20
1,3,5-trichlorobenzene	.77501	.65804	.05	15	20
1,2,4-trichlorobenzene	1.3925	1.3321	.2	4	20
hexachlorobutadiene	.58852	.59368	.05	-1	20
naphthalene	2.7390	2.3971	.05	12	20
1,2,3-trichlorobenzene	1.1195	1.0124	.05	10	20
dibromofluoromethane	.2378	.2397	.05	-1	20
1,2-dichloroethane-d4	.22894	.21897	.05	4	20
toluene-d8	1.2709	1.2501	.01	2	20
4-bromofluorobenzene	.78386	.79628	.05	-2	20

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 27-JUL-2011 Time: 07:05

Lab File ID: 0727A02 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260v ccal Init. Calib. Times : 08:13 14:11

Compound	RRF	RRF	MIN RRF	%D	MAX %D	
dichlorodifluoromethane	.52492	.3765	.1	28	20	F
chloromethane	.70039	.56244	.1	20	20	
vinyl chloride	.72014	.59375	.1	18	20	
bromomethane	.40322	.34401	.1	15	20	
chloroethane	100	90.850	.1	9	20	
trichlorofluoromethane	.83655	.8203	.1	2	20	
ethyl ether	.23936	.25207	.05	-5	20	
1,1,-dichloroethene	.59342	.54053	.1	9	20	
carbon disulfide	1.4576	1.4080	.05	3	20	
freon-113	.54782	.53075	.1	3	20	
methylene chloride	.60652	.62018	.05	-2	20	
acetone	100	102	.1	-2	20	
trans-1,2-dichloroethene	.6048	.62598	.1	-4	20	
methyl tert butyl ether	1.1567	1.0765	.1	7	20	
Ethyl-Tert-Butyl-Ether	1.3170	1.2088	.05	8	20	
Diisopropyl Ether	1.4918	1.3595	.05	9	20	
1,1-dichloroethane	1.0495	1.0740	.2	-2	20	
cis-1,2-dichloroethene	.64358	.67903	.1	-6	20	
2,2-dichloropropane	.82415	.87001	.05	-6	20	
2-butanone	.1438	.16097	.1	-12	20	
bromochloromethane	.2814	.3197	.05	-14	20	
chloroform	1.0144	1.0129	.2	0	20	
carbontetrachloride	.80663	.74872	.1	7	20	
tetrahydrofuran	.11027	.12003	.05	-9	20	
1,1,1-trichloroethane	.83621	.86905	.1	-4	20	
1,1-dichloropropene	.7978	.77152	.05	3	20	
Tertiary-Amyl Methyl Ether	1.1038	1.0957	.05	1	20	
benzene	2.3459	2.2979	.5	2	20	
1,2-dichloroethane	.59571	.58888	.1	1	20	
trichloroethene	.60089	.56154	.2	7	20	
dibromomethane	.28717	.31605	.05	-10	20	
1,2-dichloropropane	.57637	.55343	.1	4	20	
bromodichloromethane	.77062	.75088	.2	3	20	
1,4-dioxane	.0029	.00235	.05	19	20	F
cis-1,3-dichloropropene	.83903	.75469	.2	10	20	
toluene	1.9231	1.7552	.4	9	20	
tetrachloroethene	.9071	.87283	.2	4	20	
4-methyl-2-pentanone	100	103	.1	-3	20	

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 27-JUL-2011 Time: 07:05

Lab File ID: 0727A02 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260v ccal Init. Calib. Times : 08:13 14:11

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
trans-1,3-dichloropropene	.85413	.77442	.1	9	20
1,1,2-trichloroethane	.44046	.40913	.1	7	20
chlorodibromomethane	.61242	.54119	.1	12	20
1,3-dichloropropane	.87693	.81957	.05	7	20
1,2-dibromoethane	.51062	.48887	.1	4	20
2-hexanone	.22887	.25093	.1	-10	20
chlorobenzene	2.1037	1.9473	.5	7	20
ethyl benzene	3.6137	3.5058	.1	3	20
1,1,1,2-tetrachloroethane	.67014	.60227	.05	10	20
p/m xylene	1.4606	1.4440	.1	1	20
o xylene	1.4092	1.3506	.3	4	20
styrene	2.3254	2.2726	.3	2	20
bromoform	.60371	.54453	.1	10	20
isopropylbenzene	3.5894	3.5208	.1	2	20
bromobenzene	1.5107	1.453	.05	4	20
n-propylbenzene	6.683	6.3538	.05	5	20
1,1,2,2,-tetrachloroethane	.94093	.93383	.3	1	20
2-chlorotoluene	4.4983	4.1771	.05	7	20
1,2,3-trichloropropane	.72666	.71735	.05	1	20
1,3,5-trimethybenzene	4.6345	4.1949	.05	9	20
4-chorotoluene	4.1977	3.6331	.05	13	20
tert-butylbenzene	3.9944	3.7891	.05	5	20
1,2,4-trimethylbenzene	4.6350	4.3695	.05	6	20
sec-butylbenzene	5.7010	5.3285	.05	7	20
p-isopropyltoluene	4.6636	4.5399	.05	3	20
1,3-dichlorobenzene	2.8506	2.6685	.6	6	20
1,4-dichlorobenzene	2.8556	2.7429	.5	4	20
n-butylbenzene	3.7474	3.6472	.05	3	20
1,2-dichlorobenzene	2.6854	2.4707	.4	8	20
1,2-dibromo-3-chloropropane	.14877	.14605	.05	2	20
hexachlorobutadiene	.59701	.55345	.05	7	20
1,2,4-trichlorobenzene	1.4506	1.4209	.2	2	20
naphthalene	2.7849	2.8420	.05	-2	20
1,2,3-trichlorobenzene	1.1595	1.1197	.05	3	20
dibromofluoromethane	.26339	.27768	.05	-5	20
1,2-dichloroethane-d4	.24671	.26165	.05	-6	20
toluene-d8	1.2527	1.2271	.05	2	20

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Jack.i Calibration Date: 27-JUL-2011 Time: 07:05

Lab File ID: 0727A02 Init. Calib. Date(s): 04-JUL-2 04-JUL-2

Sample No: 8260v ccal Init. Calib. Times : 08:13 14:11

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
4-bromofluorobenzene	.77815	.75591	.05	3	20

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Voa100.i Calibration Date: 27-JUL-2011 Time: 06:48

Lab File ID: 0727A01 Init. Calib. Date(s): 26-JUL-2 26-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 08:49 11:27

Compound	RRF	RRF	MIN RRF	%D	MAX %D
dichlorodifluoromethane	.2291	.25683	.1	-12	20
chloromethane	.57618	.54522	.1	5	20
vinyl chloride	.3228	.33735	.1	-5	20
bromomethane	.16407	.15785	.1	4	20
chloroethane	.15898	.16	.1	-1	20
trichlorofluoromethane	.49496	.51768	.1	-5	20
ethyl ether	.12874	.12063	.05	6	20
1,1,-dichloroethene	.21453	.20957	.1	2	20
carbon disulfide	.6942	.591	.1	15	20
Freon 113	.23445	.22467	.1	4	20
methylene chloride	.24977	.25358	.1	-2	20
acetone	100	88.342	.1	12	20
trans-1,2-dichloroethene	.24519	.24254	.1	1	20
methyl tert butyl ether	.77275	.6747	.1	13	20
Diisopropyl Ether	1.3971	1.2936	.05	7	20
1,1-dichloroethane	.58344	.56472	.2	3	20
Ethyl-Tert-Butyl-Ether	1.1658	1.0505	.05	10	20
cis-1,2-dichloroethene	.26565	.26784	.1	-1	20
2,2-dichloropropane	.43749	.42871	.05	2	20
bromochloromethane	.14462	.15215	.05	-5	20
chloroform	.49149	.49143	.2	0	20
carbontetrachloride	.54027	.51748	.1	4	20
tetrahydrofuran	.19998	.16443	.05	18	20
1,1,1-trichloroethane	.49656	.48562	.1	2	20
2-butanone	.3018	.306	.1	-1	20
1,1-dichloropropene	.32151	.32343	.05	-1	20
benzene	.87248	.87067	.5	0	20
Tertiary-Amyl Methyl Ether	.64481	.6063	.05	6	20
1,2-dichloroethane	.57555	.55814	.1	3	20
trichloroethene	.25934	.26086	.2	-1	20
dibromomethane	.17324	.17607	.05	-2	20
1,2-dichloropropane	.29518	.30096	.1	-2	20
bromodichloromethane	.39346	.3758	.2	4	20
1,4-dioxane	10000	10072	.05	-1	20
cis-1,3-dichloropropene	.38465	.37323	.2	3	20
toluene	.70855	.68508	.4	3	20
4-methyl-2-pentanone	.18638	.18731	.1	0	20
tetrachloroethene	.36973	.37564	.2	-2	20

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Voa100.i Calibration Date: 27-JUL-2011 Time: 06:48

Lab File ID: 0727A01 Init. Calib. Date(s): 26-JUL-2 26-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 08:49 11:27

Compound	RRF	RRF	MIN RRF	%D	MAX %D
trans-1,3-dichloropropene	.48137	.48316	.1	0	20
1,1,2-trichloroethane	.19857	.20645	.1	-4	20
chlorodibromomethane	.40497	.39436	.1	3	20
1,3-dichloropropane	.42285	.43987	.05	-4	20
1,2-dibromoethane	.30864	.30642	.1	1	20
2-hexanone	.52415	.51012	.1	3	20
chlorobenzene	.84215	.82842	.5	2	20
ethyl benzene	1.3682	1.3892	.1	-2	20
1,1,1,2-tetrachloroethane	.36637	.37197	.05	-2	20
p/m xylene	.5423	.56161	.1	-4	20
o xylene	.51712	.52698	.3	-2	20
styrene	.84476	.86151	.3	-2	20
bromoform	.49559	.48359	.1	2	20
isopropylbenzene	2.3090	2.3350	.1	-1	20
bromobenzene	.66407	.66811	.05	-1	20
n-propylbenzene	2.5012	2.5798	.05	-3	20
1,1,2,2,-tetrachloroethane	.56441	.56599	.3	0	20
2-chlorotoluene	1.7111	1.7378	.05	-2	20
1,3,5-trimethybenzene	2.0051	2.0417	.05	-2	20
1,2,3-trichloropropane	.53586	.54227	.05	-1	20
4-chorotoluene	1.6334	1.6617	.05	-2	20
tert-butylbenzene	1.7122	1.7485	.05	-2	20
1,2,4-trimethylbenzene	2.0199	2.1420	.05	-6	20
sec-butylbenzene	2.4466	2.4926	.05	-2	20
p-isopropyltoluene	2.1389	2.2773	.05	-6	20
1,3-dichlorobenzene	1.2553	1.2887	.6	-3	20
1,4-dichlorobenzene	1.3057	1.3330	.5	-2	20
n-butylbenzene	1.8686	1.9303	.05	-3	20
1,2-dichlorobenzene	1.2203	1.2148	.4	0	20
1,2-dibromo-3-chloropropane	.18594	.18747	.05	-1	20
hexachlorobutadiene	.56687	.538	.05	5	20
1,2,4-trichlorobenzene	.94903	.96388	.2	-2	20
naphthalene	2.4806	2.4455	.05	1	20
1,2,3-trichlorobenzene	.90891	.9215	.05	-1	20
dibromofluoromethane	.29877	.29332	.05	2	30
1,2-dichloroethane-d4	.45008	.44342	.05	1	30
toluene-d8	1.1976	1.1974	.05	0	30

FORM VII MCP-8260HLW-10

7A
CONTINUING CALIBRATION CHECK

Lab Name: Alpha Analytical Labs

SDG No.: L1111004

Instrument ID: Voa100.i Calibration Date: 27-JUL-2011 Time: 06:48

Lab File ID: 0727A01 Init. Calib. Date(s): 26-JUL-2 26-JUL-2

Sample No: 8260 CCAL Init. Calib. Times : 08:49 11:27

Compound	$\overline{RRF}$	RRF	MIN RRF	%D	MAX %D
4-bromofluorobenzene	.79416	.7871	.05	1	30

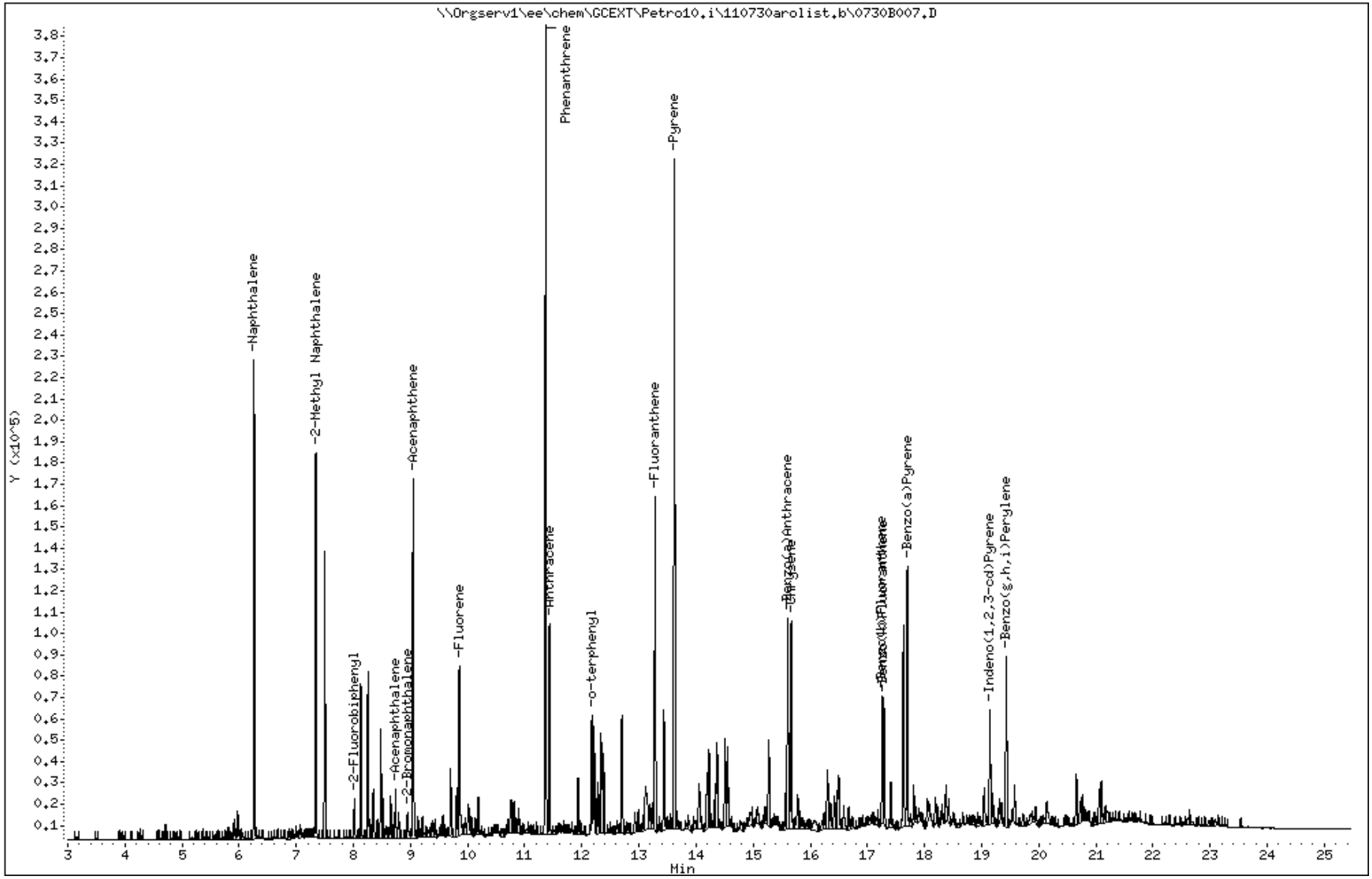
FORM VII MCP-8260HLW-10

Data File: \\Orgserv1\ee\chem\GCEXT\Petro10.i\110730arolist.b\0730B007.D
Date : 30-JUL-2011 16:32
Client ID:
Sample Info: 11111004-09d,42,re 5x fv3

Column phase:

Instrument: Petro10.i

Operator: mw
Column diameter: 0.53



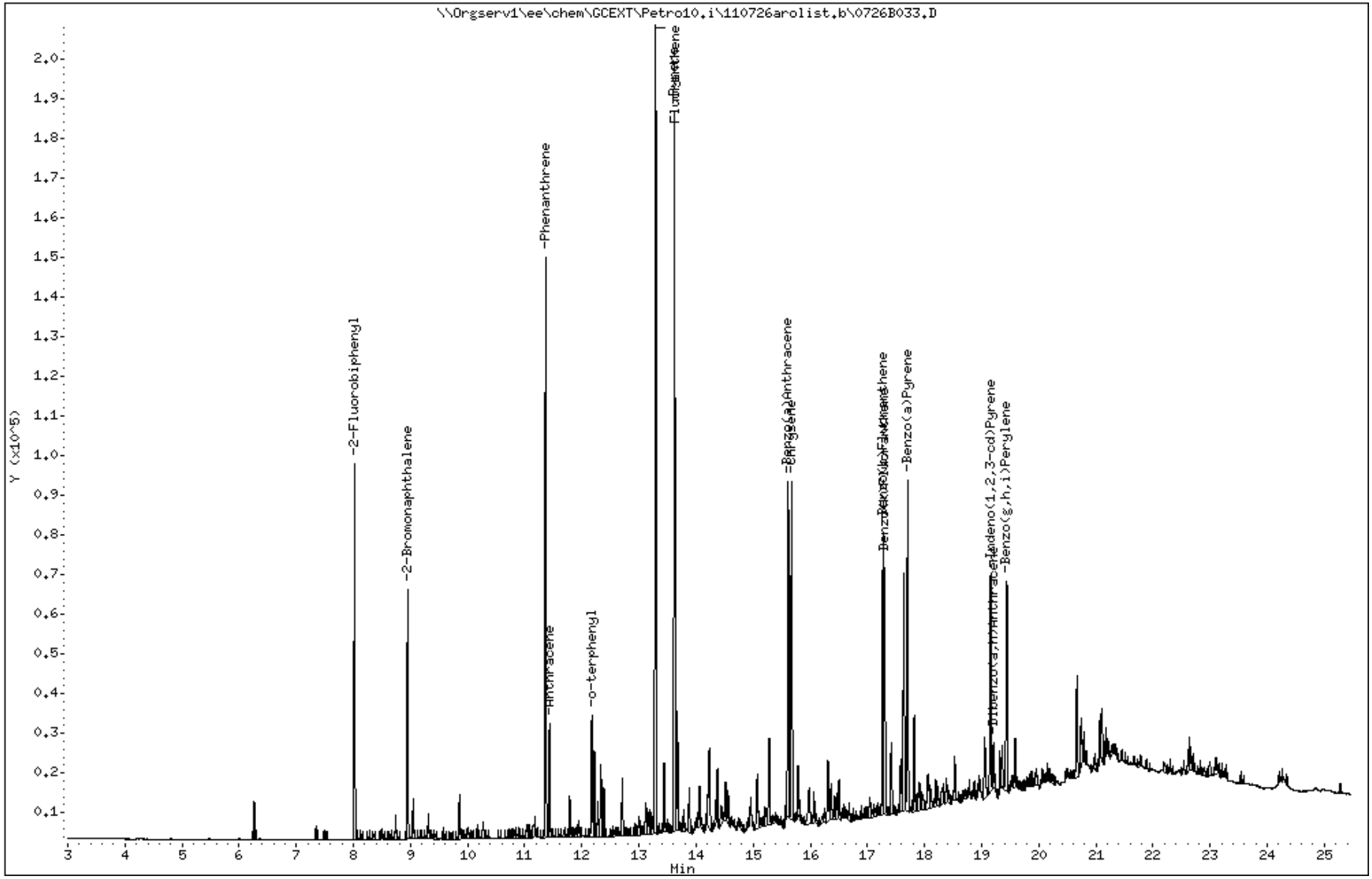
Serial_No:08021116:33

Data File: \\Orgserv1\ee\chem\GCEXT\Petro10.i\110726arolist.b\0726B033.D
Date : 27-JUL-2011 03:40
Client ID:
Sample Info: 11111004-15,42,

Column phase:

Instrument: Petro10.i

Operator: nh
Column diameter: 0.53



Serial_No:08021116:33

ANALYTICAL REPORT

Lab Number:	L1111067
Client:	Envirosystems, Inc. 1 Lafayette Road PO Box 778 Hampton, NH 03843
ATTN:	Megan Scott
Phone:	(603) 926-3345
Project Name:	21206
Project Number:	Not Specified
Report Date:	08/02/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1111067-01	21206-060	Not Specified	07/20/11 10:00
L1111067-02	21206-062	Not Specified	07/20/11 10:15
L1111067-03	21206-064	Not Specified	07/20/11 10:20
L1111067-04	21206-066	Not Specified	07/20/11 11:30
L1111067-05	21206-068	Not Specified	07/20/11 11:40
L1111067-06	21206-070	Not Specified	07/20/11 11:45
L1111067-07	21206-072	Not Specified	07/20/11 12:25

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: 21206 **Lab Number:** L1111067
Project Number: Not Specified **Report Date:** 08/02/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

EPH

L1111067-02, -04 and -05 have elevated detection limits due to the dilutions required by matrix interferences encountered during the concentration of the samples.

In reference to question G:

L111067-02, -04 and -05: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The surrogate recoveries for the following samples are outside the acceptance criteria for o-Terphenyl however, the samples were not re-extracted due to coelution with obvious interferences. Copies of the chromatograms are included as attachments to this report. The results are not considered to be biased.

Project Name:	21206	**Lab Number:**	L1111067
Project Number:	Not Specified	**Report Date:**	08/02/11

Case Narrative (continued)

L1111067-04: 206%

L1111067-07: 144%

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative

Date: 08/02/11

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-01	Date Collected:	07/20/11 10:00
Client ID:	21206-060	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/26/11 18:39
Analytical Date:	07/30/11 02:16	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/29/11
Percent Solids:	85%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.32	--	1
C19-C36 Aliphatics	ND		mg/kg	7.32	--	1
C11-C22 Aromatics	34.9		mg/kg	7.32	--	1
C11-C22 Aromatics, Adjusted	24.2		mg/kg	7.32	--	1
Naphthalene	ND		mg/kg	0.366	--	1
2-Methylnaphthalene	ND		mg/kg	0.366	--	1
Acenaphthylene	ND		mg/kg	0.366	--	1
Acenaphthene	ND		mg/kg	0.366	--	1
Fluorene	ND		mg/kg	0.366	--	1
Phenanthrene	0.775		mg/kg	0.366	--	1
Anthracene	ND		mg/kg	0.366	--	1
Fluoranthene	1.50		mg/kg	0.366	--	1
Pyrene	1.86		mg/kg	0.366	--	1
Benzo(a)anthracene	0.886		mg/kg	0.366	--	1
Chrysene	1.07		mg/kg	0.366	--	1
Benzo(b)fluoranthene	0.912		mg/kg	0.366	--	1
Benzo(k)fluoranthene	0.781		mg/kg	0.366	--	1
Benzo(a)pyrene	1.00		mg/kg	0.366	--	1
Indeno(1,2,3-cd)Pyrene	0.726		mg/kg	0.366	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.366	--	1
Benzo(ghi)perylene	1.16		mg/kg	0.366	--	1

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-01	Date Collected:	07/20/11 10:00
Client ID:	21206-060	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	78		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-02	D	Date Collected:	07/20/11 10:15
Client ID:	21206-062		Date Received:	07/22/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	07/26/11 18:39
Analytical Date:	08/01/11 23:26		Cleanup Method1:	EPH-04-1
Analyst:	MW		Cleanup Date1:	07/29/11
Percent Solids:	88%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.3	--	2
C19-C36 Aliphatics	ND		mg/kg	14.3	--	2
C11-C22 Aromatics	252		mg/kg	14.3	--	2
C11-C22 Aromatics, Adjusted	163		mg/kg	14.3	--	2
Naphthalene	ND		mg/kg	0.715	--	2
2-Methylnaphthalene	ND		mg/kg	0.715	--	2
Acenaphthylene	ND		mg/kg	0.715	--	2
Acenaphthene	ND		mg/kg	0.715	--	2
Fluorene	ND		mg/kg	0.715	--	2
Phenanthrene	5.71		mg/kg	0.715	--	2
Anthracene	0.959		mg/kg	0.715	--	2
Fluoranthene	11.7		mg/kg	0.715	--	2
Pyrene	19.6		mg/kg	0.715	--	2
Benzo(a)anthracene	7.44		mg/kg	0.715	--	2
Chrysene	8.75		mg/kg	0.715	--	2
Benzo(b)fluoranthene	7.14		mg/kg	0.715	--	2
Benzo(k)fluoranthene	6.79		mg/kg	0.715	--	2
Benzo(a)pyrene	7.95		mg/kg	0.715	--	2
Indeno(1,2,3-cd)Pyrene	5.22		mg/kg	0.715	--	2
Dibenzo(a,h)anthracene	1.58		mg/kg	0.715	--	2
Benzo(ghi)perylene	6.41		mg/kg	0.715	--	2

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-02	D	Date Collected:	07/20/11 10:15
Client ID:	21206-062		Date Received:	07/22/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	119		40-140
2-Fluorobiphenyl	79		40-140
2-Bromonaphthalene	85		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-03	Date Collected:	07/20/11 10:20
Client ID:	21206-064	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/26/11 18:39
Analytical Date:	07/30/11 03:19	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/29/11
Percent Solids:	87%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.22	--	1
C19-C36 Aliphatics	ND		mg/kg	7.22	--	1
C11-C22 Aromatics	7.43		mg/kg	7.22	--	1
C11-C22 Aromatics, Adjusted	7.43		mg/kg	7.22	--	1
Naphthalene	ND		mg/kg	0.361	--	1
2-Methylnaphthalene	ND		mg/kg	0.361	--	1
Acenaphthylene	ND		mg/kg	0.361	--	1
Acenaphthene	ND		mg/kg	0.361	--	1
Fluorene	ND		mg/kg	0.361	--	1
Phenanthrene	ND		mg/kg	0.361	--	1
Anthracene	ND		mg/kg	0.361	--	1
Fluoranthene	ND		mg/kg	0.361	--	1
Pyrene	ND		mg/kg	0.361	--	1
Benzo(a)anthracene	ND		mg/kg	0.361	--	1
Chrysene	ND		mg/kg	0.361	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.361	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.361	--	1
Benzo(a)pyrene	ND		mg/kg	0.361	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.361	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.361	--	1
Benzo(ghi)perylene	ND		mg/kg	0.361	--	1

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-03	Date Collected:	07/20/11 10:20
Client ID:	21206-064	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	79		40-140
2-Bromonaphthalene	77		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-04	Date Collected:	07/20/11 11:30
Client ID:	21206-066	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/31/11 09:58
Analytical Date:	08/02/11 07:14	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	08/01/11
Percent Solids:	84%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	38.0	--	5
C19-C36 Aliphatics	ND		mg/kg	38.0	--	5
C11-C22 Aromatics	321		mg/kg	38.0	--	5
C11-C22 Aromatics, Adjusted	216		mg/kg	38.0	--	5
Naphthalene	ND		mg/kg	1.90	--	5
2-Methylnaphthalene	ND		mg/kg	1.90	--	5
Acenaphthylene	ND		mg/kg	1.90	--	5
Acenaphthene	ND		mg/kg	1.90	--	5
Fluorene	ND		mg/kg	1.90	--	5
Phenanthrene	11.5		mg/kg	1.90	--	5
Anthracene	2.09		mg/kg	1.90	--	5
Fluoranthene	16.8		mg/kg	1.90	--	5
Pyrene	18.2		mg/kg	1.90	--	5
Benzo(a)anthracene	8.08		mg/kg	1.90	--	5
Chrysene	9.02		mg/kg	1.90	--	5
Benzo(b)fluoranthene	8.23		mg/kg	1.90	--	5
Benzo(k)fluoranthene	7.92		mg/kg	1.90	--	5
Benzo(a)pyrene	9.24		mg/kg	1.90	--	5
Indeno(1,2,3-cd)Pyrene	6.40		mg/kg	1.90	--	5
Dibenzo(a,h)anthracene	ND		mg/kg	1.90	--	5
Benzo(ghi)perylene	6.95		mg/kg	1.90	--	5

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-04	Date Collected:	07/20/11 11:30
Client ID:	21206-066	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	87		40-140
o-Terphenyl	**206**	Q	40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	89		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-05	Date Collected:	07/20/11 11:40
Client ID:	21206-068	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/31/11 09:58
Analytical Date:	08/02/11 07:59	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	08/01/11
Percent Solids:	84%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	20.6		mg/kg	15.0	--	2
C19-C36 Aliphatics	25.4		mg/kg	15.0	--	2
C11-C22 Aromatics	310		mg/kg	15.0	--	2
C11-C22 Aromatics, Adjusted	217		mg/kg	15.0	--	2
Naphthalene	1.84		mg/kg	0.751	--	2
2-Methylnaphthalene	0.997		mg/kg	0.751	--	2
Acenaphthylene	1.16		mg/kg	0.751	--	2
Acenaphthene	ND		mg/kg	0.751	--	2
Fluorene	ND		mg/kg	0.751	--	2
Phenanthrene	5.20		mg/kg	0.751	--	2
Anthracene	1.15		mg/kg	0.751	--	2
Fluoranthene	9.21		mg/kg	0.751	--	2
Pyrene	17.5		mg/kg	0.751	--	2
Benzo(a)anthracene	7.03		mg/kg	0.751	--	2
Chrysene	8.67		mg/kg	0.751	--	2
Benzo(b)fluoranthene	7.15		mg/kg	0.751	--	2
Benzo(k)fluoranthene	7.38		mg/kg	0.751	--	2
Benzo(a)pyrene	10.2		mg/kg	0.751	--	2
Indeno(1,2,3-cd)Pyrene	6.21		mg/kg	0.751	--	2
Dibenzo(a,h)anthracene	1.95		mg/kg	0.751	--	2
Benzo(ghi)perylene	7.96		mg/kg	0.751	--	2

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-05	Date Collected:	07/20/11 11:40
Client ID:	21206-068	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	69		40-140
o-Terphenyl	130		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	94		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-06	Date Collected:	07/20/11 11:45
Client ID:	21206-070	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/26/11 18:39
Analytical Date:	07/30/11 01:45	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/29/11
Percent Solids:	85%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.32	--	1
C19-C36 Aliphatics	ND		mg/kg	7.32	--	1
C11-C22 Aromatics	48.7		mg/kg	7.32	--	1
C11-C22 Aromatics, Adjusted	37.1		mg/kg	7.32	--	1
Naphthalene	ND		mg/kg	0.366	--	1
2-Methylnaphthalene	ND		mg/kg	0.366	--	1
Acenaphthylene	ND		mg/kg	0.366	--	1
Acenaphthene	ND		mg/kg	0.366	--	1
Fluorene	ND		mg/kg	0.366	--	1
Phenanthrene	1.01		mg/kg	0.366	--	1
Anthracene	ND		mg/kg	0.366	--	1
Fluoranthene	1.65		mg/kg	0.366	--	1
Pyrene	1.71		mg/kg	0.366	--	1
Benzo(a)anthracene	0.814		mg/kg	0.366	--	1
Chrysene	1.03		mg/kg	0.366	--	1
Benzo(b)fluoranthene	1.01		mg/kg	0.366	--	1
Benzo(k)fluoranthene	0.657		mg/kg	0.366	--	1
Benzo(a)pyrene	1.21		mg/kg	0.366	--	1
Indeno(1,2,3-cd)Pyrene	1.01		mg/kg	0.366	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.366	--	1
Benzo(ghi)perylene	1.45		mg/kg	0.366	--	1

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-06	Date Collected:	07/20/11 11:45
Client ID:	21206-070	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	46		40-140
o-Terphenyl	77		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	81		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-07	Date Collected:	07/20/11 12:25
Client ID:	21206-072	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/26/11 18:39
Analytical Date:	07/29/11 23:38	Cleanup Method1:	EPH-04-1
Analyst:	MW	Cleanup Date1:	07/29/11
Percent Solids:	82%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	12.6		mg/kg	7.73	--	1
C19-C36 Aliphatics	18.0		mg/kg	7.73	--	1
C11-C22 Aromatics	175		mg/kg	7.73	--	1
C11-C22 Aromatics, Adjusted	147		mg/kg	7.73	--	1
Naphthalene	ND		mg/kg	0.386	--	1
2-Methylnaphthalene	ND		mg/kg	0.386	--	1
Acenaphthylene	1.09		mg/kg	0.386	--	1
Acenaphthene	ND		mg/kg	0.386	--	1
Fluorene	ND		mg/kg	0.386	--	1
Phenanthrene	0.721		mg/kg	0.386	--	1
Anthracene	ND		mg/kg	0.386	--	1
Fluoranthene	2.41		mg/kg	0.386	--	1
Pyrene	2.74		mg/kg	0.386	--	1
Benzo(a)anthracene	1.26		mg/kg	0.386	--	1
Chrysene	2.21		mg/kg	0.386	--	1
Benzo(b)fluoranthene	2.46		mg/kg	0.386	--	1
Benzo(k)fluoranthene	1.81		mg/kg	0.386	--	1
Benzo(a)pyrene	3.07		mg/kg	0.386	--	1
Indeno(1,2,3-cd)Pyrene	3.92		mg/kg	0.386	--	1
Dibenzo(a,h)anthracene	0.705		mg/kg	0.386	--	1
Benzo(ghi)perylene	6.32		mg/kg	0.386	--	1

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

SAMPLE RESULTS

Lab ID:	L1111067-07	Date Collected:	07/20/11 12:25
Client ID:	21206-072	Date Received:	07/22/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	44		40-140
o-Terphenyl	**144**	Q	40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	74		40-140

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 07/30/11 01:13
Analyst: MW

Extraction Method: EPA 3546
Extraction Date: 07/26/11 18:39
Cleanup Method1: EPH-04-1
Cleanup Date1: 07/29/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03,06-07 Batch: WG481198-1					
C9-C18 Aliphatics	ND		mg/kg	6.64	--
C19-C36 Aliphatics	ND		mg/kg	6.64	--
C11-C22 Aromatics	ND		mg/kg	6.64	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.64	--
Naphthalene	ND		mg/kg	0.332	--
2-Methylnaphthalene	ND		mg/kg	0.332	--
Acenaphthylene	ND		mg/kg	0.332	--
Acenaphthene	ND		mg/kg	0.332	--
Fluorene	ND		mg/kg	0.332	--
Phenanthrene	ND		mg/kg	0.332	--
Anthracene	ND		mg/kg	0.332	--
Fluoranthene	ND		mg/kg	0.332	--
Pyrene	ND		mg/kg	0.332	--
Benzo(a)anthracene	ND		mg/kg	0.332	--
Chrysene	ND		mg/kg	0.332	--
Benzo(b)fluoranthene	ND		mg/kg	0.332	--
Benzo(k)fluoranthene	ND		mg/kg	0.332	--
Benzo(a)pyrene	ND		mg/kg	0.332	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.332	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.332	--
Benzo(ghi)perylene	ND		mg/kg	0.332	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	70		40-140
o-Terphenyl	70		40-140
2-Fluorobiphenyl	78		40-140
2-Bromonaphthalene	74		40-140

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/02/11 06:30
Analyst: MW

Extraction Method: EPA 3546
Extraction Date: 07/31/11 09:58
Cleanup Method1: EPH-04-1
Cleanup Date1: 08/01/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 04-05 Batch: WG482018-1					
C9-C18 Aliphatics	ND		mg/kg	6.62	--
C19-C36 Aliphatics	ND		mg/kg	6.62	--
C11-C22 Aromatics	ND		mg/kg	6.62	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.62	--
Naphthalene	ND		mg/kg	0.331	--
2-Methylnaphthalene	ND		mg/kg	0.331	--
Acenaphthylene	ND		mg/kg	0.331	--
Acenaphthene	ND		mg/kg	0.331	--
Fluorene	ND		mg/kg	0.331	--
Phenanthrene	ND		mg/kg	0.331	--
Anthracene	ND		mg/kg	0.331	--
Fluoranthene	ND		mg/kg	0.331	--
Pyrene	ND		mg/kg	0.331	--
Benzo(a)anthracene	ND		mg/kg	0.331	--
Chrysene	ND		mg/kg	0.331	--
Benzo(b)fluoranthene	ND		mg/kg	0.331	--
Benzo(k)fluoranthene	ND		mg/kg	0.331	--
Benzo(a)pyrene	ND		mg/kg	0.331	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.331	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.331	--
Benzo(ghi)perylene	ND		mg/kg	0.331	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	78		40-140
o-Terphenyl	98		40-140
2-Fluorobiphenyl	90		40-140
2-Bromonaphthalene	92		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03,06-07 Batch: WG481198-2 WG481198-3								
C9-C18 Aliphatics	60		69		40-140	14		25
C19-C36 Aliphatics	75		83		40-140	10		25
C11-C22 Aromatics	77		90		40-140	16		25
Naphthalene	65		82		40-140	23		25
2-Methylnaphthalene	72		87		40-140	19		25
Acenaphthylene	72		83		40-140	14		25
Acenaphthene	73		85		40-140	15		25
Fluorene	74		86		40-140	15		25
Phenanthrene	76		87		40-140	13		25
Anthracene	76		87		40-140	13		25
Fluoranthene	77		89		40-140	14		25
Pyrene	78		91		40-140	15		25
Benzo(a)anthracene	76		87		40-140	13		25
Chrysene	76		88		40-140	15		25
Benzo(b)fluoranthene	78		90		40-140	14		25
Benzo(k)fluoranthene	78		90		40-140	14		25
Benzo(a)pyrene	79		91		40-140	14		25
Indeno(1,2,3-cd)Pyrene	79		90		40-140	13		25
Dibenzo(a,h)anthracene	75		86		40-140	14		25
Benzo(ghi)perylene	78		87		40-140	11		25
Nonane (C9)	48		60		30-140	22		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03,06-07 Batch: WG481198-2 WG481198-3								
Decane (C10)	56		69		40-140	21		25
Dodecane (C12)	63		73		40-140	15		25
Tetradecane (C14)	69		76		40-140	10		25
Hexadecane (C16)	73		80		40-140	9		25
Octadecane (C18)	77		84		40-140	9		25
Nonadecane (C19)	78		86		40-140	10		25
Eicosane (C20)	77		85		40-140	10		25
Docosane (C22)	76		85		40-140	11		25
Tetracosane (C24)	77		85		40-140	10		25
Hexacosane (C26)	77		86		40-140	11		25
Octacosane (C28)	76		85		40-140	11		25
Triacontane (C30)	79		88		40-140	11		25
Hexatriacontane (C36)	83		93		40-140	11		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	67		68		40-140
o-Terphenyl	73		84		40-140
2-Fluorobiphenyl	81		84		40-140
2-Bromonaphthalene	80		82		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 04-05 Batch: WG482018-2 WG482018-3								
C9-C18 Aliphatics	73		67		40-140	9		25
C19-C36 Aliphatics	101		95		40-140	6		25
C11-C22 Aromatics	97		102		40-140	5		25
Naphthalene	90		93		40-140	3		25
2-Methylnaphthalene	97		100		40-140	3		25
Acenaphthylene	89		96		40-140	8		25
Acenaphthene	94		99		40-140	5		25
Fluorene	94		100		40-140	6		25
Phenanthrene	100		107		40-140	7		25
Anthracene	99		105		40-140	6		25
Fluoranthene	98		106		40-140	8		25
Pyrene	100		108		40-140	8		25
Benzo(a)anthracene	92		100		40-140	8		25
Chrysene	96		105		40-140	9		25
Benzo(b)fluoranthene	97		109		40-140	12		25
Benzo(k)fluoranthene	92		98		40-140	6		25
Benzo(a)pyrene	86		94		40-140	9		25
Indeno(1,2,3-cd)Pyrene	94		104		40-140	10		25
Dibenzo(a,h)anthracene	88		96		40-140	9		25
Benzo(ghi)perylene	93		100		40-140	7		25
Nonane (C9)	72		66		30-140	9		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 04-05 Batch: WG482018-2 WG482018-3								
Decane (C10)	83		75		40-140	10		25
Dodecane (C12)	88		81		40-140	8		25
Tetradecane (C14)	91		83		40-140	9		25
Hexadecane (C16)	95		87		40-140	9		25
Octadecane (C18)	99		92		40-140	7		25
Nonadecane (C19)	100		94		40-140	6		25
Eicosane (C20)	100		94		40-140	6		25
Docosane (C22)	101		95		40-140	6		25
Tetracosane (C24)	102		96		40-140	6		25
Hexacosane (C26)	102		96		40-140	6		25
Octacosane (C28)	100		94		40-140	6		25
Triacontane (C30)	103		96		40-140	7		25
Hexatriacontane (C36)	104		98		40-140	6		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	88		89		40-140
o-Terphenyl	87		96		40-140
2-Fluorobiphenyl	79		89		40-140
2-Bromonaphthalene	82		93		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

INORGANICS
&
MISCELLANEOUS

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-01
Client ID: 21206-060
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 10:00
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	07/26/11 00:13	30,2540G	RD

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-02
Client ID: 21206-062
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 10:15
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-03
Client ID: 21206-064
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 10:20
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-04
Client ID: 21206-066
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 11:30
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-05
Client ID: 21206-068
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 11:40
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-06
Client ID: 21206-070
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 11:45
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

SAMPLE RESULTS

Lab ID: L1111067-07
Client ID: 21206-072
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/20/11 12:25
Date Received: 07/22/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82		%	0.10	NA	1	-	07/25/11 07:20	30,2540G	JC

Lab Duplicate Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-07 QC Batch ID: WG480835-1 QC Sample: L1111067-04 Client ID: 21206-066						
Solids, Total	84	83	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG481025-1 QC Sample: L1111136-01 Client ID: DUP Sample						
Solids, Total	85	86	%	1		20

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111067
Report Date: 08/02/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1111067-01A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-02A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-03A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-04A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-05A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-06A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111067-07A	Amber 250ml unpreserved	A	N/A	3	Y	Absent	TS(7),EPH-DELUX-10(14)

*Values in parentheses indicate holding time in days

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Project Name: 21206 **Lab Number:** L1111067

Project Number: Not Specified **Report Date:** 08/02/11

Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: 21206 **Lab Number:** L1111067
Project Number: Not Specified **Report Date:** 08/02/11

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 28, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B**,** 3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^{-}$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ALPHA Job # L1111067

ESI

EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No:

CHAIN OF CUSTODY DOCUMENTATION

Client: ESI	Contact: Megan Scott	Project Name: 21206	Page of
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email: mscott@enviresystems.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
1067 -01	21206-060	7/20/11	1000	GD	C	4oz	G		S		MA EPH
-02	21206-062		1015			4oz	G		S		
-03	21206-064		1020			4oz	G		S		
-04	21206-066		1130			4oz	G		S		
-05	21206-068		1140			4oz	G		S		
-06	21206-070		1145			4oz	G		S		
-07	21206-072	7/20/11	1225	GD	C	4oz	G		S		MA EPH

Relinquished By: DWhite	Date: 7/22/11	Time: 1:37 PM	Received By: Elizabeth	Date: 7/22/11	Time: 13:37
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments: To Alpha

Sample Delivery Group No: Page of

COC Doc No: 4598

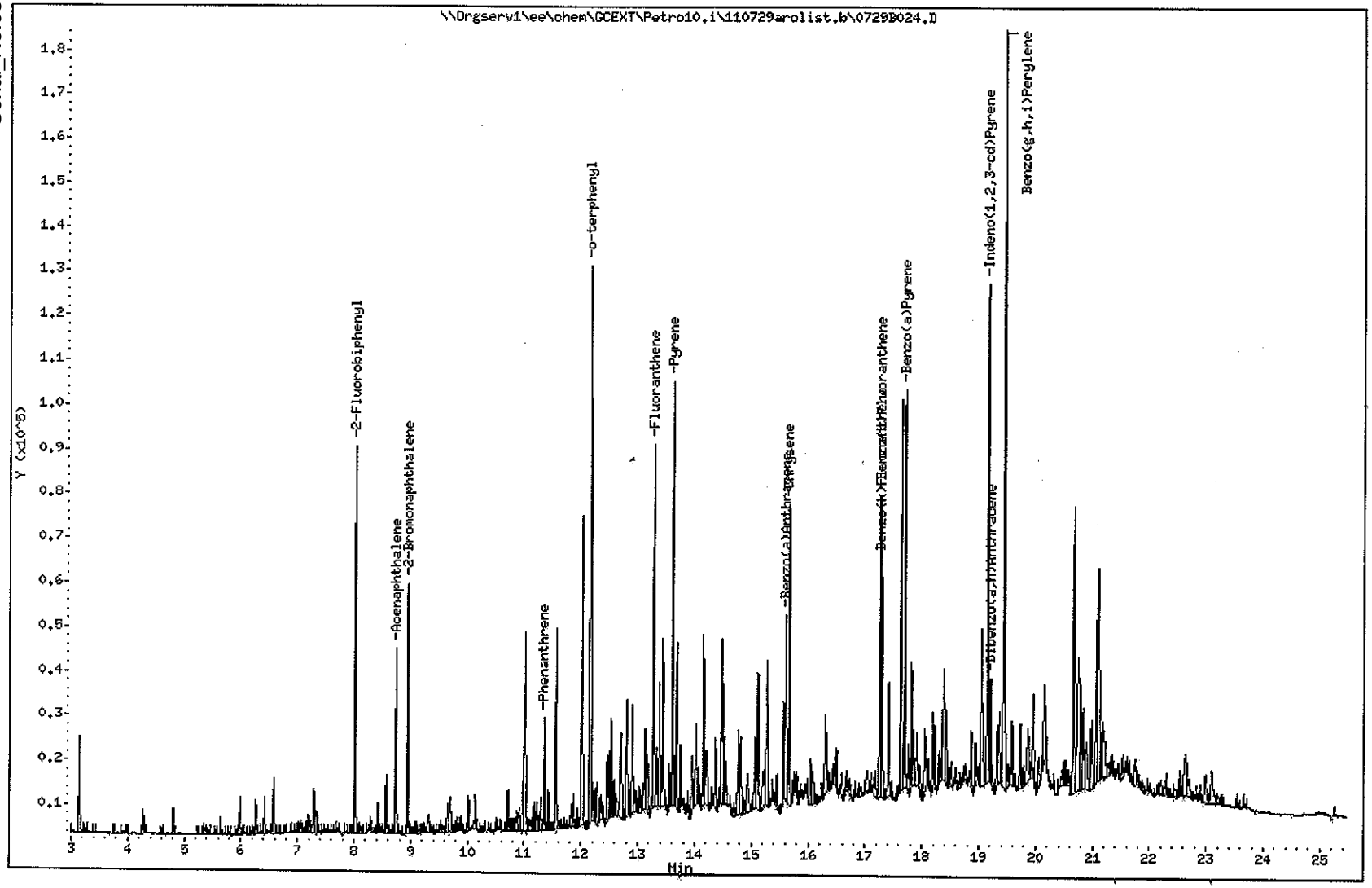
Serial_No:08022111307

Data File: \\Orgserv1\ee\chem\GCEXT\Petro10.i\110729arolist.b\0729B024.D
Date : 29-JUL-2011 23:38
Client ID:
Sample Info: 11111067-07,42,

Column phase:

Instrument: Petro10.i

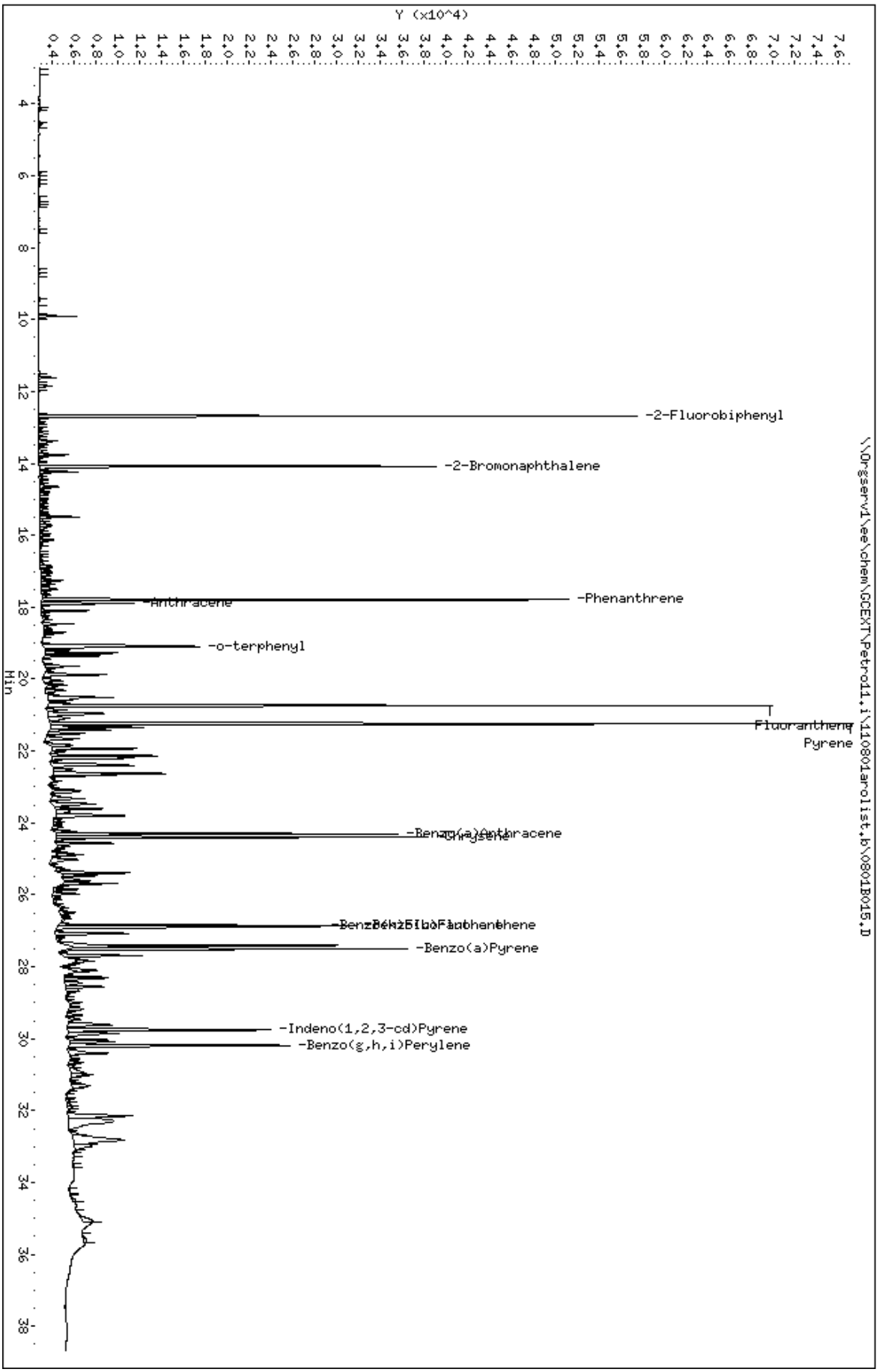
Operator: mw
Column diameter: 0.53



Serial_No:08021113:07

Data File: \\Orgserv1\ee\chem\GCEXT\Petrol1.i\110801arolist.b\0801B015.D
Date : 02-AUG-2011 07:14
Client ID:
Sample Info: 11111067-04,42,,fv5
Column phase:

Instrument: Petrol1.i
Operator: mw
Column diameter: 0.53



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ANALYTICAL REPORT

Lab Number:	L1111327
Client:	Envirosystems, Inc. 1 Lafayette Road PO Box 778 Hampton, NH 03843
ATTN:	Megan Scott
Phone:	(603) 926-3345
Project Name:	21206
Project Number:	Not Specified
Report Date:	08/04/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

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508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1111327-01	21206-094	Not Specified	07/22/11 08:00
L1111327-02	21206-096	Not Specified	07/22/11 08:10
L1111327-03	21206-098	Not Specified	07/22/11 08:20
L1111327-04	21206-100	Not Specified	07/22/11 09:00
L1111327-05	21206-102	Not Specified	07/22/11 09:10
L1111327-06	21206-104	Not Specified	07/22/11 09:20
L1111327-07	21206-106	Not Specified	07/22/11 09:30
L1111327-08	21206-108	Not Specified	07/22/11 09:35
L1111327-09	21206-110	Not Specified	07/22/11 09:40
L1111327-10	21206-112	Not Specified	07/22/11 11:00
L1111327-11	21206-114	Not Specified	07/22/11 11:10
L1111327-12	21206-116	Not Specified	07/22/11 11:20
L1111327-13	21206-123	Not Specified	07/25/11 09:50
L1111327-14	21206-124	Not Specified	07/25/11 09:55
L1111327-15	21206-125	Not Specified	07/25/11 10:00
L1111327-16	21206-126	Not Specified	07/25/11 10:30
L1111327-17	21206-127	Not Specified	07/25/11 10:35
L1111327-18	21206-128	Not Specified	07/25/11 10:40

Project Name: 21206 **Lab Number:** L1111327
Project Number: Not Specified **Report Date:** 08/04/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were transported to the laboratory in a cooler with blue ice and delivered directly from the sampling site.

EPH

L1111327-08 and -16 have elevated detection limits due to the dilutions required by the matrix interferences encountered during the concentration of the samples and the analytical dilutions required by the target compounds present in the samples.

The surrogate recoveries for L1111327-08 and -16 are below the acceptance criteria for Chloro-Octadecane and o-Terphenyl (all at 0%) due to the dilutions required to quantitate the samples. Re-extraction was not required; therefore, the results of the original analyses are reported.

L1111327-11 and -14 have elevated detection limits due to the dilutions required by the elevated

Project Name:	21206	**Lab Number:**	L1111327
Project Number:	Not Specified	**Report Date:**	08/04/11

Case Narrative (continued)

concentrations of target compounds in the samples.

The WG481807-2/-3 LCS/LCSD RPD, associated with L1111327-01 through -18, is above the acceptance criteria for Acenaphthylene (26%); however, the individual LCS/LCSD recoveries are within method limits.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative

Date: 08/04/11

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-01	Date Collected:	07/22/11 08:00
Client ID:	21206-094	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 03:16	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	96%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.58	--	1
C19-C36 Aliphatics	ND		mg/kg	6.58	--	1
C11-C22 Aromatics	9.53		mg/kg	6.58	--	1
C11-C22 Aromatics, Adjusted	7.64		mg/kg	6.58	--	1
Naphthalene	ND		mg/kg	0.329	--	1
2-Methylnaphthalene	ND		mg/kg	0.329	--	1
Acenaphthylene	ND		mg/kg	0.329	--	1
Acenaphthene	ND		mg/kg	0.329	--	1
Fluorene	ND		mg/kg	0.329	--	1
Phenanthrene	ND		mg/kg	0.329	--	1
Anthracene	ND		mg/kg	0.329	--	1
Fluoranthene	0.463		mg/kg	0.329	--	1
Pyrene	0.589		mg/kg	0.329	--	1
Benzo(a)anthracene	ND		mg/kg	0.329	--	1
Chrysene	0.337		mg/kg	0.329	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.329	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.329	--	1
Benzo(a)pyrene	0.493		mg/kg	0.329	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.329	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.329	--	1
Benzo(ghi)perylene	ND		mg/kg	0.329	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-01	Date Collected:	07/22/11 08:00
Client ID:	21206-094	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	78		40-140
o-Terphenyl	87		40-140
2-Fluorobiphenyl	87		40-140
2-Bromonaphthalene	91		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-02	Date Collected:	07/22/11 08:10
Client ID:	21206-096	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 04:00	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.29	--	1
C19-C36 Aliphatics	ND		mg/kg	7.29	--	1
C11-C22 Aromatics	ND		mg/kg	7.29	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.29	--	1
Naphthalene	ND		mg/kg	0.365	--	1
2-Methylnaphthalene	ND		mg/kg	0.365	--	1
Acenaphthylene	ND		mg/kg	0.365	--	1
Acenaphthene	ND		mg/kg	0.365	--	1
Fluorene	ND		mg/kg	0.365	--	1
Phenanthrene	ND		mg/kg	0.365	--	1
Anthracene	ND		mg/kg	0.365	--	1
Fluoranthene	ND		mg/kg	0.365	--	1
Pyrene	ND		mg/kg	0.365	--	1
Benzo(a)anthracene	ND		mg/kg	0.365	--	1
Chrysene	ND		mg/kg	0.365	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.365	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.365	--	1
Benzo(a)pyrene	ND		mg/kg	0.365	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.365	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.365	--	1
Benzo(ghi)perylene	ND		mg/kg	0.365	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-02	Date Collected:	07/22/11 08:10
Client ID:	21206-096	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	79		40-140
o-Terphenyl	81		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	94		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-03	Date Collected:	07/22/11 08:20
Client ID:	21206-098	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/03/11 00:56	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	34%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	18.3	--	1
C19-C36 Aliphatics	36.0		mg/kg	18.3	--	1
C11-C22 Aromatics	46.1		mg/kg	18.3	--	1
C11-C22 Aromatics, Adjusted	44.7		mg/kg	18.3	--	1
Naphthalene	1.40		mg/kg	0.916	--	1
2-Methylnaphthalene	ND		mg/kg	0.916	--	1
Acenaphthylene	ND		mg/kg	0.916	--	1
Acenaphthene	ND		mg/kg	0.916	--	1
Fluorene	ND		mg/kg	0.916	--	1
Phenanthrene	ND		mg/kg	0.916	--	1
Anthracene	ND		mg/kg	0.916	--	1
Fluoranthene	ND		mg/kg	0.916	--	1
Pyrene	ND		mg/kg	0.916	--	1
Benzo(a)anthracene	ND		mg/kg	0.916	--	1
Chrysene	ND		mg/kg	0.916	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.916	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.916	--	1
Benzo(a)pyrene	ND		mg/kg	0.916	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.916	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.916	--	1
Benzo(ghi)perylene	ND		mg/kg	0.916	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-03	Date Collected:	07/22/11 08:20
Client ID:	21206-098	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	84		40-140
o-Terphenyl	81		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	91		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-04	Date Collected:	07/22/11 09:00
Client ID:	21206-100	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 08:27	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	90%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.09	--	1
C19-C36 Aliphatics	10.5		mg/kg	7.09	--	1
C11-C22 Aromatics	15.3		mg/kg	7.09	--	1
C11-C22 Aromatics, Adjusted	12.8		mg/kg	7.09	--	1
Naphthalene	ND		mg/kg	0.354	--	1
2-Methylnaphthalene	ND		mg/kg	0.354	--	1
Acenaphthylene	ND		mg/kg	0.354	--	1
Acenaphthene	ND		mg/kg	0.354	--	1
Fluorene	ND		mg/kg	0.354	--	1
Phenanthrene	ND		mg/kg	0.354	--	1
Anthracene	ND		mg/kg	0.354	--	1
Fluoranthene	0.633		mg/kg	0.354	--	1
Pyrene	0.607		mg/kg	0.354	--	1
Benzo(a)anthracene	ND		mg/kg	0.354	--	1
Chrysene	0.375		mg/kg	0.354	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.354	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.354	--	1
Benzo(a)pyrene	0.884		mg/kg	0.354	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.354	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.354	--	1
Benzo(ghi)perylene	ND		mg/kg	0.354	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-04	Date Collected:	07/22/11 09:00
Client ID:	21206-100	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	86		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	91		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-05	Date Collected:	07/22/11 09:10
Client ID:	21206-102	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/03/11 02:30	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	80%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.38	--	1
C19-C36 Aliphatics	ND		mg/kg	7.38	--	1
C11-C22 Aromatics	ND		mg/kg	7.38	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.38	--	1
Naphthalene	ND		mg/kg	0.369	--	1
2-Methylnaphthalene	ND		mg/kg	0.369	--	1
Acenaphthylene	ND		mg/kg	0.369	--	1
Acenaphthene	ND		mg/kg	0.369	--	1
Fluorene	ND		mg/kg	0.369	--	1
Phenanthrene	ND		mg/kg	0.369	--	1
Anthracene	ND		mg/kg	0.369	--	1
Fluoranthene	ND		mg/kg	0.369	--	1
Pyrene	ND		mg/kg	0.369	--	1
Benzo(a)anthracene	ND		mg/kg	0.369	--	1
Chrysene	ND		mg/kg	0.369	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.369	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.369	--	1
Benzo(a)pyrene	ND		mg/kg	0.369	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.369	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.369	--	1
Benzo(ghi)perylene	ND		mg/kg	0.369	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-05	Date Collected:	07/22/11 09:10
Client ID:	21206-102	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	71		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	96		40-140
2-Bromonaphthalene	99		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-06	Date Collected:	07/22/11 09:20
Client ID:	21206-104	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/03/11 01:58	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	82%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.37	--	1
C19-C36 Aliphatics	ND		mg/kg	7.37	--	1
C11-C22 Aromatics	9.10		mg/kg	7.37	--	1
C11-C22 Aromatics, Adjusted	9.10		mg/kg	7.37	--	1
Naphthalene	ND		mg/kg	0.369	--	1
2-Methylnaphthalene	ND		mg/kg	0.369	--	1
Acenaphthylene	ND		mg/kg	0.369	--	1
Acenaphthene	ND		mg/kg	0.369	--	1
Fluorene	ND		mg/kg	0.369	--	1
Phenanthrene	ND		mg/kg	0.369	--	1
Anthracene	ND		mg/kg	0.369	--	1
Fluoranthene	ND		mg/kg	0.369	--	1
Pyrene	ND		mg/kg	0.369	--	1
Benzo(a)anthracene	ND		mg/kg	0.369	--	1
Chrysene	ND		mg/kg	0.369	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.369	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.369	--	1
Benzo(a)pyrene	ND		mg/kg	0.369	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.369	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.369	--	1
Benzo(ghi)perylene	ND		mg/kg	0.369	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-06	Date Collected:	07/22/11 09:20
Client ID:	21206-104	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	76		40-140
o-Terphenyl	92		40-140
2-Fluorobiphenyl	106		40-140
2-Bromonaphthalene	109		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-07	Date Collected:	07/22/11 09:30
Client ID:	21206-106	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 09:56	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	97%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.32	--	1
C19-C36 Aliphatics	ND		mg/kg	6.32	--	1
C11-C22 Aromatics	ND		mg/kg	6.32	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.32	--	1
Naphthalene	ND		mg/kg	0.316	--	1
2-Methylnaphthalene	ND		mg/kg	0.316	--	1
Acenaphthylene	ND		mg/kg	0.316	--	1
Acenaphthene	ND		mg/kg	0.316	--	1
Fluorene	ND		mg/kg	0.316	--	1
Phenanthrene	ND		mg/kg	0.316	--	1
Anthracene	ND		mg/kg	0.316	--	1
Fluoranthene	ND		mg/kg	0.316	--	1
Pyrene	ND		mg/kg	0.316	--	1
Benzo(a)anthracene	ND		mg/kg	0.316	--	1
Chrysene	ND		mg/kg	0.316	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.316	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.316	--	1
Benzo(a)pyrene	ND		mg/kg	0.316	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.316	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.316	--	1
Benzo(ghi)perylene	ND		mg/kg	0.316	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-07	Date Collected:	07/22/11 09:30
Client ID:	21206-106	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	70		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	91		40-140
2-Bromonaphthalene	92		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-08	D	Date Collected:	07/22/11 09:35
Client ID:	21206-108		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	07/29/11 11:54
Analytical Date:	08/03/11 16:05		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/03/11
Percent Solids:	79%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	1230	--	160
C19-C36 Aliphatics	ND		mg/kg	1230	--	160
C11-C22 Aromatics	19700		mg/kg	1230	--	160
C11-C22 Aromatics, Adjusted	12300		mg/kg	1230	--	160
Naphthalene	142		mg/kg	61.7	--	160
2-Methylnaphthalene	98.5		mg/kg	61.7	--	160
Acenaphthylene	ND		mg/kg	61.7	--	160
Acenaphthene	218		mg/kg	61.7	--	160
Fluorene	212		mg/kg	61.7	--	160
Phenanthrene	1620		mg/kg	61.7	--	160
Anthracene	311		mg/kg	61.7	--	160
Fluoranthene	1420		mg/kg	61.7	--	160
Pyrene	1340		mg/kg	61.7	--	160
Benzo(a)anthracene	484		mg/kg	61.7	--	160
Chrysene	490		mg/kg	61.7	--	160
Benzo(b)fluoranthene	257		mg/kg	61.7	--	160
Benzo(k)fluoranthene	290		mg/kg	61.7	--	160
Benzo(a)pyrene	318		mg/kg	61.7	--	160
Indeno(1,2,3-cd)Pyrene	149		mg/kg	61.7	--	160
Dibenzo(a,h)anthracene	ND		mg/kg	61.7	--	160
Benzo(ghi)perylene	118		mg/kg	61.7	--	160

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-08	D	Date Collected:	07/22/11 09:35
Client ID:	21206-108		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	93		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-09	Date Collected:	07/22/11 09:40
Client ID:	21206-110	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 04:45	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	97%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.26	--	1
C19-C36 Aliphatics	ND		mg/kg	6.26	--	1
C11-C22 Aromatics	94.0		mg/kg	6.26	--	1
C11-C22 Aromatics, Adjusted	59.8		mg/kg	6.26	--	1
Naphthalene	ND		mg/kg	0.313	--	1
2-Methylnaphthalene	ND		mg/kg	0.313	--	1
Acenaphthylene	ND		mg/kg	0.313	--	1
Acenaphthene	0.574		mg/kg	0.313	--	1
Fluorene	0.528		mg/kg	0.313	--	1
Phenanthrene	5.02		mg/kg	0.313	--	1
Anthracene	0.932		mg/kg	0.313	--	1
Fluoranthene	5.74		mg/kg	0.313	--	1
Pyrene	5.84		mg/kg	0.313	--	1
Benzo(a)anthracene	2.48		mg/kg	0.313	--	1
Chrysene	3.11		mg/kg	0.313	--	1
Benzo(b)fluoranthene	2.07		mg/kg	0.313	--	1
Benzo(k)fluoranthene	2.32		mg/kg	0.313	--	1
Benzo(a)pyrene	2.47		mg/kg	0.313	--	1
Indeno(1,2,3-cd)Pyrene	1.44		mg/kg	0.313	--	1
Dibenzo(a,h)anthracene	0.407		mg/kg	0.313	--	1
Benzo(ghi)perylene	1.23		mg/kg	0.313	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-09	Date Collected:	07/22/11 09:40
Client ID:	21206-110	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	83		40-140
o-Terphenyl	140		40-140
2-Fluorobiphenyl	97		40-140
2-Bromonaphthalene	100		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-10	Date Collected:	07/22/11 11:00
Client ID:	21206-112	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 09:11	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	98%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.47	--	1
C19-C36 Aliphatics	ND		mg/kg	6.47	--	1
C11-C22 Aromatics	ND		mg/kg	6.47	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.47	--	1
Naphthalene	ND		mg/kg	0.324	--	1
2-Methylnaphthalene	ND		mg/kg	0.324	--	1
Acenaphthylene	ND		mg/kg	0.324	--	1
Acenaphthene	ND		mg/kg	0.324	--	1
Fluorene	ND		mg/kg	0.324	--	1
Phenanthrene	ND		mg/kg	0.324	--	1
Anthracene	ND		mg/kg	0.324	--	1
Fluoranthene	ND		mg/kg	0.324	--	1
Pyrene	ND		mg/kg	0.324	--	1
Benzo(a)anthracene	ND		mg/kg	0.324	--	1
Chrysene	ND		mg/kg	0.324	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.324	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.324	--	1
Benzo(a)pyrene	ND		mg/kg	0.324	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.324	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.324	--	1
Benzo(ghi)perylene	ND		mg/kg	0.324	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-10	Date Collected:	07/22/11 11:00
Client ID:	21206-112	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	66		40-140
o-Terphenyl	69		40-140
2-Fluorobiphenyl	78		40-140
2-Bromonaphthalene	77		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-11	D	Date Collected:	07/22/11 11:10
Client ID:	21206-114		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	07/29/11 11:54
Analytical Date:	08/03/11 15:02		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/03/11
Percent Solids:	89%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	33.5	--	5
C19-C36 Aliphatics	ND		mg/kg	33.5	--	5
C11-C22 Aromatics	375		mg/kg	33.5	--	5
C11-C22 Aromatics, Adjusted	210		mg/kg	33.5	--	5
Naphthalene	1.89		mg/kg	1.68	--	5
2-Methylnaphthalene	ND		mg/kg	1.68	--	5
Acenaphthylene	ND		mg/kg	1.68	--	5
Acenaphthene	3.90		mg/kg	1.68	--	5
Fluorene	4.26		mg/kg	1.68	--	5
Phenanthrene	29.4		mg/kg	1.68	--	5
Anthracene	7.32		mg/kg	1.68	--	5
Fluoranthene	32.8		mg/kg	1.68	--	5
Pyrene	25.9		mg/kg	1.68	--	5
Benzo(a)anthracene	11.8		mg/kg	1.68	--	5
Chrysene	11.8		mg/kg	1.68	--	5
Benzo(b)fluoranthene	8.55		mg/kg	1.68	--	5
Benzo(k)fluoranthene	7.91		mg/kg	1.68	--	5
Benzo(a)pyrene	9.67		mg/kg	1.68	--	5
Indeno(1,2,3-cd)Pyrene	5.53		mg/kg	1.68	--	5
Dibenzo(a,h)anthracene	ND		mg/kg	1.68	--	5
Benzo(ghi)perylene	4.46		mg/kg	1.68	--	5

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-11	D	Date Collected:	07/22/11 11:10
Client ID:	21206-114		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	135		40-140
2-Fluorobiphenyl	72		40-140
2-Bromonaphthalene	85		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-12	Date Collected:	07/22/11 11:20
Client ID:	21206-116	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 11:54
Analytical Date:	08/04/11 06:14	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	90%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.94	--	1
C19-C36 Aliphatics	ND		mg/kg	6.94	--	1
C11-C22 Aromatics	10.2		mg/kg	6.94	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.94	--	1
Naphthalene	ND		mg/kg	0.347	--	1
2-Methylnaphthalene	ND		mg/kg	0.347	--	1
Acenaphthylene	ND		mg/kg	0.347	--	1
Acenaphthene	ND		mg/kg	0.347	--	1
Fluorene	ND		mg/kg	0.347	--	1
Phenanthrene	0.545		mg/kg	0.347	--	1
Anthracene	ND		mg/kg	0.347	--	1
Fluoranthene	0.865		mg/kg	0.347	--	1
Pyrene	0.720		mg/kg	0.347	--	1
Benzo(a)anthracene	0.375		mg/kg	0.347	--	1
Chrysene	0.393		mg/kg	0.347	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.347	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.347	--	1
Benzo(a)pyrene	0.364		mg/kg	0.347	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.347	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.347	--	1
Benzo(ghi)perylene	ND		mg/kg	0.347	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-12	Date Collected:	07/22/11 11:20
Client ID:	21206-116	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	76		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-13	Date Collected:	07/25/11 09:50
Client ID:	21206-123	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 13:20
Analytical Date:	08/03/11 00:25	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	97%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.44	--	1
C19-C36 Aliphatics	ND		mg/kg	6.44	--	1
C11-C22 Aromatics	ND		mg/kg	6.44	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.44	--	1
Naphthalene	ND		mg/kg	0.322	--	1
2-Methylnaphthalene	ND		mg/kg	0.322	--	1
Acenaphthylene	ND		mg/kg	0.322	--	1
Acenaphthene	ND		mg/kg	0.322	--	1
Fluorene	ND		mg/kg	0.322	--	1
Phenanthrene	ND		mg/kg	0.322	--	1
Anthracene	ND		mg/kg	0.322	--	1
Fluoranthene	ND		mg/kg	0.322	--	1
Pyrene	ND		mg/kg	0.322	--	1
Benzo(a)anthracene	ND		mg/kg	0.322	--	1
Chrysene	ND		mg/kg	0.322	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.322	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.322	--	1
Benzo(a)pyrene	ND		mg/kg	0.322	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.322	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.322	--	1
Benzo(ghi)perylene	ND		mg/kg	0.322	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-13	Date Collected:	07/25/11 09:50
Client ID:	21206-123	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	100		40-140
o-Terphenyl	85		40-140
2-Fluorobiphenyl	96		40-140
2-Bromonaphthalene	95		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-14	D	Date Collected:	07/25/11 09:55
Client ID:	21206-124		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	07/29/11 13:21
Analytical Date:	08/03/11 14:31		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/03/11
Percent Solids:	85%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.4	--	2
C19-C36 Aliphatics	ND		mg/kg	14.4	--	2
C11-C22 Aromatics	205		mg/kg	14.4	--	2
C11-C22 Aromatics, Adjusted	107		mg/kg	14.4	--	2
Naphthalene	ND		mg/kg	0.722	--	2
2-Methylnaphthalene	ND		mg/kg	0.722	--	2
Acenaphthylene	ND		mg/kg	0.722	--	2
Acenaphthene	2.05		mg/kg	0.722	--	2
Fluorene	2.39		mg/kg	0.722	--	2
Phenanthrene	17.4		mg/kg	0.722	--	2
Anthracene	4.19		mg/kg	0.722	--	2
Fluoranthene	19.3		mg/kg	0.722	--	2
Pyrene	14.8		mg/kg	0.722	--	2
Benzo(a)anthracene	6.92		mg/kg	0.722	--	2
Chrysene	7.29		mg/kg	0.722	--	2
Benzo(b)fluoranthene	5.44		mg/kg	0.722	--	2
Benzo(k)fluoranthene	4.80		mg/kg	0.722	--	2
Benzo(a)pyrene	5.84		mg/kg	0.722	--	2
Indeno(1,2,3-cd)Pyrene	3.73		mg/kg	0.722	--	2
Dibenzo(a,h)anthracene	0.758		mg/kg	0.722	--	2
Benzo(ghi)perylene	3.02		mg/kg	0.722	--	2

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-14	D	Date Collected:	07/25/11 09:55
Client ID:	21206-124		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	116		40-140
2-Fluorobiphenyl	85		40-140
2-Bromonaphthalene	84		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-15	Date Collected:	07/25/11 10:00
Client ID:	21206-125	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 13:22
Analytical Date:	08/04/11 06:58	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	71%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.18	--	1
C19-C36 Aliphatics	69.0		mg/kg	9.18	--	1
C11-C22 Aromatics	40.9		mg/kg	9.18	--	1
C11-C22 Aromatics, Adjusted	38.5		mg/kg	9.18	--	1
Naphthalene	ND		mg/kg	0.459	--	1
2-Methylnaphthalene	ND		mg/kg	0.459	--	1
Acenaphthylene	ND		mg/kg	0.459	--	1
Acenaphthene	ND		mg/kg	0.459	--	1
Fluorene	ND		mg/kg	0.459	--	1
Phenanthrene	ND		mg/kg	0.459	--	1
Anthracene	ND		mg/kg	0.459	--	1
Fluoranthene	0.682		mg/kg	0.459	--	1
Pyrene	0.808		mg/kg	0.459	--	1
Benzo(a)anthracene	ND		mg/kg	0.459	--	1
Chrysene	0.467		mg/kg	0.459	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.459	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.459	--	1
Benzo(a)pyrene	0.469		mg/kg	0.459	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.459	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.459	--	1
Benzo(ghi)perylene	ND		mg/kg	0.459	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-15	Date Collected:	07/25/11 10:00
Client ID:	21206-125	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	66		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	91		40-140
2-Bromonaphthalene	94		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-16	D	Date Collected:	07/25/11 10:30
Client ID:	21206-126		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	07/29/11 13:23
Analytical Date:	08/03/11 15:34		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/03/11
Percent Solids:	89%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	286	--	40
C19-C36 Aliphatics	472		mg/kg	286	--	40
C11-C22 Aromatics	1690		mg/kg	286	--	40
C11-C22 Aromatics, Adjusted	913		mg/kg	286	--	40
Naphthalene	18.6		mg/kg	14.3	--	40
2-Methylnaphthalene	ND		mg/kg	14.3	--	40
Acenaphthylene	ND		mg/kg	14.3	--	40
Acenaphthene	20.1		mg/kg	14.3	--	40
Fluorene	20.5		mg/kg	14.3	--	40
Phenanthrene	153		mg/kg	14.3	--	40
Anthracene	35.7		mg/kg	14.3	--	40
Fluoranthene	151		mg/kg	14.3	--	40
Pyrene	118		mg/kg	14.3	--	40
Benzo(a)anthracene	51.1		mg/kg	14.3	--	40
Chrysene	50.6		mg/kg	14.3	--	40
Benzo(b)fluoranthene	37.8		mg/kg	14.3	--	40
Benzo(k)fluoranthene	35.6		mg/kg	14.3	--	40
Benzo(a)pyrene	41.0		mg/kg	14.3	--	40
Indeno(1,2,3-cd)Pyrene	27.3		mg/kg	14.3	--	40
Dibenzo(a,h)anthracene	ND		mg/kg	14.3	--	40
Benzo(ghi)perylene	21.7		mg/kg	14.3	--	40

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-16	D	Date Collected:	07/25/11 10:30
Client ID:	21206-126		Date Received:	07/27/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	88		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-17	Date Collected:	07/25/11 10:35
Client ID:	21206-127	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 13:23
Analytical Date:	08/04/11 07:42	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	71%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.86	--	1
C19-C36 Aliphatics	ND		mg/kg	8.86	--	1
C11-C22 Aromatics	12.6		mg/kg	8.86	--	1
C11-C22 Aromatics, Adjusted	9.34		mg/kg	8.86	--	1
Naphthalene	ND		mg/kg	0.443	--	1
2-Methylnaphthalene	ND		mg/kg	0.443	--	1
Acenaphthylene	ND		mg/kg	0.443	--	1
Acenaphthene	ND		mg/kg	0.443	--	1
Fluorene	ND		mg/kg	0.443	--	1
Phenanthrene	0.475		mg/kg	0.443	--	1
Anthracene	ND		mg/kg	0.443	--	1
Fluoranthene	0.869		mg/kg	0.443	--	1
Pyrene	0.837		mg/kg	0.443	--	1
Benzo(a)anthracene	ND		mg/kg	0.443	--	1
Chrysene	ND		mg/kg	0.443	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.443	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.443	--	1
Benzo(a)pyrene	0.469		mg/kg	0.443	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.443	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.443	--	1
Benzo(ghi)perylene	0.635		mg/kg	0.443	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-17	Date Collected:	07/25/11 10:35
Client ID:	21206-127	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	61		40-140
o-Terphenyl	73		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	88		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-18	Date Collected:	07/25/11 10:40
Client ID:	21206-128	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	07/29/11 13:24
Analytical Date:	08/03/11 01:27	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/01/11
Percent Solids:	83%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.13	--	1
C19-C36 Aliphatics	ND		mg/kg	7.13	--	1
C11-C22 Aromatics	7.22		mg/kg	7.13	--	1
C11-C22 Aromatics, Adjusted	7.22		mg/kg	7.13	--	1
Naphthalene	ND		mg/kg	0.357	--	1
2-Methylnaphthalene	ND		mg/kg	0.357	--	1
Acenaphthylene	ND		mg/kg	0.357	--	1
Acenaphthene	ND		mg/kg	0.357	--	1
Fluorene	ND		mg/kg	0.357	--	1
Phenanthrene	ND		mg/kg	0.357	--	1
Anthracene	ND		mg/kg	0.357	--	1
Fluoranthene	ND		mg/kg	0.357	--	1
Pyrene	ND		mg/kg	0.357	--	1
Benzo(a)anthracene	ND		mg/kg	0.357	--	1
Chrysene	ND		mg/kg	0.357	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.357	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.357	--	1
Benzo(a)pyrene	ND		mg/kg	0.357	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.357	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.357	--	1
Benzo(ghi)perylene	ND		mg/kg	0.357	--	1

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

SAMPLE RESULTS

Lab ID:	L1111327-18	Date Collected:	07/25/11 10:40
Client ID:	21206-128	Date Received:	07/27/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	84		40-140
2-Fluorobiphenyl	96		40-140
2-Bromonaphthalene	99		40-140

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/02/11 22:50
Analyst: NH

Extraction Method: EPA 3546
Extraction Date: 07/29/11 11:54
Cleanup Method1: EPH-04-1
Cleanup Date1: 08/01/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-18 Batch: WG481807-1					
C9-C18 Aliphatics	ND		mg/kg	6.39	--
C19-C36 Aliphatics	ND		mg/kg	6.39	--
C11-C22 Aromatics	ND		mg/kg	6.39	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.39	--
Naphthalene	ND		mg/kg	0.319	--
2-Methylnaphthalene	ND		mg/kg	0.319	--
Acenaphthylene	ND		mg/kg	0.319	--
Acenaphthene	ND		mg/kg	0.319	--
Fluorene	ND		mg/kg	0.319	--
Phenanthrene	ND		mg/kg	0.319	--
Anthracene	ND		mg/kg	0.319	--
Fluoranthene	ND		mg/kg	0.319	--
Pyrene	ND		mg/kg	0.319	--
Benzo(a)anthracene	ND		mg/kg	0.319	--
Chrysene	ND		mg/kg	0.319	--
Benzo(b)fluoranthene	ND		mg/kg	0.319	--
Benzo(k)fluoranthene	ND		mg/kg	0.319	--
Benzo(a)pyrene	ND		mg/kg	0.319	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.319	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.319	--
Benzo(ghi)perylene	ND		mg/kg	0.319	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	78		40-140
o-Terphenyl	96		40-140
2-Fluorobiphenyl	104		40-140
2-Bromonaphthalene	105		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-18 Batch: WG481807-2 WG481807-3								
C9-C18 Aliphatics	70		58		40-140	19		25
C19-C36 Aliphatics	89		75		40-140	17		25
C11-C22 Aromatics	97		80		40-140	19		25
Naphthalene	83		67		40-140	21		25
2-Methylnaphthalene	90		73		40-140	21		25
Acenaphthylene	87		67		40-140	**26**	Q	25
Acenaphthene	93		74		40-140	23		25
Fluorene	95		77		40-140	21		25
Phenanthrene	100		82		40-140	20		25
Anthracene	99		81		40-140	20		25
Fluoranthene	101		86		40-140	16		25
Pyrene	104		87		40-140	18		25
Benzo(a)anthracene	97		82		40-140	17		25
Chrysene	99		84		40-140	16		25
Benzo(b)fluoranthene	99		85		40-140	15		25
Benzo(k)fluoranthene	100		84		40-140	17		25
Benzo(a)pyrene	97		79		40-140	20		25
Indeno(1,2,3-cd)Pyrene	99		84		40-140	16		25
Dibenzo(a,h)anthracene	92		78		40-140	16		25
Benzo(ghi)perylene	94		80		40-140	16		25
Nonane (C9)	57		46		30-140	21		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-18 Batch: WG481807-2 WG481807-3								
Decane (C10)	67		55		40-140	20		25
Dodecane (C12)	73		61		40-140	18		25
Tetradecane (C14)	79		64		40-140	21		25
Hexadecane (C16)	86		69		40-140	22		25
Octadecane (C18)	91		75		40-140	19		25
Nonadecane (C19)	92		77		40-140	18		25
Eicosane (C20)	91		77		40-140	17		25
Docosane (C22)	90		76		40-140	17		25
Tetracosane (C24)	90		77		40-140	16		25
Hexacosane (C26)	91		77		40-140	17		25
Octacosane (C28)	91		77		40-140	17		25
Triacontane (C30)	95		80		40-140	17		25
Hexatriacontane (C36)	97		82		40-140	17		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	93		83		40-140
o-Terphenyl	99		83		40-140
2-Fluorobiphenyl	92		93		40-140
2-Bromonaphthalene	96		97		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

INORGANICS
&
MISCELLANEOUS

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-01
Client ID: 21206-094
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 08:00
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-02
Client ID: 21206-096
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 08:10
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-03
Client ID: 21206-098
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 08:20
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	34		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-04
Client ID: 21206-100
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:00
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-05
Client ID: 21206-102
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:10
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-06
Client ID: 21206-104
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:20
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-07
Client ID: 21206-106
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:30
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97		%	0.10	NA	1	-	07/28/11 08:10	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-08
Client ID: 21206-108
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:35
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-09
Client ID: 21206-110
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 09:40
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-10
Client ID: 21206-112
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 11:00
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	98		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-11
Client ID: 21206-114
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 11:10
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-12
Client ID: 21206-116
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/22/11 11:20
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-13
Client ID: 21206-123
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 09:50
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-14
Client ID: 21206-124
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 09:55
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-15
Client ID: 21206-125
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 10:00
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-16
Client ID: 21206-126
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 10:30
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-17
Client ID: 21206-127
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 10:35
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

SAMPLE RESULTS

Lab ID: L1111327-18
Client ID: 21206-128
Sample Location: Not Specified
Matrix: Soil

Date Collected: 07/25/11 10:40
Date Received: 07/27/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83		%	0.10	NA	1	-	07/28/11 09:00	30,2540G	JC

Lab Duplicate Analysis
Batch Quality Control

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG481532-1 QC Sample: L1111317-01 Client ID: DUP Sample						
Solids, Total	90	89	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 08-18 QC Batch ID: WG481555-1 QC Sample: L1111327-08 Client ID: 21206-108						
Solids, Total	79	85	%	7		20

Project Name: 21206
Project Number: Not Specified

Lab Number: L1111327
Report Date: 08/04/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1111327-01A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-02A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-03A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-04A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-05A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-06A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-07A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-08A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-09A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-10A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-11A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-12A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-13A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-14A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-15A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-16A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-17A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)
L1111327-18A	Amber 120ml unpreserved	A	N/A	10	Y	Absent	TS(7),EPH-DELUX-10(14)

*Values in parentheses indicate holding time in days

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: 21206 **Lab Number:** L1111327

Project Number: Not Specified **Report Date:** 08/04/11

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 28, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B**,** 3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ESI
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1 Lafayette Road
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Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ALPHA Job # L1113274

CHAIN OF CUSTODY DOCUMENTATION

Serial No: 08041114-40

Client: ESI	Contact: Megan Scott	Project Name: 21206	Page 1 of 2
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email: mscott@envirosystems.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
1327-01	21206-094	7/22/11	0800	GD	C	4oz	G		S		MA EPH
02	-096		0810								
03	-098		0820								
04	-100		0900								
05	-102		0910								
06	-104		0920								
07	-106		0930								
08	-108		0935								
09	-110		0940								
10	-112		1100								
11	-114		1110								
12	-116		1120								

Relinquished By: D White	Date: 7/22/11	Time: 13:26	Received By: [illegible] Date: 7/27/11 Time: 13:26
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments: To Alpha

COC Doc No: 4597

Sample Delivery Group No: Page of

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: ALPHA Job # L1111327

CHAIN OF CUSTODY DOCUMENTATION

Client: ESI	Contact: Megan Scott	Project Name: 21206	Page 2 of 2
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email: mscott@enviросystems.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or com-posit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preser-vation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
1327 13	21206 - 123	7/25/11	0950	GD	C	4oz	G		S		MA EPH
14	- 124		0955								
15	- 125		1000								
16	- 126		1030								
17	- 127		1035								
18	- 128		1040								

Relinquished By: [signature]	Date: 7/27/11	Time: 13:26	Received By: [signature] Date: 7/27/11 Time: 13:26
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments: To Alpha

COC Doc No: 4449

Sample Delivery Group No: Page of

Serial No:08041114:40

ESI

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p 603 926 3345 · f 603 926 3521
envirosystems.com

Chet Myers
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

PO Number: None
Report Number: 21306
Date Received: 08/12/11
Date Reported: 08/19/11

Project: South Terminal

Attached please find results for analyses performed on samples received on 08/12/11 at 0800.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels affecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

Please visit our website at www.envirosystems.com for a copy of our NH NELAP Accreditation and Massachusetts State Certification.

The results for MA EPH were provided by Alpha Analytical of Westborough, Massachusetts.

EnviroSystems, Incorporated

Authorized Signature

Date 9/19/11

Attachment
Report

Lab Number:	21306-009
Sample Designation:	TP4-2NW-A
Date Sampled:	08/11/11 1400
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	92
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0054
Aroclor 1221	U	0.0054
Aroclor 1232	U	0.0054
Aroclor 1248	U	0.0054
Aroclor 1254	1.10	0.0054
Aroclor 1260	0.039	0.0054

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	69	30 - 150
decachlorobiphenyl	84	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-010
Sample Designation:	TP4-2NW-M
Date Sampled:	08/11/11 1410
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	26
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.019
Aroclor 1221	U	0.019
Aroclor 1232	U	0.019
Aroclor 1248	U	0.019
Aroclor 1254	0.02	0.019
Aroclor 1260	U	0.019

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	79	30 - 150
decachlorobiphenyl	95	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-011
Sample Designation:	TP4-2NW-B
Date Sampled:	08/11/11 1420
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	84
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.006
Aroclor 1221	U	0.006
Aroclor 1232	U	0.006
Aroclor 1248	U	0.006
Aroclor 1254	U	0.006
Aroclor 1260	U	0.006

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	89	30 - 150
decachlorobiphenyl	88	30 - 150

U = Below quantitation limit

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Lab Number:	21306-012
Sample Designation:	TP4-1N-A
Date Sampled:	08/11/11 1430
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	91
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0055
Aroclor 1221	U	0.0055
Aroclor 1232	U	0.0055
Aroclor 1248	U	0.0055
Aroclor 1254	0.93	0.0055
Aroclor 1260	0.041	0.0055

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	82	30 - 150
decachlorobiphenyl	93	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-013
Sample Designation:	TP4-1N-M
Date Sampled:	08/11/11 1440
Date Extracted:	08/12/11
Date Analyzed:	08/15/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	41
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.12
Aroclor 1221	U	0.12
Aroclor 1232	U	0.12
Aroclor 1248	U	0.12
Aroclor 1254	U	0.12
Aroclor 1260	U	0.12

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	85	30 - 150
decachlorobiphenyl	87	30 - 150

U = Below quantitation limit

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Lab Number:	21306-014
Sample Designation:	TP4-1N-B
Date Sampled:	08/11/11 1450
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	79
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0063
Aroclor 1221	U	0.0063
Aroclor 1232	U	0.0063
Aroclor 1248	U	0.0063
Aroclor 1254	U	0.0063
Aroclor 1260	U	0.0063

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	97	30 - 150
decachlorobiphenyl	107	30 - 150

U = Below quantitation limit

ESI

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Lab Number:	21306-015
Sample Designation:	TP4-2N-A
Date Sampled:	08/11/11 1500
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	94
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0053
Aroclor 1221	U	0.0053
Aroclor 1232	U	0.0053
Aroclor 1248	U	0.0053
Aroclor 1254	0.01	0.0053
Aroclor 1260	U	0.0053

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	91	30 - 150
decachlorobiphenyl	90	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-016
Sample Designation:	TP4-2N-M
Date Sampled:	08/11/11 1510
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.01	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	80	30 - 150
decachlorobiphenyl	123	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-017
Sample Designation:	TP4-2N-B
Date Sampled:	08/11/11 1515
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	30
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.017
Aroclor 1221	U	0.017
Aroclor 1232	U	0.017
Aroclor 1248	U	0.017
Aroclor 1254	U	0.017
Aroclor 1260	U	0.017

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	74	30 - 150
decachlorobiphenyl	87	30 - 150

U = Below quantitation limit

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Lab Number:	21306-018
Sample Designation:	TP4-1NE-A
Date Sampled:	08/11/11 1530
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	90
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.09	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	52	30 - 150
decachlorobiphenyl	63	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-019
Sample Designation:	TP4-1NE-M
Date Sampled:	08/11/11 1535
Date Extracted:	08/12/11
Date Analyzed:	08/15/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	26
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.19
Aroclor 1221	U	0.19
Aroclor 1232	U	0.19
Aroclor 1248	U	0.19
Aroclor 1254	U	0.19
Aroclor 1260	U	0.19

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	84	30 - 150
decachlorobiphenyl	95	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-020
Sample Designation:	TP4-1NE-B
Date Sampled:	08/11/11 1540
Date Extracted:	08/12/11
Date Analyzed:	08/15/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	75
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.066
Aroclor 1221	U	0.066
Aroclor 1232	U	0.066
Aroclor 1248	U	0.066
Aroclor 1254	U	0.066
Aroclor 1260	U	0.066

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	79	30 - 150
decachlorobiphenyl	98	30 - 150

U = Below quantitation limit

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Lab Number:	21306-021
Sample Designation:	TP4-3W-A
Date Sampled:	08/11/11 1000
Date Extracted:	08/12/11
Date Analyzed:	08/15/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	90
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.055
Aroclor 1221	U	0.055
Aroclor 1232	U	0.055
Aroclor 1248	U	0.055
Aroclor 1254	4.10	0.055
Aroclor 1260	0.16	0.055

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	96	30 - 150
decachlorobiphenyl	98	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

ESI

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Lab Number:	21306-022
Sample Designation:	TP4-3W-M
Date Sampled:	08/11/11 1010
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	88
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0057
Aroclor 1221	U	0.0057
Aroclor 1232	U	0.0057
Aroclor 1248	U	0.0057
Aroclor 1254	0.47	0.0057
Aroclor 1260	0.024	0.0057

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	57	30 - 150
decachlorobiphenyl	64	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used for quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-023
Sample Designation:	TP4-3W-B
Date Sampled:	08/11/11 1020
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.01	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	95	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

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Lab Number:	21306-024
Sample Designation:	TP4-4W-A
Date Sampled:	08/11/11 1030
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	0.03	0.0058
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	87	30 - 150
decachlorobiphenyl	96	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

ESI

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Lab Number:	21306-025
Sample Designation:	TP4-4W-M
Date Sampled:	08/11/11 1040
Date Extracted:	08/12/11
Date Analyzed:	08/15/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	85
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.059
Aroclor 1221	U	0.059
Aroclor 1232	U	0.059
Aroclor 1248	U	0.059
Aroclor 1254	U	0.059
Aroclor 1260	U	0.059

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	88	30 - 150
decachlorobiphenyl	97	30 - 150

U = Below quantitation limit

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-026
Sample Designation:	TP4-4W-B
Date Sampled:	08/11/11 1050
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	46
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.011
Aroclor 1221	U	0.011
Aroclor 1232	U	0.011
Aroclor 1248	U	0.011
Aroclor 1254	U	0.011
Aroclor 1260	U	0.011

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	88	30 - 150
decachlorobiphenyl	85	30 - 150

U = Below quantitation limit

ESI

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Lab Number:	21306-027
Sample Designation:	TP4-5W-A
Date Sampled:	08/11/11 1115
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	89
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.33	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	102	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-028
Sample Designation:	TP4-5W-M
Date Sampled:	08/11/11 1125
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	71
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.07
Aroclor 1221	U	0.07
Aroclor 1232	U	0.07
Aroclor 1248	U	0.07
Aroclor 1254	0.38	0.07
Aroclor 1260	U	0.07

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	97	30 - 150
decachlorobiphenyl	108	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-029
Sample Designation:	TP4-5W-B
Date Sampled:	08/11/11 1130
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	49
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.01
Aroclor 1221	U	0.01
Aroclor 1232	U	0.01
Aroclor 1248	U	0.01
Aroclor 1254	U	0.01
Aroclor 1260	U	0.01

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	82	30 - 150

U = Below quantitation limit

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-030
Sample Designation:	TP4-1NW-A
Date Sampled:	08/11/11 1330
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	86
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0058
Aroclor 1221	U	0.0058
Aroclor 1232	U	0.0058
Aroclor 1248	U	0.0058
Aroclor 1254	110.00	37
Aroclor 1260	U	0.0058

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	83	30 - 150
decachlorobiphenyl	186	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-031
Sample Designation:	TP4-1NW-M
Date Sampled:	08/11/11 1340
Date Extracted:	08/12/11
Date Analyzed:	08/16/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	53
Final Volume (mL)	10
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.095
Aroclor 1221	U	0.095
Aroclor 1232	U	0.095
Aroclor 1248	U	0.095
Aroclor 1254	0.15	0.095
Aroclor 1260	U	0.095

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	77	30 - 150
decachlorobiphenyl	99	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

ESI

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Lab Number:	21306-032
Sample Designation:	TP4-1NW-B
Date Sampled:	08/11/11 1350
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	91
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0055
Aroclor 1221	U	0.0055
Aroclor 1232	U	0.0055
Aroclor 1248	U	0.0055
Aroclor 1254	1.30	0.0055
Aroclor 1260	0.067	0.0055

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	82	30 - 150
decachlorobiphenyl	131	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-033
Sample Designation:	TP2-1E-A
Date Sampled:	08/11/11 1740
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	97
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0052
Aroclor 1221	U	0.0052
Aroclor 1232	U	0.0052
Aroclor 1248	U	0.0052
Aroclor 1254	0.01	0.0052
Aroclor 1260	U	0.0052

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	84	30 - 150
decachlorobiphenyl	87	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fc quantitation were present. Aroclor identification is tentative.

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

Lab Number:	21306-034
Sample Designation:	TP2-1E-M
Date Sampled:	08/11/11 1745
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	93
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0054
Aroclor 1221	U	0.0054
Aroclor 1232	U	0.0054
Aroclor 1248	U	0.0054
Aroclor 1254	0.01	0.0054
Aroclor 1260	U	0.0054

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	89	30 - 150
decachlorobiphenyl	132	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

ESI

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Lab Number:	21306-035
Sample Designation:	TP2-1E-B
Date Sampled:	08/11/11 1750
Date Extracted:	08/12/11
Date Analyzed:	08/17/11
Matrix:	Solid
Sample Amount (g):	10
Sample Dry Weight (%)	90
Final Volume (mL)	1
Dilution Factor:	1

POLYCHLORINATED BIPHENYLS
Method Reference: SW846 8082

	Concentration (ug/g)	Reporting Limit (ug/g)
Aroclor 1016\1242	U	0.0056
Aroclor 1221	U	0.0056
Aroclor 1232	U	0.0056
Aroclor 1248	U	0.0056
Aroclor 1254	0.01	0.0056
Aroclor 1260	U	0.0056

SURROGATE STANDARD	Recovery (%)	Advisory Limits (%)
tetrachloro-m-xylene	54	30 - 150
decachlorobiphenyl	58	30 - 150

U = Below quantitation limit

This sample contained a complex mixture of PCB's. All five GC peaks characteristic of the reported Aroclor and used fo quantitation were present. Aroclor identification is tentative.

ESI

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Hampton, NH 03842-0788 603-926-3345 fax 603-926-3521 www.envirosystems.com

ESI

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21306		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	08/12/11 0800	Date and TIme Logged into Lab:	08/12/11 1321
Recieved By:	DW	Logged into Lab by:	EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	2C	Custody Seals intact?	NA
Number of COC Pages:	4		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP6-1S	21306-001	S	MA EPH	1x4oz G	4C	Yes
TP6-3W	21306-002	S	MA EPH	1x4oz G	4C	Yes
TP6-8NW	21306-003	S	MA EPH	1x4oz G	4C	Yes
TP6-4N	21306-004	S	MA EPH	1x4oz G	4C	Yes
TP6-6NE	21306-005	S	MA EPH	1x4oz G	4C	Yes
TP2-1E	21306-006	S	MA EPH	1x4oz G	4C	Yes
TP2-2E	21306-007	S	MA EPH	1x4oz G	4C	Yes
TP4-1NE	21306-008	S	MA EPH	1x4oz G	4C	Yes
TP4-2NW-A	21306-009	S	ARO8082	1x9oz G	4C	Yes
TP4-2NW-M	21306-010	S	ARO8082	1x9oz G	4C	Yes
TP4-2NW-B	21306-011	S	ARO8082	1x9oz G	4C	Yes
TP4-1N-A	21306-012	S	ARO8082	1x9oz G	4C	Yes
TP4-1N-M	21306-013	S	ARO8082	1x9oz G	4C	Yes
TP4-1N-B	21306-014	S	ARO8082	1x9oz G	4C	Yes
TP4-2N-A	21306-015	S	ARO8082	1x9oz G	4C	Yes
TP4-2N-M	21306-016	S	ARO8082	1x9oz G	4C	Yes
TP4-2N-B	21306-017	S	ARO8082	1x9oz G	4C	Yes
TP4-1NE-A	21306-018	S	ARO8082	1x9oz G	4C	Yes
TP4-1NE-M	21306-019	S	ARO8082	1x9oz G	4C	Yes
TP4-1NE-B	21306-020	S	ARO8082	1x9oz G	4C	Yes
TP4-3W-A	21306-021	S	ARO8082	1x9oz G	4C	Yes
TP4-3W-M	21306-022	S	ARO8082	1x9oz G	4C	Yes
TP4-3W-B	21306-023	S	ARO8082	1x9oz G	4C	Yes

Notes and qualifications:

EnviroSystems, Inc. One Lafayette Road P.O. Box 778 Ham 42-0778 (603) 926-3345 fax (603) 926-3521 www.envirosystems.com

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	21306		
SDG No:			
Project:	South Terminal		
Delivered via:	ESI		
Date and Time Received:	08/12/11 0800	Date and TIme Logged into Lab:	08/12/11 1321
Recieved By:	DW	Logged into Lab by:	EAL EAL
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	Yes
Cooler Blank Temp (C) at arrival:	2C	Custody Seals intact?	Yes
Number of COC Pages:	4		
COC Serial Number(s):	NA		
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
TP4-4W-A	21306-024	S	ARO8082	1x9oz G	4C	Yes
TP4-4W-M	21306-025	S	ARO8082	1x9oz G	4C	Yes
TP4-4W-B	21306-026	S	ARO8082	1x9oz G	4C	Yes
TP4-5W-A	21306-027	S	ARO8082	1x9oz G	4C	Yes
TP4-5W-M	21306-028	S	ARO8082	1x9oz G	4C	Yes
TP4-5W-B	21306-029	S	ARO8082	1x9oz G	4C	Yes
TP4-1NW-A	21306-030	S	ARO8082	1x9oz G	4C	Yes
TP4-1NW-M	21306-031	S	ARO8082	1x9oz G	4C	Yes
TP4-1NW-B	21306-032	S	ARO8082	1x9oz G	4C	Yes
TP2-1E-A	21306-033	S	ARO8082	1x9oz G	4C	Yes
TP2-1E-M	21306-034	S	ARO8082	1x9oz G	4C	Yes
TP2-1E-B	21306-035	S	ARO8082	1x9oz G	4C	Yes

Notes and qualifications: 21306-024 S ARO8082

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ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21306

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co., LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 1 of 4
Report to: C. MYERS	Address: 184 HIGH ST. STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: 617-728-0070	Fax: 617-728-0080	email: CMYERS@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
001	TP6-1S	8/11/11	16:00	GD	C	4oz	G/T		S		MAEPH *
002	TP6-3W	↓	16:30	↓	↓	↓	↓		↓		↓
003	TP6-3NW	↓	16:50	↓	↓	↓	↓		↓		↓
004	TP6-4N	↓	17:00	↓	↓	↓	↓		↓		↓
005	TP6-6NE	↓	17:30	↓	↓	↓	↓		↓		↓
006	~~TP6~~ GD TP2-1E	↓	17:55	↓	↓	↓	↓		↓		↓
007	TP2-2E	↓	18:10	↓	↓	↓	↓		↓		↓
008	TP4-1NE	8/11/11	15:45	GD	C	4oz	G/T		S		MAEPH *

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Relinquished By: [signature]	Date: 8/12/11 Time: 8:00	Received By: [signature]	Date: 8/12/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments: * PLEASE RUSH ALL SAMPLES

2°C

Sample Delivery Group No:	Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21306

CHAIN OF CUSTODY DOCUMENTATION

Client: Arbor Co., LLC	Contact: C. Myers	Project Name: South Terminal	Page 2 of ~~3~~ 4 (FINAL)
Report to: C. Myers	Address: 184 High St Ste 506	Project Number: 6690	
Invoice to: C. Myers	Address: Boston, MA 02110	Project Manager: C. Myers	
Voice: 617-728-0070	Fax: 617-728-0050	email: cmyers@arborco.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
009	TP4-2NW-A	8/11/11	14:00	GD	C	9oz	G/T		S		PCB Aroclors *
010	TP4-2NW-M		14:10								
011	TP4-2-NW-B		14:20								
012	TP4-1N-A		14:30								
013	TP4-1N-M		14:40								
014	TP4-1N-B		14:50								
015	TP4-2N-A		15:00								
016	TP4-2N-M		15:10								
017	TP4-2N-B		15:15								
018	TP4-1NE-A		15:30								
019	~~TP4-1~~ GD TP4-1NE-M		15:35								
020	TP4-1NE-B		15:40								

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Relinquished By: [signature]	Date: 8/12/11	Time: 8:00	Received By: [signature] Date: 8/12/11 Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments: * PLEASE RUSH SAMPLES

(2°C)

Sample Delivery Group No: Page of

COC Doc No: 0453

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21306

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co. LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 3 of 4
Report to: C. MYERS	Address: 184 HIGH ST. STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: 617-728-0070	Fax: 617-728-0030	email: CMYERS@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
021	TP4-3W-A	8/11/11	10:00	GD	C	9 oz	G/T		S		PCB AROCLORS *
022	TP4-3W-M	8/11/11	10:10	GD	C	9 oz	G/T		S		PCB AROCLORS *
023	TP4-3W-B		10:20								
033/034	TP4-4W-A		10:30								
025	TP4-4W-M		10:40								
026	TP4-4W-B		10:50								
027	TP4-5W-A		11:15								
028	TP4-5W-M		11:25								
029	TP4-5W-B		11:30								
030	TP4-1NW-A		13:30								
031 ~~040~~	TP4-1NW-M		13:40								
032 ~~041~~	TP4-1NW-B		13:50								

Relinquished By: [signature]	Date: 8/12/11 Time: 8:00	Received By: [signature]	Date: 8/12/11 Time: 8:00
Relinquished By:	Date: Time:	Received at Lab By:	Date: Time:

Comments: *PLEASE RUSH SAMPLES

2°C

Sample Delivery Group No: Page of

COC Doc No:

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21306

CHAIN OF CUSTODY DOCUMENTATION

Client: APEX Co, LLC	Contact: C. MYERS	Project Name: SOUTH TERMINAL	Page 4 of 4
Report to: C. MYERS	Address: 184 HIGH ST, STE 502	Project Number: 6690	
Invoice to: C. MYERS	Address: BOSTON, MA 02110	Project Manager: C. MYERS	
Voice: 617-728-0070	Fax: 617-728-0050	email: cmyers@apexcos.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
033	TP2-1E-A	8/11/11	17:40	GD	C	902	G/T		S		PCB AROCLORS *
034	TP2-1E-M	↓	17:45	↓	↓	↓	↓		↓		↓
035	TP2-1E-B	↓	17:50	↓	↓	↓	↓		↓		↓

34/34

Relinquished By: [signature]	Date: 8/12/11	Time: 8:00	Received By: [signature]	Date: 8/12/11	Time: 8:00
Relinquished By:	Date:	Time:	Received at Lab By:	Date:	Time:

Comments: * PLEASE RUSH SAMPLES

2°C

Sample Delivery Group No:	Page of

COC Doc No: [illegible]

ANALYTICAL REPORT

Lab Number:	L1112360
Client:	Envirosystems, Inc. 1 Lafayette Road PO Box 778 Hampton, NH 03843
ATTN:	Megan Scott
Phone:	(603) 926-3345
Project Name:	21306
Project Number:	Not Specified
Report Date:	08/18/11

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Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (2003), NJ (MA935), RI (LAO00065), ME (MA0086), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1112360-01	21306-001	Not Specified	08/11/11 16:00
L1112360-02	21306-002	Not Specified	08/11/11 16:30
L1112360-03	21306-003	Not Specified	08/11/11 16:50
L1112360-04	21306-004	Not Specified	08/11/11 17:00
L1112360-05	21306-005	Not Specified	08/11/11 17:30
L1112360-06	21306-006	Not Specified	08/11/11 17:55
L1112360-07	21306-007	Not Specified	08/11/11 18:10
L1112360-08	21306-008	Not Specified	08/11/11 15:45

Project Name: 21306 **Lab Number:** L1112360
Project Number: Not Specified **Report Date:** 08/18/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

Sample Receipt

The samples were received at the laboratory above the required temperature range. The samples were transported to the laboratory in a cooler with blue ice. Per prior client notification and authorization of the exceedance, all requested analyses were performed.

EPH

L1112360-01, -05, and -06 have elevated detection limits due to the dilutions required by the matrix interferences encountered during the concentration of the samples and the analytical dilutions required by the target compounds present in the samples.

L1112360-02 and -07 have elevated detection limits due to the dilutions required by the elevated concentrations of target compounds in the samples.

The surrogate recoveries for L1112360-01, -05, and -06 are below the acceptance criteria for Chloro-

Project Name:	21306	**Lab Number:**	L1112360
Project Number:	Not Specified	**Report Date:**	08/18/11

Case Narrative (continued)

Octadecane and o-Terphenyl (all 0%) due to the dilutions required to quantitate the samples. Re-extraction was not required; therefore, the results of the original analyses are reported.

The surrogate recovery for the L1112360-02 and -07 is outside the acceptance criteria for o-Terphenyl (511% and 199% respectively); however, the samples were not re-extracted due to coelution with obvious interferences. Copies of the chromatograms are included as attachments to this report. The results are not considered to be biased.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth A. Simmons Elizabeth Simmons

Title: Technical Director/Representative Date: 08/18/11

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-01	D	Date Collected:	08/11/11 16:00
Client ID:	21306-001		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	08/12/11 22:20
Analytical Date:	08/18/11 02:49		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/13/11
Percent Solids:	92%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	283	--	40
C19-C36 Aliphatics	ND		mg/kg	283	--	40
C11-C22 Aromatics	13300		mg/kg	283	--	40
C11-C22 Aromatics, Adjusted	10800		mg/kg	283	--	40
Naphthalene	555		mg/kg	14.2	--	40
2-Methylnaphthalene	489		mg/kg	14.2	--	40
Acenaphthylene	107		mg/kg	14.2	--	40
Acenaphthene	230		mg/kg	14.2	--	40
Fluorene	243		mg/kg	14.2	--	40
Phenanthrene	504		mg/kg	14.2	--	40
Anthracene	85.7		mg/kg	14.2	--	40
Fluoranthene	62.9		mg/kg	14.2	--	40
Pyrene	118		mg/kg	14.2	--	40
Benzo(a)anthracene	36.8		mg/kg	14.2	--	40
Chrysene	39.5		mg/kg	14.2	--	40
Benzo(b)fluoranthene	ND		mg/kg	14.2	--	40
Benzo(k)fluoranthene	ND		mg/kg	14.2	--	40
Benzo(a)pyrene	26.7		mg/kg	14.2	--	40
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	14.2	--	40
Dibenzo(a,h)anthracene	ND		mg/kg	14.2	--	40
Benzo(ghi)perylene	ND		mg/kg	14.2	--	40

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-01	D	Date Collected:	08/11/11 16:00
Client ID:	21306-001		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	85		40-140
2-Bromonaphthalene	92		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-02	D	Date Collected:	08/11/11 16:30
Client ID:	21306-002		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	08/12/11 22:20
Analytical Date:	08/18/11 03:21		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/13/11
Percent Solids:	50%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	130	--	10
C19-C36 Aliphatics	ND		mg/kg	130	--	10
C11-C22 Aromatics	2930		mg/kg	130	--	10
C11-C22 Aromatics, Adjusted	2240		mg/kg	130	--	10
Naphthalene	212		mg/kg	6.49	--	10
2-Methylnaphthalene	130		mg/kg	6.49	--	10
Acenaphthylene	31.3		mg/kg	6.49	--	10
Acenaphthene	58.4		mg/kg	6.49	--	10
Fluorene	55.1		mg/kg	6.49	--	10
Phenanthrene	127		mg/kg	6.49	--	10
Anthracene	23.8		mg/kg	6.49	--	10
Fluoranthene	13.7		mg/kg	6.49	--	10
Pyrene	25.1		mg/kg	6.49	--	10
Benzo(a)anthracene	7.96		mg/kg	6.49	--	10
Chrysene	8.80		mg/kg	6.49	--	10
Benzo(b)fluoranthene	ND		mg/kg	6.49	--	10
Benzo(k)fluoranthene	ND		mg/kg	6.49	--	10
Benzo(a)pyrene	ND		mg/kg	6.49	--	10
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	6.49	--	10
Dibenzo(a,h)anthracene	ND		mg/kg	6.49	--	10
Benzo(ghi)perylene	ND		mg/kg	6.49	--	10

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-02	D	Date Collected:	08/11/11 16:30
Client ID:	21306-002		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	**511**	Q	40-140
2-Fluorobiphenyl	87		40-140
2-Bromonaphthalene	93		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-03	Date Collected:	08/11/11 16:50
Client ID:	21306-003	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/12/11 22:20
Analytical Date:	08/16/11 17:01	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/13/11
Percent Solids:	82%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.99	--	1
C19-C36 Aliphatics	ND		mg/kg	7.99	--	1
C11-C22 Aromatics	ND		mg/kg	7.99	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.99	--	1
Naphthalene	ND		mg/kg	0.399	--	1
2-Methylnaphthalene	ND		mg/kg	0.399	--	1
Acenaphthylene	ND		mg/kg	0.399	--	1
Acenaphthene	ND		mg/kg	0.399	--	1
Fluorene	ND		mg/kg	0.399	--	1
Phenanthrene	ND		mg/kg	0.399	--	1
Anthracene	ND		mg/kg	0.399	--	1
Fluoranthene	ND		mg/kg	0.399	--	1
Pyrene	ND		mg/kg	0.399	--	1
Benzo(a)anthracene	ND		mg/kg	0.399	--	1
Chrysene	ND		mg/kg	0.399	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.399	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.399	--	1
Benzo(a)pyrene	ND		mg/kg	0.399	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.399	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.399	--	1
Benzo(ghi)perylene	ND		mg/kg	0.399	--	1

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-03	Date Collected:	08/11/11 16:50
Client ID:	21306-003	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	76		40-140
o-Terphenyl	92		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	81		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-04	Date Collected:	08/11/11 17:00
Client ID:	21306-004	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/12/11 22:20
Analytical Date:	08/16/11 18:35	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/13/11
Percent Solids:	81%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.07	--	1
C19-C36 Aliphatics	ND		mg/kg	8.07	--	1
C11-C22 Aromatics	152		mg/kg	8.07	--	1
C11-C22 Aromatics, Adjusted	96.4		mg/kg	8.07	--	1
Naphthalene	ND		mg/kg	0.404	--	1
2-Methylnaphthalene	ND		mg/kg	0.404	--	1
Acenaphthylene	ND		mg/kg	0.404	--	1
Acenaphthene	0.799		mg/kg	0.404	--	1
Fluorene	0.893		mg/kg	0.404	--	1
Phenanthrene	7.25		mg/kg	0.404	--	1
Anthracene	1.85		mg/kg	0.404	--	1
Fluoranthene	11.6		mg/kg	0.404	--	1
Pyrene	8.87		mg/kg	0.404	--	1
Benzo(a)anthracene	4.70		mg/kg	0.404	--	1
Chrysene	4.84		mg/kg	0.404	--	1
Benzo(b)fluoranthene	3.38		mg/kg	0.404	--	1
Benzo(k)fluoranthene	2.75		mg/kg	0.404	--	1
Benzo(a)pyrene	3.99		mg/kg	0.404	--	1
Indeno(1,2,3-cd)Pyrene	2.65		mg/kg	0.404	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.404	--	1
Benzo(ghi)perylene	2.09		mg/kg	0.404	--	1

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-04	Date Collected:	08/11/11 17:00
Client ID:	21306-004	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	96		40-140
o-Terphenyl	135		40-140
2-Fluorobiphenyl	94		40-140
2-Bromonaphthalene	91		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-05	D	Date Collected:	08/11/11 17:30
Client ID:	21306-005		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	08/12/11 22:20
Analytical Date:	08/18/11 03:53		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/13/11
Percent Solids:	75%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	347	--	40
C19-C36 Aliphatics	ND		mg/kg	347	--	40
C11-C22 Aromatics	5240		mg/kg	347	--	40
C11-C22 Aromatics, Adjusted	2860		mg/kg	347	--	40
Naphthalene	71.1		mg/kg	17.3	--	40
2-Methylnaphthalene	19.8		mg/kg	17.3	--	40
Acenaphthylene	ND		mg/kg	17.3	--	40
Acenaphthene	61.4		mg/kg	17.3	--	40
Fluorene	78.8		mg/kg	17.3	--	40
Phenanthrene	491		mg/kg	17.3	--	40
Anthracene	126		mg/kg	17.3	--	40
Fluoranthene	451		mg/kg	17.3	--	40
Pyrene	333		mg/kg	17.3	--	40
Benzo(a)anthracene	162		mg/kg	17.3	--	40
Chrysene	159		mg/kg	17.3	--	40
Benzo(b)fluoranthene	111		mg/kg	17.3	--	40
Benzo(k)fluoranthene	94.0		mg/kg	17.3	--	40
Benzo(a)pyrene	120		mg/kg	17.3	--	40
Indeno(1,2,3-cd)Pyrene	62.2		mg/kg	17.3	--	40
Dibenzo(a,h)anthracene	ND		mg/kg	17.3	--	40
Benzo(ghi)perylene	48.9		mg/kg	17.3	--	40

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-05	D	Date Collected:	08/11/11 17:30
Client ID:	21306-005		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	83		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-06	D	Date Collected:	08/11/11 17:55
Client ID:	21306-006		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	08/12/11 22:20
Analytical Date:	08/18/11 04:25		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/13/11
Percent Solids:	91%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	153		mg/kg	142	--	20
C19-C36 Aliphatics	ND		mg/kg	142	--	20
C11-C22 Aromatics	3710		mg/kg	142	--	20
C11-C22 Aromatics, Adjusted	2480		mg/kg	142	--	20
Naphthalene	219		mg/kg	7.10	--	20
2-Methylnaphthalene	61.6		mg/kg	7.10	--	20
Acenaphthylene	8.15		mg/kg	7.10	--	20
Acenaphthene	102		mg/kg	7.10	--	20
Fluorene	64.8		mg/kg	7.10	--	20
Phenanthrene	259		mg/kg	7.10	--	20
Anthracene	56.4		mg/kg	7.10	--	20
Fluoranthene	76.7		mg/kg	7.10	--	20
Pyrene	149		mg/kg	7.10	--	20
Benzo(a)anthracene	47.0		mg/kg	7.10	--	20
Chrysene	45.4		mg/kg	7.10	--	20
Benzo(b)fluoranthene	21.8		mg/kg	7.10	--	20
Benzo(k)fluoranthene	24.6		mg/kg	7.10	--	20
Benzo(a)pyrene	50.9		mg/kg	7.10	--	20
Indeno(1,2,3-cd)Pyrene	18.6		mg/kg	7.10	--	20
Dibenzo(a,h)anthracene	ND		mg/kg	7.10	--	20
Benzo(ghi)perylene	24.4		mg/kg	7.10	--	20

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-06	D	Date Collected:	08/11/11 17:55
Client ID:	21306-006		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	**0**	Q	40-140
o-Terphenyl	**0**	Q	40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	89		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-07	D	Date Collected:	08/11/11 18:10
Client ID:	21306-007		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1		Extraction Date:	08/12/11 22:20
Analytical Date:	08/18/11 04:58		Cleanup Method1:	EPH-04-1
Analyst:	NH		Cleanup Date1:	08/13/11
Percent Solids:	76%			

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	26.1		mg/kg	17.4	--	2
C19-C36 Aliphatics	ND		mg/kg	17.4	--	2
C11-C22 Aromatics	252		mg/kg	17.4	--	2
C11-C22 Aromatics, Adjusted	194		mg/kg	17.4	--	2
Naphthalene	ND		mg/kg	0.871	--	2
2-Methylnaphthalene	2.43		mg/kg	0.871	--	2
Acenaphthylene	ND		mg/kg	0.871	--	2
Acenaphthene	4.75		mg/kg	0.871	--	2
Fluorene	4.52		mg/kg	0.871	--	2
Phenanthrene	20.9		mg/kg	0.871	--	2
Anthracene	4.60		mg/kg	0.871	--	2
Fluoranthene	5.09		mg/kg	0.871	--	2
Pyrene	8.72		mg/kg	0.871	--	2
Benzo(a)anthracene	1.60		mg/kg	0.871	--	2
Chrysene	1.78		mg/kg	0.871	--	2
Benzo(b)fluoranthene	0.907		mg/kg	0.871	--	2
Benzo(k)fluoranthene	ND		mg/kg	0.871	--	2
Benzo(a)pyrene	1.51		mg/kg	0.871	--	2
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.871	--	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.871	--	2
Benzo(ghi)perylene	1.31		mg/kg	0.871	--	2

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-07	D	Date Collected:	08/11/11 18:10
Client ID:	21306-007		Date Received:	08/12/11
Sample Location:	Not Specified		Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	**199**	Q	40-140
2-Fluorobiphenyl	96		40-140
2-Bromonaphthalene	94		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-08	Date Collected:	08/11/11 15:45
Client ID:	21306-008	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	98,EPH-04-1.1	Extraction Date:	08/12/11 22:20
Analytical Date:	08/16/11 21:14	Cleanup Method1:	EPH-04-1
Analyst:	NH	Cleanup Date1:	08/13/11
Percent Solids:	81%		

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.05	--	1
C19-C36 Aliphatics	ND		mg/kg	8.05	--	1
C11-C22 Aromatics	32.4		mg/kg	8.05	--	1
C11-C22 Aromatics, Adjusted	25.8		mg/kg	8.05	--	1
Naphthalene	ND		mg/kg	0.403	--	1
2-Methylnaphthalene	ND		mg/kg	0.403	--	1
Acenaphthylene	ND		mg/kg	0.403	--	1
Acenaphthene	ND		mg/kg	0.403	--	1
Fluorene	ND		mg/kg	0.403	--	1
Phenanthrene	1.12		mg/kg	0.403	--	1
Anthracene	ND		mg/kg	0.403	--	1
Fluoranthene	1.50		mg/kg	0.403	--	1
Pyrene	1.57		mg/kg	0.403	--	1
Benzo(a)anthracene	0.650		mg/kg	0.403	--	1
Chrysene	0.709		mg/kg	0.403	--	1
Benzo(b)fluoranthene	0.483		mg/kg	0.403	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.403	--	1
Benzo(a)pyrene	0.544		mg/kg	0.403	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.403	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.403	--	1
Benzo(ghi)perylene	ND		mg/kg	0.403	--	1

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

SAMPLE RESULTS

Lab ID:	L1112360-08	Date Collected:	08/11/11 15:45
Client ID:	21306-008	Date Received:	08/12/11
Sample Location:	Not Specified	Field Prep:	Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	81		40-140
o-Terphenyl	118		40-140
2-Fluorobiphenyl	89		40-140
2-Bromonaphthalene	87		40-140

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 08/17/11 01:26
Analyst: NH

Extraction Method: EPA 3546
Extraction Date: 08/12/11 22:20
Cleanup Method1: EPH-04-1
Cleanup Date1: 08/13/11

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-08 Batch: WG484407-1					
C9-C18 Aliphatics	ND		mg/kg	6.67	--
C19-C36 Aliphatics	ND		mg/kg	6.67	--
C11-C22 Aromatics	ND		mg/kg	6.67	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.67	--
Naphthalene	ND		mg/kg	0.333	--
2-Methylnaphthalene	ND		mg/kg	0.333	--
Acenaphthylene	ND		mg/kg	0.333	--
Acenaphthene	ND		mg/kg	0.333	--
Fluorene	ND		mg/kg	0.333	--
Phenanthrene	ND		mg/kg	0.333	--
Anthracene	ND		mg/kg	0.333	--
Fluoranthene	ND		mg/kg	0.333	--
Pyrene	ND		mg/kg	0.333	--
Benzo(a)anthracene	ND		mg/kg	0.333	--
Chrysene	ND		mg/kg	0.333	--
Benzo(b)fluoranthene	ND		mg/kg	0.333	--
Benzo(k)fluoranthene	ND		mg/kg	0.333	--
Benzo(a)pyrene	ND		mg/kg	0.333	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.333	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.333	--
Benzo(ghi)perylene	ND		mg/kg	0.333	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	76		40-140
o-Terphenyl	94		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	80		40-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-08 Batch: WG484407-2 WG484407-3								
C9-C18 Aliphatics	71		77		40-140	8		25
C19-C36 Aliphatics	89		95		40-140	7		25
C11-C22 Aromatics	106		107		40-140	1		25
Naphthalene	95		102		40-140	7		25
2-Methylnaphthalene	101		108		40-140	7		25
Acenaphthylene	98		105		40-140	7		25
Acenaphthene	98		104		40-140	6		25
Fluorene	99		104		40-140	5		25
Phenanthrene	104		108		40-140	4		25
Anthracene	104		109		40-140	5		25
Fluoranthene	102		107		40-140	5		25
Pyrene	104		109		40-140	5		25
Benzo(a)anthracene	98		104		40-140	6		25
Chrysene	100		105		40-140	5		25
Benzo(b)fluoranthene	101		105		40-140	4		25
Benzo(k)fluoranthene	100		106		40-140	6		25
Benzo(a)pyrene	98		104		40-140	6		25
Indeno(1,2,3-cd)Pyrene	102		107		40-140	5		25
Dibenzo(a,h)anthracene	96		101		40-140	5		25
Benzo(ghi)perylene	100		105		40-140	5		25
Nonane (C9)	59		66		30-140	11		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-08 Batch: WG484407-2 WG484407-3								
Decane (C10)	68		75		40-140	10		25
Dodecane (C12)	72		79		40-140	9		25
Tetradecane (C14)	76		81		40-140	6		25
Hexadecane (C16)	81		86		40-140	6		25
Octadecane (C18)	86		92		40-140	7		25
Nonadecane (C19)	86		93		40-140	8		25
Eicosane (C20)	87		94		40-140	8		25
Docosane (C22)	89		96		40-140	8		25
Tetracosane (C24)	91		98		40-140	7		25
Hexacosane (C26)	90		97		40-140	7		25
Octacosane (C28)	89		96		40-140	8		25
Triacontane (C30)	91		98		40-140	7		25
Hexatriacontane (C36)	91		98		40-140	7		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	74		90		40-140
o-Terphenyl	103		100		40-140
2-Fluorobiphenyl	91		91		40-140
2-Bromonaphthalene	88		88		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

INORGANICS
&
MISCELLANEOUS

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-01
Client ID: 21306-001
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 16:00
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-02
Client ID: 21306-002
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 16:30
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	50		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-03
Client ID: 21306-003
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 16:50
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-04
Client ID: 21306-004
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 17:00
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-05
Client ID: 21306-005
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 17:30
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-06
Client ID: 21306-006
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 17:55
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91		%	0.10	NA	1	-	08/15/11 11:46	30,2540G	MD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-07
Client ID: 21306-007
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 18:10
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76		%	0.10	NA	1	-	08/12/11 19:30	30,2540G	RD

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

SAMPLE RESULTS

Lab ID: L1112360-08
Client ID: 21306-008
Sample Location: Not Specified
Matrix: Soil

Date Collected: 08/11/11 15:45
Date Received: 08/12/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81		%	0.10	NA	1	-	08/15/11 11:46	30,2540G	MD

Lab Duplicate Analysis
Batch Quality Control

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05,07 QC Batch ID: WG484389-1 QC Sample: L1112318-01 Client ID: DUP Sample						
Solids, Total	92	92	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 06,08 QC Batch ID: WG484554-1 QC Sample: L1112374-01 Client ID: DUP Sample						
Solids, Total	91	91	%	0		20

Project Name: 21306
Project Number: Not Specified

Lab Number: L1112360
Report Date: 08/18/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1112360-01A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-02A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-03A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-04A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-05A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-06A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-07A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)
L1112360-08A	Amber 120ml unpreserved	A	N/A	7	Y	Absent	TS(7),EPH-DELUX-10(14)

Container Comments

L1112360-06A

L1112360-08A

*Values in parentheses indicate holding time in days

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report

Project Name: 21306 **Lab Number:** L1112360

Project Number: Not Specified **Report Date:** 08/18/11

Data Qualifiers

than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: 21306 **Lab Number:** L1112360
Project Number: Not Specified **Report Date:** 08/18/11

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised July 28, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, 9050A, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3580A, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B**,** 3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 S2¯D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843

Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 21306

CHAIN OF CUSTODY DOCUMENTATION

ALPHA Job # L1112360

Client: EnviroSystems, INC	Contact: Megan Scott	Project Name: 21306	Page 1 of 1
Report to:	Address:	Project Number:	
Invoice to:	Address:	Project Manager:	
Voice:	Fax:	email: mscott@envirosystems.com	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
	21306 -001	8/11/11	16:00	GD	C	4oz	G/T		S		MA EPH
	-002		16:30								
	-003		16:50								
	-004		17:00								
	-005		17:30								
	-006		17:55								
	-007		18:10								
	-008		15:45								

Relinquished By: [signature]	Date 8-12-11	Time: 15:50	Received By: [signature] Date: 8/12/11 Time: 15:50
Relinquished By:	Date:	Time:	Received at Lab By: Date: Time:

Comments: to Alpha-Mansfield RUSH!

COC Doc No: 4686

Sample Delivery Group No: Page of

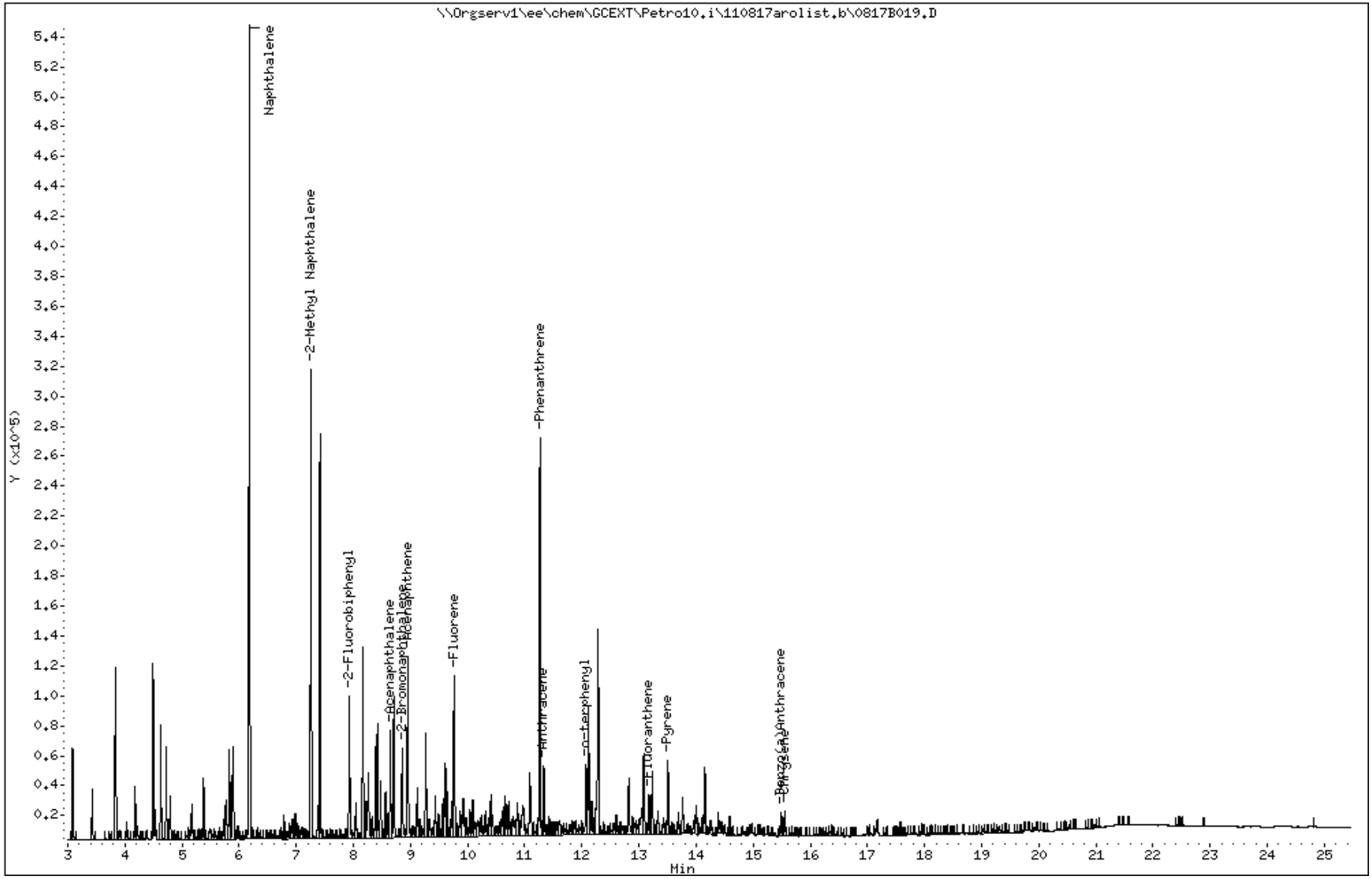
Serial_No:20181211111144

Data File: \\Orgserv1\ee\chem\GCEXT\Petro10.i\110817arolist.b\0817B019.D
Date : 18-AUG-2011 03:21
Client ID:
Sample Info: 11112360-02d,42, 10x

Column phase:

Instrument: Petro10.i

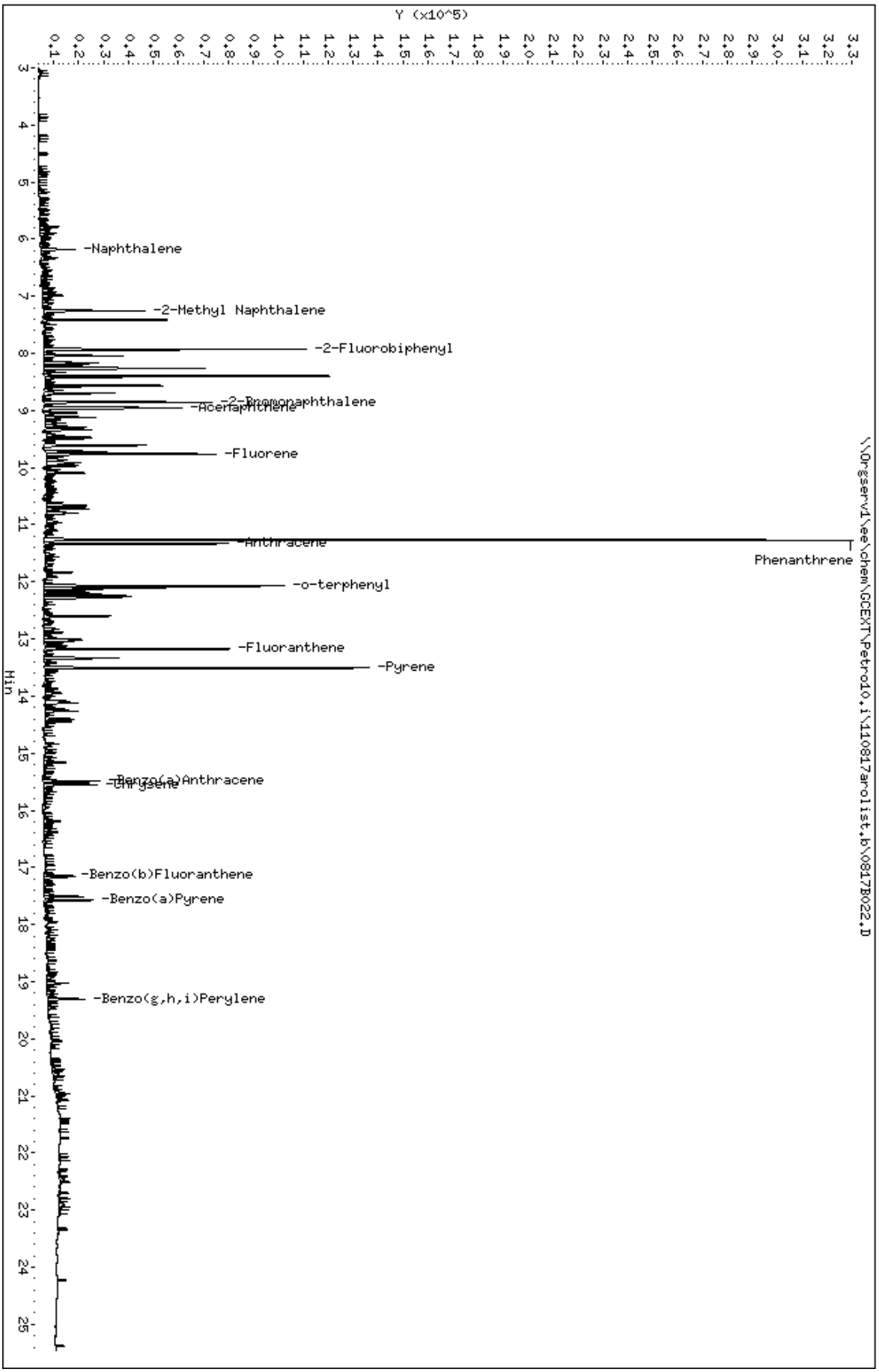
Operator: nh
Column diameter: 0.53



Serial_No:08181111:44

Data File: \\Orgserv1\ee\chem\GCEXT\Petrol0.i\110817arolist.b\0817B022.D
Date : 18-AUG-2011 04:58
Client ID:
Sample Info: 11112360-07d,42, 2x
Column phase:

Instrument: Petrol0.i
Operator: nh
Column diameter: 0.53



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APPENDIX 40

CASHINS &
Associates, Inc.
Industrial Hygiene & Environmental Testing

March 31, 2011

Chet Myers, PE, LSP
Apex Companies, LLC
184 High Street, Suite 502
Boston, MA 02110

Subject: PCB Background Air Monitoring

Dear Chet:

Cashins & Associates, Inc. was retained to collect background air samples for PCB analysis at the Cape Winds, New Bedford, MA South Terminal Marine Infrastructure Park Support Area. Samples were collected once per week for three weeks. The survey dates were February 23, 2011, March 1, 2011, and March 8, 2011. Each sample was collected over a 24-hour time period at a flow rate of five liters per minute (l/m). The air flow through the sampling train was calibrated prior to the survey using a BGI, Inc. TriCal Primary Flow Calibrator. The sample media was an ORBO1500 with PUF/XAD-2/PUF layers and a 32-mm quartz microfiber filter. The sampling pump was battery powered with a mass flow controller.

The samples were sent to TestAmerica Laboratories, Inc. in Knoxville, TN under standard chain of custody and security seals. The samples were analyzed using EPA Method 1668A, PCB's Homologues totals.

The test results are summarized below. The laboratory data is attached.

Homologues	Sample Date (Results Reported in ng/m^3)			
	2/23/11	2/23/11 (duplicate)	3/1/11	3/8/11
Monochlorobiphenyl (total)	0.0080	0.0045	0.0015	0.021
Dichlorobiphenyl (total)	0.13	0.071	0.036	0.51
Trichlorobiphenyl (total)	0.23	0.11	0.047	0.95
Tetrachlorobiphenyl (total)	0.13	0.057	0.041	0.45
Pentachlorobiphenyl (total)	0.030	0.014	0.024	0.060
Hexachlorobiphenyl (total)	0.0063	0.0036	0.0064	0.0087

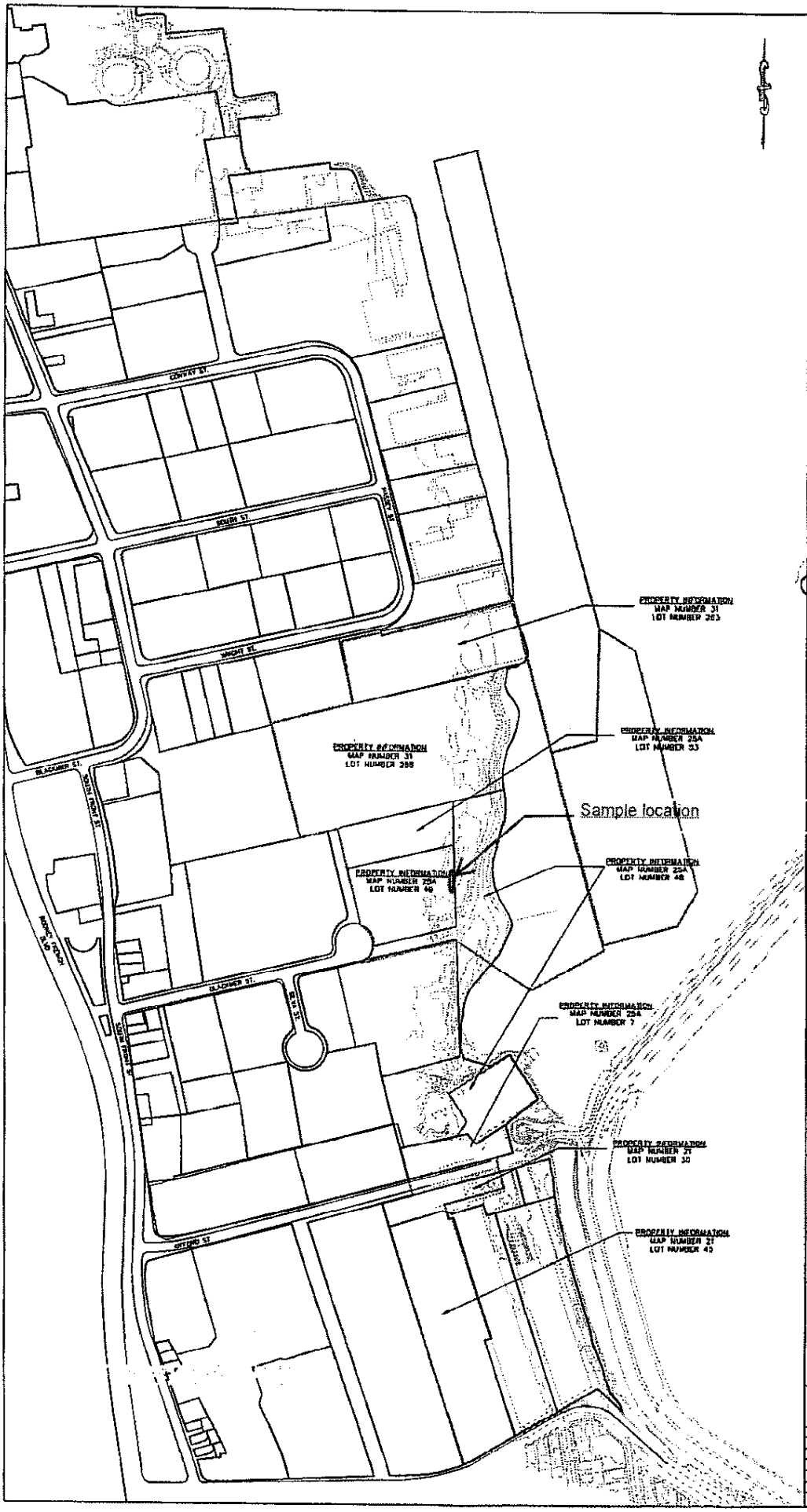
NOTE: Hepta, Octa, Nona and Decachlorobiphenyl were analyzed for but not detected.

The air samples were collected at the northeast portion of the properties that are enclosed by a fence, encompassing Map Number 25A - Lot Number 49, and Map Number 25A - Lot Number 53. The property is referred to as the DMF Property. A site map with the sample location marked is attached.

This report concludes our work associated with background PCB air monitoring. If you have any questions, please call.

Sincerely,
Cashins & Associates, Inc.

Robert F. Cashins, CIH
Vice President



Apex Companies, LLC

18A HIGH STREET
SUITE 307
BOSTON MA 02110
(617) 728-0070

REVISIONS

NO.	DATE	DESCRIPTION

THESE DRAWINGS PREPARED BY APEX FOR THIS PROJECT ARE INSTRUMENTS OF APEX'S SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT, AND APEX SHALL BE DEEMED THE AUTHOR OF THE DRAWINGS AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS WITH RESPECT THERETO, INCLUDING COPYRIGHT. THE DOCUMENTS SHALL NOT BE USED ON OTHER PROJECTS, FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO APEX.

PREPARED FOR:

THE NEW BEDFORD
HARBOR DEVELOPMENT
COMMISSION
NEW BEDFORD,
MASSACHUSETTS

DRAWING TITLE:

SOUTH TERMINAL
MARINE
INFRASTRUCTURE PARK
PROPOSED BULKHEAD

Scale: 1"=150'

0 75 150 300 450 FEET

Date 3/24/10	Drawing No.
Proj. Mgr. JAB	
Dsngr. CWM	
Check CWM	P-4
Drawn DCD	
Job. No. 5088	
Last Rev. 8/23/10	

Original Chain of Custody Documentation

Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865.291.3000 fax 865.584.4315

RH 2-25-11
~~HIB250430~~ HIB250433

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bob Cashins	Site Contact: Robert Cashins	Date: 2/24/11	COC No:
Cashins & Associates, Inc	Tel/Fax:781-245-1400	Lab Contact:John Reynolds	Carrier:	i of 1 COCs
599 North Avenue	Analysis Turnaround Time			Job No. 4335
Wakefield, MA 01880	Calendar (C) or Work Days (W)			SDG No.
(781)245-1400 Phone	TAT if different from Below 4 weeks			
(781)245-3100 FAX	☐ 2 weeks			
Project Name: Cape Winds	☐ 1 week			
Site: New Bedford, MA	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	PCB'S BY EPA 1668A HI RES GC-MS	Sample Specific Notes:
022311-4335-01	02/23/11	1358		Air	1		X	1440 min @ 5.0 LPM / 7.2 M3
022311-4335-01 Duplicate	↓	1358		Air	1		X	1440 min @ 5.0 LPM / 7.2 M3
022311-4335 - Blank	↓	Blank		Air	1		X	Blank

1 Cooler received @ 2°C Custody Seals intact FedEx: 7944 0408 2347 CBt 2/25/11

Preservation Used: (1= Ice,) 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments: A total of 3 samples + 1 duplicate +1 blank will be analyzed. The samples will be collected over a 3 week time period. The lab will accumulate the samples and run them as a single batch once all the filters are received at the lab. Any questions contact John Reynolds. This COC covers the first week of sampling and includes 1 sample, 1 duplicate and 1 blank

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Cashins & Associates, Inc	2/24/11 4:30 PM	[signature]	TA	2/25/11 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
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Knoxville
5815 Middlebrook Pike

Knoxville, TN 37921
phone 865.291.3000 fax 865.584.4315

H1B250433

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bob Cashins	Site Contact: Robert Cashins	Date: 3/9/11	COC No:
Cashins & Associates, Inc	Tel/Fax:781-245-1400	Lab Contact:John Reynolds	Carrier:	1 of 1 COCs
599 North Avenue	Analysis Turnaround Time			Job No. 4335
Wakefield, MA 01880	Calendar (C) or Work Days (W)			SDG No.
(781)245-1400 Phone	TAT if different from Below 4 weeks			
(781)245-3100 FAX	☐ 2 weeks			
Project Name: Cape Winds	☐ 1 week			
Site: New Bedford, MA	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	PCB'S BY EPA 1668A HI RES GC-MS	Sample Specific Notes:
030111 - 4335 - 01	03/01/11	12:22pm		Air	1		X	1440 min @ 5.0 lpm - 7.2 m³
~~DC~~	—	—	—	~~Air~~	~~1~~			
030811 - 4335 - 01	03/08/11	12:55pm		Air	1		X	1440 min @ 5.0 lpm - 7.2 m³
								1 Box received @ 4°C
								Custody seals intact
								Fed Ex: 794513181231
								CBA 3/10/11

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments: A total of 3 samples + 1 duplicate +1 blank will be analyzed. The samples will be collected over a 3 week time period. The lab will accumulate the samples and run them as a single batch once all the filters are received at the lab. Any questions contact John Reynolds. This COC covers the first week of sampling and includes 1 sample, 1 duplicate and 1 blank

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Cashins & Assoc. Inc.	3/9/11 3:20pm	[signature]	TA	3/10/11 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

H1B250433 Analytical Report 1
Sample Receipt Documentation 37
Total Number of Pages 40

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. TBD

Buzzards Bay Background Study

Lot #: H1B250433

Bob Cashins

Cashins & Associates
599 North Avenue
Suite 8
Wakefield, MA 01880

TESTAMERICA LABORATORIES, INC.

John Reynolds
Project Manager

March 25, 2011

ANALYTICAL METHODS SUMMARY

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PARAMETER	ANALYTICAL METHOD
PCBs, HRGC/HRMS	EPA-22 1668A

References:

EPA-22 "METHOD 1668, REVISION A: CHLORINATED BIPHENYL CONGENERS IN WATER, SOIL, SEDIMENT, AND TISSUE BY HRGC/HRMS" EPA-821-R-00-002 12/99

SAMPLE SUMMARY

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WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MEVQM	001	022311-4335-01	02/23/11	13:58
MEVRC	002	022311-4335-01DUPLICATE	02/23/11	13:58
MEVRD	003	022311-4335-BLANK	02/23/11	
MEVRE	004	A6372 MEDIA CHECK	02/23/11	
MFG1X	005	030111-4335-01	03/01/11	12:22
MFG11	006	030811-4335-01	03/08/11	12:55

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
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The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

Cleanup standards were not added to the samples and QC samples. All internal standard recoveries were within acceptance limits.

The method referenced for the analysis was EPA 1668 Revision A.

Nomenclature
The standardization strategy described in this report uses the naming convention of SW-846 Method 8290. This convention differs from Method 1668A in the following manner:

TestAmerica Knoxville maintains the following certifications, approvals and accreditations: Arkansas DEQ Lab #88-0688, California DHS ELAP Cert. #2423, Colorado DPHE, Connecticut DPH Lab #PH-0223, Florida DOH Lab #E87177, Georgia DNR Lab #906, Hawaii DOH, Illinois EPA Lab #200012, Indiana DOH Lab #C-TN-02, Iowa DNR Lab #375, Kansas DHE Cert. #E-10349, Kentucky DEP Lab #90101, Louisiana DEQ Cert. #03079, Louisiana DOHH, Maryland DOE Cert. #277, Michigan DEQ Lab #9933, Nevada DEP, New Jersey DEP Lab #TN001, New York DOH Lab #10781, North Carolina DPH Lab #21705, North Carolina DEHNR Cert. #64, Ohio EPA VAP Lab #CL0059, Oklahoma DEQ Lab #9415, Pennsylvania DEP Lab #68-00576, South Carolina DHEC Cert #84001001, Tennessee DOH Lab #02014, Texas CEQ, Utah DOH Lab # QUAN3, Virginia DGS Lab #00165, Washington DOE Lab #C1314, West Virginia DEP Cert. #345, West Virginia DHHR Cert #9955C, Wisconsin DNR Lab #998044300, Naval Facilities Engineering Service Center and USDA Soil Permit #S-46424. This list of approvals is subject to change and does not imply that laboratory certification is available for all parameters reported in this environmental sample data report.

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Standard Addition Occurs Prior To:	Method 1668 A	SW-846 Conventions Used in This Report
Sampling	None	Sampling Surrogate
Extraction	Labeled Toxics/LOC/Window Defining	Internal Standard
Cleanups	Labeled Cleanup Standard	Cleanup Standard*
Injection	Labeled Injection Internal Standard	Recovery Standard

* Cleanup Standard is also referred to as Surrogate Standard on report.

The shorthand notation used for congeners in this report is summarized in Table 2.

Qualifiers:

The following flags are used to qualify results for HRMS PCB results:

J – The reported result is an estimate. The amount reported is below the Estimated Minimum Level (EML). EML is defined by the method as the lowest concentration at which an analyte can be measured reliably with common laboratory interferences present. This value has been determined for each congener by MDL and laboratory method blank studies. The value is adjusted to reflect sample specific initial and final volumes.

E – The reported result is an estimate. The amount reported is above the UCL described below.

The E qualifier is applied on the basis of the **Upper Calibration Level (UCL)**. The quantitative definition of the UCL is listed below:

Upper Calibration Level: The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

B – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

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Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

Q – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).
- Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

S – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

C – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer. When the C flag is followed by a number, the number indicates the lowest numbered congener among the coelution set. For example, if 100 pg/L is detected at the retention time of PCB 156, and PCB 157 is known to coelute with PCB 156, the results will be flagged as follows:
PCB 156 100 pg/L C
PCB 157 100 pg/L C156

In certain electronic deliverables the result field for PCB 157 will be null, with "C156" appearing in the qualifier field in accordance with the CARP EDD specification.

X – Other. See explanation in narrative.

Results
The results for the analyses are summarized in the following pages. Please see comments regarding qualifiers, above. Additional information regarding qualifiers is explained in the legends at the end of each result summary. A summary of the shorthand conventions used in this report is provided in Table 2.

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Detection Limits
For all analyte results a sample specific detection limit is calculated for that analyte. This is done by first determining the GC/MS peak height of the noise or interferent in the expected region of the analyte signal. This value is multiplied by the number 2.5, which serves as a safety factor. The 2.5 safety factor is disregarded if the noise present in the analyte region is a result of chemical interferences. The resulting signal response value is then used to estimate the minimum detectable analyte amount. The result is the estimated sample detection limit.

When an analyte is not detected, an ND appears in place of the result. The value in the detection limit column is the estimated detection limit for the analyte in that particular sample.

EXAMPLE CALCULATIONS
The following formulas were used for sample calculations. Examples are given for calculating the percent recovery for internal standard $^{13}C_{12}$-PCB 1, the concentration of native PCB 1 and the EDL for PCB 1. All values used in the calculations below are typical (i.e. not extracted from a particular sample). Actual values are found on the IsoCalc Preliminary Sample Report (IPSR) at the position indicated (in parentheses, below):

INTERNAL STANDARD RECOVERY ($^{13}C_{12}$-PCB 1)

$$\text{Percent Recovery} = \frac{\Sigma A_{IS} \bullet W_{RS} \bullet 100\%}{\Sigma A_{RS} \bullet W_{IS} \bullet RRF}$$

ΣA_{IS} = Sum of areas for the Internal Standard quantitation ions. (IPSR – Column "Area", Row "13C12-PCB 1")

W_{RS} = Mass in ng of the Recovery Standard. (IPSR – Column "Std Amt", Row "13C12-PCB 9")

ΣA_{RS} = Sum of areas for the Recovery Standard quantitation ions. (IPSR – Column "Area", Row "13C12-PCB 9")

W_{IS} = Mass in ng of the Internal Standard. (IPSR – Column "Std Amt", Row "13C12-PCB 1")

RRF = Internal Standard mean relative response factor from the initial multipoint calibration. (IPSR - Column "RF", Row "13C12-PCB 1".)

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Substituting typical values, $\frac{1106275 \bullet 2.000\ (ng) \bullet 100\%}{1205581 \bullet 2.000\ (ng) \bullet 1.412} = 65\%$ Recovery

NATIVE ANALYTE QUANTITATION (PCB 1)

$$\text{Conc} = \frac{\Sigma A_X \bullet W_{IS}}{\Sigma A_{IS} \bullet V \bullet 0.001\ (mL/L) \bullet RRF}$$

ΣA_X = Sum of areas for analyte quantitation ions. (IPSR – Area Column "Area", Row "PCB 1")

W_{IS} = Mass in ng of Internal Standard. (IPSR – Column "Std Amt", Row "13C12-PCB 1").

ΣA_{IS} = Sum areas for the Internal Standard. (IPSR – Column "Area", Row 13C12-PCB 1)

V = Volume of sample extracted in mL. (IPSR – Header Column 2, Row "Initial Wt/Vol")

RRF = Native analyte mean relative response factor from the initial calibration, or daily response factor as appropriate. (IPSR – Column "RF", Row "PCB 1")

Substituting typical values, $\frac{8951 \bullet 2.000\ (ng)}{1106275 \bullet 2200\ (mL) \bullet 0.001\ (mL/L) \bullet 1.136} = 0.00647\ ng/L = 6.47$ pg/L

CALCULATION OF SAMPLE SPECIFIC ESTIMATED DETECTION LIMIT

This calculation uses the noise values found on the IsoCalc Preliminary Peak Report (IPPR), which follows the IPSR. All the other values used in the equation are found on the IPSR.)

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$$\frac{\Sigma I_X \bullet W_{IS} \bullet T_{SN}}{\Sigma I_{IS} \bullet V \bullet 0.001\ (mL/L) \bullet RRF}$$

ΣI_X = Sum of the intensities of the noise levels of the characteristic ions in the region of analyte elution. (IPPR – Columns "Height1" and "Height2", Row {mass} 188, Sub-Row "Noise").

W_{IS} = Mass in ng of the Internal Standard. (IPSR – Column "Std Amt", Row "13C12-PCB 1").

T_{SN} = Minimum Signal-to-Noise threshold. = 2.5. A constant, specified by the method.

ΣI_{IS} = Intensity of the corresponding ^{13}C ions. (IPSR – Column "Height", Row "13C12-PCB 9")

V = Volume of sample extracted in mL. (IPSR – Header Column 2, Row "Initial Wt/Vol")

RRF = Native analyte mean relative response factor from the initial calibration or daily standard as appropriate. (IPSR – Column "RF", Row "PCB 1")

Substituting typical values $$\frac{79 \bullet 2000\ (pg) \bullet 2.5}{334600 \bullet 2200\ (mL) \bullet 0.001\ (mL/L) \bullet 1.136} = 0.466\ pg/L$$

In sample data, peaks must have an intensity of 2.5 times the height of the background noise in order to be considered. Careful examination of the two equations above, and a bit of algebra reveals that for the concentration of the smallest peak detectable (per the EDL equation) to exactly equal the smallest peaks that are calculated, requires that the average height to area ratio obtained during the calibration must equal the area to height ratio for every peak obtained near 2.5 times the noise. When the area to height ratio on a peak in a sample is less than the average obtained during calibration, the calculated result will correspond to a peak that would have been less than 2.5 X the noise on the calibration. This is the result of normal variability. Because the source method for the EDL (EPA 1668 Revision A) does not provide for censoring of results by any other magnitude standard than being 2.5 times the noise, the laboratory does not censor at the calculated EDL. Hence, detections may be reported below the estimated detection limits.

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Table 1 Concentration of PCBs in Calibration Solutions							
Analyte Type	BZ/IUPAC[1]	CS 0.5 ng/mL	CS 1 ng/mL	CS 2 ng/mL	CS 3[2] ng/mL	CS 4 ng/mL	CS 5 ng/mL
Congeners							
2-MoCB	1	0.5	1.0	5.0	50	400	2000
4-MoCB	3	0.5	1.0	5.0	50	400	2000
2,2'-DiCB	4	0.5	1.0	5.0	50	400	2000
4,4'-DiCB	15	0.5	1.0	5.0	50	400	2000
2,2',6'-TrCB	19	0.5	1.0	5.0	50	400	2000
3,4,4'-TrCB	37	0.5	1.0	5.0	50	400	2000
2,2',6,6'-TeCB	54	0.5	1.0	5.0	50	400	2000
3,3',4,4'-TeCB	77	0.5	1.0	5.0	50	400	2000
3,4,4',5-TeCB	81	0.5	1.0	5.0	50	400	2000
2,2',4,6,6'-PeCB	104	0.5	1.0	5.0	50	400	2000
2,3,3',4,4'-PeCB	105	0.5	1.0	5.0	50	400	2000
2,3,4,4',5-PeCB	114	0.5	1.0	5.0	50	400	2000
2,3',4,4',5-PeCB	118	0.5	1.0	5.0	50	400	2000
2',3,4,4',5-PeCB	123	0.5	1.0	5.0	50	400	2000
3,3',4,4',5-PeCB	126	0.5	1.0	5.0	50	400	2000
2,2',4,4',6,6'-HxCB	155	0.5	1.0	5.0	50	400	2000
2,3,3',4,4',5-HxCB	156	0.5	1.0	5.0	50	400	2000
2,3,3',4,4',5'-HxCB	157	0.5	1.0	5.0	50	400	2000
2,3',4,4',5,5'-HxCB	167	0.5	1.0	5.0	50	400	2000
3,3',4,4',5,5'-HxCB	169	0.5	1.0	5.0	50	400	2000
2,2',3,4',5,6,6'-HpCB	188	0.5	1.0	5.0	50	400	2000
2,3,3',4,4',5,5'-HpCB	189	0.5	1.0	5.0	50	400	2000
2,2',3,3',5,5',6,6'-OcCB	202	0.5	1.0	5.0	50	400	2000
2,3,3',4,4',5,5',6-OcCB	205	0.5	1.0	5.0	50	400	2000
2,2',3,3',4,4',5,5',6-NoCB	206	0.5	1.0	5.0	50	400	2000
2,2',3,3',4',5,5',6,6'-NoCB	208	0.5	1.0	5.0	50	400	2000
DeCB	209	0.5	1.0	5.0	50	400	2000
All other CB congeners		0.5	1.0	5.0	50	400	2000
Labeled Congeners							
$^{13}C_{12}$-2-MoCB	1L	100	100	100	100	100	100
$^{13}C_{12}$-4-MoCB	3L	100	100	100	100	100	100
$^{13}C_{12}$-2,2'-DiCB	4L	100	100	100	100	100	100
$^{13}C_{12}$-4,4'-DiCB	15L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',6-TrCB	19L	100	100	100	100	100	100
$^{13}C_{12}$-3,4,4'-TrCB	37L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',6,6'-TeCB	54L	100	100	100	100	100	100
$^{13}C_{12}$-3,3',4,4'-TeCB	77L	100	100	100	100	100	100
$^{13}C_{12}$-3,4,4',5-TeCB	81L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',4,6,6'-PeCB	104L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,3',4,4'-PeCB	105L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,4',5-PeCB	114L	100	100	100	100	100	100
$^{13}C_{12}$-2,3',4,4',5-PeCB	118L	100	100	100	100	100	100
$^{13}C_{12}$-2',3,4,4',5-PeCB	123L	100	100	100	100	100	100
$^{13}C_{12}$-3,3',4,4',5-PeCB	126L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',4,4',6,6'-HxCB	155L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,3',4,4',5-HxCB	156L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,3',4,4',5'-HxCB	157L	100	100	100	100	100	100
$^{13}C_{12}$-2,3',4,4',5,5'-HxCB	167L	100	100	100	100	100	100
$^{13}C_{12}$-3,3',4,4',5,5'-HxCB	169L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,3',4,4',5-HpCB	170L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,4',5,6,6'-HpCB	188L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,3',4,4',5,5'-HpCB	189L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,3',5,5',6,6'-OcCB	202L	100	100	100	100	100	100
$^{13}C_{12}$-2,3,3',4,4',5,5',6-OcCB	205L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,3',4,4',5,5',6-NoCB	206L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,3',4',5,5',6,6'-NoCB	208L	100	100	100	100	100	100
$^{13}C_{12}$-DeCB	209L	100	100	100	100	100	100

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Table 1 Concentration of PCBs in Calibration Solutions							
Analyte Type	BZ/IUPAC[1]	CS 0.5 ng/mL	CS 1 ng/mL	CS 2 ng/mL	CS 3[2] ng/mL	CS 4 ng/mL	CS 5 ng/mL
Congeners							
Cleanup Standards							
$^{13}C_{12}$-2,4,4'-TriCB	28L	0.5	1.0	5.0	50	400	--
$^{13}C_{12}$-2,3,3',5,5'-PeCB	111L	0.5	1.0	5.0	50	400	--
$^{13}C_{12}$-2,2',3,3',5,5',6-HpCB	178L	0.5	1.0	5.0	50	400	--
Recovery Standards							
$^{13}C_{12}$-2,5-DiCB	9L	100	100	100	100	100	100
$^{13}C_{12}$-2,4',5-TriCB	31L	100	100	100	100	100	100
$^{13}C_{12}$-2,4',6-TriCB	32L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',5,5'-TeCB	52L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',4',5,5'-PeCB	101L	100	100	100	100	100	100
$^{13}C_{12}$-3,3',4,5,5'-PeCB	127L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3',4,4',5'-HxCB	138L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,4,4',5,5'-HpCB	180L	100	100	100	100	100	100
$^{13}C_{12}$-2,2',3,3',4,4',5,5'-OcCB	194L	100	100	100	100	100	100
Labeled Sampling Surrogates							
$^{13}C_{12}$-2,4'-DiCB	8L	0.5	1.0	5.0	50	400	--
$^{13}C_{12}$-3,3',4,5'-TeCB	79L	0.5	1.0	5.0	50	400	--
$^{13}C_{12}$-2,2',3,5',6-PeCB	95L	0.5	1.0	5.0	50	400	--
$^{13}C_{12}$-2,2',4,4',5,5'-HxCB	153L	0.5	1.0	5.0	50	400	--

Notes:
1. Suffix "L" indicates labeled compound
2. Section 15.3, calibration verification solution

Table 2 PCB Shorthand Nomenclature[4] Used in this Report					
BZ/IUPAC Number[1].	PCB Chemical Structure Name[2]	CAS Registry[3] Number	BZ/IUPAC Number[1].	PCB Chemical Structure Name[2]	CAS Registry[3] Number
1	2-monochlorobiphenyl	2051-60-7	106	2,3,3',4,5-pentachlorobiphenyl	70424-69-0
2	3-monochlorobiphenyl	2051-61-8	107/109	2,3,3',4',5-pentachlorobiphenyl	70424-68-9
3	4-monochlorobiphenyl	2051-62-9	108/107	2,3,3',4,5'-pentachlorobiphenyl	70362-41-3
4	2,2'-dichlorobiphenyl	13029-08-8	109/108	2,3,3',4,6-pentachlorobiphenyl	74472-35-8
5	2,3-dichlorobiphenyl	16605-91-7	110	2,3,3',4',6-pentachlorobiphenyl	38380-03-9
6	2,3'-dichlorobiphenyl	25569-80-6	111	2,3,3',5,5'-pentachlorobiphenyl	39635-32-0
7	2,4-dichlorobiphenyl	33284-50-3	112	2,3,3',5,6-pentachlorobiphenyl	74472-36-9
8	2,4'-dichlorobiphenyl	34883-43-7	113	2,3,3',5',6-pentachlorobiphenyl	68194-10-5
9	2,5-dichlorobiphenyl	34883-39-1	114	2,3,4,4',5-pentachlorobiphenyl	74472-37-0
10	2,6-dichlorobiphenyl	33146-45-1	115	2,3,4,4',6-pentachlorobiphenyl	74472-38-1
11	3,3'-dichlorobiphenyl	2050-67-1	116	2,3,4,5,6-pentachlorobiphenyl	18259-05-7
12	3,4-dichlorobiphenyl	2974-92-7	117	2,3,4',5,6-pentachlorobiphenyl	68194-11-6
13	3,4'-dichlorobiphenyl	2974-90-5	118	2,3',4,4',5-pentachlorobiphenyl	31508-00-6
14	3,5-dichlorobiphenyl	34883-41-5	119	2,3',4,4',6-pentachlorobiphenyl	56558-17-9
15	4,4'-dichlorobiphenyl	2050-68-2	120	2,3',4,5,5'-pentachlorobiphenyl	68194-12-7
16	2,2',3-trichlorobiphenyl	38444-78-9	121	2,3',4,5',6-pentachlorobiphenyl	56558-18-0
17	2,2',4-trichlorobiphenyl	37680-66-3	122	2',3,3',4,5-pentachlorobiphenyl (2,3,3',4',5'-pentachlorobiphenyl)	76842-07-4
18	2,2',5-trichlorobiphenyl	37680-65-2	123	2',3,4,4',5-pentachlorobiphenyl (2,3',4,4',5'-pentachlorobiphenyl)	65510-44-3
19	2,2',6-trichlorobiphenyl	38444-73-4	124	2',3,4,5,5'-pentachlorobiphenyl (2,3',4',5',5-pentachlorobiphenyl)	70424-70-3
20	2,3,3'-trichlorobiphenyl	38444-84-7	125	2',3,4,5,6'-pentachlorobiphenyl (2,3',4',5',6-pentachlorobiphenyl)	74472-39-2
21	2,3,4-trichlorobiphenyl	55702-46-0	126	3,3',4,4',5-pentachlorobiphenyl	57465-28-8
22	2,3,4'-trichlorobiphenyl	38444-85-8	127	3,3',4,5,5'-pentachlorobiphenyl	39635-33-1
23	2,3,5-trichlorobiphenyl	55720-44-0	128	2,2',3,3',4,4'-hexachlorobiphenyl	38380-07-3

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Table 2

PCB Shorthand Nomenclature[4] Used in this Report

BZ/IUPAC Number[1]	PCB Chemical Structure Name[2]	CAS Registry[3] Number	BZ/IUPAC Number[1]	PCB Chemical Structure Name[2]	CAS Registry[3] Number
24	2,3,6-trichlorobiphenyl	55702-45-9	129	2,2',3,3',4,5-hexachlorobiphenyl	55215-18-4
25	2,3',4-trichlorobiphenyl	55712-37-3	130	2,2',3,3',4,5'-hexachlorobiphenyl	52663-66-8
26	2,3',5-trichlorobiphenyl	38444-81-4	131	2,2',3,3',4,6-hexachlorobiphenyl	61798-70-7
27	2,3',6-trichlorobiphenyl	38444-76-7	132	2,2',3,3',4,6'-hexachlorobiphenyl	38380-05-1
28	2,4,4'-trichlorobiphenyl	7012-37-5	133	2,2',3,3',5,5'-hexachlorobiphenyl	35694-04-3
29	2,4,5-trichlorobiphenyl	15862-07-4	134	2,2',3,3',5,6-hexachlorobiphenyl	52704-70-8
30	2,4,6-trichlorobiphenyl	35693-92-6	135	2,2',3,3',5,6'-hexachlorobiphenyl	52744-13-5
31	2,4',5-trichlorobiphenyl	16606-02-3	136	2,2',3,3',6,6'-hexachlorobiphenyl	38411-22-2
32	2,4',6-trichlorobiphenyl	38444-77-8	137	2,2',3,4,4',5-hexachlorobiphenyl	35694-06-5
33	2',3,4-trichlorobiphenyl (2,3',4'-trichlorobiphenyl)	38444-86-9	138	2,2',3,4,4',5'-hexachlorobiphenyl	35065-28-2
34	2',3,5-trichlorobiphenyl (2,3',5'-trichlorobiphenyl)	37680-68-5	139	2,2',3,4,4',6-hexachlorobiphenyl	56030-56-9
35	3,3',4-trichlorobiphenyl	37680-69-6	140	2,2',3,4,4',6'-hexachlorobiphenyl	59291-64-4
36	3,3',5-trichlorobiphenyl	38444-87-0	141	2,2',3,4,5,5'-hexachlorobiphenyl	52712-04-6
37	3,4,4'-trichlorobiphenyl	38444-90-5	142	2,2',3,4,5,6-hexachlorobiphenyl	41411-61-4
38	3,4,5-trichlorobiphenyl	53555-66-1	143	2,2',3,4,5,6'-hexachlorobiphenyl	68194-15-0
39	3,4',5-trichlorobiphenyl	38444-88-1	144	2,2',3,4,5',6-hexachlorobiphenyl	68194-14-9
40	2,2',3,3'-tetrachlorobiphenyl	38444-93-8	145	2,2',3,4,6,6'-hexachlorobiphenyl	74472-40-5
41	2,2',3,4-tetrachlorobiphenyl	52663-59-9	146	2,2',3,4',5,5'-hexachlorobiphenyl	51908-16-8
42	2,2',3,4'-tetrachlorobiphenyl	36559-22-5	147	2,2',3,4',5,6-hexachlorobiphenyl	68194-13-8
43	2,2',3,5-tetrachlorobiphenyl	70362-46-8	148	2,2',3,4',5,6'-hexachlorobiphenyl	74472-41-6
44	2,2',3,5'-tetrachlorobiphenyl	41464-39-5	149	2,2',3,4',5',6-hexachlorobiphenyl	38380-04-0
45	2,2',3,6-tetrachlorobiphenyl	70362-45-7	150	2,2',3,4',6,6'-hexachlorobiphenyl	68194-08-1
46	2,2',3,6'-tetrachlorobiphenyl	41464-47-5	151	2,2',3,5,5',6-hexachlorobiphenyl	52663-63-5
47	2,2',4,4'-tetrachlorobiphenyl	2437-79-8	152	2,2',3,5,6,6'-hexachlorobiphenyl	68194-09-2
48	2,2',4,5-tetrachlorobiphenyl	70362-47-9	153	2,2',4,4',5,5'-hexachlorobiphenyl	35065-27-1
49	2,2',4,5'-tetrachlorobiphenyl	41464-40-8	154	2,2',4,4',5,6'-hexachlorobiphenyl	60145-22-4
50	2,2',4,6-tetrachlorobiphenyl	62796-65-0	155	2,2',4,4',6,6'-hexachlorobiphenyl	33979-03-2
51	2,2',4,6'-tetrachlorobiphenyl	68194-04-7	156	2,3,3',4,4',5-hexachlorobiphenyl	38380-08-4
52	2,2',5,5'-tetrachlorobiphenyl	35693-99-3	157	2,3,3',4,4',5'-hexachlorobiphenyl	69782-90-7
53	2,2',5,6'-tetrachlorobiphenyl	41464-41-9	158	2,3,3',4,4',6-hexachlorobiphenyl	74472-42-7
54	2,2',6,6'-tetrachlorobiphenyl	15968-05-5	159	2,3,3',4,5,5'-hexachlorobiphenyl	39635-35-3
55	2,3,3',4-tetrachlorobiphenyl	74338-24-2	160	2,3,3',4,5,6-hexachlorobiphenyl	41411-62-5
56	2,3,3',4'-tetrachlorobiphenyl	41464-43-1	161	2,3,3',4,5',6-hexachlorobiphenyl	74472-43-8
57	2,3,3',5-tetrachlorobiphenyl	70424-67-8	162	2,3,3',4',5,5'-hexachlorobiphenyl	39635-34-2
58	2,3,3',5'-tetrachlorobiphenyl	41464-49-7	163	2,3,3',4',5,6-hexachlorobiphenyl	74472-44-9
59	2,3,3',6-tetrachlorobiphenyl	74472-33-6	164	2,3,3',4',5',6-hexachlorobiphenyl	74472-45-0
60	2,3,4,4'-tetrachlorobiphenyl	33025-41-1	165	2,3,3',5,5',6-hexachlorobiphenyl	74472-46-1
61	2,3,4,5-tetrachlorobiphenyl	33284-53-6	166	2,3,4,4',5,6-hexachlorobiphenyl	41411-63-6
62	2,3,4,6-tetrachlorobiphenyl	54230-22-7	167	2,3',4,4',5,5'-hexachlorobiphenyl	52663-72-6
63	2,3,4',5-tetrachlorobiphenyl	74472-34-7	168	2,3',4,4',5',6-hexachlorobiphenyl	59291-65-5
64	2,3,4',6-tetrachlorobiphenyl	52663-58-8	169	3,3',4,4',5,5'-hexachlorobiphenyl	32774-16-6
65	2,3,5,6-tetrachlorobiphenyl	33284-54-7	170	2,2',3,3',4,4',5-heptachlorobiphenyl	35065-30-6
66	2,3',4,4'-tetrachlorobiphenyl	32598-10-0	171	2,2',3,3',4,4',6-heptachlorobiphenyl	52663-71-5
67	2,3',4,5-tetrachlorobiphenyl	73575-53-8	172	2,2',3,3',4,5,5'-heptachlorobiphenyl	52663-74-8
68	2,3',4,5'-tetrachlorobiphenyl	73575-52-7	173	2,2',3,3',4,5,6-heptachlorobiphenyl	68194-16-1
69	2,3',4,6-tetrachlorobiphenyl	60233-24-1	174	2,2',3,3',4,5,6'-heptachlorobiphenyl	38411-25-5
70	2,3',4',5-tetrachlorobiphenyl	32598-11-1	175	2,2',3,3',4,5',6-heptachlorobiphenyl	40186-70-7
71	2,3',4',6-tetrachlorobiphenyl	41464-46-4	176	2,2',3,3',4,6,6'-heptachlorobiphenyl	52663-65-7
72	2,3',5,5'-tetrachlorobiphenyl	41464-42-0	177	2,2',3,3',4',5,6-heptachlorobiphenyl (2,2',3,3',4,5',6'-heptachlorobiphenyl)	52663-70-4
73	2,3',5',6-tetrachlorobiphenyl	74338-23-1	178	2,2',3,3',5,5',6-heptachlorobiphenyl	52663-67-9
74	2,4,4',5-tetrachlorobiphenyl	32690-93-0	179	2,2',3,3',5,6,6'-heptachlorobiphenyl	52663-64-6

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Table 2

PCB Shorthand Nomenclature[4] Used in this Report

BZ/IUPAC Number[1].	PCB Chemical Structure Name[2]	CAS Registry[3] Number	BZ/IUPAC Number[1].	PCB Chemical Structure Name[2]	CAS Registry[3] Number
75	2,4,4',6-tetrachlorobiphenyl	32598-12-2	180	2,2',3,4,4',5,5'-heptachlorobiphenyl	35065-29-3
76	2',3,4,5-tetrachlorobiphenyl (2,3',4',5'-tetrachlorobiphenyl)	70362-48-0	181	2,2',3,4,4',5,6-heptachlorobiphenyl	74472-47-2
77	3,3',4,4'-tetrachlorobiphenyl	32598-13-3	182	2,2',3,4,4',5,6'-heptachlorobiphenyl	60145-23-5
78	3,3',4,5-tetrachlorobiphenyl	70362-49-1	183	2,2',3,4,4',5',6-heptachlorobiphenyl	52663-69-1
79	3,3',4,5'-tetrachlorobiphenyl	41464-48-6	184	2,2',3,4,4',6,6'-heptachlorobiphenyl	74472-48-3
80	3,3',5,5'-tetrachlorobiphenyl	33284-52-5	185	2,2',3,4,5,5',6-heptachlorobiphenyl	52712-05-7
81	3,4,4',5-tetrachlorobiphenyl	70362-50-4	186	2,2',3,4,5,6,6'-heptachlorobiphenyl	74472-49-4
82	2,2',3,3',4-pentachlorobiphenyl	52663-62-4	187	2,2',3,4',5,5',6-heptachlorobiphenyl	52663-68-0
83	2,2',3,3',5-pentachlorobiphenyl	60145-20-2	188	2,2',3,4',5,6,6'-heptachlorobiphenyl	74487-85-7
84	2,2',3,3',6-pentachlorobiphenyl	52663-60-2	189	2,3,3',4,4',5,5'-heptachlorobiphenyl	39635-31-9
85	2,2',3,4,4'-pentachlorobiphenyl	65510-45-4	190	2,3,3',4,4',5,6-heptachlorobiphenyl	41411-64-7
86	2,2',3,4,5-pentachlorobiphenyl	55312-69-1	191	2,3,3',4,4',5',6-heptachlorobiphenyl	74472-50-7
87	2,2',3,4,5'-pentachlorobiphenyl	38380-02-8	192	2,3,3',4,5,5',6-heptachlorobiphenyl	74472-51-8
88	2,2',3,4,6-pentachlorobiphenyl	55215-17-3	193	2,3,3',4',5,5',6-heptachlorobiphenyl	69782-91-8
89	2,2',3,4,6'-pentachlorobiphenyl	73575-57-2	194	2,2',3,3',4,4',5,5'-octachlorobiphenyl	35694-08-7
90	2,2',3,4',5-pentachlorobiphenyl	68194-07-0	195	2,2',3,3',4,4',5,6-octachlorobiphenyl	52663-78-2
91	2,2',3,4',6-pentachlorobiphenyl	68194-05-8	196	2,2',3,3',4,4',5,6'-octachlorobiphenyl	42740-50-1
92	2,2',3,5,5'-pentachlorobiphenyl	52663-61-3	197	2,2',3,3',4,4',6,6'-octachlorobiphenyl	33091-17-7
93	2,2',3,5,6-pentachlorobiphenyl	73575-56-1	198	2,2',3,3',4,5,5',6-octachlorobiphenyl	68194-17-2
94	2,2',3,5,6'-pentachlorobiphenyl	73575-55-0	199/200	2,2',3,3',4,5,6,6'-octachlorobiphenyl	52663-73-7
95	2,2',3,5',6-pentachlorobiphenyl	38379-99-6	200/201	2,2',3,3',4,5',6,6'-octachlorobiphenyl	40186-71-8
96	2,2',3,6,6'-pentachlorobiphenyl	73575-54-9	201/199	2,2',3,3',4,5,5',6'-octachlorobiphenyl	52663-75-9
97	2,2',3',4,5-pentachlorobiphenyl (2,2',3,4',5'-pentachlorobiphenyl)	41464-51-1	202	2,2',3,3',5,5',6,6'-octachlorobiphenyl	2136-99-4
98	2,2',3',4,6-pentachlorobiphenyl (2,2',3,4',6'-pentachlorobiphenyl)	60233-25-2	203	2,2',3,4,4',5,5',6-octachlorobiphenyl	52663-76-0
99	2,2',4,4',5-pentachlorobiphenyl	38380-01-7	204	2,2',3,4,4',5,6,6'-octachlorobiphenyl	74472-52-9
100	2,2',4,4',6-pentachlorobiphenyl	39485-83-1	205	2,3,3',4,4',5,5',6-octachlorobiphenyl	74472-53-0
101	2,2',4,5,5'-pentachlorobiphenyl	37680-73-2	206	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	40186-72-9
102	2,2',4,5,6-pentachlorobiphenyl	68194-06-9	207	2,2',3,3',4,4',5,6,6'-nonachlorobiphenyl	52663-79-3
103	2,2',4,5',6-pentachlorobiphenyl	60145-21-3	208	2,2',3,3',4,5,5',6,6'-nonachlorobiphenyl	52663-77-1
104	2,2',4,6,6'-pentachlorobiphenyl	56558-16-8	209	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	2051-24-3
105	2,3,3',4,4'-pentachlorobiphenyl	32598-14-4			

1. The BZ number is from Ballschmiter and Zell (1980). The IUPAC number, when different from the BZ, follows the recommended changes to the BZ number per Schulte and Malisch (1983) and Guitart et al. (1993).

2. The chemical structure names are from Ballschmiter and Zell (1980). IUPAC nomenclature structure names are listed in parenthesis when different from the BZ name (source CAS Registry).

3. Chemical Abstract Service Registry number (source CAS Registry and 1668A Table 1).

4. A complete discussion of PCB Nomenclature may be found in Mills III, S.A. et al., A summary of the 209 PCB congener nomenclature, Chemosphere (2007), doi:10.1016/j.chemosphere.2007.03.052.

Cashins & Associates

Sample ID: 022311-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 001	**Work Order #....:**	MEVQM1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	**0.0080**	**J Q**	**0.014**	**0.00083**	**ng/m3**
Dichlorobiphenyl (total)	**0.13**	**Q B**	**0.028**	**0.014**	**ng/m3**
Trichlorobiphenyl (total)	**0.23**	**Q B**	**0.028**	**0.011**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.13**	**Q B**	**0.028**	**0.019**	**ng/m3**
Pentachlorobiphenyl (total)	**0.030**	**J Q B**	**0.014**	**0.016**	**ng/m3**
Hexachlorobiphenyl (total)	**0.0063**	**Q J**	**0.014**	**0.017**	**ng/m3**
Heptachlorobiphenyl (total)	ND		0.014	0.0088	ng/m3
Octachlorobiphenyl (total)	ND		0.014	0.0040	ng/m3
Nonachlorobiphenyl (total)	ND		0.014	0.0027	ng/m3
Decachlorobiphenyl	ND		0.014	0.00055	ng/m3

Cashins & Associates

Sample ID: 022311-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 001	**Work Order #....:**	MEVQM1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	88		30 - 140
13C12-PCB 3	78		30 - 140
13C12-PCB 4	85		30 - 140
13C12-PCB 15	79		30 - 140
13C12-PCB 19	89		30 - 140
13C12-PCB 37	88		30 - 140
13C12-PCB 54	111		30 - 140
13C12-PCB 77	87		30 - 140
13C12-PCB 81	84		30 - 140
13C12-PCB 104	86		30 - 140
13C12-PCB 105	92		30 - 140
13C12-PCB 114	92		30 - 140
13C12-PCB 118	90		30 - 140
13C12-PCB 123	86		30 - 140
13C12-PCB 126	91		30 - 140
13C12-PCB 155	122		30 - 140
13C12-PCB 156	77	C	30 - 140
13C12-PCB 157	77	C	30 - 140
13C12-PCB 167	101		30 - 140
13C12-PCB 169	84		30 - 140
13C12-PCB 170	87		30 - 140
13C12-PCB 188	99		30 - 140
13C12-PCB 189	111		30 - 140
13C12-PCB 202	110		30 - 140
13C12-PCB 205	104		30 - 140
13C12-PCB 206	95		30 - 140
13C12-PCB 208	95		30 - 140
13C12-PCB 209	81		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	89	50 - 150
13C12-PCB 79	109	50 - 150
13C12-PCB 95	106	50 - 150
13C12-PCB 153	131	50 - 150

Cashins & Associates

Sample ID: 022311-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 001	**Work Order #....:**	MEVQM1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Cashins & Associates

Sample ID: 022311-4335-01DUPLICATE

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 002	**Work Order #....:**	MEVRC1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	**0.0045**	**J Q**	**0.014**	**0.00064**	**ng/m3**
Dichlorobiphenyl (total)	**0.071**	**J Q B**	**0.028**	**0.012**	**ng/m3**
Trichlorobiphenyl (total)	**0.11**	**B**	**0.028**	**0.0080**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.057**	**Q B**	**0.028**	**0.012**	**ng/m3**
Pentachlorobiphenyl (total)	**0.014**	**J Q B**	**0.014**	**0.010**	**ng/m3**
Hexachlorobiphenyl (total)	**0.0036**	**Q J**	**0.014**	**0.012**	**ng/m3**
Heptachlorobiphenyl (total)	ND		0.014	0.0079	ng/m3
Octachlorobiphenyl (total)	ND		0.014	0.0031	ng/m3
Nonachlorobiphenyl (total)	ND		0.014	0.0018	ng/m3
Decachlorobiphenyl	ND		0.014	0.00039	ng/m3

Cashins & Associates

Sample ID: 022311-4335-01DUPLICATE

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 002	**Work Order #....:**	MEVRC1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	84		30 - 140
13C12-PCB 3	81		30 - 140
13C12-PCB 4	87		30 - 140
13C12-PCB 15	81		30 - 140
13C12-PCB 19	84		30 - 140
13C12-PCB 37	89		30 - 140
13C12-PCB 54	105		30 - 140
13C12-PCB 77	93		30 - 140
13C12-PCB 81	92		30 - 140
13C12-PCB 104	86		30 - 140
13C12-PCB 105	93		30 - 140
13C12-PCB 114	94		30 - 140
13C12-PCB 118	94		30 - 140
13C12-PCB 123	91		30 - 140
13C12-PCB 126	90		30 - 140
13C12-PCB 155	115		30 - 140
13C12-PCB 156	84	C	30 - 140
13C12-PCB 157	84	C	30 - 140
13C12-PCB 167	107		30 - 140
13C12-PCB 169	90		30 - 140
13C12-PCB 170	92		30 - 140
13C12-PCB 188	101		30 - 140
13C12-PCB 189	110		30 - 140
13C12-PCB 202	104		30 - 140
13C12-PCB 205	105		30 - 140
13C12-PCB 206	95		30 - 140
13C12-PCB 208	93		30 - 140
13C12-PCB 209	83		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	98	50 - 150
13C12-PCB 79	106	50 - 150
13C12-PCB 95	102	50 - 150
13C12-PCB 153	125	50 - 150

Cashins & Associates

Sample ID: 022311-4335-01DUPLICATE

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 002	**Work Order #....:**	MEVRC1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Cashins & Associates

Sample ID: 022311-4335-BLANK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 003	**Work Order #....:**	MEVRD1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	ND		0.10	0.0059	ng/m3
Dichlorobiphenyl (total)	**0.020**	**Q B J**	**0.20**	**0.13**	**ng/m3**
Trichlorobiphenyl (total)	**0.0032**	**Q B J**	**0.20**	**0.062**	**ng/m3**
Tetrachlorobiphenyl (total)	ND		0.20	0.10	ng/m3
Pentachlorobiphenyl (total)	ND		0.10	0.084	ng/m3
Hexachlorobiphenyl (total)	ND		0.10	0.11	ng/m3
Heptachlorobiphenyl (total)	ND		0.10	0.066	ng/m3
Octachlorobiphenyl (total)	ND		0.10	0.035	ng/m3
Nonachlorobiphenyl (total)	ND		0.10	0.020	ng/m3
Decachlorobiphenyl	ND		0.10	0.0043	ng/m3

Cashins & Associates

Sample ID: 022311-4335-BLANK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 003	**Work Order #....:**	MEVRD1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	91		30 - 140
13C12-PCB 3	79		30 - 140
13C12-PCB 4	90		30 - 140
13C12-PCB 15	75		30 - 140
13C12-PCB 19	93		30 - 140
13C12-PCB 37	90		30 - 140
13C12-PCB 54	113		30 - 140
13C12-PCB 77	91		30 - 140
13C12-PCB 81	88		30 - 140
13C12-PCB 104	86		30 - 140
13C12-PCB 105	93		30 - 140
13C12-PCB 114	91		30 - 140
13C12-PCB 118	88		30 - 140
13C12-PCB 123	84		30 - 140
13C12-PCB 126	97		30 - 140
13C12-PCB 155	120		30 - 140
13C12-PCB 156	99	C	30 - 140
13C12-PCB 157	99	C	30 - 140
13C12-PCB 167	105		30 - 140
13C12-PCB 169	98		30 - 140
13C12-PCB 170	92		30 - 140
13C12-PCB 188	96		30 - 140
13C12-PCB 189	103		30 - 140
13C12-PCB 202	112		30 - 140
13C12-PCB 205	105		30 - 140
13C12-PCB 206	93		30 - 140
13C12-PCB 208	89		30 - 140
13C12-PCB 209	82		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	104	50 - 150
13C12-PCB 79	106	50 - 150
13C12-PCB 95	104	50 - 150
13C12-PCB 153	113	50 - 150

Cashins & Associates

Sample ID: 022311-4335-BLANK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 003	**Work Order #....:**	MEVRD1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Cashins & Associates

Sample ID: A6372 MEDIA CHECK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 004	**Work Order #....:**	MEVRE1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/21/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Linda K. McWhirter				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	ND		0.10	0.0040	ng/m3
Dichlorobiphenyl (total)	**0.019**	**Q B J**	**0.20**	**0.093**	**ng/m3**
Trichlorobiphenyl (total)	**0.0099**	**Q B J**	**0.20**	**0.049**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.0053**	**Q B J**	**0.20**	**0.073**	**ng/m3**
Pentachlorobiphenyl (total)	ND		0.10	0.072	ng/m3
Hexachlorobiphenyl (total)	ND		0.10	0.088	ng/m3
Heptachlorobiphenyl (total)	ND		0.10	0.053	ng/m3
Octachlorobiphenyl (total)	ND		0.10	0.027	ng/m3
Nonachlorobiphenyl (total)	ND		0.10	0.013	ng/m3
Decachlorobiphenyl	ND		0.10	0.0043	ng/m3

Cashins & Associates

Sample ID: A6372 MEDIA CHECK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 004	**Work Order #....:**	MEVRE1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/21/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Linda K. McWhirter				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	72		30 - 140
13C12-PCB 3	63		30 - 140
13C12-PCB 4	83		30 - 140
13C12-PCB 15	77		30 - 140
13C12-PCB 19	81		30 - 140
13C12-PCB 37	82		30 - 140
13C12-PCB 54	89		30 - 140
13C12-PCB 77	86		30 - 140
13C12-PCB 81	87		30 - 140
13C12-PCB 104	77		30 - 140
13C12-PCB 105	89		30 - 140
13C12-PCB 114	88		30 - 140
13C12-PCB 118	85		30 - 140
13C12-PCB 123	84		30 - 140
13C12-PCB 126	87		30 - 140
13C12-PCB 155	110		30 - 140
13C12-PCB 156	86	C	30 - 140
13C12-PCB 157	86	C	30 - 140
13C12-PCB 167	100		30 - 140
13C12-PCB 169	89		30 - 140
13C12-PCB 170	87		30 - 140
13C12-PCB 188	101		30 - 140
13C12-PCB 189	94		30 - 140
13C12-PCB 202	121		30 - 140
13C12-PCB 205	100		30 - 140
13C12-PCB 206	96		30 - 140
13C12-PCB 208	95		30 - 140
13C12-PCB 209	92		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	101	50 - 150
13C12-PCB 79	107	50 - 150
13C12-PCB 95	105	50 - 150
13C12-PCB 153	126	50 - 150

Cashins & Associates

Sample ID: A6372 MEDIA CHECK

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 004	**Work Order #....:**	MEVRE1AA	**Matrix....:**	AIR
Date Sampled....:	02/23/11	**Date Received....:**	02/25/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/21/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Linda K. McWhirter				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Cashins & Associates

Sample ID: 030111-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 005	**Work Order #....:**	MFG1X1AA	**Matrix....:**	AIR
Date Sampled....:	03/01/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	**0.0015**	**Q J**	**0.014**	**0.00077**	**ng/m3**
Dichlorobiphenyl (total)	**0.036**	**Q J B**	**0.028**	**0.015**	**ng/m3**
Trichlorobiphenyl (total)	**0.047**	**J Q B**	**0.028**	**0.0098**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.041**	**Q B**	**0.028**	**0.017**	**ng/m3**
Pentachlorobiphenyl (total)	**0.024**	**J Q B**	**0.014**	**0.016**	**ng/m3**
Hexachlorobiphenyl (total)	**0.0064**	**J Q**	**0.014**	**0.015**	**ng/m3**
Heptachlorobiphenyl (total)	ND		0.014	0.010	ng/m3
Octachlorobiphenyl (total)	ND		0.014	0.0047	ng/m3
Nonachlorobiphenyl (total)	ND		0.014	0.0026	ng/m3
Decachlorobiphenyl	ND		0.014	0.00076	ng/m3

Cashins & Associates

Sample ID: 030111-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 005	**Work Order #....:**	MFG1X1AA	**Matrix....:**	AIR
Date Sampled....:	03/01/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	91		30 - 140
13C12-PCB 3	80		30 - 140
13C12-PCB 4	90		30 - 140
13C12-PCB 15	74		30 - 140
13C12-PCB 19	86		30 - 140
13C12-PCB 37	88		30 - 140
13C12-PCB 54	110		30 - 140
13C12-PCB 77	90		30 - 140
13C12-PCB 81	90		30 - 140
13C12-PCB 104	90		30 - 140
13C12-PCB 105	92		30 - 140
13C12-PCB 114	90		30 - 140
13C12-PCB 118	94		30 - 140
13C12-PCB 123	91		30 - 140
13C12-PCB 126	91		30 - 140
13C12-PCB 155	123		30 - 140
13C12-PCB 156	85	C	30 - 140
13C12-PCB 157	85	C	30 - 140
13C12-PCB 167	100		30 - 140
13C12-PCB 169	93		30 - 140
13C12-PCB 170	93		30 - 140
13C12-PCB 188	102		30 - 140
13C12-PCB 189	119		30 - 140
13C12-PCB 202	102		30 - 140
13C12-PCB 205	110		30 - 140
13C12-PCB 206	98		30 - 140
13C12-PCB 208	99		30 - 140
13C12-PCB 209	85		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	102	50 - 150
13C12-PCB 79	104	50 - 150
13C12-PCB 95	100	50 - 150
13C12-PCB 153	127	50 - 150

Cashins & Associates

Sample ID: 030111-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 005	**Work Order #....:**	MFG1X1AA	**Matrix....:**	AIR
Date Sampled....:	03/01/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Cashins & Associates

Sample ID: 030811-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 006	**Work Order #....:**	MFG111AA	**Matrix....:**	AIR
Date Sampled....:	03/08/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	**0.021**	**Q**	**0.014**	**0.00089**	**ng/m3**
Dichlorobiphenyl (total)	**0.51**	**Q B**	**0.028**	**0.019**	**ng/m3**
Trichlorobiphenyl (total)	**0.95**	**Q B**	**0.028**	**0.016**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.45**	**Q B**	**0.028**	**0.025**	**ng/m3**
Pentachlorobiphenyl (total)	**0.060**	**Q B**	**0.014**	**0.017**	**ng/m3**
Hexachlorobiphenyl (total)	**0.0087**	**Q J**	**0.014**	**0.017**	**ng/m3**
Heptachlorobiphenyl (total)	ND		0.014	0.010	ng/m3
Octachlorobiphenyl (total)	ND		0.014	0.0046	ng/m3
Nonachlorobiphenyl (total)	ND		0.014	0.0025	ng/m3
Decachlorobiphenyl	ND		0.014	0.00050	ng/m3

Cashins & Associates

Sample ID: 030811-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 006	**Work Order #....:**	MFG111AA	**Matrix....:**	AIR
Date Sampled....:	03/08/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	89		30 - 140
13C12-PCB 3	79		30 - 140
13C12-PCB 4	87		30 - 140
13C12-PCB 15	74		30 - 140
13C12-PCB 19	88		30 - 140
13C12-PCB 37	87		30 - 140
13C12-PCB 54	107		30 - 140
13C12-PCB 77	88		30 - 140
13C12-PCB 81	87		30 - 140
13C12-PCB 104	89		30 - 140
13C12-PCB 105	94		30 - 140
13C12-PCB 114	95		30 - 140
13C12-PCB 118	92		30 - 140
13C12-PCB 123	90		30 - 140
13C12-PCB 126	87		30 - 140
13C12-PCB 155	121		30 - 140
13C12-PCB 156	105	C	30 - 140
13C12-PCB 157	105	C	30 - 140
13C12-PCB 167	104		30 - 140
13C12-PCB 169	99		30 - 140
13C12-PCB 170	89		30 - 140
13C12-PCB 188	102		30 - 140
13C12-PCB 189	110		30 - 140
13C12-PCB 202	98		30 - 140
13C12-PCB 205	105		30 - 140
13C12-PCB 206	97		30 - 140
13C12-PCB 208	92		30 - 140
13C12-PCB 209	89		30 - 140

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 8	97	50 - 150
13C12-PCB 79	102	50 - 150
13C12-PCB 95	97	50 - 150
13C12-PCB 153	113	50 - 150

Cashins & Associates

Sample ID: 030811-4335-01

Trace Level Organic Compounds

Lot - Sample #....:	H1B250433 - 006	**Work Order #....:**	MFG111AA	**Matrix....:**	AIR
Date Sampled....:	03/08/11	**Date Received....:**	03/10/11	**Dilution Factor:**	1
Prep Date....:	03/14/11	**Analysis Date....:**	03/22/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	7.2 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Jon M. Nordquist				

QUALIFIERS

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

Method Blank Report

Trace Level Organic Compounds

Lot - Sample #....:	H1C140000 - 139B	**Work Order #....:**	MFLG01AA	**Matrix....:**	AIR
Dilution Factor:	1				
Prep Date....:	03/14/11	**Analysis Date....:**	03/21/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Linda K. McWhirter				

PARAMETER	RESULT		MINIMUM LEVEL	ESTIMATED DETECTION LIMIT	UNITS
Monochlorobiphenyl (total)	ND		0.10	0.0051	ng/m3
Dichlorobiphenyl (total)	**0.092**	**Q J**	**0.20**	**0.092**	**ng/m3**
Trichlorobiphenyl (total)	**0.022**	**J Q**	**0.20**	**0.054**	**ng/m3**
Tetrachlorobiphenyl (total)	**0.015**	**Q J**	**0.20**	**0.084**	**ng/m3**
Pentachlorobiphenyl (total)	**0.0026**	**Q J**	**0.10**	**0.078**	**ng/m3**
Hexachlorobiphenyl (total)	ND		0.10	0.11	ng/m3
Heptachlorobiphenyl (total)	ND		0.10	0.065	ng/m3
Octachlorobiphenyl (total)	ND		0.10	0.027	ng/m3
Nonachlorobiphenyl (total)	ND		0.10	0.016	ng/m3
Decachlorobiphenyl	ND		0.10	0.0061	ng/m3

Method Blank Report

Trace Level Organic Compounds

Lot - Sample #....:	H1C140000 - 139B	**Work Order #....:**	MFLG01AA	**Matrix....:**	AIR
Dilution Factor:	1				
Prep Date....:	03/14/11	**Analysis Date....:**	03/21/11		
Prep Batch # ....:	1073139				
Initial Wgt/Vol :	1 m3	**Instrument ID....:**	M1D	**Method:**	EPA-22 1668A
Analyst ID....:	Linda K. McWhirter				

INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 1	83		30 - 140
13C12-PCB 3	72		30 - 140
13C12-PCB 4	88		30 - 140
13C12-PCB 15	85		30 - 140
13C12-PCB 19	80		30 - 140
13C12-PCB 37	90		30 - 140
13C12-PCB 54	96		30 - 140
13C12-PCB 77	83		30 - 140
13C12-PCB 81	85		30 - 140
13C12-PCB 104	93		30 - 140
13C12-PCB 105	90		30 - 140
13C12-PCB 114	88		30 - 140
13C12-PCB 118	86		30 - 140
13C12-PCB 123	85		30 - 140
13C12-PCB 126	90		30 - 140
13C12-PCB 155	117		30 - 140
13C12-PCB 156	98	C	30 - 140
13C12-PCB 157	98	C	30 - 140
13C12-PCB 167	106		30 - 140
13C12-PCB 169	96		30 - 140
13C12-PCB 170	88		30 - 140
13C12-PCB 188	94		30 - 140
13C12-PCB 189	97		30 - 140
13C12-PCB 202	117		30 - 140
13C12-PCB 205	103		30 - 140
13C12-PCB 206	101		30 - 140
13C12-PCB 208	92		30 - 140
13C12-PCB 209	95		30 - 140

QUALIFIERS

C Co-eluting isomer.

J Estimated Result.

Q Estimated maximum possible concentration (EMPC).

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot # ...:	H1B250433	**Work Order # ...:**	MFLG01AC-LCS MFLG01AD-LCSD	**Matrix .....:**	AIR
LCS Lot-Sample# :	H1C140000 - 139				
Prep Date .....:	03/14/11	**Analysis Date ..:**	03/21/11		
Prep Batch # ...:	1073139				
Dilution Factor :	1				
Analyst ID.....:	Linda K. McWhirter	**Instrument ID..:**	M1D	**Method.....:**	EPA-22 1668A
Initial Wgt/Vol:	1 m3				

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY		RECOVERY LIMITS	RPD	RPD LIMITS
PCB 1 (BZ)	5.00	4.05	ng/m3	81		(50 - 150)		
	5.00	4.09	ng/m3	82		(50 - 150)	1.0	(0 - 50)
PCB 3 (BZ)	5.00	4.61	ng/m3	92		(50 - 150)		
	5.00	4.61	ng/m3	92		(50 - 150)	0.050	(0 - 50)
PCB 4 (BZ)	5.00	4.09	ng/m3	82		(50 - 150)		
	5.00	4.12	ng/m3	82		(50 - 150)	0.61	(0 - 50)
Decachlorobiphenyl	5.00	5.39	ng/m3	108		(50 - 150)		
	5.00	5.40	ng/m3	108		(50 - 150)	0.23	(0 - 50)
PCB 15 (BZ)	5.00	4.37	ng/m3	87		(50 - 150)		
	5.00	4.52	ng/m3	90		(50 - 150)	3.5	(0 - 50)
PCB 19 (BZ)	5.00	4.47	ng/m3	89		(50 - 150)		
	5.00	4.57	ng/m3	91		(50 - 150)	2.3	(0 - 50)
PCB 37 (BZ)	5.00	4.90	ng/m3	98		(50 - 150)		
	5.00	4.81	ng/m3	96		(50 - 150)	1.8	(0 - 50)
PCB 54 (BZ)	5.00	4.73	ng/m3	95		(50 - 150)		
	5.00	4.57	ng/m3	91		(50 - 150)	3.5	(0 - 50)
PCB 77 (BZ)	5.00	5.02	ng/m3	100		(50 - 150)		
	5.00	5.01	ng/m3	100		(50 - 150)	0.16	(0 - 50)
PCB 81 (BZ)	5.00	4.78	ng/m3	96		(50 - 150)		
	5.00	4.86	ng/m3	97		(50 - 150)	1.6	(0 - 50)
PCB 104 (BZ)	5.00	4.68	ng/m3	94		(50 - 150)		
	5.00	4.70	ng/m3	94		(50 - 150)	0.32	(0 - 50)
PCB 105 (BZ)	5.00	5.06	ng/m3	101		(50 - 150)		
	5.00	5.10	ng/m3	102		(50 - 150)	0.78	(0 - 50)
PCB 114 (BZ)	5.00	5.26	ng/m3	105		(50 - 150)		
	5.00	5.31	ng/m3	106		(50 - 150)	1.0	(0 - 50)
PCB 118 (BZ)	5.00	5.13	ng/m3	103	B	(50 - 150)		
	5.00	5.06	ng/m3	101	B	(50 - 150)	1.4	(0 - 50)
PCB 123 (BZ)	5.00	5.73	ng/m3	115		(50 - 150)		
	5.00	5.80	ng/m3	116		(50 - 150)	1.1	(0 - 50)
PCB 126 (BZ)	5.00	4.98	ng/m3	100		(50 - 150)		
	5.00	5.04	ng/m3	101		(50 - 150)	1.2	(0 - 50)
PCB 155 (BZ)	5.00	4.79	ng/m3	96		(50 - 150)		
	5.00	4.67	ng/m3	93		(50 - 150)	2.7	(0 - 50)
PCB 156 (BZ)	10.0	10.9	ng/m3	109	C	(50 - 150)		
	10.0	10.9	ng/m3	109	C	(50 - 150)	0.42	(0 - 50)
PCB 157 (BZ)	10.0	10.9	ng/m3	109	C C156	(50 - 150)		
	10.0	10.9	ng/m3	109	C C156	(50 - 150)	0.42	(0 - 50)
PCB 167 (BZ)	5.00	5.51	ng/m3	110		(50 - 150)		
	5.00	5.55	ng/m3	111		(50 - 150)	0.79	(0 - 50)
PCB 169 (BZ)	5.00	5.04	ng/m3	101		(50 - 150)		
	5.00	5.02	ng/m3	100		(50 - 150)	0.55	(0 - 50)

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot # ...: H1B250433 **Work Order # ...:** MFLG01AC-LCS **Matrix .....:** AIR
LCS Lot-Sample# : H1C140000 - 139 MFLG01AD-LCSD

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS
PCB 188 (BZ)	5.00	4.81	ng/m3	96	(50 - 150)		
	5.00	4.82	ng/m3	96	(50 - 150)	0.19	(0 - 50)
PCB 189 (BZ)	5.00	5.21	ng/m3	104	(50 - 150)		
	5.00	5.23	ng/m3	105	(50 - 150)	0.38	(0 - 50)
PCB 202 (BZ)	5.00	4.52	ng/m3	90	(50 - 150)		
	5.00	4.70	ng/m3	94	(50 - 150)	3.9	(0 - 50)
PCB 205 (BZ)	5.00	5.10	ng/m3	102	(50 - 150)		
	5.00	5.15	ng/m3	103	(50 - 150)	0.87	(0 - 50)
PCB 206 (BZ)	5.00	4.78	ng/m3	96	(50 - 150)		
	5.00	4.65	ng/m3	93	(50 - 150)	2.7	(0 - 50)
PCB 208 (BZ)	5.00	5.00	ng/m3	100	(50 - 150)		
	5.00	4.94	ng/m3	99	(50 - 150)	1.3	(0 - 50)

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C12-PCB 1	78	(30 - 140)
	66	(30 - 140)
13C12-PCB 3	66	(30 - 140)
	61	(30 - 140)
13C12-PCB 4	88	(30 - 140)
	80	(30 - 140)
13C12-PCB 15	83	(30 - 140)
	74	(30 - 140)
13C12-PCB 19	90	(30 - 140)
	83	(30 - 140)
13C12-PCB 37	93	(30 - 140)
	83	(30 - 140)
13C12-PCB 54	102	(30 - 140)
	93	(30 - 140)
13C12-PCB 77	93	(30 - 140)
	89	(30 - 140)
13C12-PCB 81	92	(30 - 140)
	91	(30 - 140)
13C12-PCB 104	88	(30 - 140)
	81	(30 - 140)
13C12-PCB 105	96	(30 - 140)
	91	(30 - 140)
13C12-PCB 114	95	(30 - 140)
	90	(30 - 140)
13C12-PCB 118	93	(30 - 140)
	87	(30 - 140)
13C12-PCB 123	92	(30 - 140)
	87	(30 - 140)
13C12-PCB 126	93	(30 - 140)
	91	(30 - 140)
13C12-PCB 155	124	(30 - 140)
	120	(30 - 140)

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot # ...: H1B250433 **Work Order # ...:** MFLG01AC-LCS **Matrix .....:** AIR
LCS Lot-Sample# : H1C140000 - 139 MFLG01AD-LCSD

INTERNAL STANDARD	PERCENT RECOVERY		RECOVERY LIMITS
13C12-PCB 156	83	C	(30 - 140)
	97	C	(30 - 140)
13C12-PCB 157	83	C	(30 - 140)
	97	C	(30 - 140)
13C12-PCB 167	102		(30 - 140)
	104		(30 - 140)
13C12-PCB 169	93		(30 - 140)
	96		(30 - 140)
13C12-PCB 170	93		(30 - 140)
	95		(30 - 140)
13C12-PCB 188	102		(30 - 140)
	105		(30 - 140)
13C12-PCB 189	103		(30 - 140)
	108		(30 - 140)
13C12-PCB 202	130		(30 - 140)
	118		(30 - 140)
13C12-PCB 205	105		(30 - 140)
	110		(30 - 140)
13C12-PCB 206	96		(30 - 140)
	118		(30 - 140)
13C12-PCB 208	102		(30 - 140)
	111		(30 - 140)
13C12-PCB 209	106		(30 - 140)
	108		(30 - 140)

Notes:

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

C Co-eluting isomer.

Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865.291.3000 fax 865.584.4315

RH 2-25-11
~~HIB250430~~ HIB250433

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bob Cashins	Site Contact: Robert Cashins	Date: 2/24/11	COC No:
Cashins & Associates, Inc	Tel/Fax:781-245-1400	Lab Contact:John Reynolds	Carrier:	1 of 1 COCs
599 North Avenue	Analysis Turnaround Time			Job No. 4335
Wakefield, MA 01880	Calendar (C) or Work Days (W)			SDG No.
(781)245-1400 Phone	TAT if different from Below 4 weeks			
(781)245-3100 FAX	☐ 2 weeks			
Project Name: Cape Winds	☐ 1 week			
Site: New Bedford, MA	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PCB'S BY EPA 1668A HIRES GC-MS	Sample Specific Notes:
022311-4335-01	02/23/11	1358		Air	1	X	1440 min @ 5.0LPM / 7.2 m3
022311-4335-01 Duplicate	↓	1358		Air	1	X	1440 min @ 5.0LPM / 7.2 m3
022311-4335-Blank	↓	Blank		Air	1	X	Blank

1 Cooler received @ 2°C Custody Seals intact FedEx: 7944 0408 2347 CBA 2/25/11

Preservation Used: (1= Ice) 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments: A total of 3 samples + 1 duplicate +1 blank will be analyzed. The samples will be collected over a 3 week time period. The lab will accumulate the samples and run them as a single batch once all the filters are received at the lab. Any questions contact John Reynolds. This COC covers the first week of sampling and includes 1 sample, 1 duplicate and 1 blank

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Cashins & Associates, Inc	2/24/11 4:30 PM	[signature]	TA	2/25/11 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

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TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H1B250433

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ 2a Temp Blank = _____ ☐ 2b Cooler Temp = _____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?		✓			

Quote #: 88229 PM Instructions: _____

Sample Receiving Associate: Lawrence J. Hollins Date: 2/25/11

QA026R22.doc, 012811

Knoxville
5815 Middlebrook Pike

Knoxville, TN 37921
phone 865.291.3000 fax 865.584.4315

H1B250433

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bob Cashins	Site Contact: Robert Cashins	Date: 3/9/11	COC No:
Cashins & Associates, Inc	Tel/Fax:781-245-1400	Lab Contact:John Reynolds	Carrier:	1 of 1 COCs
599 North Avenue	Analysis Turnaround Time			Job No. 4335
Wakefield, MA 01880	Calendar (C) or Work Days (W)			SDG No.
(781)245-1400 Phone	TAT if different from Below 4 weeks			
(781)245-3100 FAX	☐ 2 weeks			
Project Name: Cape Winds	☐ 1 week			
Site: New Bedford, MA	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PCB'S BY EPA 1668A HI RES GC-MS	Sample Specific Notes:
030811 - 4335 - 01	03/01/11	12:22pm		Air	1	X	1440 min @ 5.0 lpm - 7.2 m³
~~QC~~	—	—	—	~~Air~~	~~1~~		
030811 - 4335 - 01	03/08/11	12:55pm		Air	1	X	1440 min @ 5.0 lpm - 7.2 m³
							1 Box received @ 4°C
							Custody seals intact
							Fed Ex: 7945 1318 1231
							CBA 3/10/11

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments: A total of 3 samples + 1 duplicate +1 blank will be analyzed. The samples will be collected over a 3 week time period. The lab will accumulate the samples and run them as a single batch once all the filters are received at the lab. Any questions contact John Reynolds. This COC covers the first week of sampling and includes 1 sample, 1 duplicate and 1 blank

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Cashins & Assoc. Inc.	3/9/11 3:20pm	[signature]	TA	3/10/11 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: HIB2SD433

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ **2a** Temp Blank = _____ ☐ **2b** Cooler Temp = _____ ☐ **2c** Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? _____	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?		✓			

Quote #: _____ PM Instructions: _____

Sample Receiving Associate: Courtney Adkins Date: ~~3/11~~ 3/10/11 CRA 3/10/11

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Particulate Monitoring
Sampling Event 10/12/11

Data Summary Statistics:

Instrument Name	DustTrak II
Model Number	8530
Serial Number	8530104208
Firmware Version	2.8
Calibration Date	9/22/2011
Test Name	TEST 2_001
Test Start Time	8:42:39 AM
Test Start Date	10/12/2011
Test Length [D:H:M]	0:08:00
Test Interval [M:S]	1:00
Mass Average [mg/m3]	0.01
Mass Minimum [mg/m3]	0.008
Mass Maximum [mg/m3]	0.012
Mass TWA [mg/m3]	0.01
Photometric User Cal	1
Flow User Cal	1
Errors	
Number of Samples	480

Sampling Data Table:

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.008		
120	0.008		
180	0.008		
240	0.008		
300	0.008		
360	0.008		
420	0.008		
480	0.008		
540	0.008		
600	0.008		
660	0.008		
720	0.008		
780	0.008		
840	0.008		
900	0.008		
960	0.008		
1020	0.008		
1080	0.008		
1140	0.008		
1200	0.008		
1260	0.008		
1320	0.008		
1380	0.008		
1440	0.009		
1500	0.009		
1560	0.009		
1620	0.008		
1680	0.009		
1740	0.009		

Particulate Monitoring
Sampling Event 10/12/11

1800	0.009		
1860	0.009		
1920	0.009		
1980	0.009		
2040	0.01		
2100	0.01		
2160	0.009		
2220	0.009		
2280	0.009		
2340	0.009		
2400	0.01		
2460	0.01		
2520	0.01		
2580	0.01		
2640	0.01		
2700	0.01		
2760	0.01		
2820	0.01		
2880	0.01		
2940	0.01		
3000	0.01		
3060	0.01		
3120	0.01		
3180	0.01		
3240	0.01		
3300	0.01		
3360	0.01		
3420	0.01		
3480	0.01		
3540	0.01		
3600	0.01		
3660	0.01		
3720	0.01		
3780	0.01		
3840	0.01		
3900	0.01		
3960	0.01		
4020	0.01		
4080	0.01		
4140	0.01		
4200	0.01		
4260	0.01		
4320	0.01		
4380	0.01		
4440	0.01		
4500	0.01		
4560	0.01		
4620	0.01		
4680	0.01		
4740	0.01		
4800	0.01		

Particulate Monitoring
Sampling Event 10/12/11

4860	0.01		
4920	0.01		
4980	0.01		
5040	0.01		
5100	0.01		
5160	0.01		
5220	0.01		
5280	0.01		
5340	0.01		
5400	0.01		
5460	0.01		
5520	0.01		
5580	0.01		
5640	0.01		
5700	0.01		
5760	0.01		
5820	0.01		
5880	0.01		
5940	0.01		
6000	0.01		
6060	0.01		
6120	0.01		
6180	0.01		
6240	0.01		
6300	0.01		
6360	0.01		
6420	0.01		
6480	0.011		
6540	0.01		
6600	0.01		
6660	0.01		
6720	0.01		
6780	0.01		
6840	0.01		
6900	0.01		
6960	0.01		
7020	0.01		
7080	0.01		
7140	0.01		
7200	0.01		
7260	0.01		
7320	0.01		
7380	0.01		
7440	0.01		
7500	0.01		
7560	0.01		
7620	0.01		
7680	0.01		
7740	0.01		
7800	0.01		
7860	0.01		

Particulate Monitoring
Sampling Event 10/12/11

7920	0.01		
7980	0.01		
8040	0.01		
8100	0.01		
8160	0.01		
8220	0.01		
8280	0.01		
8340	0.01		
8400	0.01		
8460	0.01		
8520	0.01		
8580	0.01		
8640	0.01		
8700	0.01		
8760	0.01		
8820	0.01		
8880	0.009		
8940	0.01		
9000	0.01		
9060	0.01		
9120	0.01		
9180	0.01		
9240	0.01		
9300	0.01		
9360	0.01		
9420	0.01		
9480	0.01		
9540	0.011		
9600	0.01		
9660	0.01		
9720	0.01		
9780	0.01		
9840	0.01		
9900	0.01		
9960	0.01		
10020	0.01		
10080	0.01		
10140	0.01		
10200	0.01		
10260	0.01		
10320	0.01		
10380	0.01		
10440	0.01		
10500	0.01		
10560	0.01		
10620	0.01		
10680	0.01		
10740	0.01		
10800	0.01		
10860	0.01		
10920	0.01		

Particulate Monitoring
Sampling Event 10/12/11

10980	0.01		
11040	0.01		
11100	0.01		
11160	0.01		
11220	0.01		
11280	0.01		
11340	0.01		
11400	0.01		
11460	0.01		
11520	0.01		
11580	0.01		
11640	0.01		
11700	0.01		
11760	0.01		
11820	0.01		
11880	0.01		
11940	0.01		
12000	0.01		
12060	0.011		
12120	0.01		
12180	0.01		
12240	0.01		
12300	0.01		
12360	0.01		
12420	0.01		
12480	0.01		
12540	0.01		
12600	0.01		
12660	0.01		
12720	0.01		
12780	0.01		
12840	0.01		
12900	0.01		
12960	0.01		
13020	0.01		
13080	0.011		
13140	0.01		
13200	0.01		
13260	0.01		
13320	0.01		
13380	0.01		
13440	0.01		
13500	0.01		
13560	0.01		
13620	0.01		
13680	0.01		
13740	0.011		
13800	0.011		
13860	0.01		
13920	0.01		
13980	0.01		

Particulate Monitoring
Sampling Event 10/12/11

14040	0.01		
14100	0.01		
14160	0.011		
14220	0.011		
14280	0.01		
14340	0.01		
14400	0.01		
14460	0.01		
14520	0.011		
14580	0.01		
14640	0.01		
14700	0.01		
14760	0.01		
14820	0.01		
14880	0.01		
14940	0.01		
15000	0.01		
15060	0.01		
15120	0.01		
15180	0.01		
15240	0.011		
15300	0.011		
15360	0.01		
15420	0.01		
15480	0.01		
15540	0.01		
15600	0.011		
15660	0.01		
15720	0.01		
15780	0.01		
15840	0.01		
15900	0.01		
15960	0.01		
16020	0.01		
16080	0.01		
16140	0.01		
16200	0.01		
16260	0.01		
16320	0.01		
16380	0.01		
16440	0.01		
16500	0.01		
16560	0.01		
16620	0.01		
16680	0.01		
16740	0.01		
16800	0.01		
16860	0.01		
16920	0.01		
16980	0.01		
17040	0.01		

Particulate Monitoring
Sampling Event 10/12/11

17100	0.01		
17160	0.01		
17220	0.01		
17280	0.01		
17340	0.01		
17400	0.01		
17460	0.01		
17520	0.01		
17580	0.011		
17640	0.01		
17700	0.01		
17760	0.01		
17820	0.01		
17880	0.01		
17940	0.01		
18000	0.01		
18060	0.01		
18120	0.01		
18180	0.01		
18240	0.01		
18300	0.01		
18360	0.01		
18420	0.01		
18480	0.01		
18540	0.01		
18600	0.01		
18660	0.01		
18720	0.01		
18780	0.01		
18840	0.01		
18900	0.01		
18960	0.009		
19020	0.009		
19080	0.01		
19140	0.01		
19200	0.009		
19260	0.009		
19320	0.009		
19380	0.01		
19440	0.01		
19500	0.01		
19560	0.009		
19620	0.009		
19680	0.009		
19740	0.009		
19800	0.01		
19860	0.01		
19920	0.01		
19980	0.01		
20040	0.01		
20100	0.01		

Particulate Monitoring
Sampling Event 10/12/11

20160	0.01		
20220	0.009		
20280	0.01		
20340	0.009		
20400	0.01		
20460	0.01		
20520	0.01		
20580	0.01		
20640	0.01		
20700	0.011		
20760	0.011		
20820	0.01		
20880	0.01		
20940	0.011		
21000	0.011		
21060	0.01		
21120	0.01		
21180	0.01		
21240	0.01		
21300	0.01		
21360	0.01		
21420	0.01		
21480	0.01		
21540	0.01		
21600	0.01		
21660	0.01		
21720	0.01		
21780	0.01		
21840	0.01		
21900	0.01		
21960	0.01		
22020	0.01		
22080	0.01		
22140	0.01		
22200	0.01		
22260	0.01		
22320	0.01		
22380	0.01		
22440	0.009		
22500	0.01		
22560	0.01		
22620	0.01		
22680	0.01		
22740	0.01		
22800	0.01		
22860	0.01		
22920	0.01		
22980	0.01		
23040	0.01		
23100	0.01		
23160	0.01		

Particulate Monitoring
Sampling Event 10/12/11

23220	0.01		
23280	0.01		
23340	0.01		
23400	0.009		
23460	0.01		
23520	0.01		
23580	0.009		
23640	0.01		
23700	0.01		
23760	0.01		
23820	0.01		
23880	0.01		
23940	0.01		
24000	0.01		
24060	0.01		
24120	0.01		
24180	0.01		
24240	0.01		
24300	0.01		
24360	0.01		
24420	0.01		
24480	0.01		
24540	0.01		
24600	0.01		
24660	0.01		
24720	0.01		
24780	0.01		
24840	0.01		
24900	0.01		
24960	0.01		
25020	0.011		
25080	0.011		
25140	0.011		
25200	0.01		
25260	0.01		
25320	0.01		
25380	0.01		
25440	0.01		
25500	0.01		
25560	0.01		
25620	0.01		
25680	0.01		
25740	0.01		
25800	0.01		
25860	0.011		
25920	0.011		
25980	0.011		
26040	0.011		
26100	0.011		
26160	0.011		
26220	0.011		

Particulate Monitoring
Sampling Event 10/12/11

26280	0.011		
26340	0.011		
26400	0.011		
26460	0.012		
26520	0.011		
26580	0.011		
26640	0.011		
26700	0.011		
26760	0.011		
26820	0.011		
26880	0.011		
26940	0.011		
27000	0.011		
27060	0.012		
27120	0.011		
27180	0.011		
27240	0.011		
27300	0.011		
27360	0.011		
27420	0.011		
27480	0.011		
27540	0.011		
27600	0.011		
27660	0.011		
27720	0.011		
27780	0.011		
27840	0.011		
27900	0.011		
27960	0.011		
28020	0.011		
28080	0.011		
28140	0.011		
28200	0.012		
28260	0.012		
28320	0.012		
28380	0.012		
28440	0.012		
28500	0.011		
28560	0.012		
28620	0.012		
28680	0.012		
28740	0.011		
28800	0.012		

Particulate Monitoring
Sampling Event 10/19/11

Data Summary Statistics:

Instrument Name	DustTrak II
Model Number	8530
Serial Number	8530104208
Firmware Version	2.8
Calibration Date	9/22/2011
Test Name	TEST 3_001
Test Start Time	1:21:10 PM
Test Start Date	10/19/2011
Test Length [D:H:M]	0:08:00
Test Interval [M:S]	1:00
Mass Average [mg/m3]	0.006
Mass Minimum [mg/m3]	0
Mass Maximum [mg/m3]	0.028
Mass TWA [mg/m3]	0.006
Photometric User Cal	1
Flow User Cal	1
Errors	
Number of Samples	480

Sampling Data Table:

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.028		
120	0.015		
180	0.014		
240	0.013		
300	0.013		
360	0.013		
420	0.012		
480	0.011		
540	0.01		
600	0.01		
660	0.01		
720	0.009		
780	0.009		
840	0.009		
900	0.009		
960	0.009		
1020	0.009		
1080	0.01		
1140	0.01		
1200	0.01		
1260	0.009		
1320	0.01		
1380	0.01		
1440	0.01		
1500	0.01		
1560	0.011		
1620	0.01		
1680	0.011		
1740	0.011		

Particulate Monitoring
Sampling Event 10/19/11

1800	0.012		
1860	0.013		
1920	0.014		
1980	0.014		
2040	0.014		
2100	0.012		
2160	0.011		
2220	0.011		
2280	0.011		
2340	0.01		
2400	0.01		
2460	0.011		
2520	0.01		
2580	0.012		
2640	0.011		
2700	0.011		
2760	0.009		
2820	0.01		
2880	0.009		
2940	0.009		
3000	0.01		
3060	0.009		
3120	0.009		
3180	0.009		
3240	0.009		
3300	0.01		
3360	0.009		
3420	0.009		
3480	0.009		
3540	0.01		
3600	0.01		
3660	0.01		
3720	0.01		
3780	0.011		
3840	0.01		
3900	0.01		
3960	0.009		
4020	0.008		
4080	0.009		
4140	0.009		
4200	0.009		
4260	0.01		
4320	0.011		
4380	0.01		
4440	0.013		
4500	0.009		
4560	0.011		
4620	0.011		
4680	0.011		
4740	0.01		
4800	0.01		

Particulate Monitoring
Sampling Event 10/19/11

4860	0.009		
4920	0.009		
4980	0.009		
5040	0.009		
5100	0.009		
5160	0.009		
5220	0.009		
5280	0.01		
5340	0.009		
5400	0.008		
5460	0.008		
5520	0.008		
5580	0.008		
5640	0.009		
5700	0.009		
5760	0.008		
5820	0.008		
5880	0.01		
5940	0.009		
6000	0.008		
6060	0.008		
6120	0.008		
6180	0.007		
6240	0.008		
6300	0.008		
6360	0.008		
6420	0.007		
6480	0.008		
6540	0.009		
6600	0.008		
6660	0.007		
6720	0.007		
6780	0.007		
6840	0.008		
6900	0.009		
6960	0.009		
7020	0.009		
7080	0.011		
7140	0.01		
7200	0.01		
7260	0.01		
7320	0.009		
7380	0.008		
7440	0.008		
7500	0.009		
7560	0.01		
7620	0.011		
7680	0.012		
7740	0.01		
7800	0.007		
7860	0.007		

Particulate Monitoring
Sampling Event 10/19/11

7920	0.006		
7980	0.007		
8040	0.009		
8100	0.009		
8160	0.006		
8220	0.006		
8280	0.007		
8340	0.014		
8400	0.021		
8460	0.02		
8520	0.015		
8580	0.013		
8640	0.014		
8700	0.01		
8760	0.011		
8820	0.009		
8880	0.01		
8940	0.008		
9000	0.009		
9060	0.008		
9120	0.008		
9180	0.007		
9240	0.008		
9300	0.006		
9360	0.006		
9420	0.007		
9480	0.007		
9540	0.009		
9600	0.007		
9660	0.006		
9720	0.006		
9780	0.005		
9840	0.004		
9900	0.004		
9960	0.004		
10020	0.005		
10080	0.005		
10140	0.005		
10200	0.004		
10260	0.003		
10320	0.004		
10380	0.004		
10440	0.005		
10500	0.004		
10560	0.003		
10620	0.005		
10680	0.005		
10740	0.004		
10800	0.004		
10860	0.003		
10920	0.004		

Particulate Monitoring
Sampling Event 10/19/11

10980	0.004		
11040	0.004		
11100	0.009		
11160	0.009		
11220	0.009		
11280	0.009		
11340	0.008		
11400	0.006		
11460	0.006		
11520	0.006		
11580	0.007		
11640	0.007		
11700	0.007		
11760	0.004		
11820	0.006		
11880	0.005		
11940	0.005		
12000	0.007		
12060	0.004		
12120	0.006		
12180	0.004		
12240	0.003		
12300	0.004		
12360	0.004		
12420	0.003		
12480	0.003		
12540	0.003		
12600	0.003		
12660	0.002		
12720	0.003		
12780	0.003		
12840	0.003		
12900	0.005		
12960	0.004		
13020	0.005		
13080	0.003		
13140	0.003		
13200	0.002		
13260	0.002		
13320	0.002		
13380	0.001		
13440	0.001		
13500	0.002		
13560	0.002		
13620	0.002		
13680	0.002		
13740	0.001		
13800	0.001		
13860	0.001		
13920	0.001		
13980	0.001		

Particulate Monitoring
Sampling Event 10/19/11

14040	0.001		
14100	0.001		
14160	0.001		
14220	0.001		
14280	0.001		
14340	0		
14400	0		
14460	0.001		
14520	0.001		
14580	0.001		
14640	0		
14700	0.001		
14760	0.001		
14820	0.004		
14880	0.003		
14940	0.003		
15000	0.002		
15060	0.001		
15120	0		
15180	0		
15240	0		
15300	0		
15360	0.001		
15420	0.001		
15480	0.001		
15540	0.002		
15600	0.003		
15660	0.002		
15720	0.001		
15780	0.001		
15840	0.001		
15900	0.001		
15960	0.001		
16020	0		
16080	0.001		
16140	0		
16200	0		
16260	0.001		
16320	0		
16380	0		
16440	0		
16500	0		
16560	0.001		
16620	0		
16680	0		
16740	0		
16800	0		
16860	0		
16920	0.001		
16980	0.001		
17040	0.001		

Particulate Monitoring
Sampling Event 10/19/11

17100	0		
17160	0		
17220	0		
17280	0		
17340	0		
17400	0		
17460	0		
17520	0		
17580	0		
17640	0		
17700	0		
17760	0		
17820	0		
17880	0		
17940	0.001		
18000	0.001		
18060	0.001		
18120	0.001		
18180	0.001		
18240	0		
18300	0		
18360	0		
18420	0.013		
18480	0.009		
18540	0.005		
18600	0.003		
18660	0.003		
18720	0.003		
18780	0.001		
18840	0.001		
18900	0.001		
18960	0		
19020	0.001		
19080	0		
19140	0.001		
19200	0.002		
19260	0.002		
19320	0.002		
19380	0.002		
19440	0.003		
19500	0.002		
19560	0.001		
19620	0.001		
19680	0.002		
19740	0.003		
19800	0.002		
19860	0.001		
19920	0.001		
19980	0.001		
20040	0.001		
20100	0		

Particulate Monitoring
Sampling Event 10/19/11

20160	0		
20220	0.001		
20280	0.001		
20340	0		
20400	0		
20460	0		
20520	0		
20580	0		
20640	0.001		
20700	0.001		
20760	0.001		
20820	0.003		
20880	0.002		
20940	0.002		
21000	0.002		
21060	0.001		
21120	0.002		
21180	0.002		
21240	0.002		
21300	0.002		
21360	0.003		
21420	0.003		
21480	0.003		
21540	0.001		
21600	0.001		
21660	0.001		
21720	0.001		
21780	0.001		
21840	0.002		
21900	0.003		
21960	0.003		
22020	0.003		
22080	0.003		
22140	0.005		
22200	0.005		
22260	0.005		
22320	0.003		
22380	0.004		
22440	0.004		
22500	0.003		
22560	0.003		
22620	0.003		
22680	0.004		
22740	0.004		
22800	0.004		
22860	0.005		
22920	0.006		
22980	0.006		
23040	0.005		
23100	0.005		
23160	0.004		

Particulate Monitoring
Sampling Event 10/19/11

23220	0.005		
23280	0.005		
23340	0.006		
23400	0.005		
23460	0.005		
23520	0.003		
23580	0.003		
23640	0.003		
23700	0.003		
23760	0.003		
23820	0.004		
23880	0.005		
23940	0.008		
24000	0.011		
24060	0.013		
24120	0.014		
24180	0.014		
24240	0.013		
24300	0.011		
24360	0.009		
24420	0.008		
24480	0.008		
24540	0.008		
24600	0.008		
24660	0.008		
24720	0.008		
24780	0.006		
24840	0.006		
24900	0.007		
24960	0.007		
25020	0.007		
25080	0.008		
25140	0.009		
25200	0.009		
25260	0.008		
25320	0.008		
25380	0.008		
25440	0.009		
25500	0.009		
25560	0.009		
25620	0.008		
25680	0.007		
25740	0.006		
25800	0.005		
25860	0.005		
25920	0.005		
25980	0.005		
26040	0.005		
26100	0.005		
26160	0.005		
26220	0.005		

Particulate Monitoring
Sampling Event 10/19/11

26280	0.005		
26340	0.005		
26400	0.005		
26460	0.005		
26520	0.004		
26580	0.004		
26640	0.004		
26700	0.005		
26760	0.005		
26820	0.005		
26880	0.005		
26940	0.005		
27000	0.006		
27060	0.007		
27120	0.006		
27180	0.006		
27240	0.005		
27300	0.005		
27360	0.005		
27420	0.004		
27480	0.004		
27540	0.005		
27600	0.005		
27660	0.005		
27720	0.005		
27780	0.005		
27840	0.005		
27900	0.004		
27960	0.004		
28020	0.004		
28080	0.004		
28140	0.005		
28200	0.003		
28260	0.003		
28320	0.003		
28380	0.003		
28440	0.003		
28500	0.003		
28560	0.003		
28620	0.003		
28680	0.003		
28740	0.003		
28800	0.003		

Particulate Monitoring
Sampling Event 10/25/11

Data Summary Statistics:

Instrument Name	DustTrak II
Model Number	8530
Serial Number	8530104208
Firmware Version	2.8
Calibration Date	9/22/2011
Test Name	TEST 4_001
Test Start Time	8:25:49 AM
Test Start Date	10/25/2011
Test Length [D:H:M]	0:08:00
Test Interval [M:S]	1:00
Mass Average [mg/m3]	0.009
Mass Minimum [mg/m3]	0.005
Mass Maximum [mg/m3]	0.023
Mass TWA [mg/m3]	0.009
Photometric User Cal	1
Flow User Cal	1
Errors	
Number of Samples	480

Sampling Data Table:

Elapsed Time [s]	Mass [mg/m3]	Alarms	Errors
60	0.023		
120	0.019		
180	0.022		
240	0.02		
300	0.019		
360	0.019		
420	0.02		
480	0.019		
540	0.02		
600	0.021		
660	0.02		
720	0.019		
780	0.02		
840	0.02		
900	0.019		
960	0.019		
1020	0.019		
1080	0.018		
1140	0.018		
1200	0.018		
1260	0.018		
1320	0.018		
1380	0.016		
1440	0.016		
1500	0.015		

Particulate Monitoring
Sampling Event 10/25/11

1560	0.016		
1620	0.016		
1680	0.016		
1740	0.016		
1800	0.016		
1860	0.015		
1920	0.015		
1980	0.015		
2040	0.015		
2100	0.016		
2160	0.015		
2220	0.015		
2280	0.015		
2340	0.015		
2400	0.015		
2460	0.016		
2520	0.014		
2580	0.013		
2640	0.013		
2700	0.012		
2760	0.012		
2820	0.012		
2880	0.012		
2940	0.013		
3000	0.012		
3060	0.012		
3120	0.012		
3180	0.012		
3240	0.012		
3300	0.012		
3360	0.012		
3420	0.012		
3480	0.013		
3540	0.012		
3600	0.012		
3660	0.012		
3720	0.012		
3780	0.012		
3840	0.012		
3900	0.012		
3960	0.012		
4020	0.012		
4080	0.012		
4140	0.012		
4200	0.012		
4260	0.012		
4320	0.012		

Particulate Monitoring
Sampling Event 10/25/11

4380	0.012		
4440	0.012		
4500	0.012		
4560	0.011		
4620	0.011		
4680	0.012		
4740	0.012		
4800	0.012		
4860	0.012		
4920	0.011		
4980	0.011		
5040	0.012		
5100	0.013		
5160	0.011		
5220	0.012		
5280	0.011		
5340	0.013		
5400	0.012		
5460	0.012		
5520	0.012		
5580	0.012		
5640	0.012		
5700	0.012		
5760	0.012		
5820	0.012		
5880	0.012		
5940	0.012		
6000	0.012		
6060	0.012		
6120	0.013		
6180	0.011		
6240	0.011		
6300	0.011		
6360	0.012		
6420	0.012		
6480	0.011		
6540	0.011		
6600	0.012		
6660	0.012		
6720	0.012		
6780	0.011		
6840	0.011		
6900	0.011		
6960	0.011		
7020	0.011		
7080	0.011		
7140	0.012		

Particulate Monitoring
Sampling Event 10/25/11

7200	0.012		
7260	0.011		
7320	0.011		
7380	0.011		
7440	0.011		
7500	0.011		
7560	0.011		
7620	0.011		
7680	0.012		
7740	0.011		
7800	0.011		
7860	0.011		
7920	0.011		
7980	0.011		
8040	0.011		
8100	0.011		
8160	0.01		
8220	0.01		
8280	0.01		
8340	0.01		
8400	0.01		
8460	0.01		
8520	0.01		
8580	0.01		
8640	0.01		
8700	0.01		
8760	0.01		
8820	0.01		
8880	0.01		
8940	0.01		
9000	0.011		
9060	0.01		
9120	0.01		
9180	0.01		
9240	0.01		
9300	0.01		
9360	0.01		
9420	0.01		
9480	0.01		
9540	0.01		
9600	0.01		
9660	0.01		
9720	0.01		
9780	0.01		
9840	0.01		
9900	0.011		
9960	0.01		

Particulate Monitoring
Sampling Event 10/25/11

10020	0.01		
10080	0.01		
10140	0.01		
10200	0.01		
10260	0.01		
10320	0.01		
10380	0.011		
10440	0.01		
10500	0.01		
10560	0.01		
10620	0.01		
10680	0.01		
10740	0.011		
10800	0.01		
10860	0.01		
10920	0.01		
10980	0.011		
11040	0.011		
11100	0.01		
11160	0.01		
11220	0.01		
11280	0.01		
11340	0.01		
11400	0.01		
11460	0.01		
11520	0.01		
11580	0.01		
11640	0.009		
11700	0.009		
11760	0.01		
11820	0.009		
11880	0.01		
11940	0.009		
12000	0.009		
12060	0.01		
12120	0.01		
12180	0.009		
12240	0.01		
12300	0.01		
12360	0.01		
12420	0.01		
12480	0.01		
12540	0.01		
12600	0.01		
12660	0.009		
12720	0.009		
12780	0.009		

Particulate Monitoring
Sampling Event 10/25/11

12840	0.009		
12900	0.009		
12960	0.009		
13020	0.009		
13080	0.009		
13140	0.009		
13200	0.009		
13260	0.009		
13320	0.01		
13380	0.009		
13440	0.009		
13500	0.009		
13560	0.009		
13620	0.01		
13680	0.009		
13740	0.009		
13800	0.009		
13860	0.009		
13920	0.009		
13980	0.009		
14040	0.009		
14100	0.009		
14160	0.009		
14220	0.009		
14280	0.01		
14340	0.009		
14400	0.009		
14460	0.009		
14520	0.01		
14580	0.01		
14640	0.01		
14700	0.009		
14760	0.009		
14820	0.009		
14880	0.01		
14940	0.009		
15000	0.01		
15060	0.009		
15120	0.009		
15180	0.009		
15240	0.009		
15300	0.009		
15360	0.009		
15420	0.008		
15480	0.008		
15540	0.008		
15600	0.008		

Particulate Monitoring
Sampling Event 10/25/11

15660	0.008		
15720	0.008		
15780	0.008		
15840	0.008		
15900	0.008		
15960	0.008		
16020	0.008		
16080	0.008		
16140	0.008		
16200	0.008		
16260	0.008		
16320	0.008		
16380	0.008		
16440	0.008		
16500	0.008		
16560	0.008		
16620	0.008		
16680	0.008		
16740	0.008		
16800	0.008		
16860	0.008		
16920	0.008		
16980	0.007		
17040	0.007		
17100	0.007		
17160	0.007		
17220	0.007		
17280	0.007		
17340	0.007		
17400	0.007		
17460	0.007		
17520	0.008		
17580	0.007		
17640	0.007		
17700	0.007		
17760	0.007		
17820	0.007		
17880	0.007		
17940	0.007		
18000	0.007		
18060	0.007		
18120	0.006		
18180	0.006		
18240	0.006		
18300	0.006		
18360	0.007		
18420	0.007		

Particulate Monitoring
Sampling Event 10/25/11

18480	0.007		
18540	0.007		
18600	0.007		
18660	0.007		
18720	0.006		
18780	0.006		
18840	0.008		
18900	0.007		
18960	0.007		
19020	0.007		
19080	0.007		
19140	0.007		
19200	0.006		
19260	0.007		
19320	0.007		
19380	0.007		
19440	0.006		
19500	0.007		
19560	0.006		
19620	0.006		
19680	0.007		
19740	0.006		
19800	0.006		
19860	0.007		
19920	0.008		
19980	0.007		
20040	0.007		
20100	0.008		
20160	0.008		
20220	0.007		
20280	0.007		
20340	0.007		
20400	0.008		
20460	0.007		
20520	0.007		
20580	0.006		
20640	0.006		
20700	0.007		
20760	0.008		
20820	0.007		
20880	0.007		
20940	0.007		
21000	0.006		
21060	0.006		
21120	0.006		
21180	0.006		
21240	0.006		

Particulate Monitoring
Sampling Event 10/25/11

21300	0.007		
21360	0.006		
21420	0.006		
21480	0.006		
21540	0.006		
21600	0.006		
21660	0.006		
21720	0.006		
21780	0.006		
21840	0.006		
21900	0.006		
21960	0.006		
22020	0.005		
22080	0.006		
22140	0.006		
22200	0.006		
22260	0.006		
22320	0.005		
22380	0.006		
22440	0.006		
22500	0.005		
22560	0.006		
22620	0.006		
22680	0.005		
22740	0.006		
22800	0.006		
22860	0.006		
22920	0.005		
22980	0.006		
23040	0.006		
23100	0.006		
23160	0.006		
23220	0.005		
23280	0.005		
23340	0.005		
23400	0.006		
23460	0.006		
23520	0.006		
23580	0.006		
23640	0.005		
23700	0.006		
23760	0.006		
23820	0.005		
23880	0.005		
23940	0.006		
24000	0.006		
24060	0.005		

Particulate Monitoring
Sampling Event 10/25/11

24120	0.006		
24180	0.006		
24240	0.005		
24300	0.006		
24360	0.006		
24420	0.006		
24480	0.005		
24540	0.006		
24600	0.005		
24660	0.005		
24720	0.006		
24780	0.005		
24840	0.005		
24900	0.005		
24960	0.005		
25020	0.005		
25080	0.006		
25140	0.006		
25200	0.006		
25260	0.006		
25320	0.005		
25380	0.005		
25440	0.006		
25500	0.006		
25560	0.006		
25620	0.006		
25680	0.006		
25740	0.006		
25800	0.006		
25860	0.005		
25920	0.006		
25980	0.006		
26040	0.006		
26100	0.006		
26160	0.006		
26220	0.006		
26280	0.006		
26340	0.006		
26400	0.006		
26460	0.006		
26520	0.006		
26580	0.006		
26640	0.006		
26700	0.005		
26760	0.006		
26820	0.006		
26880	0.006		

Particulate Monitoring
Sampling Event 10/25/11

26940	0.006		
27000	0.006		
27060	0.006		
27120	0.006		
27180	0.006		
27240	0.006		
27300	0.006		
27360	0.006		
27420	0.006		
27480	0.006		
27540	0.005		
27600	0.006		
27660	0.006		
27720	0.005		
27780	0.006		
27840	0.006		
27900	0.005		
27960	0.005		
28020	0.006		
28080	0.006		
28140	0.005		
28200	0.006		
28260	0.006		
28320	0.006		
28380	0.005		
28440	0.005		
28500	0.006		
28560	0.005		
28620	0.006		
28680	0.005		
28740	0.005		
28800	0.006		

APPENDIX 41

Apex Companies, LLC.

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

REVISIONS

#	DATE	DESCRIPTION
1	10/28/10	BORING PROG. & NUM.
2	11/22/10	BORINGS PLACED BY OUTFALL LOC.

THESE DRAWINGS PREPARED BY APEX FOR THIS PROJECT ARE INSTRUMENTS OF APEX'S SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT, AND APEX SHALL BE DEEMED THE AUTHOR OF THE DRAWING AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS WITH RESPECT THERETO, INCLUDING COPYRIGHT. THE DOCUMENTS SHALL NOT BE USED ON OTHER PROJECTS, FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO APEX.

NOTES:

1. THE PROPOSED BORING LOCATIONS SHOWN HEREON ARE APPROXIMATE. ACTUAL LOCATIONS OF SAMPLES WILL VARY DURING THE SITE INVESTIGATION.
2. PROPERTY LINES AND OWNERSHIP SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON DATA PROVIDED BY THE ASSESSORS OFFICE OF THE CITY OF NEW BEDFORD.
3. BACKGROUND IMAGES SHOWN HEREON ARE PROVIDED COURTESY OF MASSGIS.
4. BORING LOCATIONS FROM PREVIOUS ENVIRONMENTAL INVESTIGATIONS ARE APPROXIMATE AND WERE SCALED INTO LOCATION FROM RECORD PLANS.
5. EXISTING AND POSSIBLE EXISTING STORM DRAIN AND COMBINED SEWER OVERFLOW (CSO) LOCATIONS AND SIZES SHOWN ARE FROM RECORD PLANS AND HAVE NOT BEEN FIELD VERIFIED.

#5 HYDRAULIC CONDUCTIVITY SAMPLE LOCATION

PREPARED FOR:

COMMONWEALTH OF MASSACHUSETTS

DRAWING TITLE:

NEW BEDFORD MARINE COMMERCE TERMINAL SEDIMENT HYDRAULIC CONDUCTIVITY SAMPLE LOCATIONS

Scale: 1"=100'

0 50 100 200 300 FEET

Date	10/28/10
Proj. Mgr.	
Design	CWM
Check	JAB
Drawn	GCD
Job. No.	6615
Last Rev.	2/8/11

Drawing No.

FIG. 1

P:\Jobs\6690 NBH_ Phase IV\PLANS\SOUTHTERMINAL_SAMPLING_AND_ANALYSIS_PLAN3-28-11.DWG, 9/23/2011 12:31:30 PM, DWG To PDF.pc3

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	04/15/11	Tested By:	ema
End Date:	04/18/11	Checked By:	njh
Boring #:	---		
Sample #:	#1		
Depth:	---		
Visual Description:	Dry, grayish brown sand with gravel and shells		

Permeability of Granular Soils (Constant Head) by ASTM D 2434

Sample Type: Remolded

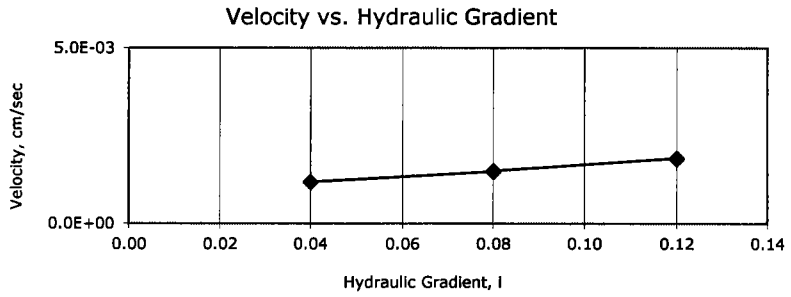
Sample Information:

Maximum Dry Density:		pcf
Optimum Moisture Content:	---	%
Compaction Test Method:	---	
Classification (ASTM D 2487):	---	
Assumed Specific Gravity:	2.65	

Sample Preparation / Test Setup: Target Compaction: Moderate effort at air-dried moisture content; >3/8 inch material screened out of sample prior to testing (22% of sample). 5.27 lb surcharge

Parameter	Initial	Final
Height, in	4.03	4.03
Diameter, in	3.98	3.98
Area, in^2	12.4	12.4
Volume, in^3	50.1	50.1
Mass, g	1538	1764
Bulk Density, pcf	117	134
Moisture Content, %	1.2	16
Dry Density, pcf	115	115
Degree of Saturation, %	---	99.8
Void Ratio, e	---	0.44

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
4/15	1	1.4	15	0.09	0.04	2.9E-02	12.0	1.239	3.7E-02
4/15	2	1.4	15	0.09	0.04	2.9E-02	12.0	1.239	3.7E-02
4/15	3	1.4	15	0.10	0.04	3.0E-02	12.0	1.239	3.7E-02
4/15	4	1.8	15	0.12	0.08	1.9E-02	12.0	1.239	2.3E-02
4/15	5	1.8	15	0.12	0.08	1.8E-02	12.0	1.239	2.3E-02
4/15	6	1.8	15	0.12	0.08	1.9E-02	12.0	1.239	2.3E-02
4/15	7	2.3	15	0.15	0.12	1.6E-02	12.0	1.239	1.9E-02
4/15	8	2.2	15	0.15	0.12	1.5E-02	12.0	1.239	1.9E-02
4/15	9	2.2	15	0.15	0.12	1.5E-02	12.0	1.239	1.9E-02



PERMEABILITY @ 20 °C = 2.6×10^{-2} cm/sec

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	04/18/11	Tested By:	ema
End Date:	04/19/11	Checked By:	njh
Boring #:	---		
Sample #:	#2		
Depth:	---		
Visual Description:	Dry, grayish brown sand with gravel and shells		

Permeability of Granular Soils (Constant Head) by ASTM D 2434

Sample Type: Remolded

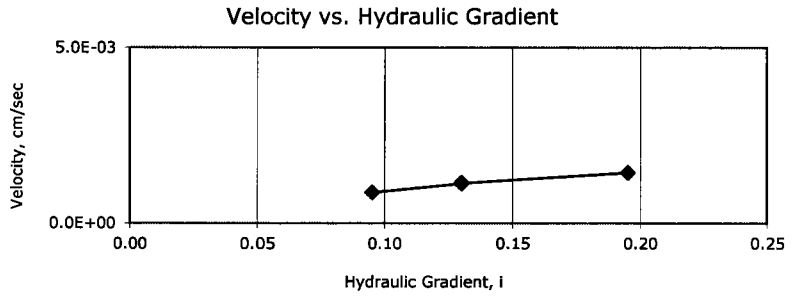
Sample Information:

Maximum Dry Density:	--- pcf
Optimum Moisture Content:	--- %
Compaction Test Method:	---
Classification (ASTM D 2487):	---
Assumed Specific Gravity:	2.65

Sample Preparation / Test Setup: Target Compaction: Moderate effort at air-dried moisture content; >3/8 inch material screened out of sample prior to testing (2.1% of sample). 5.27 lb surcharge

Parameter	Initial	Final
Height, in	4.03	4.03
Diameter, in	3.98	3.98
Area, in^2	12.4	12.4
Volume, in^3	50.1	50.1
Mass, g	1333	1627
Bulk Density, pcf	101	124
Moisture Content, %	1.4	26
Dry Density, pcf	100	98.3
Degree of Saturation, %	---	100.0
Void Ratio, e	---	0.68

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
4/18	1	1.1	15	0.07	0.10	9.3E-03	13.0	1.203	1.1E-02
4/18	2	1.1	15	0.07	0.10	9.3E-03	13.0	1.203	1.1E-02
4/18	3	1.1	15	0.07	0.10	9.3E-03	13.0	1.203	1.1E-02
4/18	4	1.4	15	0.09	0.13	8.8E-03	13.0	1.203	1.1E-02
4/18	5	1.4	15	0.09	0.13	8.9E-03	13.0	1.203	1.1E-02
4/18	6	1.4	15	0.09	0.13	8.8E-03	13.0	1.203	1.1E-02
4/18	7	1.7	15	0.12	0.20	7.4E-03	13.0	1.203	8.9E-03
4/18	8	1.7	15	0.12	0.20	7.4E-03	13.0	1.203	8.9E-03
4/18	9	1.7	15	0.12	0.20	7.4E-03	13.0	1.203	8.9E-03



PERMEABILITY @ 20 °C = 1.0×10^{-2} cm/sec

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	04/14/11	Tested By:	ema
End Date:	04/15/11	Checked By:	njh
Boring #:	---		
Sample #:	#3		
Depth:	---		
Visual Description:	Dry, gray sand with gravel and shells		

Permeability of Granular Soils (Constant Head) by ASTM D 2434

Sample Type: Remolded

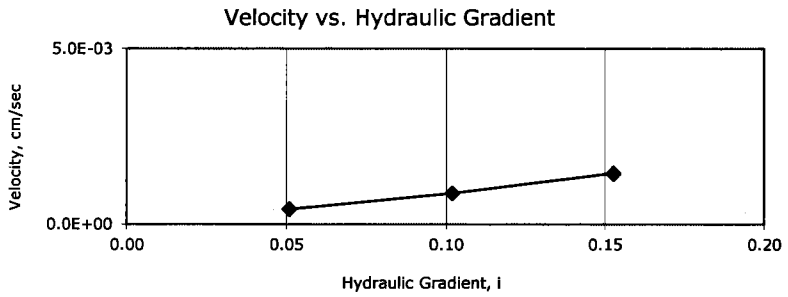
Sample Information:

Maximum Dry Density:	--- pcf
Optimum Moisture Content:	--- %
Compaction Test Method:	---
Classification (ASTM D 2487):	---
Assumed Specific Gravity:	2.65

Sample Preparation / Test Setup: Target Compaction: Moderate effort at air-dried moisture content; >3/8 inch material screened out of sample prior to testing (13% of sample). 5.27 lb surcharge

Parameter	Initial	Final
Height, in	4.03	3.93
Diameter, in	3.98	3.98
Area, in^2	12.4	12.4
Volume, in^3	50.1	48.9
Mass, g	1516	1721
Bulk Density, pcf	115	134
Moisture Content, %	1.4	15
Dry Density, pcf	114	116
Degree of Saturation, %	---	96.3
Void Ratio, e	---	0.42

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
4/14	1	1.0	30	0.03	0.05	8.5E-03	15.0	1.138	9.7E-03
4/14	2	1.0	30	0.03	0.05	8.5E-03	15.0	1.138	9.7E-03
4/14	3	1.1	30	0.04	0.05	8.6E-03	15.0	1.138	9.8E-03
4/14	4	2.1	30	0.07	0.10	8.7E-03	15.0	1.138	9.9E-03
4/14	5	2.1	30	0.07	0.10	8.7E-03	15.0	1.138	9.9E-03
4/14	6	2.1	30	0.07	0.10	8.7E-03	15.0	1.138	9.9E-03
4/14	7	3.5	30	0.12	0.15	9.6E-03	15.0	1.138	1.1E-02
4/14	8	3.5	30	0.12	0.15	9.4E-03	15.0	1.138	1.1E-02
4/14	9	3.5	30	0.12	0.15	9.5E-03	15.0	1.138	1.1E-02



PERMEABILITY @ 20 °C = 1.0×10^{-2} cm/sec

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	04/15/11	Tested By:	ema
End Date:	04/18/11	Checked By:	njh
Boring #:	---		
Sample #:	#4		
Depth:	---		
Visual Description:	Dry, gray sand with gravel and shells		

Permeability of Granular Soils (Constant Head) by ASTM D 2434

Sample Type: Remolded

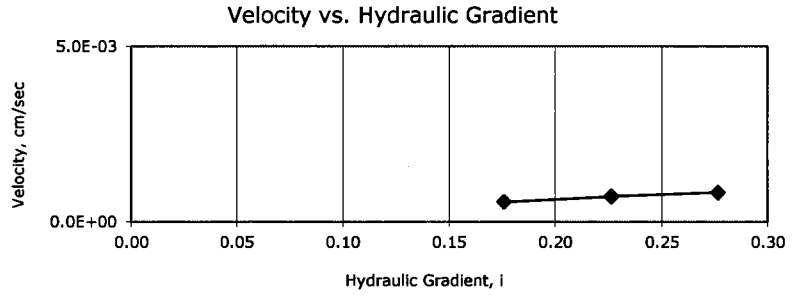
Sample Information:

Maximum Dry Density:	--- pcf
Optimum Moisture Content:	--- %
Compaction Test Method:	---
Classification (ASTM D 2487):	---
Assumed Specific Gravity:	2.65

Sample Preparation / Test Setup: Target Compaction: Moderate effort at air-dried moisture content; >3/8 inch material screened out of sample prior to testing (18.5% of sample). 5.27 lb surcharge

Parameter	Initial	Final
Height, in	4.03	4.03
Diameter, in	3.98	3.98
Area, in^2	12.4	12.4
Volume, in^3	50.1	50.1
Mass, g	1325	1564
Bulk Density, pcf	101	119
Moisture Content, %	2.9	22
Dry Density, pcf	97.8	97.3
Degree of Saturation, %	---	83.7
Void Ratio, e	---	0.70

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
4/15	1	1.4	30	0.05	0.18	3.3E-03	12.0	1.239	4.0E-03
4/15	2	1.4	30	0.05	0.18	3.3E-03	12.0	1.239	4.0E-03
4/15	3	1.4	30	0.05	0.18	3.3E-03	12.0	1.239	4.0E-03
4/15	4	1.7	30	0.06	0.23	3.2E-03	12.0	1.239	4.0E-03
4/15	5	1.8	30	0.06	0.23	3.2E-03	12.0	1.239	4.0E-03
4/15	6	1.8	30	0.06	0.23	3.3E-03	12.0	1.239	4.0E-03
4/15	7	2.0	30	0.07	0.28	3.1E-03	12.0	1.239	3.8E-03
4/15	8	2.0	30	0.07	0.28	3.1E-03	12.0	1.239	3.8E-03
4/15	9	2.0	30	0.07	0.28	3.1E-03	12.0	1.239	3.8E-03



PERMEABILITY @ 20 °C = 3.9×10^{-3} cm/sec

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	4/15/2011	Tested By:	ema
End Date:	4/19/2011	Checked By:	njh
Boring #:	---	Test #:	k
Sample #:	#5		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	16/5/12

Sample Preparation: Compacted at moderate effort. Trimmings moisture content = 145%

Parameter	Initial	Final
Height, in	2.60	2.42
Diameter, in	2.87	2.59
Area, in^2	6.47	5.27
Volume, in^3	16.8	12.7
Mass, g	379	295
Bulk Density, pcf	85.7	88.0
Moisture Content, %	146.2	91.8
Dry Density, pcf	34.8	45.9
Degree of Saturation, %	---	93

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.42	Pressure Increment, psi:	4.946
Sample Pressure, psi:	90.05	B Coefficient:	0.99

FLOW DATA

Date	Trial #	Pressure, psi Cell	Pressure, psi Sample	Manometer Readings Z_1	Manometer Readings Z_2	Manometer Readings Z_1-Z_2	Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
4/18	1	90	85	8.0	7.8	0.2	36	16.4	3.2E-07	20	1.000	3.2E-07
4/18	2	90	85	8.0	7.8	0.2	38	16.4	3.0E-07	20	1.000	3.0E-07
4/18	3	90	85	8.0	7.8	0.2	44	16.4	2.6E-07	20	1.000	2.6E-07
4/18	4	90	85	8.0	7.8	0.2	48	16.4	2.4E-07	20	1.000	2.4E-07

PERMEABILITY AT 20° C: 2.8 x 10^{-7} cm/sec (@ 5 psi effective stress)

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	4/15/2011	Tested By:	ema
End Date:	4/19/2011	Checked By:	njh
Boring #:	---	Test #:	k
Sample #:	#6		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	8/3

Sample Preparation: Compacted at moderate effort. Trimmings moisture content = 65.3%

Parameter	Initial	Final
Height, in	2.39	2.13
Diameter, in	2.87	2.69
Area, in^2	6.47	5.68
Volume, in^3	15.5	12.1
Mass, g	376	329
Bulk Density, pcf	92.4	103
Moisture Content, %	77.0	55.0
Dry Density, pcf	52.2	66.7
Degree of Saturation, %	---	97

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.27	Pressure Increment, psi:	5.004
Sample Pressure, psi:	90.37	B Coefficient:	0.98

FLOW DATA

Date	Trial #	Pressure, psi Cell	Pressure, psi Sample	Manometer Readings Z_1	Manometer Readings Z_2	Manometer Readings Z_1-Z_2	Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
4/18	2	90	85	8.0	7.9	0.1	60	18.6	7.7E-08	20	1.000	7.7E-08
4/18	3	90	85	8.0	7.9	0.1	63	18.6	7.3E-08	20	1.000	7.3E-08
4/18	4	90	85	8.0	7.9	0.1	66	18.6	7.0E-08	20	1.000	7.0E-08
4/18	5	90	85	8.0	7.9	0.1	66	18.6	7.0E-08	20	1.000	7.0E-08

PERMEABILITY AT 20° C: 7.3 x 10^{-8} cm/sec (@ 5 psi effective stress)

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	4/29/2011	Tested By:	ema
End Date:	5/4/2011	Checked By:	jdt
Boring #:	---		
Sample #:	#5A (with 7% cement)		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	5/3/15

Sample Preparation: 7% cement added to as-received wet sample by volume and allowed to cure for 14 days prior to test. Test specimen compacted with moderate effort. Trimmings moisture content = 139%

Parameter	Initial	Final
Height, in	3.29	3.29
Diameter, in	1.98	1.98
Area, in^2	3.08	3.08
Volume, in^3	10.1	10.1
Mass, g	216	217
Bulk Density, pcf	81.1	81.6
Moisture Content, %	143.9	145.3
Dry Density, pcf	33.2	33.2
Degree of Saturation, %	---	98

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.0	Pressure Increment, psi:	4.99
Sample Pressure, psi:	89.5	B Coefficient:	0.93

FLOW DATA

Date	Trial #	Pressure, psi		Manometer Readings			Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
		Cell	Sample	Z_1	Z_2	Z_1-Z_2						
5/2	1	90	85	9.0	8.5	0.5	46	13.6	1.3E-06	20	1.000	1.3E-06
5/2	2	90	85	9.0	8.5	0.5	54	13.6	1.1E-06	20	1.000	1.1E-06
5/2	3	90	85	9.0	8.5	0.5	55	13.6	1.1E-06	20	1.000	1.1E-06
5/2	4	90	85	9.0	8.5	0.5	55	13.6	1.1E-06	20	1.000	1.1E-06

PERMEABILITY AT 20° C: 1.2 x 10^{-6} cm/sec (@ 5 psi effective stress)

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	5/2/2011	Tested By:	ema
End Date:	5/5/2011	Checked By:	jdt
Boring #:	---		
Sample #:	#5A (with 7% cement)		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	6/8/2

Sample Preparation: 7% cement added to as-received wet sample by volume and allowed to cure for 14 days prior to test. Test specimen compacted with moderate effort. Trimmings moisture content = 150%

Parameter	Initial	Final
Height, in	3.38	3.38
Diameter, in	1.98	1.98
Area, in^2	3.08	3.08
Volume, in^3	10.4	10.4
Mass, g	222	222
Bulk Density, pcf	81.0	81.2
Moisture Content, %	148.6	149.2
Dry Density, pcf	32.6	32.6
Degree of Saturation, %	---	98

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.0	Pressure Increment, psi:	4.97
Sample Pressure, psi:	89.8	B Coefficient:	0.96

FLOW DATA

Date	Trial #	Pressure, psi Cell	Pressure, psi Sample	Manometer Readings Z_1	Manometer Readings Z_2	Manometer Readings Z_1-Z_2	Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
5/4	1	90	85	9.0	8.5	0.5	70	13.2	8.8E-07	20	1.000	8.8E-07
5/4	2	90	85	9.0	8.5	0.5	69	13.2	8.9E-07	20	1.000	8.9E-07
5/4	3	90	85	9.0	8.5	0.5	71	13.2	8.7E-07	20	1.000	8.7E-07
5/4	4	90	85	9.0	8.5	0.5	71	13.2	8.7E-07	20	1.000	8.7E-07

PERMEABILITY AT 20° C: 8.8 x 10^{-7} cm/sec (@ 5 psi effective stress)

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	4/29/2011	Tested By:	ema
End Date:	5/4/2011	Checked By:	jdt
Boring #:	---		
Sample #:	#6A (with 7% cement)		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	15/1/7

Sample Preparation: 7% cement added to as-received wet sample by volume and allowed to cure for 14 days prior to test. Test specimen compacted with moderate effort. Trimmings moisture content = 113%

Parameter	Initial	Final
Height, in	3.14	3.14
Diameter, in	1.98	1.98
Area, in^2	3.08	3.08
Volume, in^3	9.7	9.7
Mass, g	216	215
Bulk Density, pcf	85.1	84.7
Moisture Content, %	115.1	114.0
Dry Density, pcf	39.6	39.6
Degree of Saturation, %	---	95

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.0	Pressure Increment, psi:	5.11
Sample Pressure, psi:	89.9	B Coefficient:	0.97

FLOW DATA

Date	Trial #	Pressure, psi		Manometer Readings			Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
		Cell	Sample	Z_1	Z_2	Z_1-Z_2						
5/2	1	90	85	9.0	8.5	0.5	30	14.2	1.9E-06	20	1.000	1.9E-06
5/2	2	90	85	9.0	8.5	0.5	30	14.2	1.9E-06	20	1.000	1.9E-06
5/2	3	90	85	9.0	8.5	0.5	30	14.2	1.9E-06	20	1.000	1.9E-06
5/2	4	90	85	9.0	8.5	0.5	30	14.2	1.9E-06	20	1.000	1.9E-06

PERMEABILITY AT 20° C: 1.9 x 10^{-6} cm/sec (@ 5 psi effective stress)

GeoTesting EXPRESS

Client:	Apex Companies, LLC		
Project Name:	South Terminal Extension		
Project Location:	New Bedford, MA		
GTX #:	10697		
Start Date:	5/2/2011	Tested By:	ema
End Date:	5/5/2011	Checked By:	jdt
Boring #:	---		
Sample #:	#6A (with 7% cement)		
Depth:	---		
Visual Description:	Wet, black silt		

Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by ASTM D 5084

Constant Volume

Sample Type:	Remolded	Permeant Fluid:	de-aired tap water
Orientation:	Vertical	Cell #:	16/5/12

Sample Preparation: 7% cement added to as-received wet sample by volume and allowed to cure for 14 days prior to test. Test specimen compacted with moderate effort. Trimmings moisture content = 103%

Parameter	Initial	Final
Height, in	2.99	2.99
Diameter, in	1.98	1.98
Area, in^2	3.08	3.08
Volume, in^3	9.2	9.2
Mass, g	209	210
Bulk Density, pcf	86.5	86.6
Moisture Content, %	110.0	110.4
Dry Density, pcf	41.2	41.2
Degree of Saturation, %	---	97

B COEFFICIENT DETERMINATION

Cell Pressure, psi:	95.1	Pressure Increment, psi:	5.00
Sample Pressure, psi:	89.7	B Coefficient:	0.96

FLOW DATA

Date	Trial #	Pressure, psi		Manometer Readings			Elapsed Time, sec	Gradient	Permeability K, cm/sec	Temp, °C	R_t	Permeability K @ 20 °C, cm/sec
		Cell	Sample	Z_1	Z_2	Z_1-Z_2						
5/4	1	90	85	9.0	8.5	0.5	36	14.9	1.5E-06	20	1.000	1.5E-06
5/4	2	90	85	9.0	8.5	0.5	35	14.9	1.6E-06	20	1.000	1.6E-06
5/4	3	90	85	9.0	8.5	0.5	38	14.9	1.4E-06	20	1.000	1.4E-06
5/4	4	90	85	9.0	8.5	0.5	38	14.9	1.4E-06	20	1.000	1.4E-06

PERMEABILITY AT 20° C: 1.5 x 10^{-6} cm/sec (@ 5 psi effective stress)

Date: 7/1/2011

Time: 12:01 PM

APEX

Hydraulic Conductivity MW-1

Project:	Phase IV Dredging		Project No: 6690.008	X: 815993	
Location:	South Terminal Expansion			Y: 2687693	
Elevation at grade:	8.2'	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-17.4 MLLW	No:	A-2011-LB-B3/MW-1
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Todd Pentecost	Log By:	G. DiCesare		

WELL ID: SOUTH TERMINAL

Local ID: MW-1
Date: 7/1/2011
Time: 12:01

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	15	Feet

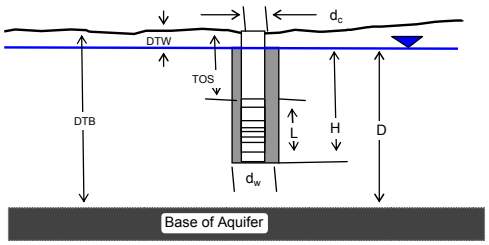
Depths to:

water level (DTW)	4.59	Feet
top of screen (TOS)	3.22	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Fine Sand



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (FT)
1	12:01:29.0	4.66
2	12:01:40.0	4.67
3	12:01:49.0	4.68
4	12:01:58.0	4.69
5	12:02:04.0	4.70
6	12:02:24.0	4.72
7	12:02:45.0	4.77
8	12:03:00.0	4.82

COMPUTED

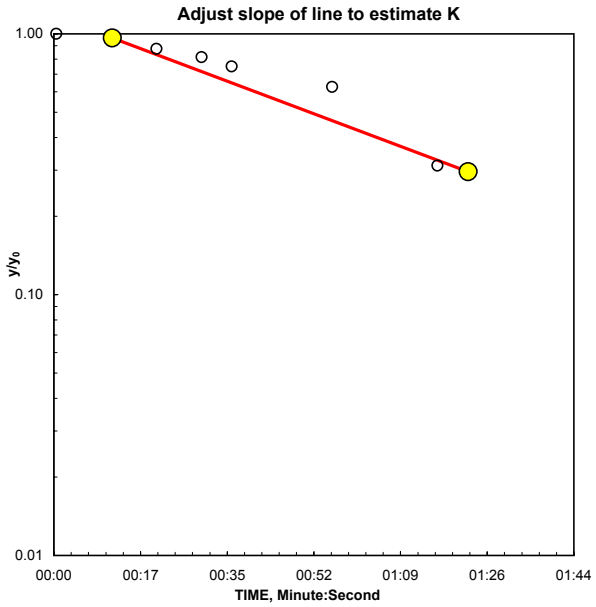
L_{wetted}	13.63	Feet
D =	20.41	Feet
H =	13.63	Feet
L/r_w =	81.78	
$y_{0\text{-DISPLACEMENT}}$ =	0.16	Feet
$y_{0\text{-SLUG}}$ =	1.69	Feet

From look-up table using L/r_w

Partial penetrate A =	4.028	
B =	0.667	
ln(Re/rw) =	3.037	
Re =	3.48	Feet
Slope =	0.007232	$\log_{10}$/sec
$t_{90\%}$ recovery =	138	sec

Slug discrepancy of 165% is greater than maximum of 20%

K = Error Feet/Day



K= 1.1 is less than likely minimum of 3 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 12:52 PM

Hydraulic Conductivity MW-2

Project:	Phase IV Dredging	Project No: 6690.008		X: 815985
Location:	South Terminal Expansion			Y: 2687860
Elevation at grade:	9.35	Datum:	MLLW	
Casing Type: PVC		Boring Depth:	-18.8' MLLW	Boring A-2011-LB-B4/MW-2
Casing Diameter:	2"	Drill Rig:	ATV	
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentecost	Log By:	G. DiCesare	

WELL ID: MW-2

Local ID: MW-2
Date: 7/1/2011
Time: 12:52

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	10	Feet

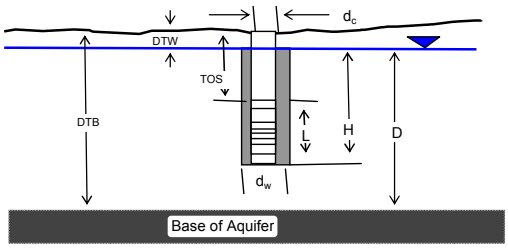
Depths to:

water level (DTW)	5.71	Feet
top of screen (TOS)	2.5	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Medium Sand



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (FT)
1	12:52:05.0	5.71
2	12:57:10.0	5.72
3	12:57:15.0	5.73
4	12:57:20.0	5.74

COMPUTED

L_{wetted}	6.79	Feet
D =	19.29	Feet
H =	6.79	Feet
L/r_w =	40.74	
$y_{0\text{-DISPLACEMENT}}$ =	0.01	Feet
$y_{0\text{-SLUG}}$ =	1.92	Feet

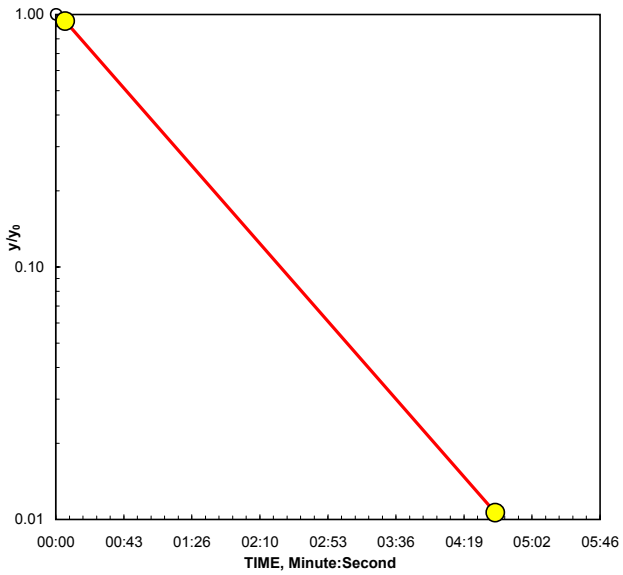
From look-up table using L/r_w

Partial penetrate A =	2.860	
B =	0.462	
ln(Re/rw) =	2.404	
Re =	1.84	Feet
Slope =	0.007131	$\log_{10}$/sec
$t_{90\%}$ recovery =	140	sec

Slug discrepancy of 198% is greater than maximum of 20%

K = Error Feet/Day

Adjust slope of line to estimate K



K= 1.7 is less than likely minimum of 20 for Medium Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 6:28 PM

Hydraulic Conductivity MW-3

Project:	Phase IV Dredging		Project No: 6690.008	X: 815576	
Location:	South Terminal Expansion			Y: 2688060	
Elevation at grade:	8.96	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-16.54 MLLW	No:	A-2011-LB-B5/MW-3
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Todd Pentecost	Log By:	G. DiCesare		

WELL ID: MW-3

Local ID: MW-3
Date: 7/1/2011
Time: 18:28

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	10	Feet

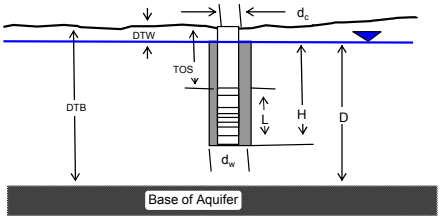
Depths to:

water level (DTW)	4	Feet
top of screen (TOS)	14	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Fine Sand



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (PSI)
1	18:28:00.0	0.85
2	18:28:10.0	0.90
3	18:28:20.0	0.92
4	18:35:00.0	0.93

COMPUTED

L_{wetted}	10	Feet
D =	21	Feet
H =	20	Feet
L/r_w =	60.00	
$y_{0\text{-DISPLACEMENT}}$ =	0.12	Feet
$y_{0\text{-SLUG}}$ =	6.25	Feet

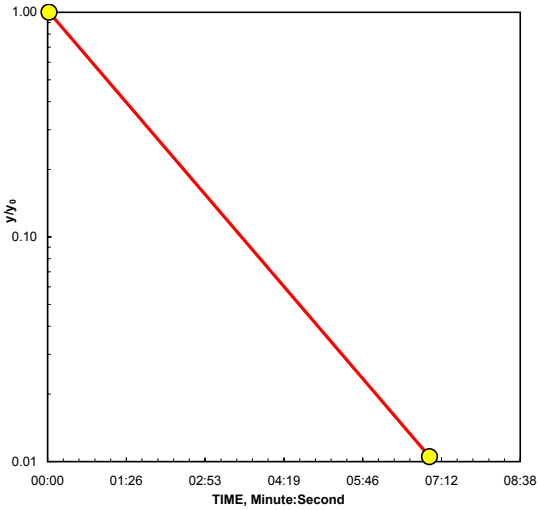
From look-up table using L/r_w

Partial penetrate A =	3.414	
B =	0.552	
ln(Re/rw) =	3.299	
Re =	4.51	Feet
Slope =	0.00474	$\log_{10}$/sec
$t_{90\%}$ recovery =	211	sec

Slug discrepancy of 193% is greater than maximum of 20%

K = Error Feet/Day

Adjust slope of line to estimate K



K= 1.1 is less than likely minimum of 3 for Fine Sand

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 2:48 PM

Hydraulic Conductivity MW-4

Project:	Phase IV Dredging		Project No: 6690.008	X: 815657	
Location:	South Terminal Expansion			Y: 2688318	
Elevation at grade:	7.45	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-18.4 MLLW	Boring No:	A-2011-LB-B6/MW-4
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Todd Pentecost	Log By:	G. DiCesare		

WELL ID: MW-4

Local ID: MW-4
Date: 7/1/2011
Time: 14:48

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	10	Feet

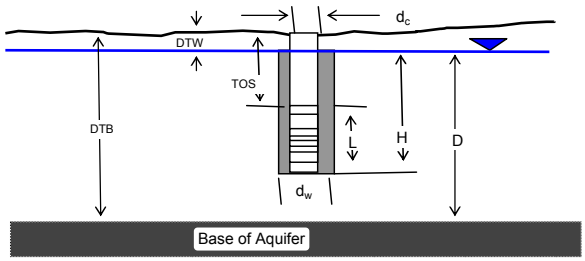
Depths to:

water level (DTW)	4.8	Feet
top of screen (TOS)	2	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Fine Sand



COMPUTED

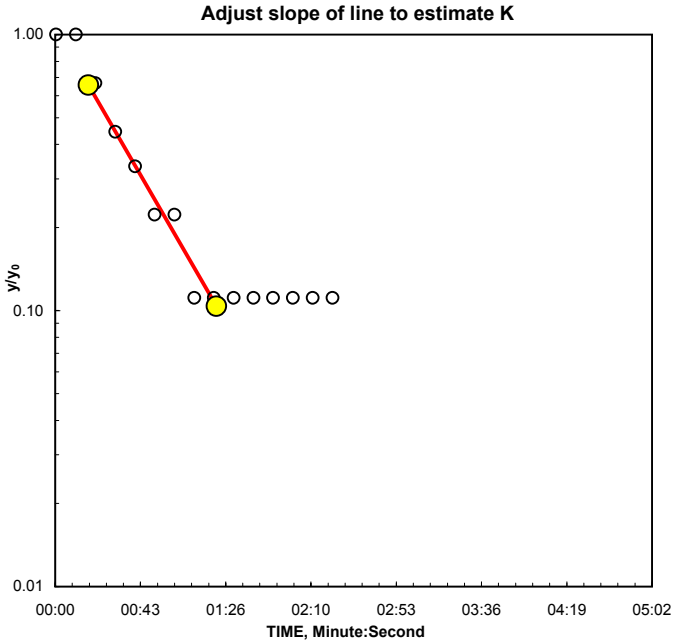
L_{wetted}	7.2	Feet
D =	20.2	Feet
H =	7.2	Feet
L/r_w =	43.20	
$y_{0\text{-DISPLACEMENT}}$ =	0.21	Feet
$y_{0\text{-SLUG}}$ =	1.92	Feet

From look-up table using L/r_w

Partial penetrate A =	2.927	
B =	0.472	
ln(Re/rw) =	2.454	
Re =	1.94	Feet
Slope =	0.012345	$\log_{10}$/sec
$t_{90\%}$ recovery =	81	sec

Slug discrepancy of 161% is greater than maximum of 20%

K = Error Feet/Day



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (PSI)
1	14:48:20.0	1.99
2	14:48:30.0	1.99
3	14:48:40.0	2.02
4	14:48:50.0	2.04
5	14:49:00.0	2.05
6	14:49:10.0	2.06
7	14:49:20.0	2.06
8	14:49:30.0	2.07
9	14:49:40.0	2.07
10	14:49:50.0	2.07
11	14:50:00.0	2.07
12	14:50:10.0	2.07
13	14:50:20.0	2.07
14	14:50:30.0	2.07
15	14:50:40.0	2.07
16	14:50:50.0	2.08
17	14:51:00.0	2.08
18	14:52:52.0	2.08
19	14:53:00.0	2.08

K= 2.9 is less than likely minimum of 3 for Fine Sand

REMARKS:

Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 3:11 PM

Hydraulic Conductivity MW-5

Project:	Phase IV Dredging		Project No: 6690.008	X: 815764	
Location:	South Terminal Expansion			Y: 2688257	
Elevation at grade:	8.28	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-4.12	No:	A-2011-LB-B8/
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Todd Pentecost	Log By:	G. DiCesare		

WELL ID: MW-5

Local ID: MW-5
Date: 7/1/2011
Time: 15:11

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	5	Feet

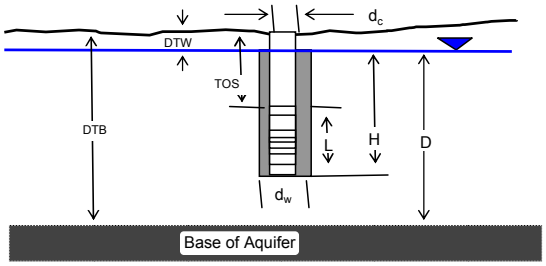
Depths to:

water level (DTW)	5.06	Feet
top of screen (TOS)	2	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Silt, Loess



COMPUTED

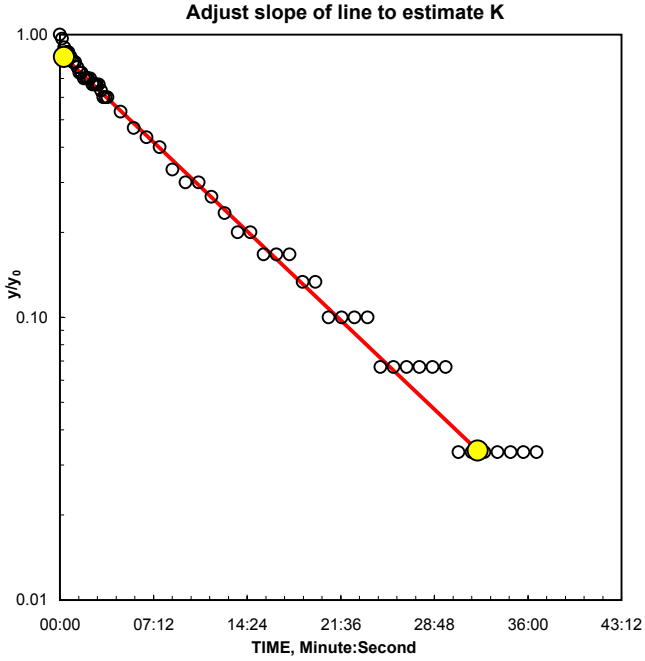
L_{wetted}	1.94	Feet
D =	19.94	Feet
H =	1.94	Feet
L/r_w =	11.64	
$y_{0\text{-DISPLACEMENT}}$ =	0.30	Feet
$y_{0\text{-SLUG}}$ =	1.92	Feet

From look-up table using L/r_w

Partial penetrate A =	1.949	
B =	0.284	
ln(Re/rw) =	1.370	
Re =	0.66	Feet
Slope =	0.000729	$\log_{10}$/sec
$t_{90\%}$ recovery =	1372	sec

Slug discrepancy of 146% is greater than maximum of 20%

K = Error Feet/Day



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (PSI)
1	15:11:20.0	-0.16
2	15:11:30.0	-0.15
3	15:11:40.0	-0.13
4	15:11:50.0	-0.12
5	15:12:00.0	-0.12
6	15:12:10.0	-0.11
7	15:12:20.0	-0.10
8	15:12:30.0	-0.10
9	15:12:40.0	-0.09
10	15:12:50.0	-0.08
11	15:13:00.0	-0.08
12	15:13:10.0	-0.07
13	15:13:20.0	-0.07
14	15:13:30.0	-0.07
15	15:13:40.0	-0.07
16	15:13:50.0	-0.06
17	15:14:00.0	-0.06
18	15:14:10.0	-0.06
19	15:14:20.0	-0.06
20	15:14:30.0	-0.05
21	15:14:40.0	-0.04
22	15:14:50.0	-0.04
23	15:15:00.0	-0.04
24	15:16:00.0	-0.02
25	15:17:00.0	0.00
26	15:18:00.0	0.01
27	15:19:00.0	0.02
28	15:20:00.0	0.04
29	15:21:00.0	0.05
30	15:22:00.0	0.05
31	15:23:00.0	0.06
32	15:24:00.0	0.07
33	15:25:00.0	0.08
34	15:26:00.0	0.08
35	15:27:00.0	0.09
36	15:28:00.0	0.09
37	15:29:00.0	0.09
38	15:30:00.0	0.10
39	15:31:00.0	0.10
40	15:32:00.0	0.11
41	15:33:00.0	0.11
42	15:34:00.0	0.11
43	15:35:00.0	0.11
44	15:36:00.0	0.12
45	15:37:00.0	0.12

K= 0.36 is greater than likely maximum of 0.1 for Silt, Loess

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 1:18 PM

APEX

Hydraulic Conductivity MW-7

Project:	Phase IV Dredging		Project No: 6690.008	X: 815985	
Location:	South Terminal Expansion			Y: 2688109	
Elevation at grade:	7.35'	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-8.65' MLLW	Boring	A-2011-LB-B11/MW-7
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Norm Stuttard	Log By:	G. DiCesare		

WELL ID: MW-7

Local ID: MW-7
Date: 7/1/2011
Time: 13:18

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	14	Feet

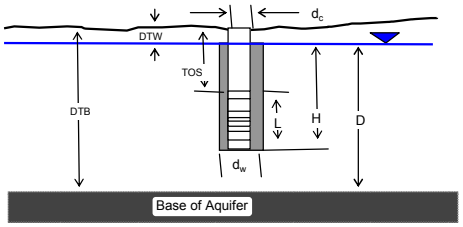
Depths to:

water level (DTW)	3.77	Feet
top of screen (TOS)	2	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Silt, Loess



COMPUTED

L_{wetted}	12.23	Feet
D =	21.23	Feet
H =	12.23	Feet
L/r_w =	73.38	
$y_{0\text{-DISPLACEMENT}}$ =	1.48	Feet
$y_{0\text{-SLUG}}$ =	1.92	Feet

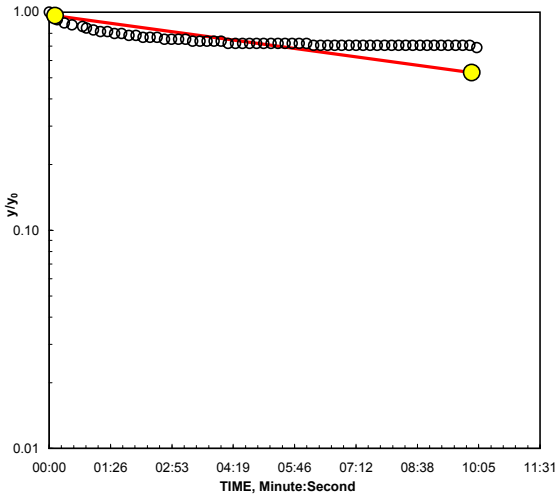
From look-up table using L/r_w

Partial penetrate A =	3.794	
B =	0.622	
ln(Re/rw) =	2.928	
Re =	3.11	Feet
Slope =	0.000447	$\log_{10}$/sec
$t_{90\%}$ recovery =	2239	sec

Input is consistent.

K = 0.074 Feet/Day

Adjust slope of line to estimate K



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (PSI)
1	13:18:58.0	1.21
2	13:19:02.0	1.24
3	13:19:09.0	1.26
4	13:19:19.0	1.28
5	13:19:30.0	1.29
6	13:19:45.0	1.30
7	13:19:50.0	1.31
8	13:20:00.0	1.32
9	13:20:10.0	1.33
10	13:20:20.0	1.33
11	13:20:30.0	1.34
12	13:20:40.0	1.34
13	13:20:50.0	1.35
14	13:21:00.0	1.35
15	13:21:10.0	1.36
16	13:21:20.0	1.36
17	13:21:30.0	1.36
18	13:21:40.0	1.37
19	13:21:50.0	1.37
20	13:22:00.0	1.37
21	13:22:10.0	1.37
22	13:22:20.0	1.38
23	13:22:30.0	1.38
24	13:22:40.0	1.38
25	13:22:50.0	1.38
26	13:23:00.0	1.38
27	13:23:10.0	1.39
28	13:23:20.0	1.39
29	13:23:30.0	1.39
30	13:23:40.0	1.39
31	13:23:50.0	1.39
32	13:24:00.0	1.39
33	13:24:10.0	1.39
34	13:24:20.0	1.39
35	13:24:30.0	1.39
36	13:24:40.0	1.39
37	13:24:50.0	1.39
38	13:25:00.0	1.39
39	13:25:10.0	1.40
40	13:25:20.0	1.40
41	13:25:30.0	1.40
42	13:25:40.0	1.40
43	13:25:50.0	1.40
44	13:26:00.0	1.40
45	13:26:10.0	1.40

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

Date: 7/1/2011

Time: 1:53 PM

Hydraulic Conductivity MW-8

Project:	Phase IV Dredging		Project No: 6690.008	X: 815987	
Location:	South Terminal Expansion			Y: 2688237	
Elevation at grade:	8.03'	Datum:	MLLW		
Casing Type: PVC		Boring Depth:	-7.97' MLLW	No:	A-2011-LB-B12/MW-8
Casing Diameter:	2"	Drill Rig:	ATV		
Drill Co:	NH Boring	Method:	Drill and Wash	Sheet: 1 of 1	
Driller:	Norm Stuttard	Log By:	GAD		

WELL ID: MW-8

Local ID: MW-8
Date: 7/1/2011
Time: 13:53

INPUT

Construction:

Casing dia. (d_c)	2	Inch
Annulus dia. (d_w)	4	Inch
Screen Length (L)	9	Feet

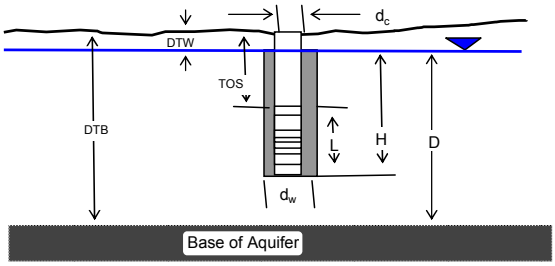
Depths to:

water level (DTW)	4.41	Feet
top of screen (TOS)	2	Feet
Base of Aquifer (DTB)	25	Feet

Annular Fill:

across screen -- Coarse Sand
above screen -- Bentonite

Aquifer Material -- Silt, Loess



COMPUTED

L_{wetted}	6.59	Feet
D =	20.59	Feet
H =	6.59	Feet
L/r_w =	39.54	
$y_{0\text{-DISPLACEMENT}}$ =	1.25	Feet
$y_{0\text{-SLUG}}$ =	1.69	Feet

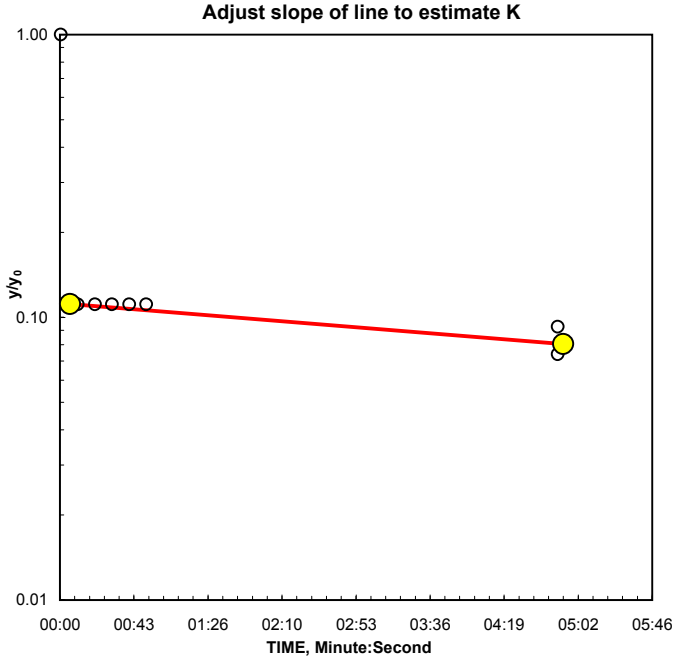
From look-up table using L/r_w

Partial penetrate A =	2.827	
B =	0.458	
ln(Re/rw) =	2.370	
Re =	1.78	Feet
Slope =	0.00049	$\log_{10}$/sec
$t_{90\%}$ recovery =	2041	sec

Input is consistent.

K = 0.12 Feet/Day

Adjust slope of line to estimate K



Reduced Data

Entry	Time, Hr:Min:Sec	Water Level (PSI)
1	13:53:10.0	1.76
2	13:53:20.0	2.24
3	13:53:30.0	2.24
4	13:53:40.0	2.24
5	13:53:50.0	2.24
6	13:54:00.0	2.24
7	13:58:00.0	2.25
8	13:58:00.0	2.26

K= 0.12 is greater than likely maximum of 0.1 for Silt, Loess

REMARKS: Bouwer and Rice analysis of slug test, WRR 1976

Slug test was conducted in surficial aquifer, southern Massachusetts, which is mostly medium and fine sand.
Hydraulic conductivity (K) calculated above are consistent with those values represented in Table 3.1 - Representative Values of Hydraulic Conductivity, page 71, Groundwater Hydrology, David Keith Todd, 1980.

APPENDIX 42

CULTURAL RESOURCES BACKGROUND STUDY AND ARCHEOLOGICAL SENSITIVITY ASSESSMENT

SOUTH TERMINAL MARINE INFRASTRUCTURE PARK (UPLAND PORTION)

CITY OF NEW BEDFORD, BRISTOL COUNTY, MASSACHUSETTS

PREPARED FOR

APEX COMPANIES, LLC
184 HIGH STREET
BOSTON, MASSACHUSETTS 02110

BY

JOEL I. KLEIN, PH.D., RPA

T. ARRON KOTLENSKY, RPA

JOHN MILNER ASSOCIATES, INC.
1 CROTON POINT AVENUE
CROTON-ON-HUDSON, NEW YORK 10520

JUNE 2010

MANAGEMENT SUMMARY

John Milner Associates, Inc. (JMA) conducted cultural resources background research and prepared an archeological sensitivity assessment of the proposed approximately 12-acre upland portion of the South Terminal Marine Infrastructure Park property (the Project Area) fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Companies, LLC, engineering consultant to the New Bedford Harbor Development Commission. The purpose of this research is to identify any previously recorded archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the upland portions of the Project area. The results of this study are intended to support the environmental impact analyses which may be required as part of Federal, State, or municipal permitting and approval processes.

One previously recorded historic archeological site (MHC No. NBE-HA-08) is located within the Project Area, while three additional historic sites are located within one kilometer of the Project Area; no prehistoric archeological sites have been recorded within one kilometer of the Project Area. Historic cartography indicates that a textile mill (the Potomska Mills) dating from the late nineteenth into the mid-twentieth centuries existed within the Project Area. No above ground remnants of the mill structures are extant. There are no previously identified State/National Register of Historic Places (S/NRHP)-listed/eligible properties located within or immediately adjacent to the Project Area.

In the opinion of JMA, no additional cultural resources background research or archeological sub-surface investigation is necessary in the upland portions of the Project Area. Although archeological remnants of the Potomska Mills may exist in the Project Area (the MHPC site form was prepared on the basis of documentary research only) the demolition of the mill buildings removed any critical data associated with the former textile mill that may have qualified the site for eligibility for listing on the National Register of Historic Places (NRHP). Any archeological remains would provide little in the way of important information relating to the history of the Potomska Mills, or cotton textile manufacturing that cannot be better obtained from non-archeological sources. The extensive layout and building activities related to the original construction of the Potomska Mills probably disturbed if not entirely disturbed/removed any archeological deposits and features related to previous land use, including any Native American occupation. Even if present, any archeological remains are presently beneath a layer of demolition rubble and fill of undetermined depth. Project-related construction activities include the placement of crushed stone and additional fill and will not disturb any intact structural foundation footprints and deposits associated with the former mill site or earlier archeological sites.

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Figure 2. Aerial photography view (2009) depicting the location of the Project Area within the current built landscape.

Figure 3. Detail from an illustrated aerial view of New Bedford, Massachusetts, 1876, depicting the location of the Potomska Mills within the Project Area. From *View of the City of New Bedford, Mass*. Drawn and published by D. H. Bailey and Company. North arrow (approximate) and annotation added by JMA 2010.

Figure 4. Detail of Potomska Mills within the Project Area, from *Atlas of New Bedford City, Massachusetts*,1881. North arrow (approximate) and annotation added by JMA 2010.

Figure 5. Detail of Potomska Mills within the Project Area, from *New Topographical Atlas of Surveys, Bristol County, Massachusetts*, 1895. North arrow (approximate) and annotation added by JMA 2010.

Figure 6. Detail of Potomska Mills within the Project Area, from *Atlas of the City of New Bedford Massachusetts*, 1911. North arrow (approximate) and annotation added by JMA 2010.

Figure 7. Views of Potomska Mills from a photograph (top) and postcard (bottom), both produced circa 1911.

Figure 8. Detail of Potomska Mills within the Project Area, from *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, 1924. North arrow (approximate) and annotation added by JMA 2010.

Figure 9. Detail of Potomska Mills site within the Project Area, from *Insurance Maps of New Bedford and Fairhaven, Massachusetts*. Sanborn Map Company, 1950. North arrow (approximate) and annotation added by JMA 2010.

Figure 10. Aerial photograph of the Project Area in 1995. North arrow (approximate) and annotation added by JMA 2010.

Figure 11. *South Terminal Marine Infrastructure Park Existing and Proposed Surface Grade.* Apex Companies, LLC.

1.0 INTRODUCTION

1.1 PURPOSE AND GOALS OF THE INVESTIGATION

John Milner Associates, Inc. (JMA) conducted cultural resources background research relevant to the proposed approximately 12-acre upland portions of the South Terminal Marine Infrastructure Park property (the Project Area) fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Industries, LLC, engineering consultant to the New Bedford Harbor Development Commission. The purpose of this research is to identify any previously recorded archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the upland portions of the Project area. The results of this study are intended to support the environmental impact analyses which may be required as part of Federal, State, or municipal permitting and approval processes.

1.2 PROJECT AREA LOCATION

The Project Area encompasses an approximately 12-acre property fronting along the Acushnet River estuary in the City of New Bedford, Bristol County, Massachusetts (Figures 1-2). The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation; no additional substantial standing structures are located within the Project Area. This structure has not been evaluated in terms of its potential eligibility for listing on the S/NRHP.

1.3 PROJECT DESCRIPTION

The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

The following steps will be required in order to complete the extension as envisioned:

- A bulkhead extension will need to be installed along the existing bulkhead line of South Terminal for approximately 800 linear feet.
- The bulkhead will turn 90 degrees and head to shore along the extension of the property line.
- The area in front of the bulkhead would be dredged to -30 MLLW. A channel from the new bulkhead area would be installed, extending to the existing federal channel.

- Material generated from dredging from creation of a Confined Aquatic Disposal (CAD) Cell (depending on timing and suitability) would be placed behind the bulkhead to fill the area to grade.
- The material behind the bulkhead would be allowed to drain and settle in order to create a surface with sufficient support.
- Tiebacks and whales, if necessary, would be installed to support the new bulkhead wall.
- Currently forested area on the remainder of the facility would be cleared and graded to meet the top of the bulkhead grade to create a relatively flat facility.
- The surface of the new facility of crushed stone would be installed.

2.0 BACKGROUND RESEARCH

2.1 GEOLOGY, SOILS, AND EXISTING CONDITIONS

The Project Area is located in the southern portion of Bristol County, along an estuary of the Acushnet River, which empties into Buzzards Bay (Figure 1). The Project Area lies within the Seaboard Lowland Section of the New England Province, which is within the greater Appalachian Highlands physiographic division. The Project Area contains graded previously developed land that borders on the Acushnet River estuary to the east. Two soil map units denote the soil types within the Project Area, which are composed of filled or heavily graded deposits, with standing structures or not, related to intensive previous land use (Appendix I). Table 1 provides a summary of soil units within the Project Area (USDA 1981).

Table 1. Commonly occurring soils within the Project Area.

Name	Soil Horizon Depth in(cm)	Color	Texture, inclusions	Slope %	Drainage	Landform
Udorthents, smoothed (Ud)	Variable; site specific; typically excavated or filled land	Variable; site specific	Variable; site specific	< 15	Typically well-drained	Adjacent to developed areas
Urban land (Ur)	Variable; site specific; typically paved or covered with structures	Variable; site specific	Variable; site specific	< 15	Typically well-drained	Developed areas

The upland portion of the Project Area is located on approximately 12 acres of a largely undeveloped brownfield site. The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation and a radio tower assembly is sited along the western margin of the Project Area. A recent field study of soils within the Project Area notes:

> The entire site had been impacted by filling with construction waste and other material over a long period of time, and sufficiently long ago to permit growth of extensive opportunistic vegetation. In general, progressing from the west to the east, the property was more finished (i.e., level and maintained) around the radio station transitioning to the roughest part nearest to the beach, and groundwater fluctuations appeared to become closer to the surface. At two thirds of the distance to the beach, waste piles were more evident, the land surface became more hummocky, and the vegetation turned to an unkempt, scrub forest of low lying trees and shrubs . . . The area qualifies as urban fill, reflecting its historic use as a construction debris landfill area and previous filling of what was long ago coastal wetlands (Pickering 2010).

2.2 PREVIOUSLY RECORDED CULTURAL RESOURCES

JMA reviewed the archeological site files of the Massachusetts Historical Commission to identify previously recorded archeological sites located within one kilometer of the Project Area. JMA identified four previously recorded historic period archeological sites within one kilometer of the Project Area and no prehistoric sites within one kilometer of the Project Area (Table 2). One of the four historic sites lies within the Project Area boundaries (Potomska Mills/Howland Factory; see *Section 2.3* for further discussion of this property).

Table 2. Archeological sites located within one kilometer of the Project Area.

MHC Site Identifier	Site Name	Time Period	Description	Distance from Project Area
NBE-HA-08	Potomska Mills/Howland Factory	19th-20th centuries	Cotton textile factory	Within Project Area
NBE-HA-09	Acushnet Mills/worker housing	1882-1931	Mill complex and 22 houses	.5km S of Project Area
NBE-HA-07	Palmer Island lighthouse	1849-1941	Lighthouse and keeper's house	.5km E of Project Area
NBE-HA-12	Nathan and Polly Johnson House	1826-present	Domestic structures	1km NW of Project Area

There are no previously identified properties in, or determined eligible for/eligible for listing in, the National Register of Historic Places within or immediately adjacent to the Project Area.

2.3 HISTORY OF THE PROJECT AREA[1]

Prehistoric and Contact Period Overview

Eastern North American prehistory is usually discussed in terms of three major cultural/temporal periods. These periods are referred to as the Paleoindian, Archaic, and Woodland. Within each of these periods, differing cultural configurations can be described in terms of adaptations to the natural and social environments. This tripartite construct constitutes the taxonomic mainstay of Northeastern archeology, and is the basic framework in which any treatment of New England prehistory must be discussed. It is recognized, however, that the concepts upon which the divisions are based may be inadequate for understanding the dynamics of cultural change that occurred through time in different regions of the Northeast (Hoffman 1985; Nicholas 1987; Snow 1980; Starna 1979). This section outlines the major cultural/temporal periods as they apply to greater southeastern New England.

The penetration and settlement of Eastern North America was initiated during the Paleoindian Period (*circa* 12,500-10,000 radiocarbon years before present [yrs BP]). Colonization of the region followed final deglaciation and the establishment of vegetation capable of supporting grazing and browsing animals. Initial settlement is believed to have proceeded from the south and Paleoindian groups may have moved into southern New England as a consequence of expanding hunting territories (Kelly and Todd 1988). The demographic pattern that characterizes the initial use of new territories emphasizes small groups, high

[1] This section is adapted from a background research and sensitivity analysis prepared by JMA (2000) for the New Bedford Superfund Site. The study area for that investigation included the present Project Area.

mobility, and considerable population in- and out-flow (Lerner 1984:64). These trends, and an overall low population density during the Paleoindian Period, likely account for the paucity of sites and even stray artifact finds for this period in comparison to later periods.

The demise of the Pleistocene megafauna and the major environmental changes that occurred in the early Holocene (*circa* 10,000 yrs BP) forced readjustments on the part of Paleoindian groups in New England. In New England, new tools and new projectile point forms make their appearance. The inferred changes in subsistence and settlement systems, along with these new tool forms, are the hallmarks of a new tradition. The adaptive changes are not well understood, although essential cultural continuity has been suggested (Snow 1980:171).

The concept of the Archaic Period, developed for Eastern North America by Ritchie (1932), is used to describe this new adaptation. The Archaic Period is customarily divided into three segments, Early, Middle, and Late, that together date to between *circa* 10,000 and 2,700 yrs BP. The construct was developed by Ritchie to describe the occupations of the Lamoka Lake site in New York State, and over time has undergone many changes (Starna 1979).

As introduced, the term denoted an early cultural level in which subsistence was oriented around a broad spectrum economy based on hunting, fishing, and gathering. Although the shift to this economy had its roots in the previous period, these trends became more evident and fully developed through time. Evidence of the changes in technology and subsistence was manifest in the appearance of specialized tool types not previously recorded. Manos, mortars, and pitted stones indicate a more intensive exploitation of plant foods in the Archaic than during the preceding period. Netsinkers, fishhooks, and harpoons are evidence for greater reliance on fishing. Expansion of the Archaic subsistence base is also represented in food remains which demonstrate the hunting of deer, elk, raccoon, and many smaller mammals. Birds, turtles, fish, and shellfish were also procured. In addition to subsistence changes, the introduction of axes, adzes, and celts suggest the beginning of heavy woodworking and the construction of substantial structures.

Throughout the period there is an increase in the diversity of site types and the number of microenvironments exploited by Archaic peoples. Over time, the principal camps from this period became larger, more numerous, more complex, and contained increased quantities of occupational debris. Larger, denser populations and the tendency toward more permanent residential settlements increase through time. The size of the territory regularly exploited by each social group probably decreased as well, given an observed tendency to rely upon local raw materials to meet everyday needs. In the northeast, these band level hunter-gatherers exploited their territories with a pattern of seasonal movements. Because food resources vary spatially and temporally, efficient exploitation was accomplished through different technologies and social organizations. These varying adaptations to local environmental conditions are reflected in the diversity in material assemblages from area to area.

The final Archaic sub-period is the Terminal Archaic, also referred to as the Transitional Period and the Susquehanna Tradition. As first described by Witthoft (1953), this complex is recognized by distinct changes in material culture. Primary among the technological changes identified by Witthoft and later, by others (e.g., Kinsey 1972), was the rapid adoption of a tool complex based on large, broad-bladed stemmed points. Containers in the form of steatite bowls also begin to appear. The changes recognized in the archeological record are usually presented as evidence for the intrusion into the region of a new cultural

tradition (Snow 1980:244-249). The new projectile point forms are believed to be cognates of types found to the southwest, "where there was a major center of development from a Savannah River-like predecessor" (Dincauze 1975:27). The intrusive groups are believed to have been small and are not thought to have been assimilated into resident populations (Dincauze 1975:27). At least one researcher believes that there is little evidence that permits a differentiation between Late and Terminal Archaic cultures, and that subsistence strategies, choice of lithic materials, technology, and population distribution seem to have been continual throughout the two periods (Hoffman 1985:66). It has further been suggested that Terminal Archaic materials in northern New England indicate a population in-movement, while such materials in southern New England represent diffusion and culture contact between groups (Snow 1980:247-248).

Despite the occurrence of pottery at certain sites, this complex remains assigned to the Archaic Period as suggested by Snow (1980). Terminal Archaic sites are fairly numerous in New England and projectile points representative of the complex have been recovered at many sites. Within two miles of the project area, the Blue Feather site in Acushnet produced a large, broad-bladed Susquehanna Tradition projectile point (Simon et al. 1980:32).

The Woodland Period (*circa* 2,700–400 yrs BP [AD 1600]) in the Northeast represents the culmination of the economic and social trends of the preceding periods. The period is defined in terms of its material culture by the consistent use of pottery. Ceramic technology becomes increasingly sophisticated and artifact styles show interaction with peoples from within and between territories, allowing for a more precise definition of social groupings. Archaic hunting and gathering bands evolved into semi-sedentary village dwellers who intensively exploited the resources around them, while maintaining strong economic and social ties with groups well outside their own territory. By the end of the Woodland Period, sedentary lifestyles based on corn agriculture were the rule throughout the region. Kin-based, “tribal” level socio-political organizations were the basic fabric of society.

Although the Woodland Period is typically subdivided into Early, Middle, and Late sub-periods on the basis of ceramics in the Eastern United States, a tight ceramic classification and chronology is lacking for the southeastern New England area. Consequently, artifact comparisons and interpretations still rely heavily upon earlier data and analyses from New York (Smith 1950), Connecticut (Rouse 1947), Rhode Island (Fowler 1956), and Ritchie's work on Martha's Vineyard (1969b).

Snow (1980), who combines the Early and Middle Woodland sub-periods into an Early Horticultural Period (*circa* 2,700–1,000 yrs BP), suggests that a rather diffuse subsistence adaptation predominated during this time. An important addition to the diet of Woodland peoples was shellfish, which became increasingly available *circa* 2,500 yrs BP with the stabilization of post-glacial sea-level rise and the establishment of coastal mud flat and salt marsh environments. Indeed, an increasing orientation toward coastal environs and resources is documented throughout the long Woodland Period (Dincauze 1974; Thorbahn et al. 1980; Mulholland 1988; Edens and Kingsley 1994). One outcome of this process is the occurrence of numerous shell midden sites all along the New England coastal zone (e.g., Shaw 1989; Cross and Shaw 1991; Edens and Kingsley 1994).

More profound changes occurred during the Late Woodland sub-period (*circa* 1,000–400 yrs BP). Corn was grown by at least 1,160 yrs BP (based on an uncalibrated radiocarbon date) on Martha's Vineyard (Ritchie 1969b:32) and full acceptance of an agricultural lifeway quickly developed in the region with

beans, squash, and other cultigens playing an integral part. A settlement pattern of villages on main streams at the heads of estuaries, associated with a variety of subsidiary sites, is suggested by Snow (1980:332). During the summer, the population was probably dispersed with small farmsteads serving as the basic settlement unit. As noted, shellfishing in coastal environments increased through the Middle to Late Woodland Period, with increasing numbers of shell midden sites occurring (e.g., Edens and Kingsley 1994).

Woodland Period sites are known in the vicinity of the project area. The Swift site (Thorbahn 1983) lies just north of the project area boundary, and produced Middle and Late Woodland components. According to the MHC site forms, the Burt School site is located just east of the boundary; here, amateur archeologists recovered numerous untyped pottery sherds. Talmage (1982:27) notes several Woodland Period sites north of the project area. On the south coast of Cape Cod, the Willowbend site (Shaw 1989) is a shell and earth midden site dating to the Early through Late Woodland; the nearby Baxter Neck site (Cross and Shaw 1991) was not a shell midden, but demonstrated exploitation of coastal resources from the Late Archaic through Late Woodland Periods. Further afield, at least 10 Woodland Period sites are known on Conanicut Island in Narragansett Bay (Kingsley and Roulette 1990). Numerous Woodland sites are also known on the Rhode Island mainland (e.g., Morenon et al. 1986).

During the early part of the Contact Period, *circa* AD1600, Native Americans known as the Wampanoag (also referred to as the Pokanoket) were documented as inhabiting southeastern Massachusetts, including Cape Cod, Martha's Vineyard, and Nantucket, as well as eastern Rhode Island (i.e. east side of Narragansett Bay). The Wampanoag were longstanding allies of the Massachusetts to the north, and traditional enemies of the Narragansett to the west (Gookin 1972 in Salwen 1978:171). The exact date of first contact with Europeans is uncertain, though one source puts it as early as Verrazano's AD 1524 visit to Narragansett Bay (Wroth 1970 in Salwen 1978:171). Later contacts included Gosnold (AD 1602), Pring (AD 1603), Champlain (AD 1605-1606), and Hudson (AD 1609) (Salwen 1978:171). Bragdon (1996:xi) characterizes southern New England as "Ninnimissinouk," an indigenous term used to refer to the people of the region. Included among the Ninnimissinouk were groups known as the Pawtucket, Massachusett, Narragansett, Peqout, and the Wampanoag. The term "Wampanoag" designates the descendants of the Pokanokets, or the people associated with the sachem Massasoit and the village of Pakanokick noted by John Smith in 1614 (Bragdon 1996:20-25; Grumet 1990:134).

There is little primary documentation pertaining to Wampanoag lifeways; however, Bragdon (1996) recently reviewed all available accounts for a reconstruction of Ninnimissinouk culture at the time of European contact (*circa* AD 1500-1650). Along the coastal zone, a form of "conditional" sedentism with restricted seasonal shifts in subsistence and settlement prevailed (Bragdon 1996:57-59). A more extensive settlement pattern with seasonal movements between the coastal zone and the interior is envisioned by other authors (e.g., DePaoli and Farkas 1982:33-34). Coastal areas were occupied to exploit fertile agricultural soils and estuarine and marine resources such as seals, fish, and shellfish (Speck 1948). Fish were often taken through the use of weirs. Cultivated plants may have included maize, kidney bean, squash, Jerusalem artichoke, and tobacco (Salwen 1978:160-162). The archeological evidence for corn agriculture in southern New England is rather tenuous leading Ceci (1990) to conclude that maize horticulture intensified in response to European contact and the development of the wampum trade (Bragdon 1996:37-38). In the coastal region, populations resided in series of small dispersed villages or hamlets.

Certainly the single most devastating event resulting from European/Native American contact was the introduction of foreign diseases to the latter. The epidemic of AD 1616-1619 decimated the Ninnimissinouk populations by as much as 90 percent, especially in interior locations; groups residing on the offshore islands fared better (Salwen 1978:171). Subsequent to the epidemics, the weakened Wampanoag suffered persistent attacks by the Narragansett to the west. With the arrival of the colonists at Plymouth, the Wampanoag sachem Massasoit and his brother Quadenquina offered a formal friendship treaty, into which the colonists and Native Americans entered. Massasoit had hoped to form an alliance with the colonists, principally to help fend off the Narragansetts (Salwen 1978:171-172).

In any event, King Philip's War in AD 1675-1676 effectively wiped out large portions of the Wampanoag population. Groups living on Cape Cod and the offshore islands did not join Philip in his efforts and thus were able to maintain their villages there (Salwen 1978:172). Nevertheless, the Wampanoag and all other New England Native American societies never recovered from the decimation and disenfranchisement resulting from their loss of the war, and the post-war era witnessed the continual decline and marginalization of the Native American groups in New England. The Wampanoag Tribe of Gay Head (Martha's Vineyard, Massachusetts) is recognized by the Federal Government, as are the Mashantucket Peqout and Mohegan Tribes in Connecticut, and the Narragansett Tribe in Rhode Island.

Historic Period Overview

The land that comprises the city of New Bedford, as well as Acushnet, Fairhaven, Dartmouth, and Westport, was purchased from Massasoit, Grand Sachem of the Wampanoag and his son, Wamsutta in 1652 by 36 European settlers. The tract was named Dartmouth and was incorporated in 1654. The town's early settlement was sparse and consisted of scattered farmsteads and garrisons. During King Philip's War (1675-1676), the Indians overran the settlement and burnt most of the homes (Ricketson 1858:34). After the war, the settlers returned and rebuilt. Following a pattern common throughout Southeastern New England after the war, the settlers chose to establish a village at the head of the Acushnet River rather than disperse into scattered farmsteads. Throughout the first half of the eighteenth century, the Village of Acushnet remained the region's center; however, members of the Russell family began purchasing land along the Acushnet River and the overlooking heights within the present city of New Bedford. In 1765, Nantucket whaling merchant Joseph Rotch purchased ten acres of land from Joseph Russell II and moved his business to New Bedford (Leary 1999). Rotch brought experience, capital and technological innovation, and he and his sons began to develop the future New Bedford as a whaling port (Leary 1999). The Town of New Bedford developed rapidly and by 1771 321 dwellings, 119 shops and warehouses stood in New Bedford and Fairhaven (Vanasse Hangen Brustlin, Inc. 1996:16).

On September 5th, 1778, British troops occupied New Bedford. During their brief stay, they burnt eleven dwellings, twenty shops, a ropewalk, and 34 vessels anchored in the harbor (Ricketson 1858:75; 289). After the end of the Revolutionary War, a number of Nantucket merchants relocated to New Bedford and promptly developed a complex network of finance, shipbuilding, ship supply, and marketing (Georgianna and Aaronson 1993:12). In recognition of the growth of the village established by the Russell family, Bedford Village was designated as the town of New Bedford in 1787 (Leary 1999).

During the decades prior to the Civil War, New Bedford became the leading whaling port in the world (Georgianna and Aaronson 1993:12). By 1857, the city was home to 329 whaling outfits and ships, 10,000

men were engaged in whaling, and $12,000,000 in local capital was invested in these enterprises (Burgy 1932:34).

Because of the prominence of whaling, New Bedford had few other industries in the early nineteenth century. In 1815, a rope walk was located along the Acushnet riverfront in the south part of the city, and a furnace was located on the riverfront near the foot of Madison Street. The northern waterfront was lightly developed with several piers extending into the river. J. Congdon's 1834 map of New Bedford shows a grist mill in the north and west-central portions of the city, while two salt works were in operation in the south peninsula area. Several small cotton factories had been established in the city, the earliest dating from 1811 (Burgy 1932:34).

By the second half of the nineteenth century, the American whaling industry faced severe trouble. During the Civil War, a number of New Bedford whaling vessels were sold to form a major portion of the "Stone fleet," sunk off the harbors of Charleston and Savannah to enforce a naval blockade (Hicks 1907:41). In 1871, the entire Arctic whaling fleet, including 32 ships from New Bedford, was lost when ice floes returned earlier than normal. The total monetary loss to New Bedford was over $1 million (Georgianna and Aaronson 1993: 13; Hicks 1907:41). In 1876, the ice took 12 additional ships from New Bedford's fleet (Georgianna and Aaronson 1993:13). Similar losses occurred in 1888 and 1897.

Improving technology greatly reduced the demand for whale oil. Kerosene largely replaced whale oil for lighting. With the discovery of petroleum in Pennsylvania in 1859, an economical substitute for whale oil lubricant became available (Clayton and Whitley 1975:24). The whaling industry continued in New Bedford until the early twentieth century but became a progressively less important part of the city's economy. The last whaling voyage from the city was made in 1925 by the schooner *John R. Manta* (Leary 1999).

Even during the heyday of whaling, farsighted New Bedford businessmen saw the advantages of enlarging the economic base of the city. Cotton mills had proved profitable in other parts of New England. By 1833, thirteen cotton mills were in operation in nearby Fall River (ODHS 1975:204). U.S. cotton production doubled between 1840 and 1860. By the start of the Civil War, 600 cotton mills were in operation throughout New England (Georgianna and Aaronson 1993:19).

One New Bedford businessman, Samuel Rodman, Jr., a major investor in the Pocasset Mill in Fall River, sought to bring the cotton manufacturing industry to New Bedford by organizing the New Bedford Steam Company in 1846. This attempt was unsuccessful (ODHS 1975:204).

Despite this failure, some New Bedford capitalists saw potential for the cotton milling industry in the city. The city's damp climate minimized static electricity and maximized the fragile cotton fiber's elasticity and break strength (Dunwell 1978:112). The Acushnet River allowed relatively inexpensive shipping of coal and cotton. Sufficient manpower was available, as was investment capital.

The first New Bedford successful cotton mill owners studied the milling business before setting up their own factories. Their initial problem was to decide what goods to produce. Calculations were made to determine which type of goods would produce the maximum profit. The conclusion was that fine sheeting could be made a cost of 12 cents per yard and sold for 14 cents. They decided to concentrate on this product and to produce it by the mule spinning method (Ware 1931:107-108).

Howland and Hussey candle factory/Potomska Mills

From the early nineteenth century until the 1930s, a succession of proprietors undertook two significant manufacturing enterprises within what is now the vicinity of the Project Area. James H. Howland and George Hussey began operating a factory for making candles from whale oil sometime prior to 1836 in the vicinity of the Project Area (Office of Public Archaeology 1988: 26). In 1871, a joint-stock company established the Potomska Mills, a textile manufacturing enterprise that they expanded to include two mills by 1877 on the same site (Sayer 1889: 154; Ellis 1892) (Figures 3-4). The footprint of the former Potomska Mills largely falls within the boundaries of the current Project Area (Figures 5-6). A municipal history of New Bedford outlined the Potomska Mills in the late 1880s:

> The Potomska mills are two in number, located on South Water street, and manufacture fine lawns, sateens, print cloths, cretonnes, jeans, etc. Potomska mill No. 1 was erected in 1871 and went into operation with a capital of $600,000. This mill is four hundred twenty-seven by ninety-two feet in area and four stories high, with a weaving shed one hundred eight by ninety-seven feet, one story high. It is provided with forty-eight thousand spindles and one thousand six looms.
>
> Potomska mill No. 2 was built in 1877, when the capital stock was increased to $1,200,000. The main building is three hundred forty-eight by ninety-two feet in area, four stories high, with an ell one hundred eighty-four by ninety-two feet, two stories high, a weaving shed one hundred eighty-four by ninety-two feet, one story high, and a picker house seventy-one by forty-seven feet, two stories high, all of brick. This mill has fifty-eight thousand three hundred twenty-eight spindles and one thousand four hundred twenty-eight looms. The total number of spindles in both mills is therefore one hundred six thousand three hundred twenty-eight and the total number of looms two thousand four hundred twenty-four. Both mills are driven by Corliss double twenty-eight inch cylinder, five-foot stroke engines, of eight hundred horse power each. The two mills employ about eleven hundred operatives. The company owns twenty-six four-tenement houses, which are rented to help (Sayer et al. 1889: 154).

A c.1911 photograph of the mill shows its appearance at that time (Figure 7).

Ownership operated the Potomska Mills into the twentieth century, expanding the site with the addition of a third mill in 1924 (Figure 8)(Sanborn 1924) but closed the entire site during the 1930s due to the ongoing economic depression. The Works Progress Administration razed the mill buildings and other site elements in 1935 and 1936 (Taber 1937). Following demolition of the Potomska Mills in the 1930s, no private or public entities intensively redeveloped the overall site in ways that compared with previous uses, leaving much of the property to be reclaimed by open field vegetation. The 1950 Sanborn map (Figure 9) indicates that no structures remained standing within the Project Area at that time. A 1995 aerial photograph shows the condition of the Project Area at that time (Figure 10).

3.0 ARCHEOLOGICAL SENSITIVITY ASSESSMENT

3.1 PREHISTORIC-PERIOD ARCHEOLOGICAL SENSITIVITY

There are no previously recorded prehistoric archeological sites or resources located within the Project Area or within one kilometer of the Project Area. Previous studies have identified several prehistoric sites within the Acushnet and Paskamanset River drainages, which suggest that any intact soils within the Project Area could contain unidentified prehistoric archeological resources (Office of Public Archaeology 1988; JMA 2000). In addition, contact and historic period accounts identify a potential prehistoric site known as "Smoking Rocks" near the northern margin of the Project Area that served as a meeting site for local native groups (Office of Public Archaeology 1988:26). However, the location of this site is highly conjectural given the imprecise nature of the accounts. At the same time, given the documented degree of disturbance of soils within the Project Area, there is a low probability that previously unrecorded and undisturbed prehistoric sites exist within the boundaries of the Project Area.

3.2 HISTORIC-PERIOD ARCHEOLOGICAL SENSITIVITY

As discussed above, various property owners have utilized land within the Project Area for industrial purposes since the mid-nineteenth century. Although structures related to these industries have been demolished, the overall footprints of any substantial masonry or even frame structures may remain buried within the Project Area. However, given the general nature of the documented industries (candle-making, textile manufacture) and their overall above-ground vertical orientation (especially with regards to the Potomska Mills site, which included multi-storied buildings), the most useful site elements for documentation and interpretation were removed during demolition episodes. As a result, sub-surface excavation of remaining structural footprints has a low potential for yielding data irretrievable through background research study. Review of current aerial photography demonstrates that no substantial above ground structures related to previous industrial activities remain within the Project Area (Figure 2).

Architectural surveys of New Bedford have identified historic mill sites and neighborhoods in the vicinity of the Project Area (MHC 1981; Office of Public Archaeology 1988; Heath 2005; New Bedford Economic Development Council 2008). More specifically, these studies identified standing historic mill structures throughout the city of New Bedford and neighborhoods that contain distinct three-decker style detached dwellings that are commonly associated with historic textile mill communities in Massachusetts. Several examples of worker housing associated with the Potomska Mills are depicted on maps southwest of the Project Area (see Figures 3, 5, 7-9). Again, these studies did not identify extant historic structures within the Project Area, but noted the presence of standing mill and domestic structures in the vicinity of the Project Area.

3.3 PRIOR GROUND DISTURBANCE

As discussed above, most areas within the Project Area have been subjected to some degree of disturbance through nineteenth and twentieth century activities that included grading and the construction of large industrial buildings. In addition to disturbance from these activities, much of the area bordering the shore has been filled to create land at grade to the current shoreline. As a result, the Project Area does

not contain intact soil stratigraphy.

4.0 CONCLUSIONS AND RECOMMENDATIONS

One previously recorded historic archeological site (MHC No. NBE-HA-08) is located within the Project Area, while three additional historic sites are located within one kilometer of the Project Area; no prehistoric archeological sites have been recorded within one kilometer of the Project Area. Period maps depict a textile mill site (the Potomska Mills) dating from the late nineteenth into the mid-twentieth centuries within or immediately adjacent to the Project Area. There are no previously identified National Register of Historic Places (NRHP)-listed/properties located within or immediately adjacent to the Project Area.

In the opinion of JMA, no additional cultural resources background research or archeological sub-surface investigation is necessary in the upland portions of the Project Area. Although archeological remnants of the Potomska Mills may exist in the Project Area (the MHPC site form was prepared on the basis of documentary research only) the demolition of the mill buildings removed any critical data associated with the former textile mill that may have qualified the site for eligibility for listing on the National Register of Historic Places (NRHP). Any archeological remains would provide little in the way of important information relating to the history of the Potomska Mills, or cotton textile manufacturing that cannot be better obtained from non-archeological sources. The extensive layout and building activities related to the original construction of the Potomska Mills probably disturbed if not entirely disturbed/removed any archeological deposits and features related to previous land use, including any Native American occupation. Even if present, any archeological remains are presently beneath a layer of demolition rubble and fill of undetermined depth. Project-related construction activities include and the placement of crushed stone and additional fill and will not disturb any intact structural foundation footprints and deposits associated with the former mill site or earlier archeological sites (Figure 11).

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FIGURES

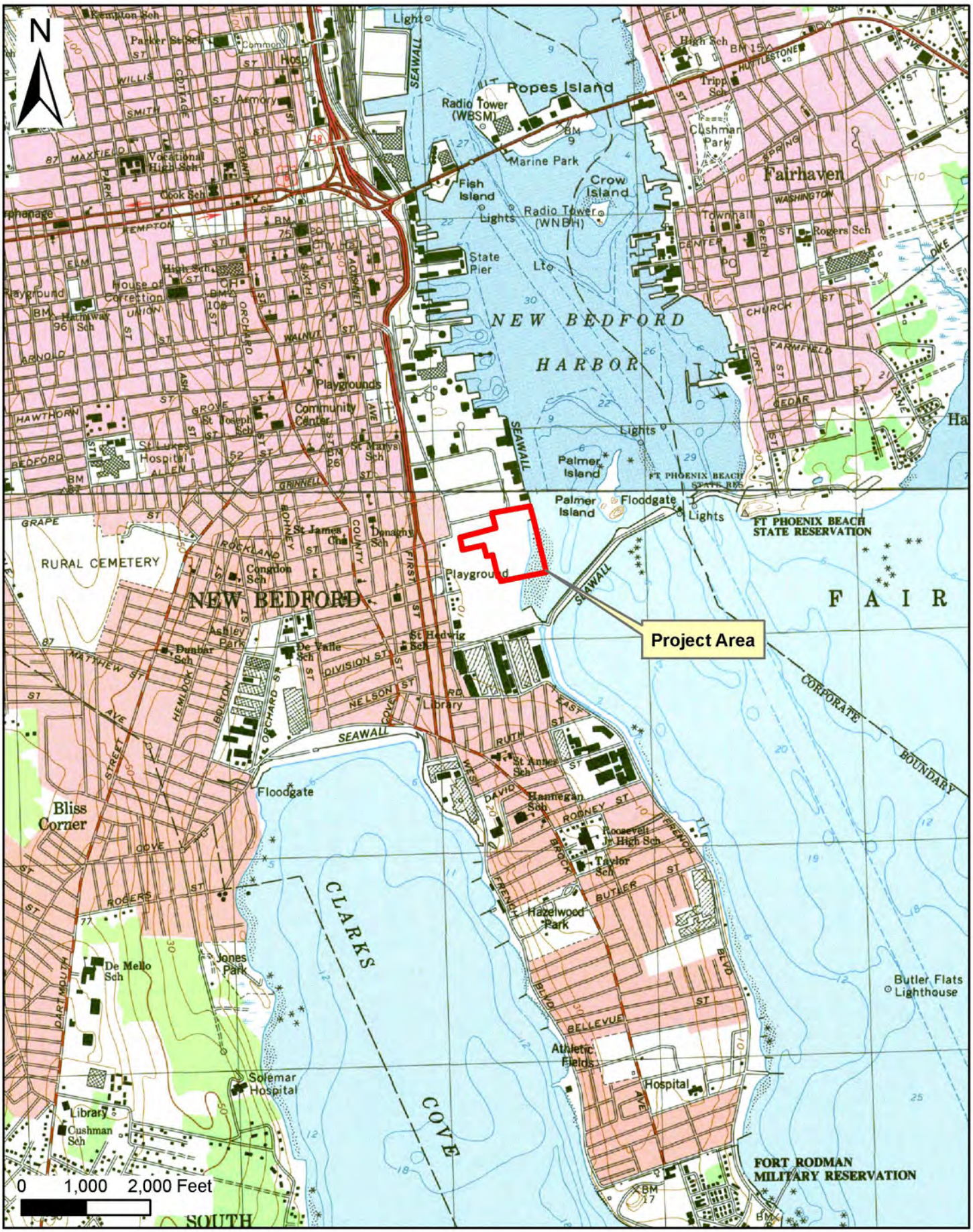

Figure 1. Detail of the New Bedford North, M.A. and New Bedford South, M.A. (USGS) 7.5-minute topographic quadrangles depicting the location of the Project Area.

Figure 2. Aerial photography view (2009) depicting the location of the Project Area within the current built landscape.

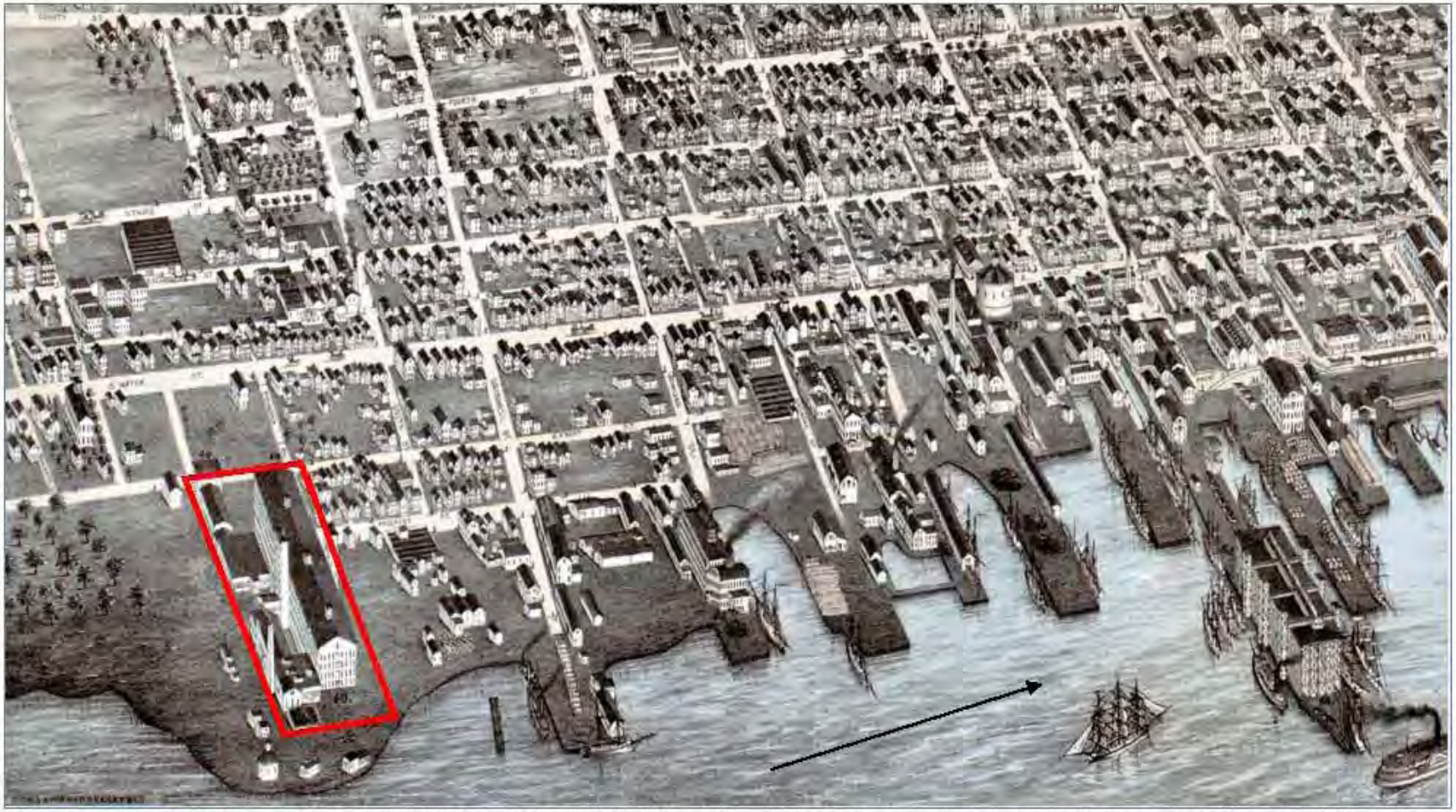

Figure 3. Detail from an illustrated aerial view of New Bedford, Massachusetts, 1876, depicting the location of the Potomska Mills within the Project Area. From *View of the City of New Bedford, Mass.* Drawn and published by D. H. Bailey and Company. North arrow (approximate) and annotation added by JMA 2010.

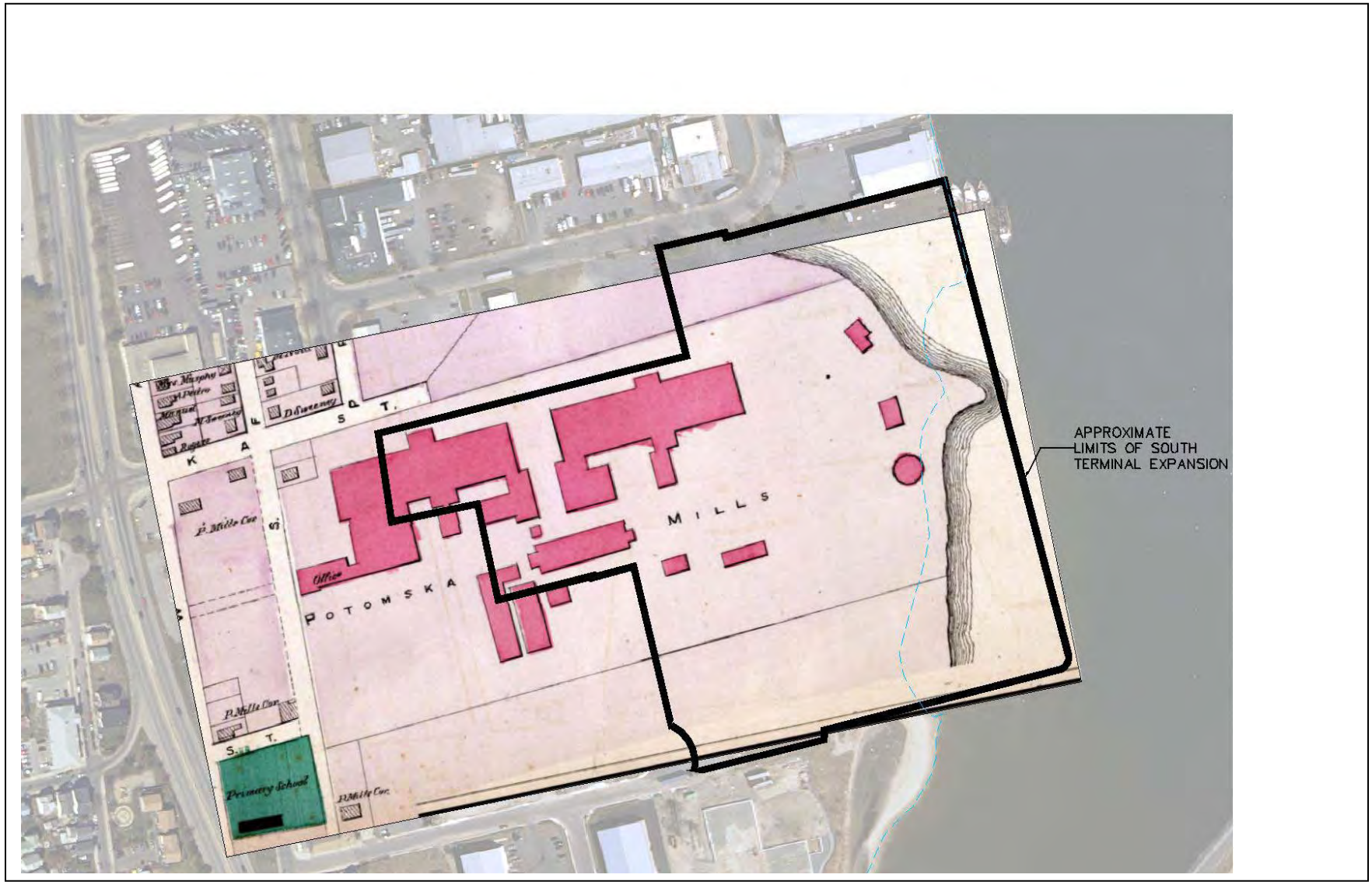

Figure 4. Detail of Potomska Mills within the Project Area, from *Atlas of New Bedford City, Massachusetts, 1881*. North arrow (approximate) and annotation added by JMA2010.

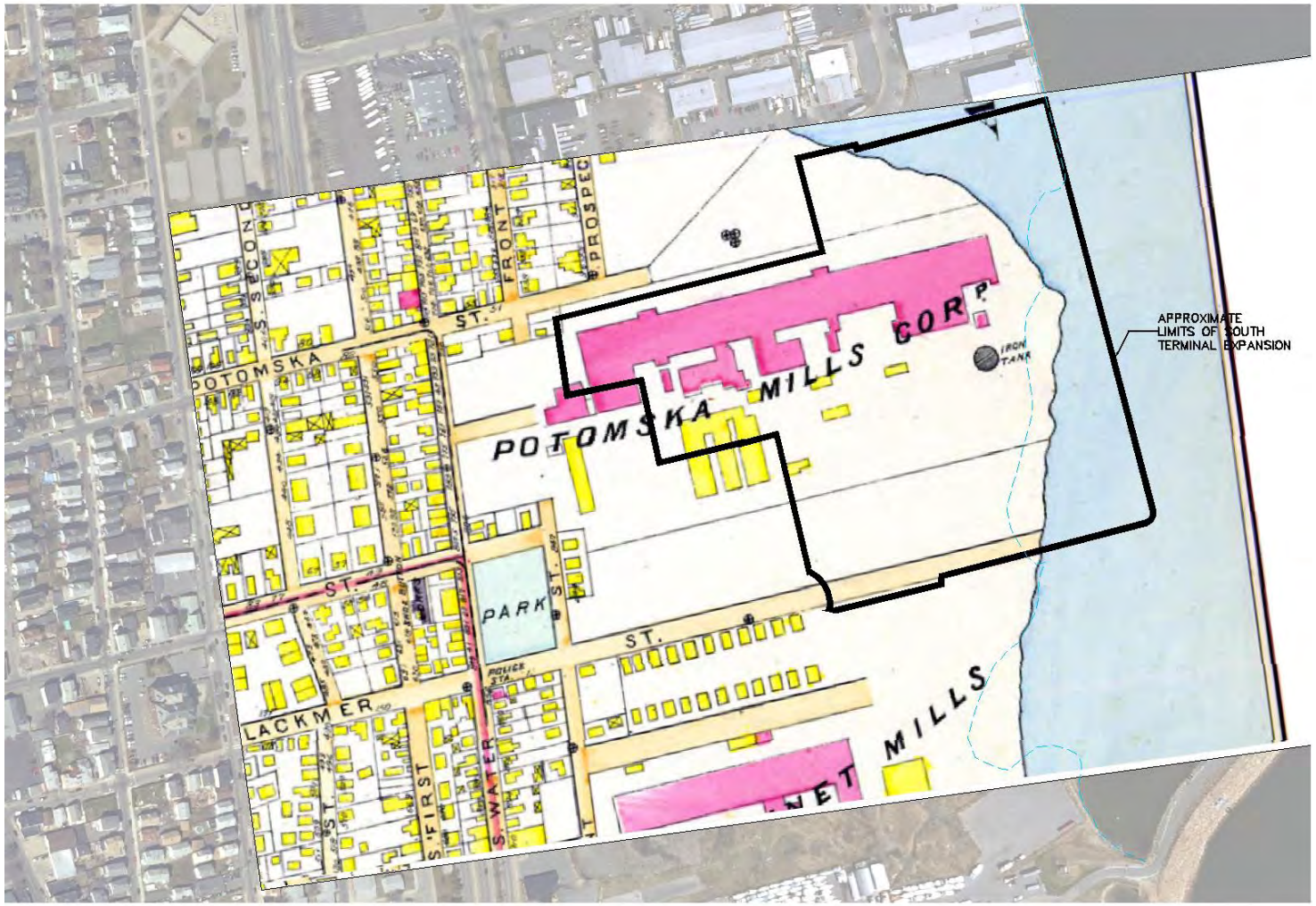

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Figure 5. Details of Potomska Mills within the Project Area, from *New Topographical Atlas of Survey, Bristol County, Massachusetts, 1895*. North Arrow (approximate) and annotation added by JMA 2010.

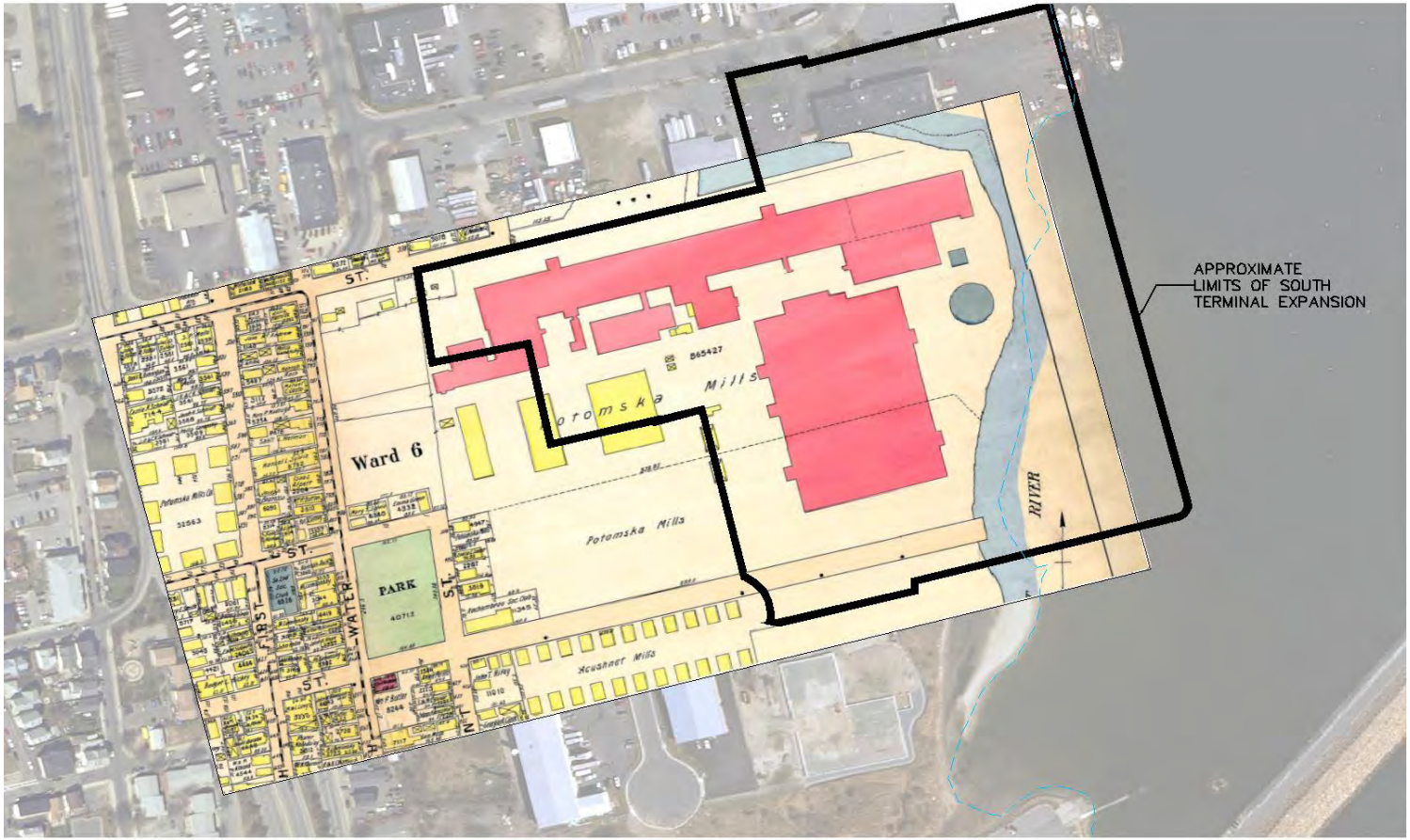
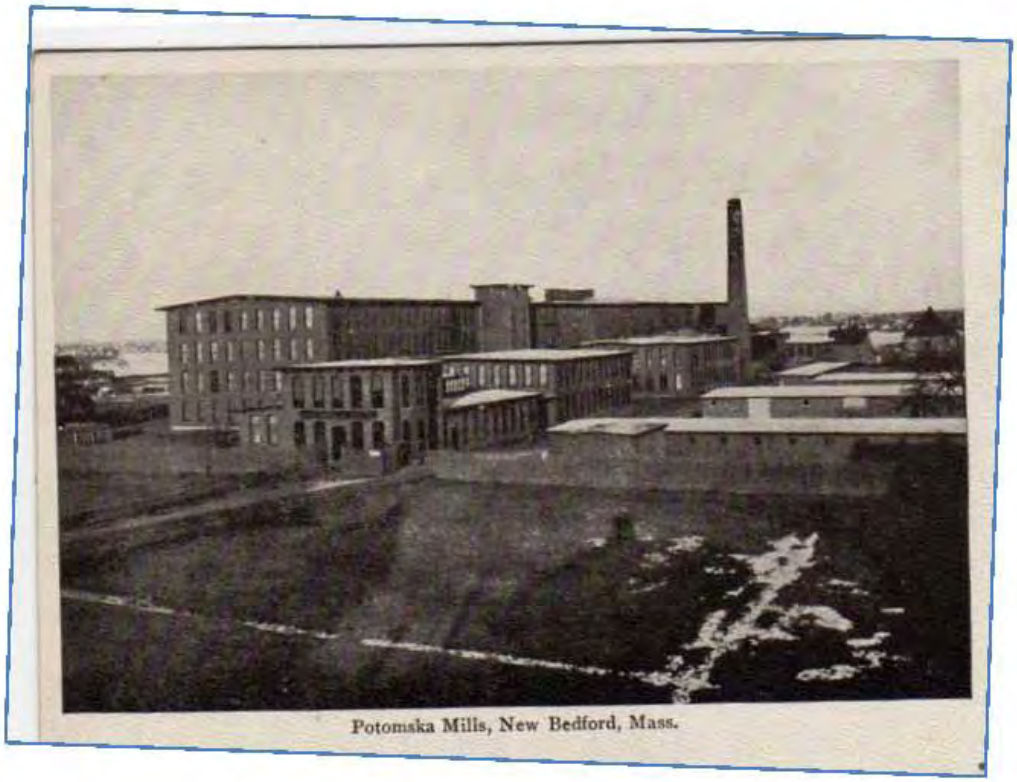


Figure 6. Details of Potomska Mills within the Project Area, from *Atlas of the City of New Bedford Massachusetts, 1911*. North arrow (approximate) and annotation added by JMA 2010.



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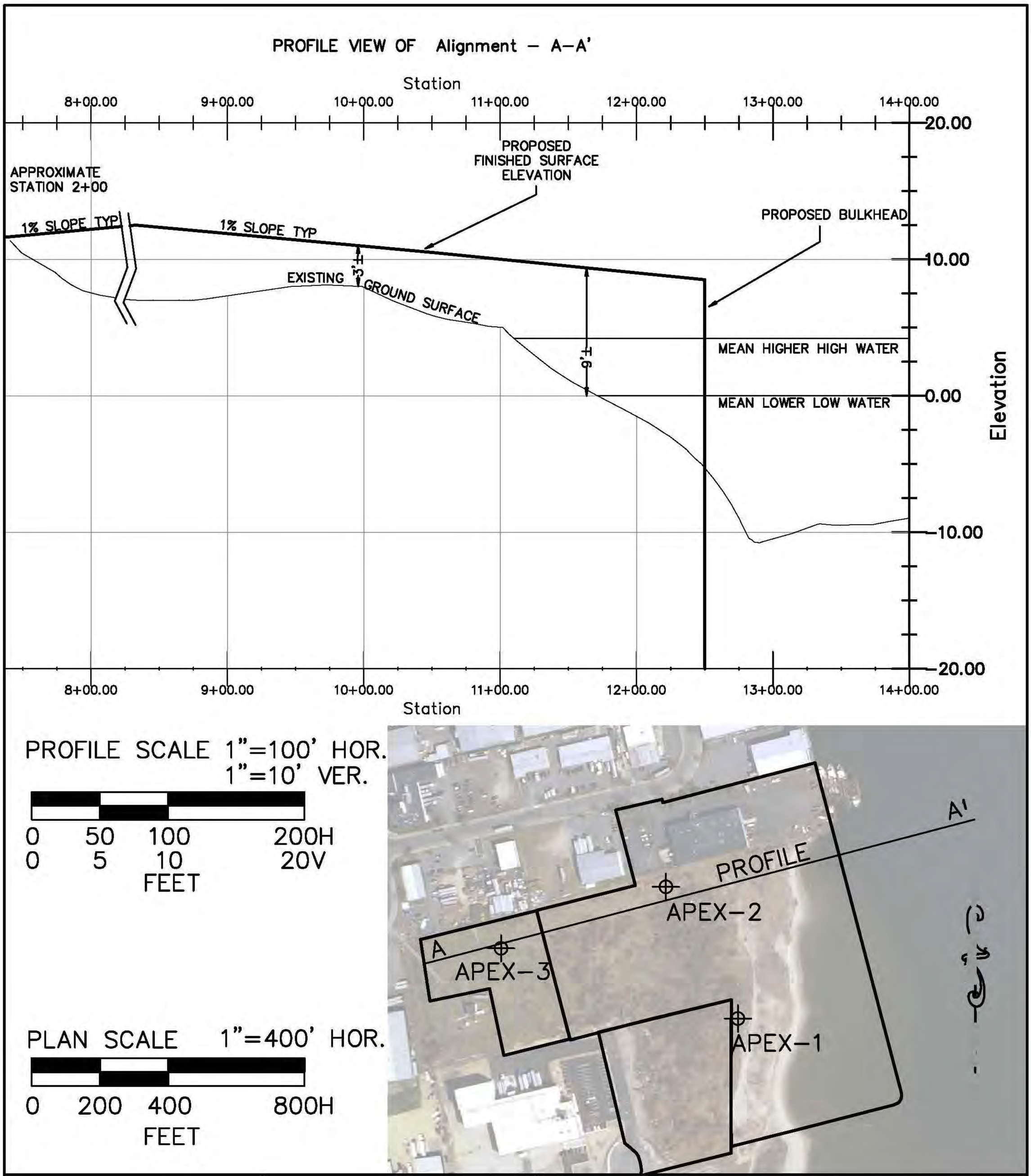

Apex Companies, LLC.

Figure 11.

DRAWING TITLE:
SOUTH TERMINAL MARINE INFRASTRUCTURE PARK EXISTING AND PROPOSED SURFACE GRADES

APPENDIX I:

NRCS Soil Report for the Project Area

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,070 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bristol County, Massachusetts, Southern Part
Survey Area Data: Version 5, May 5, 2008

Date(s) aerial images were photographed: 7/25/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Assessment *of* Prehistoric Archeological Site Potential: Intertidal Portions *of the* Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts

Prepared For
Apex Companies, LLC
Boston, Massachusetts

Submitted To
The Commonwealth *of* Massachusetts
Board *of* Underwater Archeological Resources
Boston, Massachusetts

And
The Massachusetts Historical Commission
Boston, Massachusetts

By

JMA architects archeologists planners
John Milner Associates, Inc.

John Milner Associates, Inc.
Croton-On-Hudson, New York

October, 2010

ASSESSMENT OF PREHISTORIC ARCHEOLOGICAL SITE POTENTIAL: INTERTIDAL PORTIONS OF THE PROPOSED SOUTH TERMINAL MARINE INFRASTRUCTURE PARK, NEW BEDFORD, MASSACHUSETTS

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SUBMITTED TO

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220 MORRISSEY BOULEVARD, BOSTON, MA 02125

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OCTOBER, 2010

MANAGEMENT SUMMARY

Apex Companies, LLC, on behalf of the New Bedford Redevelopment Authority, contracted John Milner Associates, Inc. (JMA) to conduct an intensive (locational) archaeological assessment comprising remote hand augering survey of the intertidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Bristol County, Massachusetts. The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

It is JMA's conclusion, after analyzing 116 gouge augers and five geotechnical boring logs from within the Project Area, that the intertidal area with potential to be directly affected by construction of the proposed South Terminal Marine Infrastructure Park has low prehistoric archeological potential. The high-energy environment, historic disturbance on adjacent upland areas, lack of solid evidence for buried upland landscapes, and common auger refusal on lag deposits and eroded coarse outwash and till indicate that the area has been reworked by marine processes resulting in erosion of former upland landscapes and concomitant potential archeological site contexts.

JMA recommends no further prehistoric archeological evaluation of the intertidal portion of the proposed South Terminal Marine Infrastructure Park Project Area.

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1.0 INTRODUCTION

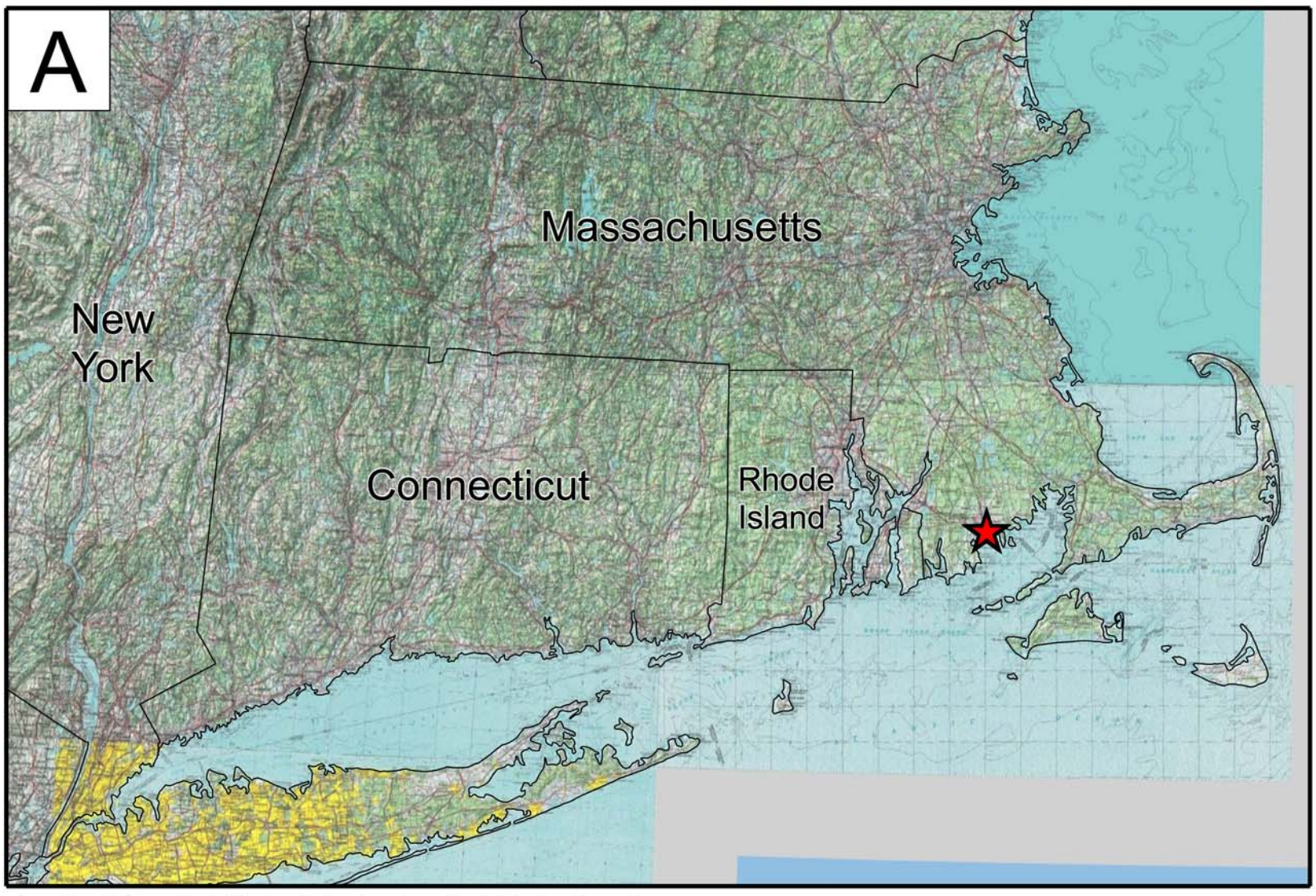
Apex Companies, LLC, on behalf of the New Bedford Redevelopment Authority, contracted John Milner Associates, Inc. (JMA) to conduct an intensive (locational) archaeological assessment comprising gouge augering survey of the intertidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Bristol County, Massachusetts (Figure 1, A,B). The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet (Figure 2). Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

The following steps will be required in order to complete the proposed bulkhead extension Project as envisioned:

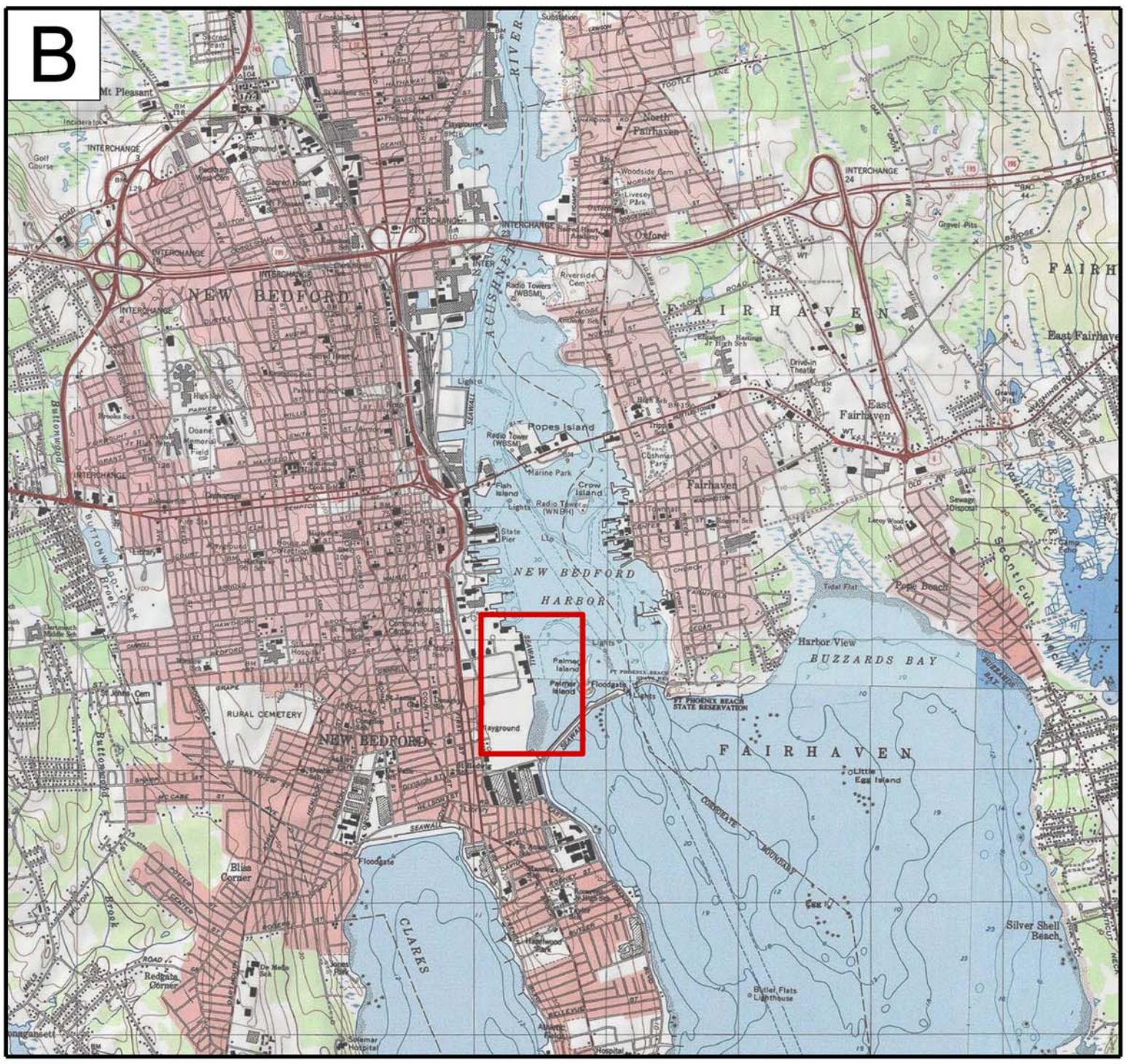
- A bulkhead extension will need to be installed along the existing bulkhead line of South Terminal for approximately 800 linear feet.
- The bulkhead will turn 90 degrees and head to shore along the extension of the property line.
- The area in front of the bulkhead would be dredged to -30 MLLW. A channel from the new bulkhead area would be installed, extending to the existing federal channel.
- Material generated from dredging from creation of a Confined Aquatic Disposal (CAD) Cell (depending on timing and suitability) would be placed behind the bulkhead to fill the area to grade.
- The material behind the bulkhead would be allowed to drain and settle in order to create a surface with sufficient support.
- Tiebacks and whales, if necessary, would be installed to support the new bulkhead wall.
- Currently forested area on the remainder of the facility would be cleared and graded to meet the top of the bulkhead grade to create a relatively flat facility.
- The surface of the new facility of crushed stone would be installed.

A previous archeological sensitivity assessment of the associated upland portions of the Project Area was conducted in June 2010 and found that the upland area immediately adjacent to the intertidal zone had been extensively disturbed by nineteenth-twentieth century industrial development (Kotlensky and Klein 2010). The MHC concurred with this conclusion and recommended additional investigation of the non-upland portions of the Project site to evaluate “the likelihood of preserved ancient or historical period Native American sites to be present in the area of potential effect” (MHC 2010).

The Acushnet River estuary would have been attractive to prehistoric Native American populations as it was a developing coastal ecosystem with marshes and other favorable resources for hunting and gathering activities. Research on local geomorphic evolution suggests that the intertidal portions of the Project Area would have been an upland setting until approximately 1000 yrs BP, when marine transgression had reached the upper portions of the Acushnet River estuary. After 1000 yrs BP the Project Area would have been subjected to marine processes, which are characterized by low-energy, depositional processes in this portion of New Bedford Harbor. The low-energy, depositional environment could have increased the preservation potential of possible prehistoric archeological sites through sea-level rise.



★ South Terminal Marine Infrastructure Park Project Location



South Terminal Marine Infrastructure Park Project Area

Figure 1. Location Maps for the South Terminal Marine Infrastructure Park Project Area. A) regional view; B) Local view.

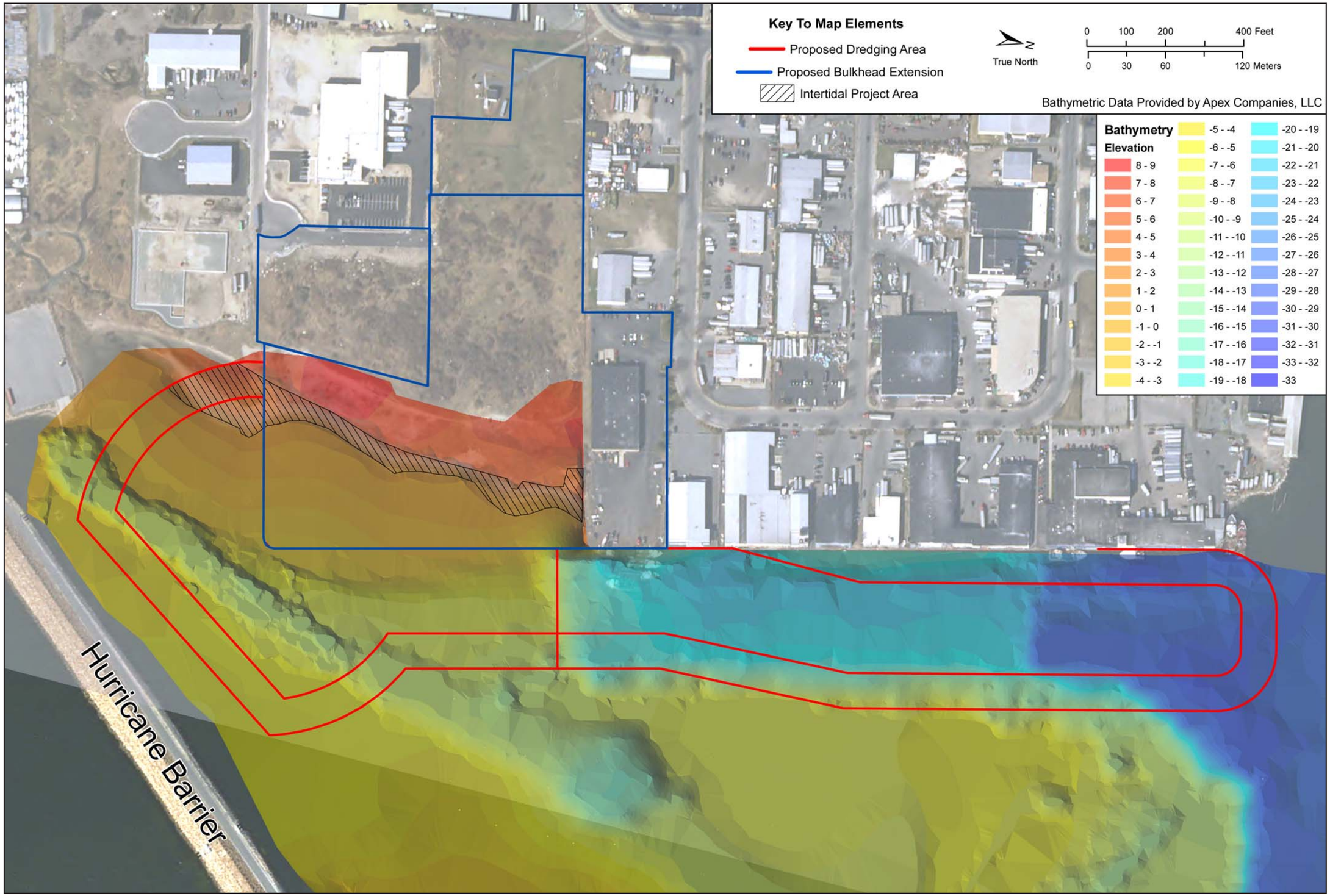


Figure 2. Map of South Terminal Marine Infrastructure Park Project Areas, Showing the Boundaries of the Intertidal Survey Area.

The proposed South Terminal Marine Infrastructure Park in New Bedford Harbor has the potential to impact intertidal prehistoric cultural resources, thus a comprehensive Phase I Archaeological Investigation was designed to assess the potential presence or absence of potential intertidal pre-contact cultural resources within proposed construction areas (Figure 2). The intertidal archaeological investigation aimed to assess the potential for intertidal pre-contact archaeological resources through the following research avenues:

1) Intensive background research regarding the local geomorphic evolution, including sea-level rise, marine transgression, sedimentation, and historic dredging and other disturbance;

2) Extraction of hand auger samples to evaluate the potential for buried, preserved upland landscapes and prehistoric archeological sites in the intertidal zone within the Project Area;

3) Analysis of hand auger data, interpretation of stratigraphy, and identification of possible cultural materials or buried upland landscapes.

The purpose of the intensive (locational) survey proposed here is to identify whether potentially significant archeological resources that may be adversely affected by Project construction and operation are present in the intertidal portions of the Project area. A separate investigation of subtidal portions of the Project area was conducted as well and will be reported under separate cover. This work was conducted under a special use permit (10-006; see Appendix III) from the Massachusetts Board of Underwater Archaeological Resources (MBUAR) and a permit (Permit no. 3214; see Appendix III)) issued by the State Archeologist and is intended to meet or exceed the standards outlined in the MBUAR's Regulations (312 CMR 2.00), the State Archeologist's Permit regulations (950 CMR 70.14 (2)), and the research design and methodology included in the RDM supplied by JMA during the permit application process. This work is being conducted in compliance with the Secretary of Interior's *Standards and Guidelines for Archeology and Historic* Preservation (48 Fed. Reg. 190 (1983)), and Massachusetts General Laws Chapter 9, Sections 26-27C (950 CMR 70).

2.0 PROJECT CONTEXT

2.1 ENVIRONMENTAL CONTEXT

The area proposed for the dredge bulkhead expansion is situated to the east of New Bedford, Massachusetts in the southern portion of Bristol County. The locale of interest, an approximately 32 acre area encompassing potentially affected subtidal environments, is sited on New Bedford Harbor within the Acushnet River estuary which empties into Buzzards Bay. New Bedford Harbor is partially separated from greater Buzzards Bay by a large hurricane Barrier constructed by the US Army Corps of Engineers in 1964. The Project Area lies within the Seaboard Lowland Section of the New England Province, which is within the greater Appalachian Highlands physiographic division. The adjacent upland area comprises approximately 12 acres of a largely undeveloped brownfield site containing graded, previously developed land. Two soil map units denote the soil types within the Project Area, which are composed of filled or heavily graded deposits, with standing structures or not, related to intensive previous land use. Table 1 provides a summary of soil units within the Project Area (USDA 1981).

Table 1. Soils adjacent to the project area.

Map Unit	Soil	Slope %	Drainage	Description	Parent Material
602	Urban Land	0 - 15	Variable; Site Specific	Urban Land	Excavated and Filled Land
651	Urdorthents Smoothed	0 - 15	Variable, Site Specific	Urban Land	Made Land over Gravelly Glaciofluvial Deposits and Basal Till

The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation and a radio tower assembly is sited along the western margin of the Project Area. A recent field study of soils adjacent to the Project Area notes:

> The entire site had been impacted by filling with construction waste and other material over a long period of time, and sufficiently long ago to permit growth of extensive opportunistic vegetation. In general, progressing from the west to the east, the property was more finished (i.e., level and maintained) around the radio station transitioning to the roughest part nearest to the beach, and groundwater fluctuations appeared to become closer to the surface. At two thirds of the distance to the beach, waste piles were more evident, the land surface became more hummocky, and the vegetation turned to an unkempt, scrub forest of low lying trees and shrubs . . . The area qualifies as urban fill, reflecting its historic use as a construction debris landfill area and previous filling of what was long ago coastal wetlands (Pickering 2010).

The Project Area was covered by the Laurentide Ice Sheet *circa* 15000 yrs BP (Borns, 1973; Mayewksi et al., 1981). During the last glacial maximum (LGM) the Laurentide Ice Sheet extended seaward of New Bedford Harbor to the approximate present day location of Long Island, Martha's Vineyard, and Nantucket Island (Borns, 1973; Mayewksi et al., 1981). The Buzzards Bay Lobe of the Laurentide Ice

Sheet had the greatest effect on the present configuration of New Bedford Harbor (Howes and Goeringer, 1996). Rapid warming of the climate after *circa* 15,000 yrs B.P., causing the retreat, thinning, and melting of the ice sheet, resulted in the deposition of moraines and outwash deposits within the region. As the Laurentide Ice Sheet melted and retreated, regional sea level began to rise at a rate of approximately 0.011 m /yr in the region (Howes and Goeringer 1996). This rate of sea level rise slows in the region approximately 4000 years B.P. to an average rate of approximately 0.001 m/yr (Howes and Goeringer 1996). With the rise in sea level, the ocean transgressed the exposed glaciated landscape of the Pleistocene Epoch. Considering the rates of sea level rise in the region, inundation of Buzzards Bay by the rising sea level began *circa* 8,500yrs BP. The Acushnet River did not become inundated until *circa* 4,500yrs BP. The Upper Harbor was not influenced by tidal processes until *circa* 3,600 yrs BP, while the intertidal zone of the Upper Harbor did not become subjected to tidal processes until after *circa* 1000 yrs BP.

The Acushnet River estuary formed as a response to late Pleistocene and Holocene relative sea-level rise and the submergence of the Acushnet River valley. As sea-level has risen the transgression of coastal processes into the Acushnet River estuary has resulted in either the erosion or preservation of prehistoric archeological sites in relation to the rate of local sea-level rise, the level of energy related to coastal processes, and their geographic location (Hoyt et al., 1990; Kraft et al. 1983; Stright, 1990). The Acushnet River estuary is affected by the characteristic low-energy coastal processes associated with small coastal plain, tide-dominated estuaries. The energy regime is further diminished in the upper reaches of the estuary north of the hurricane barrier. New Bedford Harbor is fetch-limited due to its narrow width, resulting in fairly negligible wave-energy except during storm events. Tidal energy, related to diurnal tidal cycles, and currents are the major coastal processes affecting local marine energy regimes. Upper estuarine settings are dominated by resuspension of sediments from outer portions of the estuary and sediment deposition in the low-energy, inner portions. In contrast, more open-ocean settings such as Nantucket Bay have a much higher energy regime, resulting in widespread reworking of sediments (Lidz, 1965).

Modern bathymetric data reveal an extensive, submerged sediment bank behind the hurricane barrier that connects the Project Area to Palmer Island. A nautical survey from 1844 (Bache, 1946) depicts a similar bank of sediment, implying that the area contained a significant amount sediment before construction of the hurricane barrier (Figure 3). Historic industrial use of the Project Area vicinity has clearly modified the adjacent upland landscape, resulting in widespread disturbance, though within the Project Area there is no indication of extensive disturbance. Historic topographic (USGS, 1890) and coastal survey (Bache, 1844) maps reveal no ostensible disturbances within the project area; they do however depict extensive marshes and natural coastal environments. It is likely that historic use of the vicinity, including addition of fill and other sediment to terrestrial environments through industrial activities, and marine and intertidal sediment deposition related to the construction of the hurricane barrier, have served to bury earlier landforms and reduce the impact of coastal erosion processes and modern maritime activities on the Project Area. Consequently, preservation potential of buried, landforms is high in this location due to its sheltered nature, sediment accumulation in the estuarine setting, historic evidence of coastal marsh presence, indirect sheltering by palmer island, and increased sedimentation due to hurricane barrier construction.

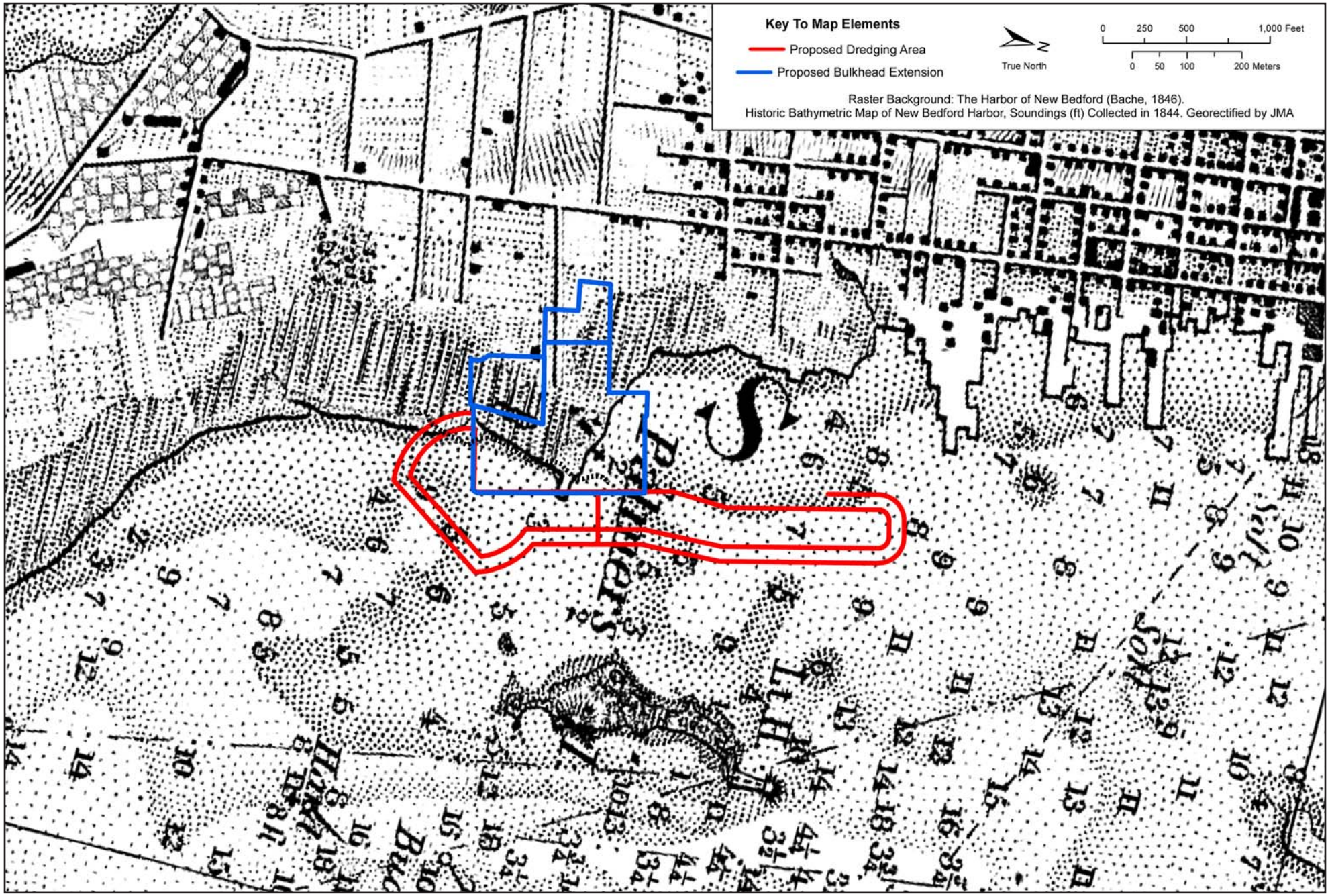


Figure 3. South Terminal Marine Infrastructure Park Project Areas Overlaid on 1844 Coastal Survey (Map Source: Bache, 1846).

2.2 PRE-CONTACT AND CONTACT PERIOD CONTEXTS

The following section presents a general summary of the archeological research on Native American societies that inhabited southern New England following the end of the last Ice Age, with special reference to the New Bedford, Massachusetts vicinity. The prehistory (pre-Contact period) of eastern North America is divided into three major chronological stages of cultural development: Paleoindian (12,000-9,000 Before Present or BP), Archaic (9,000-3,000 BP), and Woodland (3,000-450 BP). The Archaic and Woodland periods are further divided into Early, Middle, and Late sub periods. Subsequent research and radiocarbon dating have helped to refine the chronology, cultural trends and artifact traditions as discovered on sites from these periods.

The purpose of this introductory section is to sketch the main trends of Massachusetts prehistory and to identify evidence pertinent to the project area, in order to provide the pre-Contact background necessary for assessing the potential for archeological resources within the project area.

For most of the pre-Contact period in the region, river drainages define physiographic units within which human communities operate. This pattern follows from the longitudinal diversity of habitats that occurs along drainages, forming ecologically unique wetland habitats, together with the transportation routes afforded by their water courses. In the clearest examples, rivers provide access to maritime and upland resources at each end of the drainage, and to the diverse habitats in between. The exploitation of those habitats can be integrated into a seasonal round that differs at various historical moments.

The following review is arranged chronologically by major periods recognized for New England. Each chronological section will present the major trends and patterns.

Paleoindian (12,000-9,000 BP) and Early Archaic (9,000-8,000 BP). The late Pleistocene geological period witnessed major environmental changes which, in time, impacted the peopling of the Americas, and thus the earliest Native American occupations in the New England area. Southern New England was covered by a sheet of ice 1.5 km. thick, which extended over what are now Long Island, Martha's Vineyard and Nantucket. At this time, the sea level was about 100 m lower than it is at present, because of the enormous amount of water tied up in the glacial ice sheets. Only when the ice sheet began to melt, beginning ca. 15,000 BP, was southern New England habitable; by ca. 13,000 BP the ice sheet had retreated to expose Connecticut, Rhode Island, and southeastern Massachusetts and by ca. 12,000 BP all of New England was uncovered (Stone and Borns 1986).

During this time, sea levels rose sharply as deglaciation liberated enormous amounts of water, while isostatic rebound of land depressed by the weight of the former ice sheet quickly elevated large regions, especially in Maine. The physical landscape of New England in the terminal Pleistocene period was very different from that of today. The coastline was well seaward of its present position, and the modern coastal configuration was not reached until about 3000 BP, when sea levels were still several meters below those of the present. Deglaciation created large lakes in the Hudson-Champlain drainages and in the Connecticut Valley and many other smaller bodies of water in Massachusetts (Curran and Dincauze 1977, Dincauze 1974, Koteff 1982, Larsen and Hartshorn 1982, Stone and Peper 1982). The major lake systems were drained by 12,500 BP, while the smaller bodies of water gradually filled with sediment, leaving marshes, bogs, ponds and small lakes. With progressive deglaciation and rising regional temperatures, vegetation changed relatively quickly, from tundra to spruce parkland (by ca. 9000 BP) to an oak-hemlock association (by 7000 BP); at the same time, general climatic conditions shifted from cool and dry (ca. 11,000 BP) to warmer and moister (ca. 9000 BP) and then warmer and drier again (ca. 8000-5000 BP). The human communities that initially colonized southern New England thus were faced with a rapidly changing landscape, one in which resources were of low density and relative unpredictability.

This condition resulted in a very generalist adaptation, with emphasis on flexibility, mobility, large and probably loosely defined foraging territories, and maintenance of wide kinship ties (Dincauze 1980; Snow 1980). While subsistence strategies for Paleoindians have not been determined, Snow (1980) has argued that Paleoindian subsistence was focused on migratory big game animals such as caribou, mammoth or mastodon, while exploiting other food resources as the people chanced upon them. An alternate view by Dincauze (1981) is that the Paleoindians were generalist foragers. One proposed model for this period postulates that glacial lake basins were the focus of occupations; these areas included a mosaic of habitats that provided richer subsistence possibilities than elsewhere in New England (Nicholas 1988). In New England, Paleoindian sites often reflect occupations of the recently drained proglacial lake bottoms and wetlands (Thorbahn 1982, Thorbahn and Cox 1983). Another model proposes the possibility that Paleoindians may have used pioneering or staging areas from which large, more-or-less permanent groups sent out smaller groups to colonize or pioneer the newly deglaciated terrain (Dincauze 1993, 1996). As the physical environment began to stabilize (i.e. changed less quickly and became more predictable), human groups grew less generalized in adaptation and settled into more restricted foraging territories.

Diagnostic artifacts from the Paleoindian period include finely flaked fluted lanceolate points (Clovis and Folsom), with three phases identified on the basis of point styles (Spiess et al.1998). Other Paleoindian tools include scrapers, (presumably for working animal hides), gravers and bifacial blades. Lithic materials used consisted primarily of fine quality microcrystalline rock, often from sources more than a hundred miles away from the site of recovery.

The nearest site with a documented Paleoindian component is the Wapanucket No. 8 site in Middleboro, Massachusetts (Snow 1980:138), lying some 40 miles north of the New Bedford area.

The Early Archaic period is still being evaluated as to whether the changes in artifacts used to define this period represent continuity of Paleoindian populations. Dincauze (1990) used the common term pioneers for Paleoindian and Early Archaic populations (Pioneers and Late Pioneers, respectively). Snow (1980:171) considered that there was continuity from the Paleoindian Period into the Early Archaic Period, with “restricted wandering” of groups within territories during the Early Archaic. As the physical environment began to stabilize (i.e., changed less quickly and became more predictable) into a closed boreal environment dominated by spruce, fir and birch, human groups grew less generalized in adaptation and settled into more restricted foraging territories (Dincauze 1980, Meltzer 1988).

A major change in artifacts from the Early Archaic period was that fluted points were no longer used. Late Paleoindian diagnostic artifacts include Dalton-like points and unfluted Eden lanceolate points; the latter are rare in Eastern Massachusetts, while the former may date into Early Archaic times (E. Johnson and Mahlstedt 1984). Early Archaic diagnostic points include Bifurcate Base, Kirk Stemmed, and Kirk Corner Notched points. Overlapping dates for the late Paleoindian and Early Archaic as well as the small number of Early Archaic sites in the Northeast still challenge this research issue. The latter may reflect low population numbers during the Early Archaic (Salwen 1978), the combined outcome of site destruction and meager or inadequate surveys, or our inability to recognize the entire range of artifact types for the period (Dincauze and Mulholland 1977). Some Early Archaic sites may have been buried or destroyed by rising sea levels or river alluvium (Dincauze and Meyer 1977). Subsequent collection research has found a wider range of sites with Bifurcate Base points than had previously been recognized (E. Johnson 1984). This may reflect a wider range of food resources being exploited.

Most Early Archaic sites have been discovered in southern New England and in coastal areas. These small groups, it appears, did not camp together in larger numbers as did the earlier Paleoindians, with the result that there may be fewer recognized sites with sparse evidence of human presence. Sites from the Early Archaic period are perhaps best known in southeastern Massachusetts, especially in the Taunton

River drainage (for example, the Titicut and Seaver Farm sites, Dincauze and Mulholland 1977; Double-P site, Thorbahn 1982; the upper Taunton concentration, Taylor 1976). The Titicut site is the largest site identified from the Early Archaic period. It has been interpreted as a base camp for several families. Several Early Archaic sites identified in Massachusetts contained evidence that suggests that small hunting groups returned to camps with seasonal regularity. Deep pit features that may have been used for storage were discovered in the Taunton and Shawsheen River drainages (Simon 1982; Harrison and McCormack 1990, Glover and Doucette 1992). These sites contained material suitable for radiocarbon age determinations, stone tools diagnostic of the Early Archaic Period, or both.

During the Paleoindian and Early Archaic periods, most diagnostic tools were made of non-local or exotic stone, a pattern that generally is predominant throughout southern New England. However, it has recently been argued that until more Paleoindian and Early Archaic components are excavated and archeologists achieve better microscopic identifications of stone types and their origins, this pattern may be an artificial one reflecting biases in sample size and archeological recovery history (Moeller 1999:72-73).

Sites containing a predominately non-bifacial quartz tool tradition referred to as the Gulf of Maine tradition are commonly found in Maine and northern New England (Robinson 1992) from this time period. Similar sites containing this tool tradition have been found at Lake Winnipesaukee (Bolian 1980) and within the Merrimack River drainage (Robinson 1992; Dudek 2005). At least two significant habitation sites utilizing a similar quartz tool technology have been found in southern New England on south-facing hillsides – the Sandy Hill site in Connecticut and the Whortleberry Hill site in Dracut, Massachusetts; these sites had deep pit features, interpreted as pit houses, with an abundance of charred hazelnut shells at Sandy Hill (Forrest 2000; Jones and Forrest 2003) and charred hazelnut and acorn shells at Whortleberry Hill (Dudek 2005).

The Middle Archaic (8000-6000 BP). Throughout southern New England, human occupation becomes more evident and apparently more complex during the Middle Archaic. In southern New England, a mixed pine-oak forest was established and expanding north by 8500 BP, followed by an oak-hemlock forest in southern New England by about 6000 BP (Dincauze 1976:119). The greater number of sites from this time relates to a presumed increase in population density, while the greater disparity in size and differentiation of individual sites suggests a more complexly ordered social landscape than previously found. Stemmed bifacial points, atlatls (spear-thrower weights), pecked, ground and polished woodworking tools such as axes, adzes and celts, and plant-processing tools, such as mortars, pestles, grinding stones and nutting stones, are new forms in use during this time. The cultural traditions of the Middle Archaic complexes, as seen at the Neville site, reveal a close relationship to the Atlantic seaboard (Mid-Atlantic) and piedmont (Southeast) regions during the Middle Archaic period (Dincauze 1976:124).

Dincauze and Mulholland (1977) have suggested that effective integration of seasonally available resources into a single adaptive schedule appeared during this period, while maintenance of territorial boundaries between groups intensified in consequence of this emergent adaptation; this response may have been a consequence of more stable regional environments. The predominant settlement pattern would be one of small sites oriented toward seasonally abundant resources, including spring fish runs. The earliest documented or inferred harvesting of anadromous fish during spring runs up the Connecticut (Thomas 1980) and the Merrimack (e.g., Dincauze 1976, Barber 1980) rivers, marks both a fundamental adaptation to foraging possibilities and a seasonal determinant of site location, meaning spring occupations at rapids, falls and constrictions on larger river courses. Exploitation of anadromous fish would continue throughout the rest of regional prehistory as a principal component of aboriginal economies. On the Mashantucket Pequot Reservation in southeastern Connecticut, the Great Cedar Swamp was important in seasonal subsistence rounds during the Neville phase from 8000 to 7000 BP. Several settlement models for New England "suggest that subsistence activities became more intensively

focused on the valley floors of the major river drainages with the onset of the Hypsithermal after about 7500 radiocarbon years ago" (Jones 1999:120).

During the Middle Archaic period, there is a wide variety of environmental settings for sites, including the margins of bogs, swamps, rivers, lakes and ponds, with differentiation of sites based on size and apparent function. This may reflect the incipient seasonal rounds or scheduled subsistence activities, possibly related to a growing territoriality within drainage areas (Dincauze and Mulholland 1977). Site types include semi-permanent base camps along rivers, streams or wetlands, special-purpose camps in uplands or near wetlands, rockshelters, stone quarries, and workshop areas.

Evidence of site differentiation and a more complexly ordered social landscape can be extrapolated from a number of large Middle Archaic sites containing a variety of features. At the Annasnappet Pond site in the Taunton River drainage, 119 cultural features were identified, while three of nine loci formed a nearly continuous distribution of Middle Archaic and Late Archaic material over nearly 14,000 sq. m. A mortuary feature containing calcined human cranial fragments, winged atlatl weights and Neville points at the Annasnappet Pond site was radiocarbon-dated to 7570 $\pm$ 150 BP (Cross 1999); it is the only known human burial associated with Neville points in the Northeast. Middle Archaic radiocarbon dates were obtained from nine features, while the overall Middle and Late Archaic assemblage from the site included 70,000 pieces of debitage, 166 Neville points, 31 Neville Variants, 38 Stark points, four Merrimack points, cylindrical and winged atlatl weights, ground hematite, bifaces, drills, cores and unifaces (Cross 1999:60-63).
Extensive archeological excavations along the Merrimack River relating to this time period have been conducted at the Shattuck Farm site in Andover and at the Neville and Smyth sites in the Manchester/Amoskeag falls area of southern New Hampshire. Dincauze identified three distinct temporal complexes of tools spanning the Middle Archaic period (7,740 $\pm$ 280 to 5,910 $\pm$ 180 BP); these were the Neville, Stark, and Merrimack complexes, stratigraphically separated at the site (Dincauze 1976). Circumstantial evidence revealed a focus on fishing at the Neville site during most of the Middle Archaic, with a reduced emphasis on fishing in the Merrimack complex.

Cross (1999), examining the distinction between the Neville and Stark point types, has demonstrated differences in production technology and functional qualities of Neville and Stark points at the Annasnappet Pond site that imply differences in use (Neville points being used on atlatl darts while Stark points may have used on thrusting spears). Cross posits that, to judge from the functional and technological differences, the two kinds of bifaces may therefore be contemporary (Cross 1999:72). While Dincauze (1976) has argued for temporal overlap with Starks' becoming more common over time, a closer examination of different temporal contexts in southern New England throughout the entire span of the Middle Archaic may resolve this issue.

While population levels were certainly lower during Early and Middle Archaic times than during the Late Archaic (see below), there may be reasons other than population size to account for the apparent paucity of sites dating to the earlier sub-periods. Poor preservation and inappropriate survey techniques have been identified as two problems contributing to the low number of recorded Early Archaic sites. According to Nicholas (1987:103), Early Archaic sites were subject to kinds and degrees of post-depositional factors different than those represented at younger sites, and typical survey methods are not designed to locate deeply buried archeological deposits. Using a field methodology oriented toward the discovery of early sites (both Paleoindian and Early Archaic), Nicholas has recorded approximately 40 such sites at Robbins Swamp in the Housatonic drainage of northwestern Connecticut (Nicholas 1987). Closer to the project area are the Titicut and Seaver Farm sites on the Taunton River (Dincauze and Mulholland 1977). Within the Acushnet River drainage, and within New Bedford specifically, the Lawson site has produced Middle Archaic Neville, Stark, and Merrimack points (Fitts et. al. 2000).

Late Archaic Period (6000-3000 BP). Many attributes of this period are well rooted in the Middle Archaic, but become much more evident in the Late Archaic. In some regions outside New England, the period is characterized by a shift to reliance on protocultigens or intensive gathering, perhaps precipitated by environmental changes. In southern New England, however, no one has yet identified cultivated or domesticated plants in a context earlier than the Woodland period. In the Southeast, in the Savannah River area of Georgia and South Carolina and in northeast Florida, the emergence of pottery has been dated as far back as 4500 BP (Sassaman 1999). In the Northeast, pottery did not come into use until around 3200 BP, while soapstone vessels were in use during the latter part of the Late Archaic into the Early Woodland, from about 3700 to 2400 BP (Sassaman 1999).

Another marker of the period is the proliferation of archeological tool traditions and phases: Laurentian (Brewerton), Narrow Point (Small Stemmed), and Broadpoint or Susquehanna (Cook 1976, Custer 1984). A fourth tradition, the Maritime Archaic, is found primarily in coastal areas of northern New England, Nova Scotia, New Brunswick, Newfoundland, and Labrador. These Late Archaic traditions have been long-standing topics of discussion on their relationship to each other and their social and adaptational placement in Southern New England prehistory (W. Ritchie 1971; Dincauze 1975). Each of these artifact assemblages has identifiable antecedents, originating mostly in the Middle Archaic (Cross 1996:48). Dincauze associates the Laurentian Tradition with the west, in the Great Lakes and Ohio River drainages, rather than the Atlantic drainage (Dincauze 1976:125). Pfeiffer (1990:85-104) has argued that the Late Archaic Laurentian tradition, or Lake Forest adaptation, of southern New England was the progenitor of both the Susquehanna tradition, or River Plain adaptation, and the Narrow Point tradition, or Mast Forest adaptation. These adaptations were coexistent, and may have vied for territory (Pfeiffer 1990: 85). The Narrow Point appears to have been a local development not derived from outside the region (Dincauze 1976).

Debate about the Late Archaic Period centers on what the observed relationships of the tools mean in terms of the people behind them. Some of the tools co-occur at sites sequentially, others contemporaneously. The orthodox view is that correctly tying an artifact assemblage to one of these traditions allows an archeologist to infer an adaptation category, including subsistence adaptation and possibly a belief system (Dincauze 1972, 1975; Pagoulatos 1988; Pfeiffer 1984; Turnbaugh 1975). Some archeologists also tie these artifacts to genetic populations, and believe that they imply the movement, contemporaneity, or physical descent of the actual people who used the tools. Susquehanna Broad-like projectile points (E. Johnson and Mahlstedt 1984) and Wayland Notched (Hoffman 1991:20) have, in some cases, also been associated with mortuary sites (Dincauze 1968; Hoffman 1991:20). Stone-tool production may have been undertaken by a small group of experienced, older artisans whose skills and knowledge were respected and called upon. The lithic assemblages of such artisans would look very much the same and exhibit fewer signs of accidental breakage. There may also have been specific spaces set aside for use by such artisans in some settlements (Cross 1990 has an in-depth discussion of these possibilities in New England).

The Late Archaic is the most visible period of Massachusetts prehistory, in terms both of numbers of sites and of typological attribution of materials. Even allowing for the chronological ambiguity of Small Stemmed points (cf. Mahlstedt 1987) and their use into the Middle Woodland in the Connecticut River Valley (Hasenstab et al. 1990), and Late Woodland/Contact Period use on Martha's Vineyard (Herbster and Cherau 2003), Late Archaic patterns in Massachusetts indicate unprecedented population density, with communities well settled into narrow foraging territories defined by drainages and highly specialized to the habitats within these drainages. Confined to these territories, extractive activities were seasonally adjusted to meet the opportunities of the annual cycle. Sites were located in a wide variety of topographic situations -- river banks; margins of lakes, ponds, bogs and springs; around meadow lands; in rockshelters and at quarries; and along the coastline. The differentiation of site sizes suggests use of a radiating,

seasonally-dynamic settlement pattern (Dincauze 1974, 1975, 1980; Thorbahn and Cox 1983). Although some technological innovations (e.g., the stone bowl) are apparent in this period, and some long-distance exchange of materials occurred, emphasis seems to have been placed increasingly on locally available raw materials for chipped stone tools, often distributed within river drainages.

The settlement pattern of human communities during this period is best viewed as a response to establishment of the temperate forest in which resources are heterogeneous but relatively stable and predictable. This period was marked by a progressive drying and warming trend, beginning perhaps ca. 6000 BP and peaking at ca. 4000-3000 BP. In southeastern Massachusetts, the water table was significantly lower and surface-water flow was reduced, leading to a disappearance of all but the largest bodies of water (Thorbahn 1982). The latter changes may not have been the result of climatic drought, but rather of local geomorphic changes causing lowered stream flow (Simon 1991:69). These climatic trends, if regional in scale, would intensify the association between human communities and water, particularly in summer. As sea levels approached those of the present, shorelines stabilized and extensive shellfish beds developed, while anadromous fish populations may have benefited from the expanded continental shelf (Luedtke 1985:289). The Boylston Street Fish Weir site in Boston reveals intensive estuarine exploitation of fish populations by Late Archaic peoples (F. Johnson 1942, 1949). The Boylston Street Fish Weir is an extensive structure of wooden stakes set in the tidal mud flats of the Back Bay some 4,000 years ago, and was presumably designed to capture fish and other marine resources at low tide.

Around 4600 BP (Webb 1982:570) there was a dramatic decline in hemlock pollen, which is attributed by Davis (1981) to an as-yet-unidentified insect predator and/or disease rather than climate. Hemlock is today a very competitive species in the region, the loss of which caused what appears to have been a long-term increase in species diversity. At approximately this time oak, white pine, and hickory increased dramatically throughout the region, while chestnut first appeared. This combination of events (added to warm temperatures) would have created a very suitable environment for aboriginal populations (Mulholland 1984:335). Oak and to some extent white pine provide food for game animals like deer and turkeys, while hickory and chestnut provide food for both game animals and people. At Kampoosa Bog in Stockbridge, Massachusetts, this environmental change coincided with evidence that people began visiting the bog more often and in greater numbers. There was also evidence to suggest that the people used fire to improve and maintain the natural abundance of important plants and animals in the area (E. Johnson 1996:22; E. Johnson et al. 1994).

The pattern of a riverine-uplands subsistence settlement system apparently emerged during the Middle Holocene, between 6000 and 5000 BP, when the climax oak-hickory forest had matured and population levels increased, leading to regional Late Archaic strategies of extensive and intensive resource exploitation (Dincauze 1974, 1990). In the Sudbury-Assabet region, the number and diversity of Late Archaic sites and their distribution in riverine and inter-riverine, upland settings suggest a "broad-base [collecting, see Binford 1980] approach to resource use and considerable attention to small scale environmental features," including "bogs and kettle-hole swamps" (D. Ritchie 1983:89). Duncan Ritchie's work in the Sudbury-Assabet area (1980:87-88,1983), indicates that patterns of upland use became more intensive about 4,500 years ago; more activities were now taking place there and some localities began to be reused time and again. Evidently, these shifts were shaped by ongoing environmental histories; as the region's deciduous forest ecosystems became more varied and productive, longer settlement occupations became possible (D. Ritchie 1983:89-91).

Research by Curtiss Hoffman (1985) suggests that the process of diversifying and intensifying land and resource use increases measurably in many southern New England regions between 5000+ and 2700 BP. In these regions, some landscapes became a locus for year-round settlement and resource exploitation in the Middle Holocene, a pattern seen in some coastal settings and along major rivers (Bernstein 1990 and

1993, Handsman 1995, Kenyon and McDowell 1983). Studies of collections and excavations indicate that some parts of the Sudbury-Assabet uplands contained extensive and diverse complexes of Late Archaic sites where Native people hunted deer, collected and processed hickory nuts and aquatic plants, and fished. Sites are so numerous and sometimes so often reused that Hoffman is certain that the archeological record between 4500 and 4000 BP (and for some time after) represents a "climax" of extensive, year-round occupation by sedentary groups of hunter-gatherers (Hoffman 1990:110-149).

The Late Archaic archeological record in the uplands of the Assabet and Sudbury rivers reveals that a greater range of activities took place on a seasonal, multiseasonal, or even year-round basis. Along the upper reaches of the Assabet in Marlborough, a complex of sites (19-MD-489 to -493) discovered near I-495 suggests a pattern of upland adaptation. Features such as hearths and concentrations of chipping debris (stone-tool manufacture, repair, and resharpening) from the Robin Hill, Cook, and Howe sites are evidence of the periodic use of particular localities by successive generations during the Late Archaic (D. Ritchie et al. 1984). Similarly, multiple surface hearths, tool-making workshops, and activity areas at the Old Stony Brook site near Crane Swamp in Marlborough are cited as evidence of recurrent use of a short-term campsite (Dudek, et al. 2001). The archeological record at the Flagg Swamp Rockshelter, excavated in 1980 as part of a larger study of Route 85 in Hudson and Marlborough, suggested a "winter camp repeatedly inhabited by small, complete social and economic groups," who went there to hunt deer and turtle, to fish, and then to return to their base settlements, possibly located along the Concord or lower Merrimack rivers, or along the nearby coast (Huntington 1982). Further east, a town historian in the 1890s described a site next to a small wetland in Sudbury where hundreds of points, some woodworking tools, and burned rock features were found (D. Ritchie 1980:87).

Late Archaic cemetery sites also suggest that native communities were well established within river drainages and upland areas. At the Millbury III cremation cemetery, located near the Blackstone River in Millbury, Massachusetts, sixteen cremation burials spanned from 3500 BP to 2500 BP and contained a mixture of human and animal remains within the same burial. On average, non-humans represented 79% of all skeletal elements identified, while human remains represented only 21% (Bellantoni 1998:4). This may indicate that animals were integral aspects of the ceremonial complex associated with burials from the Late Archaic to Early Woodland. The site Wapanucket 8 is located in the Taunton River drainage and contained a ceremonial complex, around 4,300 years old, with 11 cremation burials clustered within a larger pit (Robbins 1968). The Mansion Inn and Vincent sites, both located in the uplands above the Sudbury River, are cremation cemeteries about 3,500 years old. Habitation areas do not seem to be directly associated with either site. At each, assemblages of burned artifacts, cremated human remains, and burned wood and reddened earth (both from the nearby crematories) were deposited into shallow pits; some pits were used only once while others were the locus of multiple reburials. Typically, the artifacts in the pits included a full range of household and subsistence technologies such as wood- and hide-working tools, projectile points and knives, pestles, and hammer stones. Less abundant were single specimens or sets of finely flaked bifaces, known as Mansion Inn blades (Dincauze 1968:16-17, 48, 64-66). At Mansion Inn, the archeological data indicate "the cemetery was used repeatedly through a fairly long span of time" (Dincauze 1968:66), leading one to infer that the surrounding region was home to generations of Native people.

Archeological sites in the Acushnet drainage with confirmed Late Archaic components include the Lawson Site (19-BR-378) and the Swift III Site (Klein and Chadwick 2003). At the Blue Feather site (19-BR-211) Simon et al. (1980:31-34) reported recovering a single Susquehanna Tradition projectile point. Two pieces of debitage were also recovered from a garden plot at this location and the investigators speculated that this might be a good-sized site, perhaps a Terminal Archaic hunting camp.

The Woodland Periods (3000-450 BP). The Woodland is traditionally divided into Early (3000-1700 BP), Middle (1700-1000 BP) and Late (1000-500 BP) periods, defined by changing artifact types. This period is marked by basic technological and economic changes, notably the production and use of pottery and a gradual shift to food production (maize, beans, squash, sunflower and other vegetables). Horticulture is documented for the Late Woodland on Martha's Vineyard (W. Ritchie 1969) but perhaps began by ca. 2000 BP (Thorbahn 1982). Within Massachusetts generally, the Woodland periods are best known in the coastal regions and in the Connecticut River Valley. In both cases, this higher visibility may be ascribed to local opportunities for increasing sedentism and larger communities – in the former area due to a combination of horticulture with rich marine resources and in the latter area to large expanses of soils well suited to horticulture in combination with rich fishing, harvesting and other terrestrial resources.

The shift from the Late Archaic period to the Early Woodland period includes several changes on which archeologists generally agree. These changes consist of the introduction of ceramics, the formation of stable estuaries with tidal flats (Cross 1996:5-6), an apparent increase in the amount of exotic raw materials used such as non-local chert, red ochre, and copper (especially in mortuary contexts), and an inferred increase in formalized trade and communication. Some influences from the Adena culture to the west have been noted in artifact types of the period.

While some archeologists have suggested that there was a regional demographic collapse and a shift during the Terminal Archaic to coastal settings, thus largely depopulating interior upland regions (Dincauze 1974:49-50), survey information from southeastern Massachusetts shows no decline in numbers of sites during the Early Woodland (Thorbahn 1982), and comparable patterns are evident in other parts of Massachusetts. Loring (1985) found continuity of subsistence patterns from the Late Archaic, with little more change than the grafting of long-distance trade onto existing developments, such as increasing sedentism, evident in the Late Archaic period.

Archeologists have since improved their ability to recognize habitation assemblages of the Early Woodland period, as Shaw (1996a:67-79) points out. In addition to classic Meadowood and Rossville projectile points and cache blades and Vinette I ceramics, thicker side-notched bifaces, lobate-stemmed Adena, rare Fulton Turkey Tail, Small Stemmed points, and modified Vinette I ceramics are consistently reported from Early Woodland contexts. It is clear that pre-Contact peoples used some tools for much longer than just one period. Small Stemmed points are associated with the Late Archaic and Early Woodland periods and may have been in use as late as the Middle Woodland. Rossville points also occur in Middle Woodland contexts, and perhaps Late Woodland.

This period is marked by an increase in the number of exotic lithic materials, indicating long-distance trade, and by changes in mortuary practice (increase in secondary interments, less use of ocher, fewer grave goods, and more variation in preparation of the dead). While the roots of ceramic and lithic variability are found in the preceding periods, more rapid variation in sequence through time and more regional variation characterize this period. Ceramics vary more in decoration and form. Lithic projectile points are less important in the tool kit, and bone and antler tools are preserved at some sites where matrix conditions are appropriate (Shaw 1996b:84-87). By the end of the period there is evidence of maize horticulture (Thorbahn 1982).

There is overlap in the dates of ceramic types formerly considered diagnostic of the Early and Middle Woodland. Some Vinette I ceramics date to the first few centuries of the new period. The new Middle Woodland ceramics are cord-impressed, fabric-impressed, or smoothed in Southern New England. Most are decorated with dentate or cord-wrapped-stick impressions. Dentate-stamped, scallop-shell-impressed and cord-wrapped-stick-impressed decorations characterize the middle Middle Woodland, with decoration at times confined to the rim or shoulder. Scallop-shell-impressed or pseudo-scallop-shell-

impressed ceramics are recovered more commonly in Northern New England (Shaw 1996b:90). Decoration may be only around the rim or shoulder. These designs are often applied in a rocker fashion, or in vertical or horizontal zones. Undecorated fabric-paddled pieces with smoothed interiors also occur.

Fox Creek and Steubenville bifaces characterize this part of the period (Moore 1997). There is some overlap in time between the Fox Creek and Jack's Reef points during this part of the Middle Woodland. Jack's Reef points, often made of non-local chert (Shaw 1996b:92-93), continue to be used into the Late Woodland. Exotic lithic materials increase in the Middle Woodland, except in the Champlain drainage. Some lithic tool types, such as Rossville (Shaw 1996b:90) and Small Stemmed (Hasenstab et al. 1990) continue into the Middle Woodland.

Late Middle Woodland ceramics include types that continue in the Late Woodland, such as the cord-wrapped-stick-impressed ceramics. Projectile points now include concave-base triangular points often made of local materials. These points also continue into the Late Woodland period (Shaw 1996b:93). Settlement and subsistence are similar to the Early Woodland period, but sedentism increases. Stays at large sites along waterways are believed to have increased in duration, while upland areas were used short-term for procurement. Long-distance communication and exchange appear to shut down by the end of the period. Middle Woodland sites in coastal areas and New York have produced house remains. Middle Woodland sites tend to have more pit features, which vary greatly in shape and size, and are frequently dug out and reused for trash (Shaw 1996b:94-100).

Research issues for the period are similar to those of the Early Woodland period, from which it is divided only by arbitrary artifact style boundaries. These issues include explanation of the quick adoption of ceramic styles, the role of exchange networks, and the description of the behavior behind increasing regional style variation in artifacts (Shaw 1996b:100).

The Late Woodland represents the regional demographic peak prior to European contact, a florescence that may be related to increasing food production, sedentism, and population agglomeration. The period is characterized by changes in burial ceremony. Burials can be single or mass, as in ossuaries, and can be primary, secondary, or cremation. Group interments tend to be at special mortuary sites, while single burials are usually at habitations.

Ceramics are often shell-tempered or made with fine grit temper and thinner bodied; there is a shift to globular forms, and the addition of collars, sometimes decorated with human faces. Elaborate collars similar to those of Iroquois ceramics are found in the Merrimack and Champlain drainages. Triangular projectile points consisting of smaller Madison points or larger Levanna points are diagnostic for this period. This period is marked by an increasing importance of food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 840 BP on Martha's Vineyard (W. Ritchie 1969).

These changes in assemblage, and by implication, adaptation, are attributed to increasing population and concentration of people at larger sites. Research issues include the extent of permanency in Late Woodland settlements, the nature of such settlements (i.e., whether such settlements were villages; Hasenstab 1999; Kerber 1988; Luedtke 1988; Thorbahn 1988) and the identification of horticulture with non-native plants and definition of the effects on humans. In addition, researchers might ask about the use of different ecozones, the reality of population growth, and whether or not climate change (e.g., the Little Ice Age), affected settlement and subsistence. There is some evidence of the development of long-distance exchange again, and some workers have suggested that a native beaver trade was developed before Contact. Regional differences are visible; in Vermont, there are fewer late Late Woodland sites than early Late Woodland. This may be a response to Iroquois settlement changes. In southern New

England, horticulture did not replace existing gathering and hunting strategies and large settlements did not replace small seasonal sites. Differential dependence on horticulture is likely to have affected society and politics. Cultural differentiation of the Iroquois from the Algonquin also presents research opportunities (Shaw 1996c).

Archeological investigations at the Swift I and II Site (19-BR-212) and the Swift III Site on the east bank of the Acushnet yielded diagnostic Late Woodland Levanna projectile points and ceramics, along with lithic debitage, animal bone, shell, and a small pit feature (Thorbahn 1988).

The Contact Period (AD 1500-1620) and post-Contact Native American Settlement (AD 1620-1700). This period marks the initial presence in the region of European explorers and fishermen, followed in the early seventeenth century by English colonization. From the Native viewpoint, the period was one of intense social, economic and demographic disruption and depopulation for native inhabitants due to disease, warfare and displacement related to European contact and colonization. The Acushnet drainage was part of a Contact Period core area that extended along Buzzard's Bay from Rhode Island to Wareham (MHC 1982:Map2).

Circa AD1600, Native Americans known as the Wampanoag (also referred to as the Pokanoket) were documented as inhabiting southeastern Massachusetts, including Cape Cod, Martha's Vineyard, and Nantucket, as well as eastern Rhode Island (i.e. east side of Narragansett Bay). The Wampanoag were longstanding allies of the Massachusetts to the north, and traditional enemies of the Narragansett to the west (Gookin 1972, in Salwen 1978:171). The exact date of first contact with Europeans is uncertain, though one source puts it as early as Verrazano's AD 1524 visit to Narragansett Bay (Salwen 1978:171). Later contacts included Gosnold (AD 1602), Pring (AD 1603), Champlain (AD 1605-1606), and Hudson (AD 1609) (Salwen 1978:171). Bragdon (1996:xi) characterizes southern New England as "Ninnimissinouk," an indigenous term used to refer to the people of the region. Included among the Ninnimissinouk were groups known as the Pawtucket, Massachusett, Narragansett, Peqout, and the Wampanoag. The term "Wampanoag" designates the descendants of the Pokanokets, or the people associated with the sachem Massasoit and the village of Pakanokick noted by John Smith in 1614 (Bragdon 1996:20-25; Grumet 1990:134).

Certainly the single most devastating event resulting from European/Native American contact was the introduction of foreign diseases to the latter. The epidemic of AD 1616-1619 decimated the Ninnimissinouk populations by as much as 90 percent, especially in interior locations; groups residing on the offshore islands fared better (Salwen 1978:171). Subsequent to the epidemics, the weakened Wampanoag suffered persistent attacks by the Narragansett to the west. With the arrival of the colonists at Plymouth, the Wampanoag sachem Massasoit and his brother Quadenquina offered a formal friendship treaty, into which the colonists and Native Americans entered. Massasoit had hoped to form an alliance with the colonists, principally to help fend off the Narragansetts (Salwen 1978:171-172).

In any event, King Philip's War in AD 1675-1676 effectively wiped out large portions of the Wampanoag population. Groups living on Cape Cod and the offshore islands did not join Philip in his efforts and thus were able to maintain their villages there (Salwen 1978:172). Nevertheless, the Wampanoag and all other New England Native American societies never recovered from the decimation and disenfranchisement resulting from their loss of the war, and the post-war era witnessed the continual decline and marginalization of the Native American groups in New England. The Wampanoag Tribe of Gay Head (Martha's Vineyard, Massachusetts) is recognized by the Federal Government, as are the Mashantucket Peqout and Mohegan Tribes in Connecticut, and the Narragansett Tribe in Rhode Island.

2.3 KNOWN PRE-CONTACT SITES AND PRIOR ARCHEOLOGICAL WORK IN THE PROJECT VICINITY

A total of 33 Cultural Resource Management (CRM) reports are on file for the City of New Bedford and 13 for the Town of Fairhaven in the MHC's *Bibliography of Archaeological Survey & Mitigation Reports.* Three reports cover areas in both municipalities. Of these reports, only a few Fragola (1999), Kellogg and Klein (2001), Chadwick and Klein (2003) deal with surveys and archeological site discoveries within the intertidal zone of New Bedford Harbor (See below).

A review of the site files at the MHC indicates that no pre-Contact archeological sites have been recorded within 2 km of the Project area. However, numerous pre-Contact period sites are known to exist in the vicinity of the Acushnet River and New Bedford Harbor in New Bedford and Fairhaven. The nearest site is the River Avenue Site (19-BR-260), located about 2.1 km northeast of the Project area along the east side of the Acushnet River in Fairhaven. The Lawson Site (19-BR-378), located approximately 5 km north of the Project area is significant because it is one of the largest multi-component (Middle and Late Archaic, and Late Woodland periods) sites located on New Bedford Harbor (in Fairhaven) and because it is located in the intertidal zone (Fitts et al. 2000, Chadwick and Klein 2003).

2.4 POTENTIAL FOR PRE-CONTACT SITES IN THE PROJECT VICINITY

Pre-Contact archeological sites have been identified in a variety of settings, but are found most often in particular environmental contexts (Funk 1972; Root 1978; Thorbahn et al. 1980; McManamon 1984; Mulholland 1984; Thorbahn 1984; Nicholas 1990). In southern New England archeology, pre-Contact site location is typically linked to three variables: terrain, soils, and water -- in the formula "flat to low slope, well-drained sandy soil, near water." These variables, in turn, combine with other factors, which include the collection of special resources (e.g., lithic material for tools; clay; seasonal nuts, fruits, seeds, small fishes, and game,), the pursuit of special tasks, often seasonally determined (e.g., exploitation of fish runs), and the use of transportation routes (provided by bays and rivers). The combination of all these factors provides a framework within which the pre-Contact settlement of the project area, and indeed of most of southern New England generally, can be analyzed, and by which archeological site location can be predicted through archeological models (Casjens 1979, Dincauze 1974, Hoffman 1985, Kenyon and McDowell 1983, D. Ritchie 1983). A study of site locations and catchments conducted for the Concord River watershed (Casjens 1979) found that sites were located on floodplains, flat uplands, knolls, ridges and an island; gentle terrain with arable soil and variety in the form of wetlands in the surrounding catchments also seem to factor in site locations.

As a result of changes in sea level over time, prehistoric sites associated with the Paleoindian and Archaic periods could be present within the subtidal portions of the Project site. As demonstrated by the Lawson site, tidal or otherwise very-near-shore loci would be expected to have low potential for Woodland and Contact Period sites, owing to inundation from sea-level rise. Thus, Paleoindian and Archaic Period sites could theoretically occur anywhere, including inundated areas, while Woodland and Contact Period sites would be restricted to locations that are currently dry. (A limited number of Late Woodland diagnostic artifacts were recovered from the Lawson Site. These were most likely not *in situ*, but transported into the intertidal portion of the site by natural process such as erosion and sediment transport).

Because of its location along the Acushnet River, and absenting a geomorphological and hydrological regime history indicating prior sediment disturbance, and/or a history of other man-made disturbances (e.g. dredging activity), the subtidal portion of the Project site should be considered to have the potential to contain pre-Contact archeological sites.

2.5 INTERTIDAL AND SUBMERGED PREHISTORIC ARCHEOLOGICAL SITES IN NEW ENGLAND

It is now well established that on the world's continental shelves can be found formerly terrestrial archeological sites that have been submerged through the various processes associated with sea-level rise (Masters and Flemming, 1982). These sites, while difficult and often expensive to locate, have immense potential for providing previously unknown data regarding past human behavior. Indeed, such sites could contain exceptionally well-preserved organic materials, in most cases would not have been mixed by centuries of historic plowing, and most importantly could potentially offer an older record of human coastal adaptation than is currently available from the existing database of mid to late Holocene coastal sites.

The following literature review is focused on known intertidal and subtidal prehistoric archaeological sites in New England, and is designed to emphasize the environmental and geologic settings in which they were identified and the circumstances that lead to their discovery. Additionally, the following review will include selected submerged and intertidal surveys for prehistoric sites where cultural materials were not recovered but sedimentological preservation, in the form of submerged and buried paleosols, was found to be quite high. The reader is directed to Bell (2009) for a thorough bibliography, as well as an excellent treatment of legal and ethical issues pertaining to submerged cultural resources. Additionally, Merwin et al. (2003) provide a systematic, detailed review of submerged Native American sites in southern New England.

2.5.1 Submerged and Intertidal Prehistoric Sites in Maine

Despite its lengthy coastline, the state of Maine boasts few submerged and intertidal prehistoric sites. The majority of submerged sites were initially discovered by fishermen when artifacts were found in drag nets. Crock et al. (1993) report on large rhyolite bifaces recovered by scallop draggers in Blue Hill Bay from approximately 40 to 50 meters below present sea level. Artifacts recovered by scallop draggers in Bass Harbor (Price and Spiess, 2007) indicate the possibility of another submerged site, and subsequent paleogeographic reconstruction (Kelley et al., 2010) of the location revealed a submerged paleolake setting. The Lazy Gut Island Site (Belknap, 1995) was also discovered by fishermen, when in 1982 prehistoric artifacts were dredged from approximately 10 meters of water east of Deer Isle. Subsequent SCUBA reconnaissance recovered debitage but did not uncover evidence of primary archeological contexts. Belknap (1997) conducted a geophysics and coring survey aimed at paleogeographic reconstruction of the location, and the conclusion reached was that the site has been completely reworked by marine transgression and that minimal, if any, primary context remains for cultural materials.

In the Damariscotta River, Leach (Leach and Belknap, 2004; Leach 2007) conducted a geophysical and coring investigation of relict mid-Holocene oyster beds for submerged prehistoric potential, and subsequently identified a buried, submerged paleosol at -12.67 m and 6300 yBP. While no cultural materials were recovered, the paleosol is an excellent example of sedimentologic preservation potential in sheltered estuarine settings.

2.5.2 Submerged and Intertidal Prehistoric Sites in New Hampshire

The Seabrook Marsh site (Robinson, 1985) is an exceptionally well-preserved prehistoric site that is buried under salt marsh peat and fully submerged during high tide. Site discovery occurred subsequent to the excavation of a mosquito ditch across the salt marsh, in which prehistoric artifacts were identified.

The site contains a wealth of perishable and non-perishable cultural materials, as well as human interments.

2.5.3 Submerged and Intertidal Prehistoric Sites in Massachusetts

A handful of intertidal and submerged prehistoric sites have been identified in Massachusetts. Johnson and Raup (1947) reported on the Grassy Island Site, a subtidal and intertidal prehistoric site in the Taunton River, Massachusetts. Cultural Resource Management surveys along the eastern shore of the upper Acushnet River (Fitts et al., 200; Chadwick and Klein, 2003) recovered prehistoric artifacts within the intertidal zone. Chadwick and Klein (2003) conducted an exhaustive intertidal coring survey in the upper Acushnet River Estuary, North of New Bedford, and identified prehistoric sites below marsh and marine sediments. The Boylston Street Fish Weir (Johnson, 1942), a large, well-preserved late Archaic fishing site, was discovered below historic fill during subway tunnel construction in Boston.

At the Atlantic Ledges site (Dincauze, 1972), prehistoric artifacts were found buried below peats and gravels near Hull, Massachusetts. Volmar (2003, Cited in Merwin, 2003) identified a submerged early Woodland site at Turner's Falls comprising an eroding stratigraphic section that revealed charcoal lenses and fire-cracked rock. In a similar vein, mammoth teeth were dredged up offshore of eastern Massachusetts (Oldale et al., 1987), hinting at the possibility of intact primary contexts.

A phase II Cultural Resource Management project for the Salem Port Expansion in Salem, Massachusetts identified a submerged, buried paleosol in a vibracore and upon further analysis discovered two chert micro-flakes, charcoal, and botanical remains (Lynch et al., 2010; Lynch, 2010). This project is an excellent example of phase II methods for evaluating submerged prehistoric contexts.

Numerous Cultural Resource Management projects in Massachusetts have recovered provocative evidence for enhanced sedimentologic preservation in submarine settings, though no cultural materials were recovered. In Nantucket Sound, Robinson et al. (2004) conducted a reconnaissance survey comprising geophysics and coring within the area of potential effect of the Cape Wind facility and associated transmission cable corridor. An intact paleosol, wetlands, and pond environments were identified in the vibracores, all adjacent to a bathymetric low point. The Nantucket Sound survey was undertaken after an assessment of marine archaeological sensitivity (Robinson, et al., 2003). A similar survey in Great Harbor by Robinson (2008) comprised a geophysical survey to prospect for potential buried and submerged paleosols, though none were identified.

2.5.4 Submerged and Intertidal Prehistoric Sites in Rhode Island

Lynch (2001; Cited in Merwin, 2003) has documented prehistoric artifacts recovered by fishermen in Narragansett Bay. Operating though an organization called the Submerged Cultural Inventory of Rhode Island (Merwin, 2003), information is being amassed on potential intertidal and submerged prehistoric sites through beachcomber and fisherman informants.

2.5.5 Submerged and Intertidal Prehistoric Sites in Connecticut

Of all the New England states, Connecticut boasts the largest number of reported intertidal and subtidal archaeological sites. The dredging of boat basins seems to be the most common mechanism for discovery of such sites. Powell (1965) reported on the discovery of submerged portions of a large shell midden during dredging of boat basin at Spruce Swamp. A similar situation occurred at Pilots Point (Glynn, 1953; McWeeney, 1986), where prehistoric artifacts were discovered during the dredging of a yacht basin.

Numerous intertidal sites, and those buried under salt marsh peat, have been identified. The Archaic Midden Site (McWeeney, 1986), discovered by the Public Survey Team, is an intertidal prehistoric site in the Connecticut River. At Grannis Island, Sargent (1953; McWeeney, 1986) discovered a prehistoric site, the majority of which was covered by salt marsh and mostly submerged at high tide. At Seaside Indian Village (Coffin, 1963; McWeeney, 1986) late prehistoric artifacts were discovered below highest high marsh peat after hurricane erosion.

Bourn (1972) gives a detailed personal account of visiting numerous locations where prehistoric artifacts were found in submerged and intertidal contexts. He also describes the artifact assemblages recovered from each location. The "Submerged Site at the North Cove" (Bourn, 1972: 5-8) is a prehistoric site with terrestrial and underwater components discovered during dredging operations for yacht basin. The "Submerged Site at the Ferry Road" (Bourn, 1972: 8-9) was discovered when prehistoric artifacts were found during canal excavation across a salt marsh. These artifacts were found in a peat and gravel mix at the base of the trench, below about 3 to 4 feet of peat. Bourn also reports on three sites he referred to as "Tidal Beach Sites at Giant's Neck" (Bourn, 1972: 9-11). The sites are located at Bather's Beach, at the mouth of the Pataguansett River, and at the north end of Huntley Island. In all three locations artifacts ranged in elevation from low to high tide and while the majority of artifacts were water worn, some appeared to have been recently eroded from intact deposits. Bourn speculated that the artifacts had eroded out from below a recently exposed peat deposit.

At the Hammonassett Beach Site (Glynn, 1953; 1969; 1977; Harper et al., 2008) prehistoric cultural materials were dredged from east of Pilot's Point in Westbrook, Connecticut. Eleven feet of peat were dredged and a further eight feet of sand and gravel were removed. Human remains and quartz artifacts were recovered from the dredge, and many artifacts were found on the beach after dredge spoils were dumped in the marsh and on the beach. Additionally, a submerged shell midden may have been dredged up in about 16 feet of water from approximately 900 feet off shore.

2.6 HISTORIC CONTEXT[1]

The land that comprises the city of New Bedford, as well as Acushnet, Fairhaven, Dartmouth, and Westport, was purchased from Massasoit, Grand Sachem of the Wampanoag and his son, Wamsutta in 1652 by 36 European settlers. The tract was named Dartmouth and was incorporated in 1654. The town's early settlement was sparse and consisted of scattered farmsteads and garrisons. During King Philip's War (1675-1676), the Indians overran the settlement and burnt most of the homes (Ricketson 1858:34). After the war, the settlers returned and rebuilt. Following a pattern common throughout Southeastern New England after the war, the settlers chose to establish a village at the head of the Acushnet River rather than disperse into scattered farmsteads. Throughout the first half of the eighteenth century, the Village of Acushnet remained the region's center; however, members of the Russell family began purchasing land along the Acushnet River and the overlooking heights within the present city of New Bedford. In 1765, Nantucket whaling merchant Joseph Rotch purchased ten acres of land from Joseph Russell II and moved his business to New Bedford (Leary 1999). Rotch brought experience, capital and technological innovation, and he and his sons began to develop the future New Bedford as a whaling port (Leary 1999). The Town of New Bedford developed rapidly and by 1771 321 dwellings, 119 shops and warehouses stood in New Bedford and Fairhaven (Vanasse Hangen Brustlin, Inc. 1996:16).

[1] Historic context information is taken from *Cultural Resources Background Reconnaissance Study and Archeological Sensitivity Assessment, South Terminal Marine Infrastructure Park (Upland Portions), City of New Bedford, Bristol County, Massachusetts* (Kotlensky and Klein 2010).

On September 5th, 1778, British troops occupied New Bedford. During their brief stay, they burnt eleven dwellings, twenty shops, a ropewalk, and 34 vessels anchored in the harbor (Ricketson 1858:75; 289). After the end of the Revolutionary War, a number of Nantucket merchants relocated to New Bedford and promptly developed a complex network of finance, shipbuilding, ship supply, and marketing (Georgianna and Aaronson 1993:12). In recognition of the growth of the village established by the Russell family, Bedford Village was designated as the town of New Bedford in 1787 (Leary 1999).

During the decades prior to the Civil War, New Bedford became the leading whaling port in the world (Georgianna and Aaronson 1993:12). By 1857, the city was home to 329 whaling outfits and ships, 10,000 men were engaged in whaling, and $12,000,000 in local capital was invested in these enterprises (Burgy 1932:34).

Because of the prominence of whaling, New Bedford had few other industries in the early nineteenth century. In 1815, a rope walk was located along the Acushnet riverfront in the south part of the city, and a furnace was located on the riverfront near the foot of Madison Street. The northern waterfront was lightly developed with several piers extending into the river. J. Congdon's 1834 map of New Bedford shows a grist mill in the north and west-central portions of the city, while two salt works were in operation in the south peninsula area. Several small cotton factories had been established in the city, the earliest dating from 1811 (Burgy 1932:34).

By the second half of the nineteenth century, the American whaling industry faced severe trouble. During the Civil War, a number of New Bedford whaling vessels were sold to form a major portion of the "Stone fleet," sunk off the harbors of Charleston and Savannah to enforce a naval blockade (Hicks 1907:41). In 1871, the entire Arctic whaling fleet, including 32 ships from New Bedford, was lost when ice floes returned earlier than normal. The total monetary loss to New Bedford was over $1 million (Georgianna and Aaronson 1993: 13; Hicks 1907:41). In 1876, the ice took 12 additional ships from New Bedford's fleet (Georgianna and Aaronson 1993:13). Similar losses occurred in 1888 and 1897.

Improving technology greatly reduced the demand for whale oil. Kerosene largely replaced whale oil for lighting. With the discovery of petroleum in Pennsylvania in 1859, an economical substitute for whale oil lubricant became available (Clayton and Whitley 1975:24). The whaling industry continued in New Bedford until the early twentieth century but became a progressively less important part of the city's economy. The last whaling voyage from the city was made in 1925 by the schooner *John R. Manta* (Leary 1999).

Even during the heyday of whaling, farsighted New Bedford businessmen saw the advantages of enlarging the economic base of the city. Cotton mills had proved profitable in other parts of New England. By 1833, thirteen cotton mills were in operation in nearby Fall River (ODHS 1975:204). U.S. cotton production doubled between 1840 and 1860. By the start of the Civil War, 600 cotton mills were in operation throughout New England (Georgianna and Aaronson 1993:19).

One New Bedford businessman, Samuel Rodman, Jr., a major investor in the Pocasset Mill in Fall River, sought to bring the cotton manufacturing industry to New Bedford by organizing the New Bedford Steam Company in 1846. This attempt was unsuccessful (ODHS 1975:204).

Despite this failure, some New Bedford capitalists saw potential for the cotton milling industry in the city. The city's damp climate minimized static electricity and maximized the fragile cotton fiber's elasticity and break strength (Dunwell 1978:112). The Acushnet River allowed relatively inexpensive shipping of coal and cotton. Sufficient manpower was available, as was investment capital.

The first New Bedford successful cotton mill owners studied the milling business before setting up their own factories. Their initial problem was to decide what goods to produce. Calculations were made to determine which type of goods would produce the maximum profit. The conclusion was that fine sheeting could be made a cost of 12 cents per yard and sold for 14 cents. They decided to concentrate on this product and to produce it by the mule spinning method (Ware 1931:107-108).

From the early nineteenth century until the 1930s, a succession of proprietors undertook two significant manufacturing enterprises within what is now the vicinity of the Project Area. James H. Howland and George Hussey began operating a factory for making candles from whale oil sometime prior to 1836 in the vicinity of the Project Area (Office of Public Archaeology 1988: 26). In 1871, a joint-stock company established the Potomska Mills, a textile manufacturing enterprise that they expanded to include two mills by 1877 on the same site (Sayer 1889: 154; Ellis 1892). The footprint of the former Potomska Mills most of the upland portions of the Project Area (Kotlensky and Klein 2010).

A review of 19th and 20th century historic cartography covering the Project Area was conducted as part of the archeological sensitivity assessment for the upland portions of the Project Area (Kotlensky and Klein 2010). No wharves, piers, or other features were identifying as extending into the intertidal portions of the Project Area.

2.7 KNOWN HISTORIC ARCHEOLOGICAL SITES IN THE PROJECT VICINITY

A review of the site files at the MHC identified four historic archeological sites that have been recorded within 2 km of the Project Area. The Potamska Mills Site (NBE-HA-8) is located in the upland portion of the Project Area. It was originally identified on the basis of documentary research only. Subsequent analysis indicated that any potentially significant archeological remains associated with site have been destroyed (Klein and Kotlensky 2010). The Acushnet Mill and Worker Housing Site (NBE-HA-09), the Palmer Island Lighthouse Site (NBE-HA-07), and the Nathan and Polly Johnson House Site (NBE-HA-12) are also located within 2 km. of the Project Area. None of these three sites is in close proximity to the intertidal portions of the Project Area.

2.8 POTENTIAL FOR HISTORIC ARCHEOLOGICAL SITES IN INTERTIDAL PORTIONS OF THE PROJECT AREA

Documentary research, including a review of historic cartography, has not indicated the presence of any historic period structures within the intertidal or sub-tidal portions of the project area. However, this does not mean that features such as small piers, wharves and bulkheads never exited within the area. In addition, depending upon the hydrologic regime, there is always the potential for the existence of buried vessels and small boats. At least one potential shipwreck site was identified during other investigations undertaken for the project in the sub-tidal portion of the project area (Dolan Research, 2010). The purpose of the current investigation, however, is focused exclusively on the potential for submerged Native American sites and will not address in detail any potential for shipwreck or other historic sites or field procedures for evaluating their presence.

A total of 33 Cultural Resource Management (CRM) reports are on file for the City of New Bedford and 13 for the Town of Fairhaven in the MHC's *Bibliography of Archaeological Survey & Mitigation Reports.* Three reports cover areas in both municipalities. Of these reports only a few, Fragola (1999), Kellogg and Klein (2001), Chadwick and Klein (2003) deal with surveys and archeological site discoveries within the intertidal zone of New Bedford Harbor.

3.0 METHODS

3.1 INTERTIDAL FIELD METHODS

Archeological testing within the Project Area involved systematic geoarcheological survey of the approximately 1.8-acre area encompassing the intertidal zone between mean lowest low water and mean highest high water, as delineated in the field with a sub-meter GPS during high and low tide cycles (Figure 2). JMA conducted initial walkover survey of the project area to identify surficial evidence for potential prehistoric cultural materials. Archeological survey of intertidal environments utilized Eijkelkamp gouge augers (see Plate 1, auger in foreground) which are manually driven into, and extracted from, the subsurface. The gouge auger extracts a 100-cm-long, 6-cm-wide, 7-cm-deep cylinder of sediment (approximate volume of 3300 cm^3, or 3.3 liters) with negligible compaction. The extracted sample retains excellent stratigraphic integrity, and subsequent sample extraction uses the same entry point as the prior with a high degree of vertical control on sample provenience. In comparison, a 50x50 cm shovel test unit, 50 cm deep, contains a volume of sediment equal to 125,000 cm^3 or 125 liters.

Prior to the start of the Project, gouge auger sample locations were laid out in ArcGIS along an 8 meter grid. This grid was uploaded to a Trimble GeoXT handheld GPS with real-time sub-meter accuracy. The GeoXT was used to navigate to gouge auger sample locations, and a numbered pin flag was placed in the ground to mark each sampling site. Gouge auger samples were laid out between the high tide line and as close to the low tide line as possible (Plate 2). Tides were a constant frustration during the survey, with the majority of low tides at 0.5ft, though the low tide level during the last two days of the survey was at 0.2 ft.

Core samples penetrated through Holocene sediments into Pleistocene sediments or down to refusal at an impenetrable obstacle. Analysis and interpretation of augers was conducted almost exclusively in the field and comprised recordation of stratigraphy, texture, macro-organics, Munsell color, and potential historic and prehistoric cultural materials. Sediment from auger samples was screened through ¼” hardware mesh subsequent to stratigraphic and sedimentologic analysis. Individual strata were screened separately to provide greatest possible context for potential cultural materials. Numerous gouge auger samples were photographed in color with a digital camera before analysis and screening, with many photographs taken of common, unique, and diagnostic strata. Relatively few samples were collected for laboratory processing (see Section 3.3).

3.2 JUSTIFICATION OF THE USE OF HAND AUGERING METHODS FOR LOCATING ARCHEOLOGICAL SITES

Analysis of geomorphology, sedimentation rates, erosion associated with natural and human activities, and other soil/sediment disturbing activities (e.g. dredging history) may establish that disturbance of the intertidal zone has eliminated the potential for the potentially significant archeological remains to be present. If significant prior disturbance of the intertidal portions of the Project Area cannot be established it is considered to have a high archeological sensitivity.

Predictive models for prehistoric archeological site location in southern New England are generally based on three variables -- terrain slope, soil quality, and proximity to water. The ideal combination of these components includes little to no slope, well-drained sandy soil and close proximity to water. The locations of the greater majority of the known prehistoric archeological sites recorded in the New Bedford vicinity conform to this model. However, archaeological survey of intertidal areas must be approached

Plate 1. Gouge Augering in the Southern Portion of the Intertidal Project Area.

Plate 2. Extracting a Gouge Auger at the Low Tide Line.

differently from upland areas. In upland areas factors such as drainage, topography, distance to fresh water, and proximity to known archeological sites determine the archeological sensitivity of a given location. In the intertidal zone, the major factor is the geomorphological history of the location.

Previous studies (Kellogg and Klein 2001) submitted to MHC concluded that standard archeological shovel testing of the lower portion of the intertidal zone, especially intertidal flats, is not feasible. Subsequent studies carried out in association with the New Bedford Harbor Superfund Project have demonstrated that the methodologies proposed here can successfully locate archeological sites in the intertidal areas along the Acushnet River in New Bedford (Chadwick and Klein 2003).

Curves developed by Krakker et al. (1983) Provide the relationship between site diameter (assuming a circular site) and test unit interval, irrespective of unit size. Those curves indicate that when an 8m interval is employed over a square grid the probability of intercepting a site that is 10m in diameter is approximately 95%. The probability of intercepting a site that is 11m in diameter or greater approaches 100%. (The smallest sites in the immediate vicinity of the survey area are the Swift I and Swift II sites with diameters of 19 m and 22 m, respectively). Krakker et al. also note that a Poisson distribution may be used to estimate the probability of finding at least one item in a test unit for a specific average site density. The probability of recovering at least one item in a test unit is estimated by:

$$p = 1 - e^{-ad}$$

where a is the area of the test unit and d is the artifact density.

Simple geometry demonstrates that, of test units spaced on a square grid at 8m intervals, between 4 and 9 test units will fall within the limits of circular sites with diameters between 11m and 17m, and between 9 and 16 test units will fall within the limits of circular sites between 17m and 22m in diameter. Assuming an average site density of 20 artifacts per square meter and a test unit size of 60mm in diameter (the diameter of the augers to be used at New Bedford) then the *minimum* probability of at least one auger test recovering an artifact from a site with a diameter between 11m and 17m ranges from approximately 20% to 40%. The *minimum* probability of at least one auger test recovering an artifact from a site with a diameter between 17m and 23m ranges from approximately 40% to 60%. In reality the likelihood of discovering a site is greater than indicated by these numbers. This is because: a) artifacts are more likely to be clustered or randomly distributed rather than uniformly distributed within a site, b) features such as hearths and pits are larger than individual artifacts and therefore an individual feature is more likely to be intercepted by a test unit than is a single artifact, and c) other site indicators such as the presence of shell and charcoal deposits are likely to cover large areas.

3.3 GOUGE AUGER LABORATORY METHODS

Aside from cleaning, analyzing, and cataloging cultural materials recovered, Phase I gouge auger surveys generally require minimal laboratory work as nearly all of the sediment extracted is field-processed. Gouge auger samples are described and screened in the field (See Section 3.2), and only rarely are sediment samples returned for further analysis. In some circumstances, however, buried, preserved upland landscapes are encountered and sediment samples are collected for flotation analysis intended for identification of microdebitage and other cultural materials in controlled laboratory settings.

For most gouge auger samples that were identified as containing a relatively intact paleosol, comprising a nearly intact stratigraphic sequence (i.e. O/A/B/ horizons) of soil horizons or marsh peat overlying a former upland surface, samples were collected from stratigraphic units in sections of variable thickness depending on the thickness of strata. When possible, numerous subsamples were collected from strata for

better vertical resolution for potential cultural material context. These samples were then weighed, recorded, and subjected to a standard flotation method involving a chesse-cloth bag for retention of a floating light fraction, and a 1mm mesh screen for capturing the remaining heavy fraction of the sediment. The samples were then dried, light and heavy fractions bagged separately, and labeled with detailed provenience information. Finally, each sample was closely examined under magnification for microflakes, other cultural materials, microbotanical contents, and charcoal.

Processing of samples for radiocarbon dating involved a detailed analysis of stratigraphic context, and involved careful selection of material to be submitted for dating. Care was taken that the sample did not come into contact with skin, clothing, or other potential contaminant. Samples were bagged in a thick, archival-quality sealable bag and labeled with detailed provenience information. The samples were then carefully packed and prepared for shipment, then sent via FedEx to Beta Analytic for radiocarbon analysis.

Sediment samples from analyzed gouge auger samples, including flotation-derived organic materials, are currently housed at JMA's West Chester, Pennsylvania Office in archival quality sealed bags with detailed provenience information, and are kept in an archival quality storage box with relevant project documents.

4.0 RESULTS

4.1 GOUGE AUGER DATABASE (SEE APPENDIX I FOR GOUGE AUGER LOGS)

A total of 116 gouge auger samples were extracted between September 6 and September 14, 2010 by JMA with generous assistance from Apex Companies, LLC personnel. Numerous sediment types and depositional environments were revealed during the survey, leading to a greater understanding of the local geomorphic evolution and ultimately facilitating a detailed assessment of intertidal prehistoric archeological site potential in the Project Area. Gouge augers typically penetrated Holocene sediment and met with refusal on Pleistocene sediments, Holocene lag deposits, or other unknown subsurface obstructions. Photographs and interpretations of representative auger stratigraphy are shown on Figure 5. The numbering system for stratigraphic units is consistent across Figure 5 and the stratigraphic profiles discussed in later sections.

4.1.1 Southern Portion of the Intertidal Survey Area

The Southern portion of the Project Area, extending from the southernmost gouge augers to two rows of augers past the outflow pipe, contains the largest amount of intertidal area within the overall Project Area (Figure 4). This area exhibits approximately 1.5 meters of relief between the high and low tide levels, with roughly 45 meters of beach exposure at low tide. The surficial sediment at the low tide line is quite coarse, with prevalent large pebbles and gravel, while the sediment at the top of the slope is comprised of fine to medium sand. A fringing salt marsh and small lagoon (Plate I) are experiencing marine transgression as the beach berm moves landward, serving to bury marsh and lagoonal deposits. The fringing marsh is eroding, and in places it does not reach the high tide line where there is a concentration of modern trash, large pebbles, and even boulders (likely historic building materials) (Plate 3).

Three stratigraphic profiles were compiled from gouge auger data to further investigate the geomorphology of the southern portion of the Project Area, and to assess prehistoric site potential (profile locations depicted on Figure 4). Profile 1 (Figure 6) reveals a thick sequence of sand (Stratum Va/b), likely late historic to modern in origin that thickens landward. This deposit could also be reworked fill from historic shoreline modification. The augers near the modern shoreline contained a well-preserved, relatively thick peat sequence (Stratum III) overlying well-preserved former upland soils likely developed into outwash (Stratum II). The peat is fairly localized, and as the profile indicates it likely grades into subtidally deposited, black, organic-rich silt (Stratum IV). It is unknown whether the upland soils (Stratum II) extend for any great distance toward the shoreline, though it is clear that they are not present in gouge auger 248, which refused on coarse clasts or rocks. Stratum Ia/b is likely a capped with a coarse, impenetrable lag surface incised into outwash.

Profile 2 (Figure 7), 24 meters north of Profile 1, reveals a completely different stratigraphic setting. The upper stratum of sandy silt to coarse sand (Stratum Va/b) is a continuation of Stratum Va/b from Profile 1. The organic-rich silt layer (Stratum IV), interpreted as a subtidally deposited sediment, is present in this profile, and overlies a likely marine unconformity incised into till or coarse outwash (Stratum Ia/b). The gouge augers extracted in this area did not reveal the presence of buried peat or upland soils.

Profile 3 (Figure 8), 32 meters north of Profile 1, reveals a stratigraphic profile quite similar to that depicted in Profile 2. A thick sequence of intertidal/beach sand, or possibly reworked historic fill (Stratum Va/b) overlies the same black, organic-rich silt (Stratum IV), which in turn caps a likely veneer of coarse sediment representing an erosional surface cut into till or coarse outwash (Stratum Ia/b). The surface

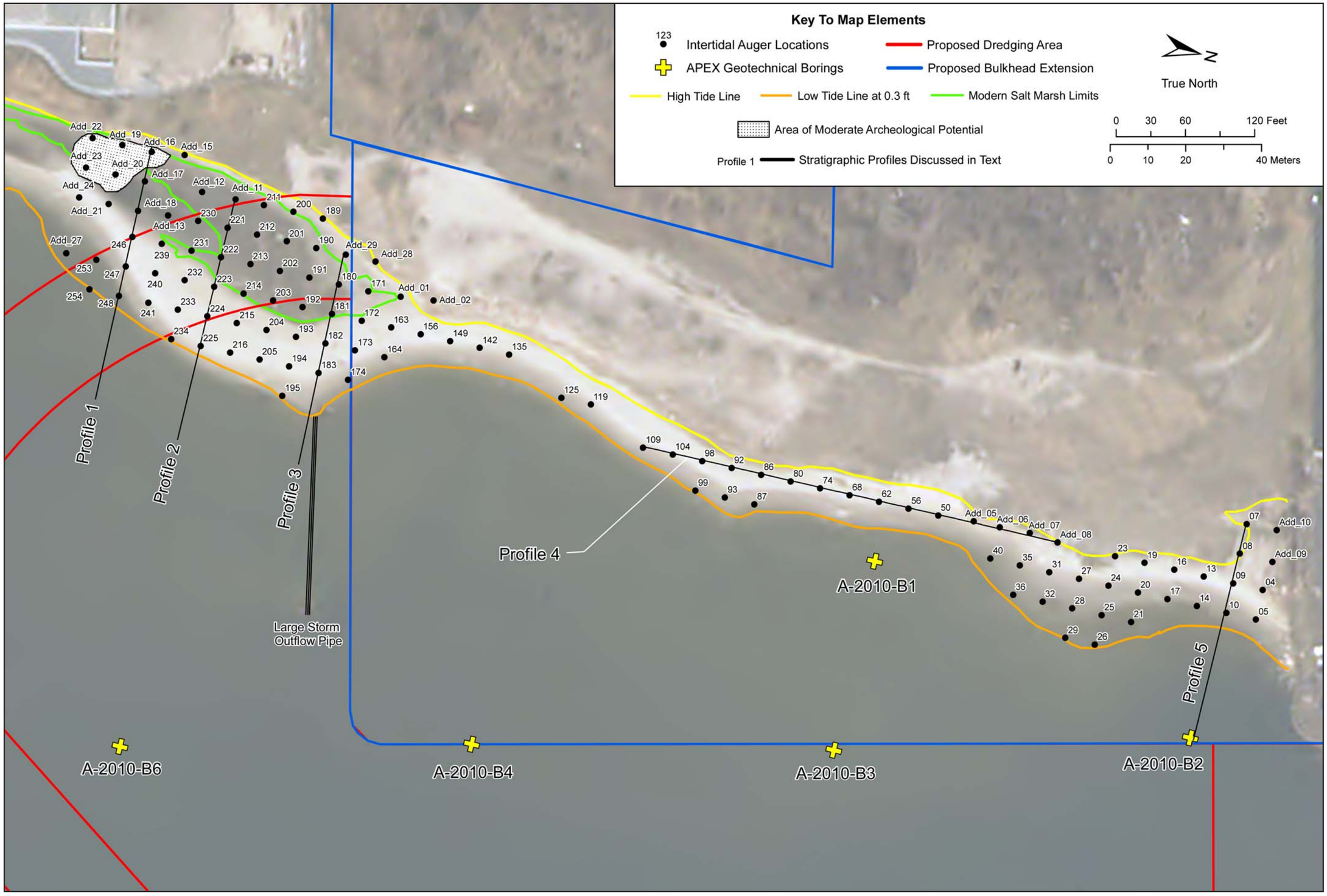


Figure 4. Map of South Terminal Marine Infrastructure Park Project Areas, Depicting Locations of JMA's Gouge Auger Sampling Locations, APEX Companies, LLC Geotechnical Boring Locations Cited in Text, and Stratigraphic Profiles Discussed in Text.

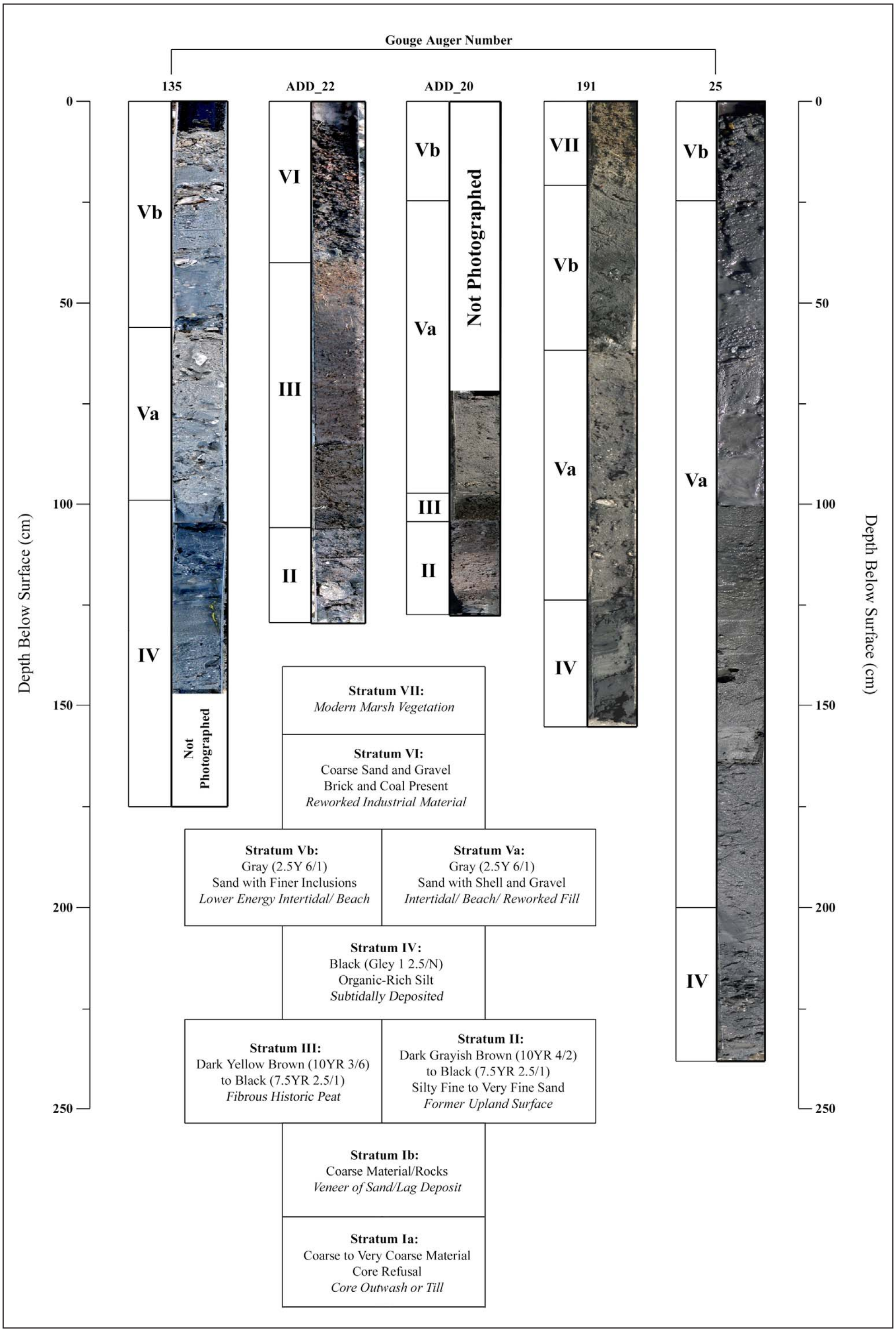
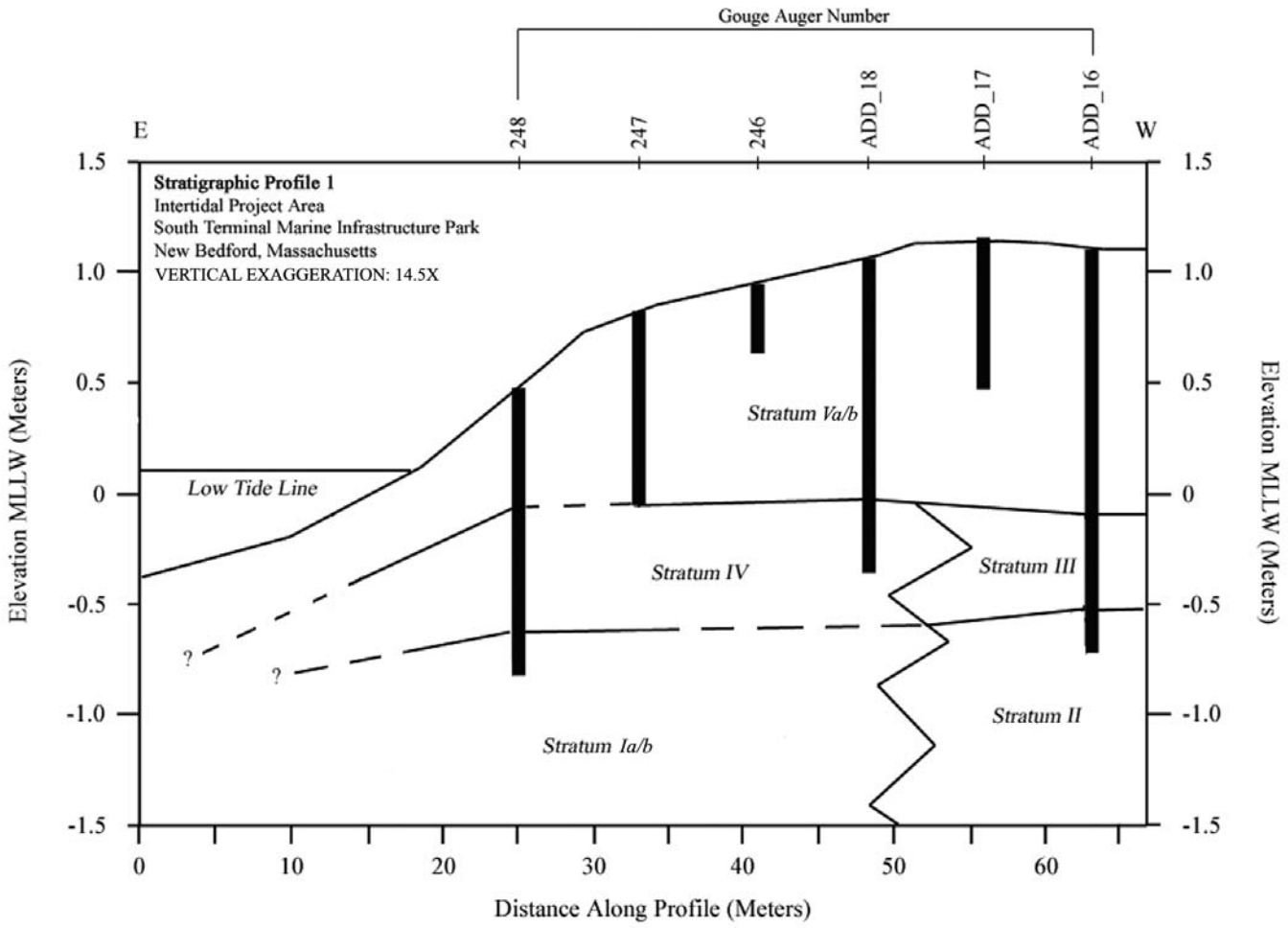


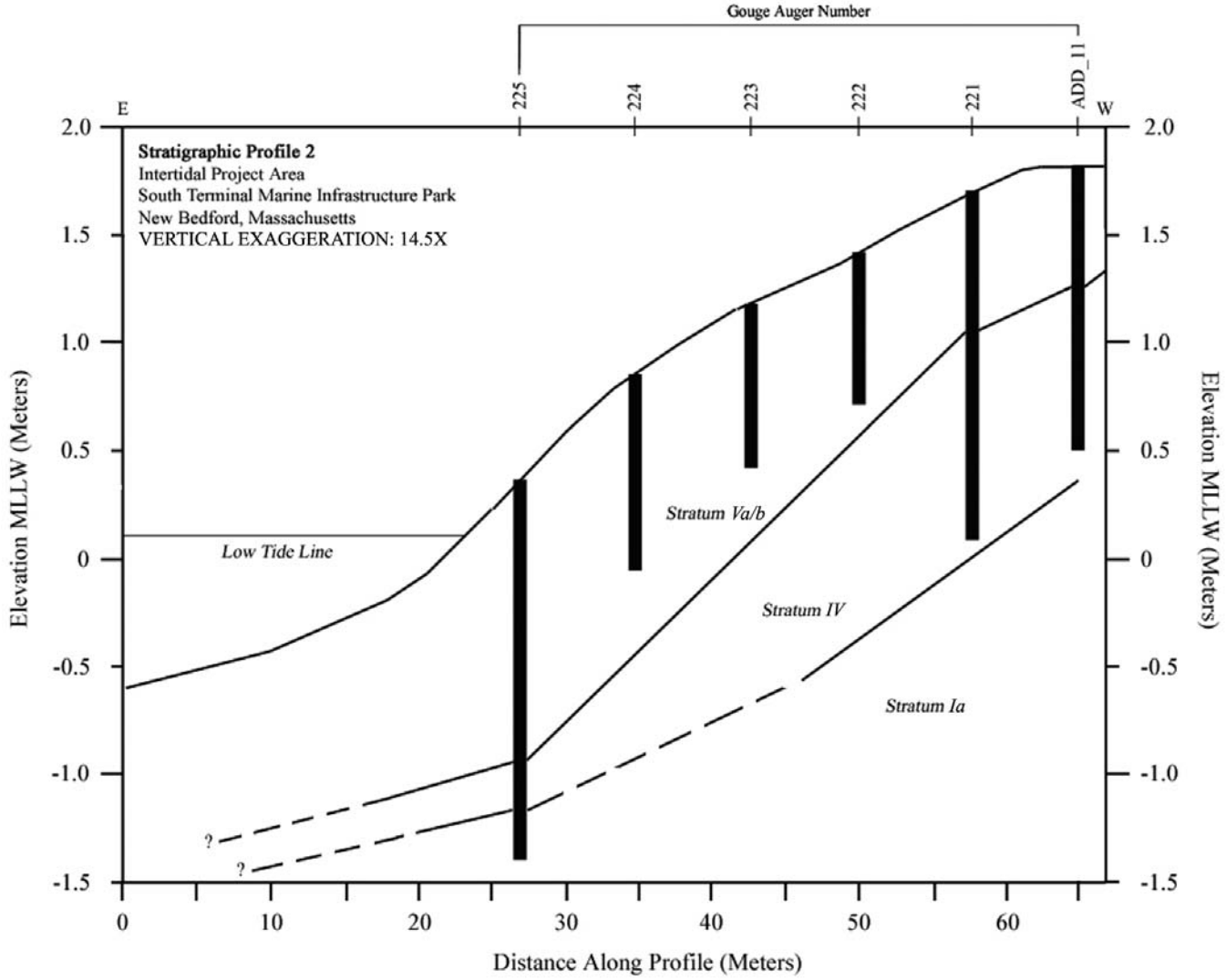
Figure 5. Photographs of Gouge Augers Selected to Show Representative Stratigraphic Units and Relationships.



Stratum Va/b: Dark Gray (2.5Y 4/1) to 4/2 (Dark Grayish Brown) Fine to Coarse Sand *Beach/ Intertidal/ Reworked Fill*	**Stratum IV:** Greenish Black (Gley 1 3/10Y) Organic-Rich Silt *Subtidally Deposited*	**Stratum III:** Very Dark Grayish Brown (2.5Y 3/2) Fibrous Peat Macro and Decayed Organics *Salt Marsh Peat Sequence*
Stratum II: Light Brownish Gray (2.5Y 6/2) Silty Fine to Medium Sand *Former Upland Soil Profile* *Developed Into Outwash*	**Stratum Ia/b:** Dark Olive Brown (2.5Y 3/3) Medium Sand Auger Refusal on Rocks *Thin Veneer of Sand Over* *Lag Surface Incised Into Outwash*	

DESCRIPTION AND *INTERPRETATION*

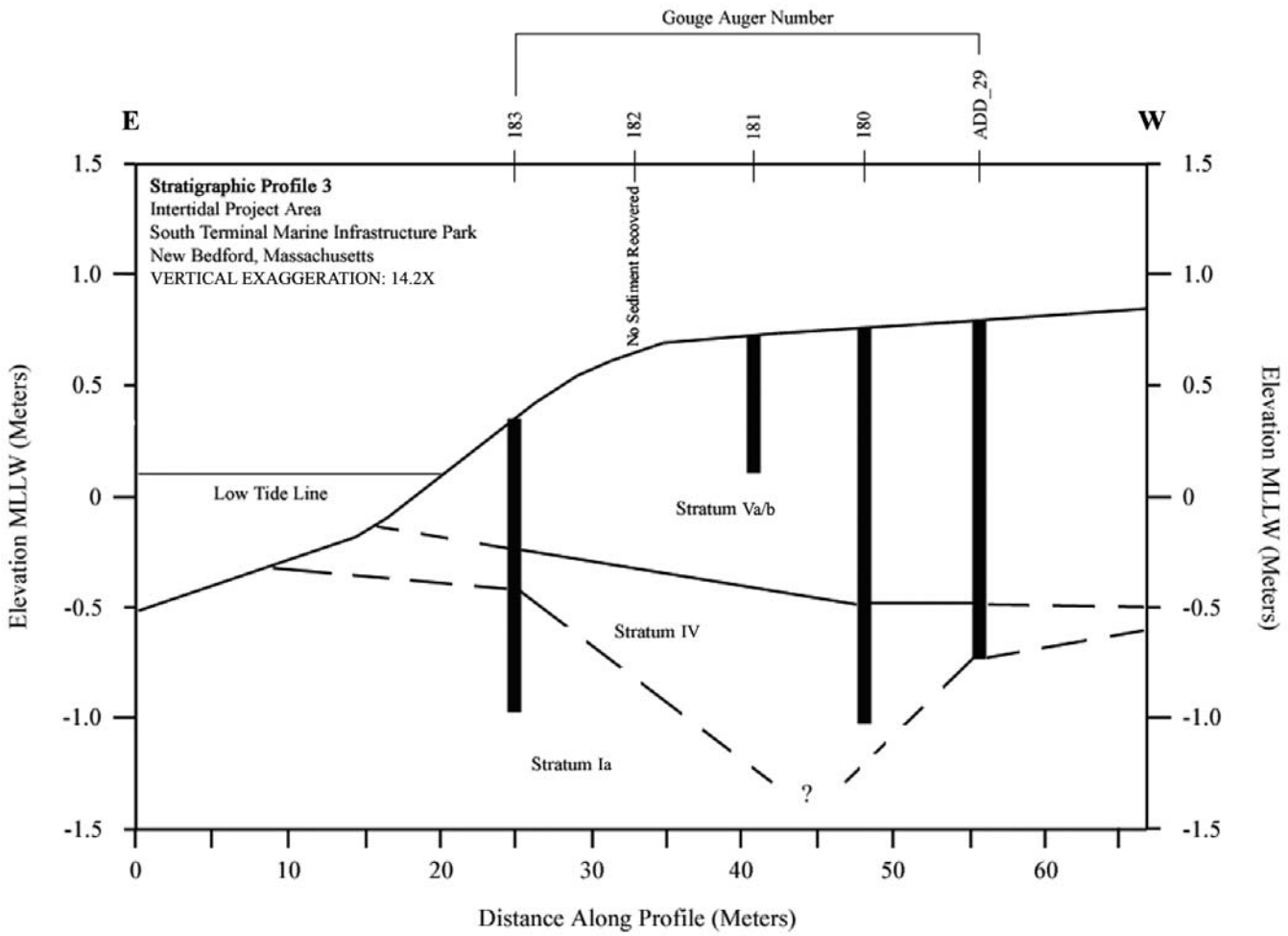
Figure 6. South Terminal Marine Infrastructure Park Intertidal Stratigraphic Profile 1.



Stratum Va/b:	Stratum IV:	Stratum Ia:
Grayish Brown (2.5Y 5/2) to Greenish Black (Gley 1 2.5/10Y) Sandy Silt to Coarse Sand *Intertidal/ Beach/ Reworked Fill*	Black (Gley 1 2.5/N) Organic-Rich Silt *Subtidally Deposited*	Very Dark Grayish Brown (2.5Y 3/2) Medium to Coarse Sand, Gravel Auger Refusal on Rocks *Likely Marine Unconformity Incised into Till or Coarse Outwash*

DESCRIPTION AND *INTERPRETATION*

Figure 7. South Terminal Marine Infrastructure Park Intertidal Stratigraphic Profile 2.



Stratum Va/b:	Stratum IV:	Stratum Ia:
Gray (2.5Y 5/1) to Light Brownish Gray (10YR 6/2) Medium to Fine Sand Shell Fragments and Gravel *Intertidal/Beach/Reworked Fill*	Black (Gley 1 2.5/N) Organic-Rich Silts and Silty Sand *Subtidally Deposited*	Gray (2.5Y 5/1) Compact Coarse Sand and Gravel Common Auger Refusal *Veneer of Coarse Sediment* *over Coarse Till or Outwash*

DESCRIPTION AND *INTERPRETATION*

Figure 8. South Terminal Marine Infrastructure Park Intertidal Stratigraphic Profile 3.

Plate 3. View of Extreme Southern Intertidal Project Area, Facing South. Note Fringing Salt Marsh.

Plate 4. South-Central Intertidal Project Area Facing North. Note Beach Profile in Foreground.

elevation of this profile is lower, as are the stratigraphic contacts, suggesting a sloping of strata to the north. The gouge augers extracted in this area did not reveal the presence of buried peat or upland soils.

The southern portion of the intertidal survey area contains an isolated area of high sedimentologic preservation, as evidenced by relatively thick sequences of buried marsh peat overlying former upland soils. This area has moderate archeological potential given its state of preservation. The area of moderate archeological potential does not fall within the current Project Area (roughly 50 feet southwest of the proposed turning basin), and will likely not be affected by construction of the proposed South Terminal Marine Infrastructure Park.

4.1.2 Central Portion of the Intertidal Survey Area

The central portion of the intertidal survey area (Plate 4), extending from gouge auger 149 to ADD_05, contains the least intertidal area within the overall Project Area (Figure 4). An erosional scarp demarcates the high tide line, and the beach slopes down through the intertidal zone and begins to level out at the low tide line. A thin peat layer was observed in the approximate center of the scarp. This area exhibits approximately 1.0 meter of relief between the high and low tide levels, with roughly 10.5 meters of beach exposure at low tide. The surficial sediment at the low tide line is quite coarse, with prevalent large pebbles and gravel, while the sediment at the top of the slope is comprised of fine to medium sand.

A stratigraphic profile was compiled from gouge auger data to further investigate the geomorphology of the central portion of the Project Area, and to assess prehistoric site potential (profile locations depicted on Figure 4). The small intertidal area precluded the construction of a shore-perpendicular profile, due to the lack of augers in this area, thus a shore-parallel profile was produced. Profile 4 (Figure 9) shows that a thick sequence of intertidal/beach sand, or possibly reworked historic fill (Stratum Va/b) overlies the same black, organic-rich silt (Stratum IV) seen in other profiles, which in turn caps a likely veneer of coarse sediment representing an erosional surface cut into till or coarse outwash (Stratum Ia/b). Stratum IV thins to the north, where it overlies a relatively shallowly buried Stratum Ia/b. The gouge augers extracted in this area did not reveal the presence of buried peat or upland soils.

4.1.3 Northern Portion of the Intertidal Survey Area

The northern portion of the intertidal survey area (Plate 5), extending from gouge auger ADD_06 to the northernmost row of augers, contains the second largest amount of intertidal area within the overall Project Area (Figure 4). The middle of this area corresponds to a pier or other historic constructed landform on the Bache coastal survey map (1846; Figure 3), while the northern limits of the area terminate in a rock-armored slope rising up to a large parking lot. The western edge of the intertidal zone in this area is comprised of an erosional scarp at the high tide line (Plate 5), cut into what appears to be a rather flat area of historic fill. This area exhibits approximately 1.5 meters of relief between the high and low tide levels, with roughly 45 meters of beach exposure at low tide. The surficial sediment at the low tide line is quite coarse, with prevalent large pebbles and gravel, and grades into sand at the top of the slope.

A stratigraphic profile was compiled from gouge auger and geotechnical boring data to further investigate the geomorphology of the northern portion of the Project Area, and to assess prehistoric site potential (profile locations depicted on Figure 4). Profile 5 (Figure 10) shows that a thick sequence of intertidal/beach sand, or possibly reworked historic fill (Stratum Va/b) overlies the same black, organic-rich silt (Stratum IV) seen in other profiles, which in turn caps a likely veneer of coarse sediment representing an erosional surface cut into till or coarse outwash (Stratum Ia/b). The stratigraphic units dip

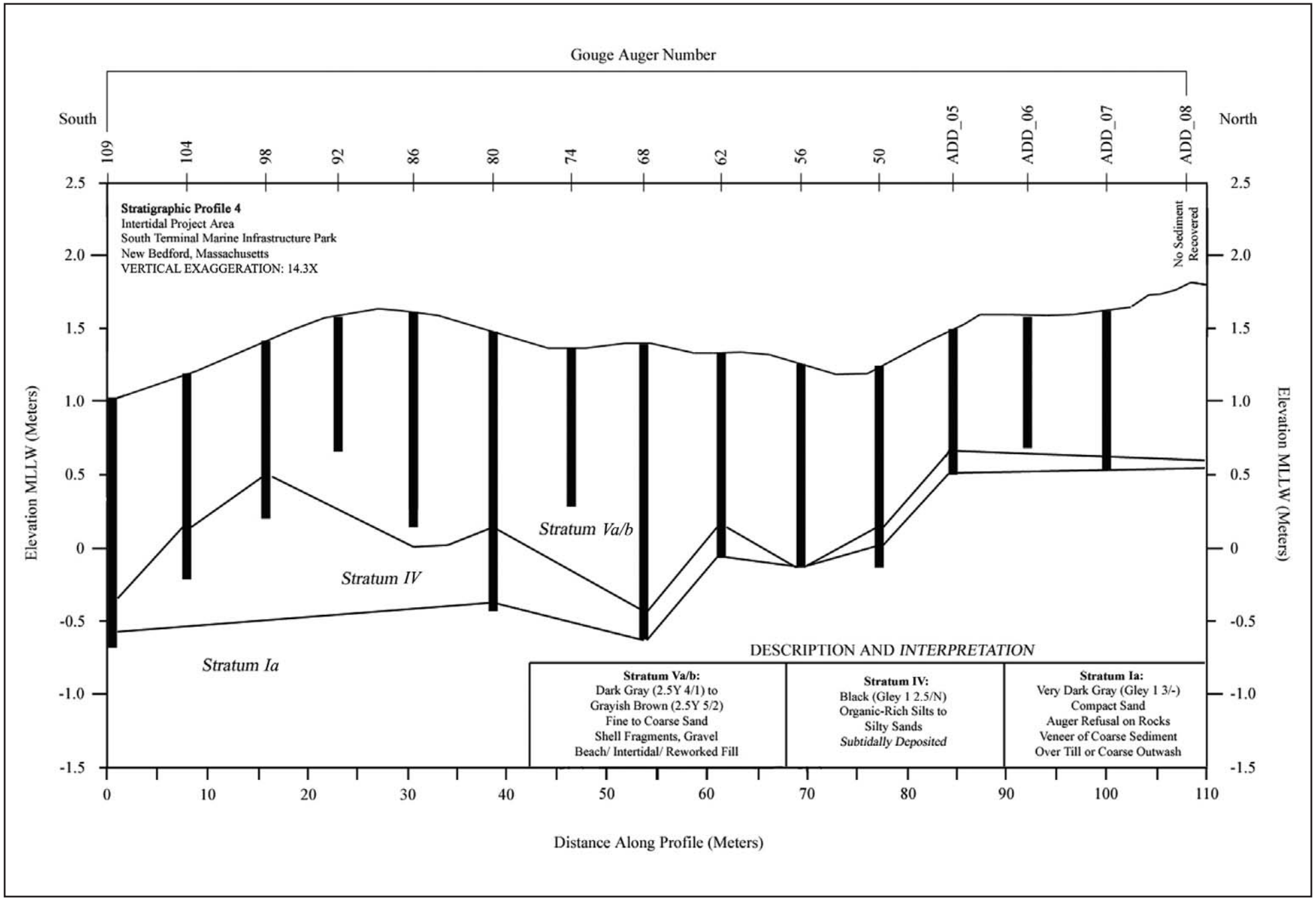


Figure 9. South Terminal Marine Infrastructure Park Intertidal Stratigraphic Profile 4.

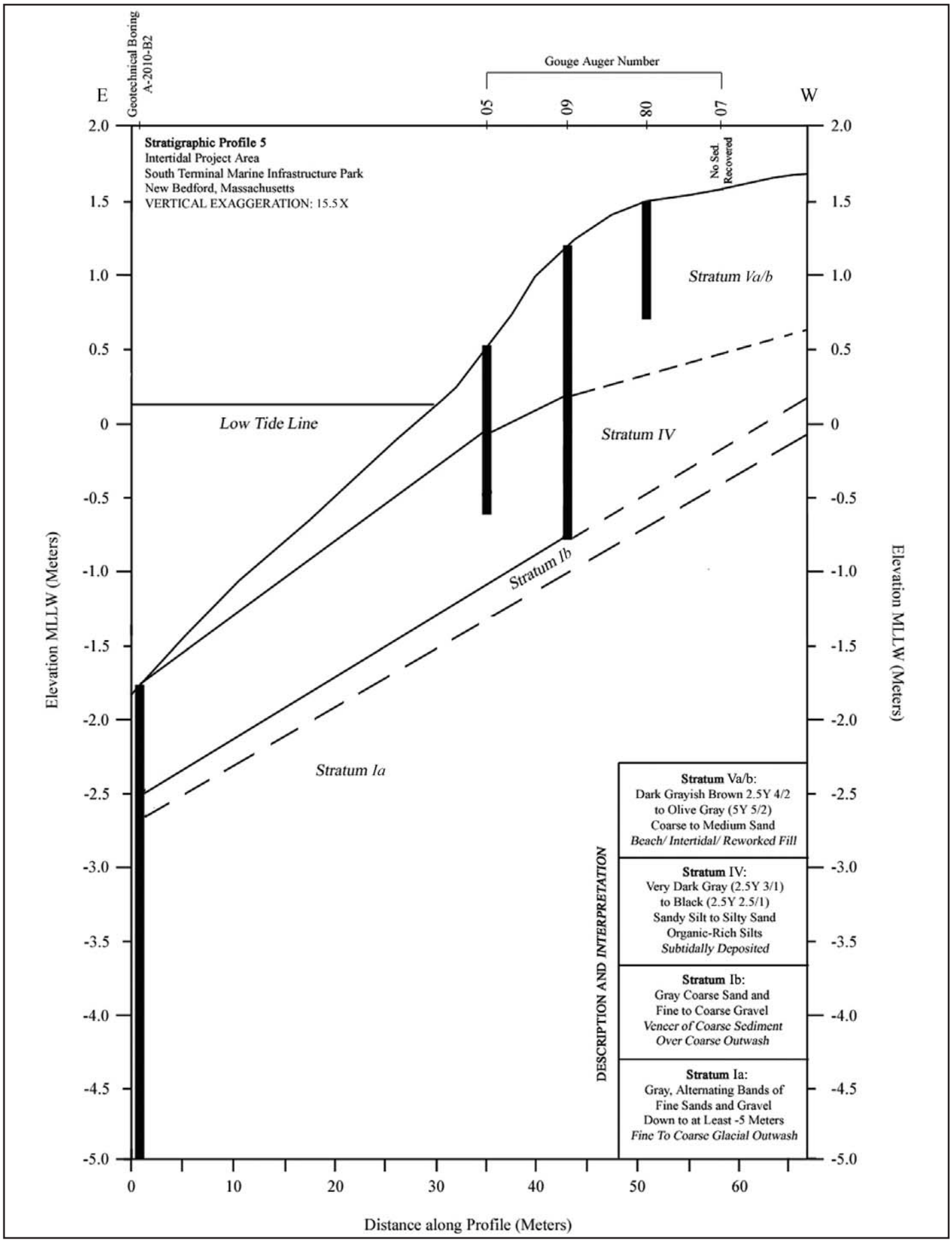


Figure 10. South Terminal Marine Infrastructure Park Intertidal Stratigraphic Profile 5.

Plate 5. Northern Intertidal Project Area Facing North. Note Erosional Scarp at High Tide Line.

Plate 6. Field Photograph of Gouge Auger ADD_16 Showing Stratigraphic Relationship between Historic Peat Deposit and Underlying Former Upland Surface.

steeply to the east. The gouge augers extracted in this area did not reveal the presence of buried peat or upland soils.

4.1.4 Results of Flotation of Selected Samples

Stratigraphic samples were collected from two gouge auger samples comprising fibrous marsh peat overlying former upland soils. The two samples, one from gouge auger ADD_16 and one from gouge auger ADD_20, were removed from the gouge auger prior to screening and were wrapped in rigid plastic and sealed in a zipper-lock bag labeled with detailed provenience information for each sample.

The sample from gouge auger ADD_16 comprised 8 cm of fibrous marsh peat overlying 15 cm of former upland soils (Plate 6). Table 2 presents detailed information regarding flotation of this sample. The heavy fraction from each subsample was visually inspected under magnification for the presence of cultural materials. No prehistoric cultural materials were identified, though small fragments of likely smithing slag were found in the sample from 161-169 cm. Slag was not recovered from the remaining heavy fraction samples. The sample from gouge auger ADD_20 comprised 11 cm of fibrous marsh peat overlaying 13 cm of former upland soils. Table 2 presents detailed information regarding flotation of this sample. The heavy fraction from each subsample was visually inspected under magnification for the presence of cultural materials. No prehistoric cultural materials were identified, though small fragments of likely smithing slag were found in the sample from 100 - 107 cm. Slag was not recovered from the remaining heavy fraction samples.

Table 2. Results of Flotation Analysis of Selected Gouge Auger Samples

Gouge Auger ADD_16

Sample Depth (cm)	Stratigraphic Context	Initial Sample Weight (grams)	Flotation Light Fraction Weight	Flotation Heavy Fraction Weight	Visual Inspection	Cultural Materials
161-169	Peat/ O/A HZn	114.7	1.6	10	yes	Smithing Slag
169-172	Former Upland	74.6	0.1	13.9	yes	no
172-184	Former Upland	226.5	0.1	45.2	yes	no

Gouge Auger ADD_20

Sample Depth (cm)	Stratigraphic Context	Initial Sample Weight (grams)	Flotation Light Fraction Weight	Flotation Heavy Fraction Weight	Visual Inspection	Cultural Materials
100-107	Peat	113.9	2.4	8.8	yes	Smithing Slag
107-111	Peat/ O/A HZn	67.8	1.2	7.1	yes	no
111-117	Former Upland	139.1	0.1	25.5	yes	no
117-124	Former Upland	115.5	0.1	27.1	yes	no

4.1.5 Radiocarbon Results and Discussion

A radiocarbon sample was collected from gouge auger ADD_16 between 167 and 168 cm below the top of the core (ground surface). The sample was collected at the interface between what appeared to be the stratigraphic contact between the marsh peat and the O/A horizon of the former upland soils. A bulk organic sample was collected and sent to Beta Analytic for analysis. A representative from Beta Analytic contacted JMA during the sample pretreatment process and indicated that a quantity of plant material was present that was sufficient for dating, and would be a better material to radiocarbon date if it was *in situ*.

As there was no ostensible disturbance to the stratigraphy, the plant material was submitted for radiocarbon dating in lieu of the bulk organic date. The plant material returned a radiocarbon date of 1760 +/- 40 BP (Beta-285530See Appendix III for detailed results).

Analysis of the former upland soil under a microscope, after flotation sampling, revealed small fragments of slag in the heavy fraction, implying that the surface dates to the historic period. The date of 1760 +/- 40 BP from organic material directly above this surface implies that organic material must have been eroded and transported to the location from an older deposit. It is JMA's opinion that the plant material submitted for the radiocarbon data was not *in situ*, and the resulting radiocarbon date does not accurately reflect the actual age of the peat/O/A layer.

4.2 DRAFT GEOTECHNICAL BORING LOG DATABASE (SEE APPENDIX II FOR DETAILED BORING LOGS)

Apex Companies, LLC provided to JMA five draft boring logs from geotechnical borings extracted within the South Terminal Marine Infrastructure Park Project Area. The locations of the geotechnical borings are depicted on Figure 4. As the geotechnical boring logs were presented to JMA as ***draft*** documents, they do not constitute a legally-binding, absolute assessment of the subsurface sediment and rock properties in the Project Area. Furthermore, the interpretation of the draft geotechnical boring logs by JMA does not constitute a legally-binding, absolute assessment of subsurface sediment and rock properties. JMA personnel are not trained in geotechnical engineering and cannot be held responsible for misinterpretation of geotechnical field results. The interpretation of the field results are merely utilized as an additional dataset for JMA's review to aid in the assessment of submerged prehistoric archeological site potential in locations not directly surveyed by JMA.

4.2.1 Draft Geotechnical Boring Log for Boring A-2010-B1

Boring A-2010-B1 revealed a rather shallow Holocene stratigraphic sequence comprising approximately 4 feet of Holocene marine sediment over till. The close proximity of this boring to the modern intertidal zone suggests that either a thin soil profile was initially developed on top of the shallowly buried till, and has since been eroded away, or that a significant amount of shoreface incision has occurred in this area, sufficient to remove accumulated Holocene weathered soils. The latter scenario is the most logical interpretation given the shallow burial of the till and the lack of oxidation. However, the bathymetric data supplied by Apex Companies, LLC and the water depth given for the boring location do not match. The boring log indicates that the core was extracted at a depth of -23.15 feet below the mudline, while the stated location of the core would place it in roughly one foot of water. The data for Geotechnical Boring A-2010-B1 are considered inaccurate for the purposes of the current assessment of intertidal prehistoric site potential.

4.2.2 Draft Geotechnical Boring Log for Boring A-2010-B2

Boring A-2010-B2 revealed a thick sequence (16 feet) of marine sands near the existing bulkhead. The depth of the deposits, coupled with their relatively fine texture, could indicate fine to coarse grained filling of paleotopography such as a paleochannel. The sediment does not significantly change until a depth between 16 and 18 feet below surface, at which it becomes mottled. This boring suggests low archeological potential for this portion of the Project Area.

4.2.3 Draft Geotechnical Boring Log for Boring A-2010-B3

Boring A-2010-B3 revealed approximately 5 to 10 feet of Holocene marine and intertidal sediments over till. The sediment contained gravel of sufficient size to become lodged in the coring bit. The sediment between 5 to 10 feet could be weathered till, but is most likely an intertidal sand sheet unconformably overlying the coarser material.

4.2.4 Draft Geotechnical Boring Log for Boring A-2010-B4

Boring A-2010-B4 revealed up to 15 feet of marine sediment. This area appears to have deep sedimentation (22 feet) though the majority is marine in origin. Mottling and brown-colored sediment occur at 16 feet below surface. This boring likely represents another area of paleochannel filling. The boring may have been extracted from a channel sequence, which would explain the deep sediments, stratification, and presence of some larger clasts. These sediments do not seem fine enough for a quiet floodplain setting, and are probably more indicative of a position close a channel. This boring suggests low archeological potential for this portion of the Project Area.

4.2.5 Draft Geotechnical Boring Log for Boring A-2010-B6

Boring A-2010-B6 revealed 10 feet of sandy marine sediments. Location of boring places it close to observed potential paleochannel in seismic data. The deep sedimentation would imply a filled depression of some kind. The boring log is incomplete after a recorded depth of 10 feet.

4.3 ASSESSMENT OF GEOMORPHIC HISTORY OF INTERTIDAL PORTIONS OF THE PROJECT AREA

The geomorphic history of the intertidal survey area is a complex interplay between marine processes and local historic disturbance. Portions of the survey area contain a large amount of sediment relative to other portions, which is likely a direct result of the construction of the hurricane barrier in 1964, the presence of a storm outflow pipe that extends more than 170 feet from the shore (Figure 4, Plate 7), and the presence of a significant amount of historic fill in the adjacent upland areas. These factors combine to provide a large sediment budget and a numerous, relatively efficient, sediment traps. The upper stratigraphic units (Va/b), are likely derived from a combination of historic and modern sedimentologic processes, combining sources of sediment with low energy areas of deposition. The stratigraphy was expected to comprise beach and intertidal sediment overlying truncated and reworked glacial sediments, however, the presence of a black, clearly subtidally deposited, organic-rich silt stratigraphically positioned between the intertidal/beach sediments (Stratum Va/b) and glacial sediments (Stratum Ia/b) was not anticipated. The stratigraphic relationships imply that at some point the beach sediment prograded out onto subtidal environments and effectively capped a sequence of subtidal sediments. It is likely that historic activity in the area, including creation of made land and various episodes of filling, built out the beach environment and changed the geomorphology of the area. Later historic reworking of these beach, intertidal, and fill sediments has created the stratigraphy we see today. Prior to historic activities the area was likely a high energy, exposed system characterized more by erosion than deposition. The presence of shallowly buried glacial deposits attests to the lack of stable deposition in the area.

The southern portion of the intertidal survey area comprises a wide beach area, and is a lower energy setting due to indirect protection by the storm outflow pipe and hurricane barrier. The extreme southern portion of this area exhibits the best stratigraphic preservation potential within the intertidal survey area, culminating in the preservation of buried and preserved peat deposits overlying former upland strata. The

Plate 7. View of Storm Sewage Overflow Pipe and Associated Erosion and Deposition.

stratigraphy in the extreme southern area is in striking contrast to that of the central and northern project areas. A comparison of stratigraphy between the three areas reveals how eroded and reworked the northern and central intertidal portions area, relative to the excellent stratigraphic preservation in the extreme southern portion (Figure 4).

4.4 ASSESSMENT OF PREHISTORIC ARCHEOLOGICAL POTENTIAL IN THE INTERTIDAL PORTIONS OF THE PROJECT AREA

A comparison of gouge auger and geotechnical boring stratigraphy, stratigraphic relationships shown on compiled profiles, and the geomorphic development of the intertidal survey area allow an informed assessment of intertidal prehistoric archeological site potential. The stratigraphy of the majority of the intertidal survey area is characterized by Pleistocene glacial sediment (till or outwash), truncated and reworked by a marine erosional unconformity, overlain by black, subtidally deposited organic silts, which are in turn capped by a thick sequence of intertidal and beach sediments. No concrete evidence for preserved, buried upland landscapes was identified within the proposed Project-affected intertidal areas, nor were any prehistoric cultural materials recovered. The stratigraphic relationships observed in the field, combined with field analysis of gouge auger samples, indicates that the areas that will be directly affected by the proposed development have low potential for presence and preservation of intertidal prehistoric archeological sites.

The southern portion of the intertidal survey area contains an isolated area of high sedimentologic preservation, as evidenced by relatively thick sequences of buried marsh peat overlying former upland soils. This area has moderate archeological potential given its state of preservation. The area of moderate archeological potential does not fall within the current Project Area (roughly 50 feet southwest of the proposed turning basin), and will likely not be affected by construction of the proposed South Terminal Marine Infrastructure Park.

It is JMA's conclusion, after analyzing 116 gouge auger samples and five geotechnical boring logs from within the Project Area, that the intertidal area with potential to be directly affected by construction of the proposed South Terminal Marine Infrastructure Park has low prehistoric archeological potential. The high-energy environment, historic disturbance on adjacent upland areas, lack of solid evidence for buried upland landscapes, and common auger refusal on lag deposits and eroded coarse outwash and till indicate that the area has been eroded and reworked by marine processes resulting in destruction of former upland landscapes and concomitant potential archeological site contexts.

5.0 CONCLUSIONS AND RECOMMENDATIONS

JMA conducted an intensive (locational) archeological investigation, comprising gouge auger sampling, to assess the potential for intertidal prehistoric archeological sites potentially affected by the proposed South Terminal Marine Infrastructure Park Project in New Bedford, Massachusetts. A total of 116 individual gouge auger samples were extracted between September 6 and September 14, 2010 by JMA with assistance from Apex Companies, LLC personnel.

Analysis and interpretation of sediments recovered from gouge auger sampling resulted in the identification of an area of high sedimentologic preservation that contained marsh peat deposits of varying thickness overlying relatively well-preserved former upland soils. This area was identified west-southwest of the proposed turning basin and is approximately 50 feet outside the proposed Project Area. Resultant sieving of the preserved upland soils below the peat deposits resulted in the recovery of small fragments of industrial material, the majority of which comprised industrial slag. Plant remains from the peat deposit overlying the upland soils were radiocarbon dated to 1730 +/- 40 BP, a date much too old to be stratigraphically *in situ* above a landsurface containing slag. The plant remains that produced the radiocarbon date likely washed into the marsh after eroding out of an older deposit. The area of peat and upland soils is considered by JMA to have moderate archeological potential (Figure 4), though based on the proposed limits of construction the area is in no danger of disturbance by construction activities.

It is JMA's conclusion, after analyzing 116 gouge augers and five geotechnical boring logs from within the Project Area, that the intertidal area with potential to be directly affected by construction of the proposed South Terminal Marine Infrastructure Park has low prehistoric archeological potential. The high-energy environment, historic disturbance on adjacent upland areas, lack of solid evidence for buried upland landscapes, and common auger refusal on lag deposits and eroded coarse outwash and till indicate that the area has been eroded and reworked by marine processes resulting in destruction of former upland landscapes and concomitant potential archeological site contexts.

JMA recommends no further prehistoric archeological evaluation of the intertidal portion of the proposed South Terminal Marine Infrastructure Park Project Area.

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Appendix I:

Vibracoring Log Sheets

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT NEWBEDCDF3 Described By Jo/JR Date 9/14/10

Unit No. ADD 1	Unit Type: GAUGE AUGER	Location: ~1.5m HIGH TIDE LAGOON
Vegetation: NONE		Drainage: WELL

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-10	2.5Y 4/3 OL BN	MSD	VERY LOOSE	Ø	<5% HASH	Ø	Screened
10-13	2.5Y 4/3 OL BN	MSD	LOOSE MOIST	Ø	60% HASH	Ø	Screened
13-45	2.5Y 4/3 OL BN	M-F SD	LOOSE MOIST/WET	Ø	<5% HASH	Ø	<1% TRACE GRAVEL @ 30 cmbs Screened
45-58	2.5Y 4/2 DKGYBN	FSD	MOD-LOOSE WET	Ø	<5% HASH	Ø	Screened
	Auger Refusal @ 58 cmbs						

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT Apex Companies PROJECT [illegible] Described By Eric Date 9/14/2010

Unit No. ADD-2	Unit Type: Gouge Auger	Location: NBH
Vegetation: Yes - Salt Grasses		Drainage: Salt Marsh Environment

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-19	2.5Y62	Med. Sand	Loose	No	No	No	Coal slag. sub angular pebbles Med grained Sand
19-39	2.5Y62	Med-Coarse Sand	Loose	No	Yes	Yes	Shell fragments. small to Med. rounded gravel. Amber glass fragments
39-56	2.5Y62	Fine-Med Sand	Loose	No	Yes	No	Trace shell fragments Some well rounded Pebbles-Fine-Med grained Sand-reed grass fieces
56-71	2.5Y62	Fine-Med Sand	Loose	No	Yes	No	Shell fragments >10%. Some well rounded Pebbles-Fine-Med grained sand.
71-96	2.5Y62	Fine-Med Sand	Loose	No	Yes	No	2 shell fragments 3 pebbles. Fine to Med
96-115	2.5Y62	Med. Sand	Loose	No	Yes	No	1 large Pebble trace Medium pebbles & trace shell fragments. Med loose Sand.
115-164	2.5 52	Fine-silty sand	Loose	No	Yes	No	4 Large pebbles. High concentration of Shell fragments. Small & Med. pebbles Fine Silty Sand
164-180	2.5Y63 3.1	Fine Silty Sand	Medium	No	Yes	No	Lots of Shell fragments. Med Pebbles Fine Sands w/ trace organic silt

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEW BEDCDE 3 **Described By** Jo, JR **Date** 9/15/10

Unit No. ADD 5	Unit Type: GAUGE AUGER	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-19	2.5y 7/2 LT GY	C SD DRY	very loose	Ø	Shell Hash + frags	Ø	Beach Sand Screened
19-40	2.5y 4/2 DKGY BN	C-M SD WET	loose	Ø	5% frags	Ø	large gravel w/ pea sized gravel Clam + oyster shell frags Screened
40-47	2.5y 4/2 DKGY BN	C-M SD WET	mod compact	Ø	<5% hash	Ø	clam + oyster shell fragments Trace silt + clay Screened
47-52	2.5y 2.5/1 BLK	F SD WET	mod compact	Ø	Ø	Ø	homogeneous trace silt Screened
52-56	2.5y 3/1 VDKGY	F SD WET	mod compact	Ø	Ø	Ø	homogeneous Screened
56-62	2.5y 3/1 VDKGY	M-F SD WET	moderate	Ø	<1% HASH	Ø	homogeneous Screened
62-85	2.5y 3/1 VDKGY	M-C SD SATURATED	loose	Ø	5% Hash	Ø	1 larger rock Pea sized gravel Screened
85-100	2.5y 2.5/1 BLK	SI F SD WET	moderately compact	Ø		Ø	homogeneous Some F-M SD Screened

Additional Notes: large cobbles on surface. Rising tide fill augers

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/MGC Date 9/15/10

Unit No. ADO-6	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-31	2.5Y 6/2 LGB	M-C SAND	LOOSE	NONE	LOW-MED		
31-56	2.5Y 5/1 G	M-C SAND	LOOSE		HIGH		
56-68	2.5Y 5/2 GB	F-M SAND	MEDIUM		LOW		
68-83	2.5Y 4/1 DG	F-SAND	DENSE		NONE		MICRO LENSES / THIN BANDS @ 2.5Y 2.5/1 BLACK
83-94 (?)	2.5Y 4/1 DG	F-M SAND	DENSE		NONE		
							- ADVANCING TIDE CAUSED AUGER TEST TO FILL W/ WATER; NO RETRIEVAL OF SOILS

PHOTO 100-0078

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX Co. PROJECT New Bedford Described By GAD Date 9/15/10

Unit No. ADD-7	Unit Type:	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	2.5Y 6/2	F-M SAND	LOOSE DAMP	NA	1 CLAM SHELL	1 KLINKER	< 5% PEA GRAVEL
12-39	2.5Y 5/1	F-M SILTY SAND	LOOSE DAMP	NA	MANY CLAM & OYSTER SHELLS	8 CHUNKS COAL	1 LARGE PEBBLE 1 HANDFULL PEA GRAVEL
39-70	2.5Y 6/2	M-C SAND	LOOSE WET	NA	MANY CLAM & SNAIL SHELLS	NA	SMALL AMT OF PEBBLES
70-97	2.5Y 5/1	F-M SILTY SAND	MEDIUM WET	NA	SMALL AMT SHELLS	1 PIECE OF CINDER	SMALL AMOUNT OF PEBBLES & SHELLS
97-111	1 GLEY 3/1	F-SILTY SAND	MEDIUM WET	NA	6 PIECES OF CLAM SHELL	NA	4 PEBBLES

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/15/10

Unit No. ADP-8	Unit Type:	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments

Additional Notes: Unit up on bank near the erosional cut Abandoned due to sand so loose no retrieval possible

GOUGE AUGER LOG

JMA architects archaeologists planners
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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JAK/MGC Date 5/15/10

Unit No. ADD-9	Unit Type: GOUGE AUGER	Location:
Vegetation: SPARSE SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-39cm	2.5Y5/2 GR. BR.	M. SAND	LOOSE/ MEDIUM	NONE	LIGHT + SMALL	NONE	
39-49	2.5Y4/4 O. BR.	M. SAND	MEDIUM	NONE	LIGHT + SMALL	NONE	- CLEAR BOTTLE GLASS, NOT SAVED
							REFUSAL ON SOME UNKNOWN OBSTRUCTION

Additional Notes: AUGER PROBE ON SLIGHTLY HIGHER GROUND WITH TIDAL INLET @ N. END OF TEST AREA

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT NewBedCDF3 Described By JoJr Date 9/15/10

Unit No. ADD 10	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments	
0-11	2.5Y 5/2 GY BN	MSD DRY	Loose	Ø	Ø	Ø	homogeneous	
11-16	2.5Y 3/3 DKOLBN	M-F SD Moist	Loose	Ø	Ø	Ø	<1% Pea gravels	FILL 1 Screened
16-22	2.5Y 3/3 3/1, 3/2	FSD, cl Si	friable	Ø	Ø	Ø	mottled w/many colors <1% pea gravels	FILL 2 Screened
22-27	2.5Y 4/4 OLBN	CSM damp	loose	Ø	Ø	Ø	15% Pea gravels	FILL 3 Screened
27-38	2.5Y 4/2 DKGYBN	M-F SD	mod loose	Ø	Ø	<1% Hash	<1% pea gravels	FILL 4?
38-44	2.5Y 4/2 DKGY BN	FSD Trausilt	mod firm	Ø	Ø	Ø	<0.1% pea gravels	FILL 5?
	Auger Refusal on Rock							

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR **Date** 9/17/10

Unit No. ADD-11	Unit Type: Auger	Location:
Vegetation: saltmarsh grasses		Drainage: moderate (w/in saltmarsh)

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-7	2.5Y 3/2	f: S.Si	loose	Small roots	—	—	<5% pebbles
7-34	2.5Y 4/1	fine-coarse Sand	loose	large roots	Sm-lg, shell	—	~5%, small gravels clam
34-44	Gley1 2.5/10Y	fine-coarse Sand	loose	—	no shell	—	<5%, pea-sized gravel
44-58	Gley1 3/10Y	fine S.Cl	Compact	—	—	—	no gravel
58-69	See Comments	fine S.Cl	Compact	—	—	—	Color: sub-centimeter banding: Gley1 3/N w/ Gley1 2.5/N and Gley1 4/10Y no gravel
69-83	Gley1 2.5/N banded w/ 2.5Y 5/1	fine S.Cl	compact	—	very little	1 Sm chunk coal	no gravel clam
83-87	Gley1 2.5/N	fine-coarse S.Sa	loose	—	—	—	<5%, small-med pebbles
87-93	Gley1 2.5/N banded w/ 2.5Y 5/1	fine S.Cl	compact	—	—	—	<5%, small pebbles

Additional Notes: Refusal on rock @ 125 cmBs 93-125 cmBs unable to recover
2 Photos taken of core.

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** NewBedCDF3 **Described By** JR, EM, JO **Date** 9/17/10

Unit No. ADD 12	**Unit Type:** gouge auger	**Location:** Salt Marsh
Vegetation: Marsh grass		**Drainage:** Poor

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-15	2.5Y 4/1 DK Gry	TRACE F SD SILT	Moderate Compact Wet	Roots + rootlets	<1% Hash	NCM	<1% pea gravels unidentified shell fragments Screened
15-38	2.5Y 5/1 Gry	TRACE C SD F-M SD	Moderate Wet	rootlets + Roots	<1% HASH	NCM	2% quarter sized gravels <5% pea gravels unidentified shell fragments Screened
38-58	GLEY 1 3/- VDKGY	TRACE C SD F-M SD	Moderate Wet	Ø	1% Hash	clinker, coal (not kept)	5% pea gravels 1% quarter sized gravels clam fragments Screened
	Second Auger attempt got to ~90cmbs. Extraction attempt						
	failed as sample fell out. Auger Refusal also @ 90cmbs						

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/NEL Date 9/17/10

Unit No. ADD-13	Unit Type: GOUGE AUGER	Location: SALT MARSH
Vegetation: NO		Drainage: AQUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 30 cm	GLEY 1 2.5/N BLACK	M - C SAND	VRY LOOSE	NA	YES	NA	PHOTOS 118 - 120 ABUNDANT SHELLS AND PEAGRAVEL
30 - 47	GLEY 1 3/N VRY DRK G	F. SAND	MODERATE	NA	YES	NA	SOME BROKEN SHELL FRAGS
47 - 54	GLEY 1 3/N VRY DRK G	COURSE SAND	VRY LOOSE	NA	YES	NA	ABUNDANT SHELLS & PEA GRAVEL (DENSE)
54 - 78	GLEY 1 3/10Y VR DK GRAY	F - M SAND	MOD - DENSE	NA	YES	NA	MODERATE SHELL & PEA GRAVEL
78 - 139	GLEY 1 2.5/N BLACK	SILT W/ FINE SAND BANDS	DENSE	NA	NA	NA	BANDS OF GLEY 1 6/10Y GREENISH GRAY IN UPPER 5 CM OF LAYER
139 - 144	GLEY 1 2.5/N BLACK	F. SAND	MOD-DENSE	NA	NA	NA	<5% ROUNDED PEASTONE SMALL BRICK FRAG (NOT SAVED)

Additional Notes:

GOUGE AUGER LOG

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John Milner Associates, Inc.

CLIENT Apex **PROJECT** New Bed CDF 3 **Described By** FM, JR, JO **Date** 9/17/10

Unit No. ADD15	Unit Type: Gouge Auger	Location: adjacent to Salt Marsh
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	2.5Y 6/2 LT BNGY	M-CSD	Loose Damp	Ø	<1% Hash	NCM	<1% Pea gravel Clam fragments Screened
12-55	2.5Y 6/1 Gy	F-MSD	Loose Wet	Ø	<5% Hash	Clinker (not kept)	<5% Pea gravel oyster + clam frags Screened
		Auger Refusal	@ 55cmbs				on Rock

Additional Notes: 3 auger attempts in 3 locations all refused on large rock (s)

GOUGE AUGER LOG

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CLIENT APEX Co. PROJECT NEW BEDFORD Described By GAD/ECM Date 9/20/10

Unit No. ADD-16	Unit Type: ATU	Location: SALT MARSH
Vegetation: YES SALT MARSH		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-18	2.5Y 4/1 DARK GRAY	F-M SAND TRACE C. SAND	LOOSE - WET	YES	YES	NO	ROOTS (DENSE) FROM GRASS & ROOTLETS <5% PEAGRAVEL <1% SHELL
18-61	2.5Y 5/2 GRAY/BROWN	F-M SAND TRACE C. SAND	LOOSE - WET	NO	YES	NO	<5% PEAGRAVEL <1% SHELLS
61-93	2.5Y 6/1 GRAY	F-M SAND TRACE C. SAND	LOOSE - WET	NO	NO	2 PIECES OF COAL CINDER	OXIDIZED POCKET <1% PEAGRAVEL
93-104	2.5Y 6/1 1 GLEY 2.5/N BLK	F-M SAND/ M-ORGANIC MATERIAL	LOOSE - WET	NO	YES	NO	F-M SAND W/ OXIDIZED LENSE W/ SOME SHELLS.
104-108	1 GLEY 2.5/N BLK	C. ORGANIC MATERIAL	MED - DAMP	NO	—	YES	BLACK ORGANIC COARSE MATERIAL POSSIBLE INDUSTRIAL SLAG. POSSIBLE COAL MATERIAL Sample
108-114	2.5Y 3/3 DARK OLIVE BROWN	PEAT	DENSE - DAMP	YES	—	—	100% ROOTLETS. Sample
114-133	5Y 2.5/1 BLACK	PEAT & SILTY CLAY	DENSE - DAMP	YES	—	—	100% ROOTLETS. Sample
133-142	5Y 2.5/2 BLACK	PEAT & SILTY CLAY	DENSE - DAMP	YES	—	—	100% ROOTLETS. Sample
142-166	2.5Y 3/2 DARK GREY/BROWN	PEAT & SILTY CLAY	DENSE - DAMP	YES	—	—	ALMOST 100% ROOTLETS. Sample
166-172	2.5Y 6/2 LIGHT GRAY	fine to med sand	med wet	NO	yes	—	Packaged for sample 161-184 cmbs

Additional Notes: (104-114) (114-124) (124-134) (134-144) (144-154) (154-161) SAMPLES WERE COLLECTED AT THE ABOVE DEPTHS & PUT IN BAGS.

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT Apex Co PROJECT New Bedford Described By GAD/ECM Date 9/20/10

Unit No. ADD-16	Unit Type: ATU	Location: Salt Marsh
Vegetation:		Drainage: Acushnet River

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
172-184	10 ley 4/5 GY OK Gradar	f/m silty sand	mod wet	NO	—	—	sample combined 161-184 cmbs

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
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CLIENT Ally PROJECT New Bed CDF3 Described By JK, JO Date 9/20/10

Unit No. ADD17	Unit Type: Gauge Auger	Location: adjacent to Salt Marsh
Vegetation: none		Drainage: Poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
Augered to 65 cmbs - hit refusal - sample could not be							
extracted C Sand super saturated as core location has ~5cm							
of water over it							

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** NEW BEDCOF 3 **Described By** JR, JO **Date** 9/20/10

Unit No. ADD 18	Unit Type: Gauge	Location: adj to Salt Marsh
Vegetation: none		Drainage: POOR

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 28	2.5y 2.5/1 BLK 2.5y 4/3 OLBN	F-MSD	LOOSE WET	Ø	<5% HASH	NCM	5% Pea sized gravels Screened
28-92	GLEY 1 2.5/- BLK	C-MSD	LOOSE WET	Ø	<5% HASH	NCM	10% ASSORTED GRAVELS Screened
92- 100	2.5y 6/1 Gry 2.5y 2.5/1 BLK	FSDSi.	MOD WET	Ø	Ø	NCM	homogeneous Screened
100- 111	2.5y 6/1 Gry	M-FSD TRACE Si	Loose WET	Ø	<5% HASH	NCM	<5% Pea sized gravels Screened
111- 138	2.5y 2.5/1 BLK	FSDSi	Damp COMPACT	Ø	Ø	NCM	with lenses of 2.5y 6/1 Gry M-FSD TRACE Si 1 ROCK Screened
	Auger Refusal @ 138cmbs very compact						

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By JR, NGC Date 9/20/10

Unit No. ADD-19	Unit Type: Auger	Location: Western edge of saltmarsh
Vegetation: saltmarsh grasses		Drainage: fair

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
XX							

Additional Notes: 1m radius around test location probed - rock impasse @ 25cm bs.
Small-med. boulders present on surface around test location

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JR/MGC Date 9/20/10

Unit No. AAA-20	Unit Type: GOUGE AUGER	Location: ADJACENT TO INLET OF SALT MARSH
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO (72-130 cmbs photographed)

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-46cm	GLEY1 2.5/N BLACK	F-C SAND	LOOSE	NONE	SMALL→ LARGE	NONE	SMALL→LARGE GRAVEL - <5% PERIWINKLE/CLAM/SCALLOP/MUSSEL [PCB-LADEN?]
46-66cm	2.5Y6/2 LT.BR.GR.	SILTY M.SAND	SEMI-LOOSE	NONE	MEDIUM	NONE	SMALL→LARGE GRAVEL PERIWINKLE/CLAM/SCALLOP/MUSSEL
66-98cm	2.5Y4/1 DK.GR.	SILTY C.SAND	SEMI-LOOSE	NONE	SMALL→ LARGE	NONE	PEA GRAVEL SCALLOP/CLAM/MUSSEL
98-102cm	2.5Y4/1 DK.GR.	SILTY F-C SAND	SEMI-LOOSE	NONE	SMALL→ LARGE	NONE	MUSSEL/CLAM/SCALLOP/PERIWINKLE
102-106cm	GLEY1 2.5/N BLACK	F. SILT CLAY	COMPACT	NONE	NONE	NONE	1cm GREY BAND W/IN @ 104cmbgs. (2.5Y3/1-F.SILTY SAND)
106-113cm	GLEY1 2.5/10Y GREEN.BL.	SILT PEAT	COMPACT	ROOLETS	NONE	NONE	FEW PEA GRAVELS
113-130cm	10YR4/2	F-C SILTY SAND	COMPACT	NONE	FEW	NONE	FEW PEA GRAVEL→MEDIUM 1 CLAM
							- AUGER REFUSAL ON ROCK/GRAVEL @ 130cmbgs. - No [illegible] of SILT [illegible]

Additional Notes: PHOTOS 28-29; CORE PROFILE FROM 72-115cmbgs. CONTAINING PEAT LAYER
100-00 30-39
(photo 28: 72-115 cmbs; photo 29: CU of Silt Peat and possible upland;
photo 39: 2nd core - 100-130 cmbs)

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT Apex **PROJECT** New Bed CDF 3 **Described By** JR, Jo **Date** 9/20/10

Unit No. ADD 21	Unit Type: Gouge Auger	Location: adjacent to Salt Marsh
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-97	2.5Y 4/2 DK GY BN	F-M-CSD	VERY LOOSE MOIST	Ø	10% HASH	MOD. BTLGLS Coal frag (not kept)	15% pea gravels unidentified shell frags Screened
97-112	GLEY1 2.5/- BLK	C-MSD	LOOSE WET	Ø	<1% Hash	NCM	5% assorted gravels unidentified shell frags Screened
112-117	GLEY1 2.5/5GY GN BLK	FSDSi Trace cl	COMPACT Damp	Ø	<5% Hash	NCM	<5% pea gravels Unidentified shell frags Screened
117-134	GLEY1 2.5/- BLK	C-MSD	LOOSE WET	Ø	<5% Hash	NCM	10% pea gravel unidentified shell frags Screened
134-149	GLEY1 3/10Y VDK GNGY GLEY1 2.5/- BLK	FSDSi Sicl	Compact Damp	Ø	Ø	NCM	Surfer shell homogeneous trace of oxidization Screened
	Auger Refusal @ 149 cmbs						

Additional Notes: first auger went a full meter only 60 cm was recovered as sands are very loose + unconsolidated making it difficult to keep them in core

GOUGE AUGER LOG

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CLIENT APEX Co. PROJECT NEW BEDFORD Described By GAD/ECM Date 9/20/10

Unit No. AOO-22	Unit Type: ATU	Location: SALT MARSH
Vegetation: YES		Drainage: ACUSHNET / RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 14	1 GLEY 2.5/5GY GREENISH BLK	F-M SILTY SAND W C. SAND	LOOSE - WET	NO	NO	NO	0-10cm WAS LOST IN BORING DURING EXTRACTION
14 - 43	1 GLEY 4/5GY D. GRN GRAY	SILTY SANDY P. GRAVEL	LOOSE - WET	NO	NO	INDUST. WASTE COAL PROD.	< 5% P. GRAVEL, SLAG, 40% IND. WASTE, < 1% PEBBLES, BRICK, COAL
43 - 47	1 GLEY 4/10 Y	F-M SILTY SAND	MED - WET	NO	NO	NO	< 1% PEBBLES
47 - 56	10YR 3/6 D. YL BRN	ORGANIC FINE SILT PEAT	V. DENSE PEAT WET	YES	NO	NO	ROOTS & ROOTLETS
56 - 109	2.5Y 3/1 V. DRK GRAY	V. FINE SILT	V. DENSE WET	YES	NO	NO	ROOTS & ROOTLETS
109 - 114	2.5Y 2.5/1 BLACK	V. FINE SILT	V. DENSE WET	YES	NO	NO	ROOTS & ROOTLETS
114 - 121	7.5YR 2.5/1 BLACK	V. FINE SANDY SILT	V. DENSE WET	YES	NO	NO	< 0.5% PEBBLES
121 - 137	7.5YR 2.5/1 BLACK	V. FINE SILTY SAND	V. DENSE WET	NO	NO	COAL FRAGS	< 1% P. GRAVEL

Additional Notes: PHOTO 2 BOARD SAID 10cm - 95cm

PHOTO 2 BOARD SAID 95cm - 137cm

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** NewBedCDF3 **Described By** JR, JO **Date** 9/20/10

Unit No. ADD 23	Unit Type: Gouge Auger	Location: adjacent to Salt Marsh
Vegetation:		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-29	2.5Y 6/3 LTYWBN	MSD	LOOSE DRY	Ø	10% HASH	NCM	OXIDIZED LENS @ INTERFACE 10YR 4/6 DKYWBN 28-29 cm; <1% PEA GRAVELS SCREENED
29-65	2.5Y 3/1 VDKGY	F-MSD	LOOSE WET	Ø	<5% HASH	NCM	INDUSTRIAL LAYER 29-30 cm 2.5Y 2.5/1 BLK <5% PEA GRAVELS SCREENED
65-93	2.5Y 3/2 VDKGYBN	F-MSD	LOOSE DAMP	Ø	<1% HASH	NCM	5% PEA SIZED GRAVELS SCREENED
93-97	2.5Y 2.5/1 BLK	FSD Si	COMPACT MOIST	Ø	Ø	SLAG (NOT KEPT)	<1% PEA SIZED GRAVEL SCREENED
97-126	10YR 2/2 VDKBN	ORGANICS TRACE Si	COMPACT	ROOTLETS	Ø	NCM	PEAT <1% PEA SIZED GRAVELS SCREENED
	Auger Refusal on Rock						

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JR/NGC Date 7/20/10

Unit No. ADD-24	Unit Type: GOUGE AUGER	Location: ≈2M. N. OF SALT MARSH INLET / CHANNEL
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-55cm	2.5Y5/2 GR. BR.	F-C SAND	LOOSE	NONE	SMALL→ LARGE	NONE	10-15% PEA GRAVEL CLAM / MUSSELL / SCALLOP / OYSTER
55-75cm	GLEY1 2.5/N BLACK	F-C SAND	SEMI-LOOSE	NONE	SMALL→ LARGE	NONE	SMALL → LARGE GRAVELS CLAM / SCALLOP / MUSSEL / OYSTER
75-82cm	GLEY1 3/5GY V.DK GREE. GR.	F. SILTY CLAY	COMPACT	NONE	SMALL→ MEDIUM	NONE	FEW PEA GRAVEL SCALLOP
82-84cm	2.5Y5/1 GREY	F. SILTY SAND	SEMI-LOOSE	NONE	LOW	NONE	PEA GRAVEL MUSSEL / SCALLOP
84-100cm	GLEY1 2.5/N BLACK	SILTY CLAY	COMPACT	NONE	LOW SHELL	NONE	84-87cm + 90-93cm - BANDS OF GLEY1 5/10Y GREE. GR., FINE SAND MUSSEL / OYSTER / SCALLOP
100-142cm							- AUGER REFUSAL ON ROCK @ 142cm; NO RETRIEVAL OF CORE SAMPLE FROM 100-142cm

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD (WWOF) Described By JR/NGC Date 9/20/10

Unit No. ADD-27	Unit Type: GOUGE AUGER	Location: 1M. OFF WATER'S EDGE @ LOW TIDE
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-86cm	GLEY1 2.5/N BLACK	M-C SAND	VERY LOOSE	NONE	SMALL→ MEDIUM	NONE	-MOTTLED W/ 2.5Y 6/2 LT. BR. GR. -ABUNDANT GRAVEL CLAM/OYSTER/SCALLOP/QUAHOG
86-92cm	GLEY1 2.5/N BLACK	F. SILTY SAND	COMPACT	NONE	NONE	NONE	-FEW PEA GRAVEL
92-107cm	GLEY1 2.5/N BLACK	F-C SILTY SAND	COMPACT	NONE	SMALL→ MEDIUM	NONE	-FEW PEA GRAVEL→MEDIUM SCALLOP/OYSTER/CLAM 96-97cm - BAND OF GLEY1 5/5GY GREEN.GR. F. SILT CLAY
107-116cm	GLEY1 4/10Y DK. GREEN.GR.	F-C SILTY SAND	COMPACT	NONE	SMALL→ MEDIUM	NONE	-SMALL→MEDIUM GRAVEL CLAM/OYSTER
							-ATTEMPTS BELOW 116cm WE WERE UNABLE TO RETRIEVE CORE SAMPLE (WAS STILL GRITTY, THOUGH)

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT New Bed CDF 3 Described By EM JR JO Date 9/20/10

Unit No. ADD 28	Unit Type: gauge auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 60	2.5Y 6/2 LTBNG	F-MSD	LOOSE - DRY - COMPACT DAMP	Ø	21% Hach		With depth, the strat increases in compactness + moisture content. unidentified shell frags. 5% fine gravel Screened
Auger to 70 cmbs, refusal on super compact (sands + gravels ?)							
last 10cm unable to be recovered							

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT South Terminal New Bedford Described By JR/NGC Date 9/20/10

Unit No. ADD_29	Unit Type: Gouge Auger	Location:
Vegetation: None		Drainage: Acushnet River

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-43cm	2.5Y4/2 Dk. Gr. Br.	F-C Sand	Loose	None	Small→ Large	None	5-10% small→large gravels Clam/scallop
43-71cm	2.5Y5/1 Gr.	F-M Sand	Semi-Loose	None	Small/ Med. Chunks	None	Small/medium gravel-5% Oyster/mussel/clam/scallop
71-88cm	2.5Y5/2 Gr. Br.	F-M. Sand	Semi-Loose	None	Med./ Big shells	None	Oyster/mussel/clam/scallop <5% small→large gravels
88-111cm	2.5Y5/1 Gr.	Silty F-M Sand	Semi-Loose	None	Small→ Large	None	<5% small→large gravels Scallop/oyster/clam
111-147cm	Gley 4/5GY Dk. Olive Gr.	Silty F-M Sand	Semi-Loose	None	Medium	None	<5% small→medium gravel Mussel/clam/scallop
147-163	Gley1 2.5/N Black	F Silt Clay	Compact	None	Small Broken	None	No gravel Clam/oyster/mussel 155-157cm b.g.s. band of silty f. sand 4/5GY Dk. Green Gr. (Lagoon deposit?)
(Sub-tidal)							
							- Auger refusal @ 163cm b.g.s., becoming gravelly

Additional Notes: Back Slope | Towards shore portion of salt marsh; w/ not vegetation. Low-lying, back channel paralleling shore.

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JA Date 9/15/10

Unit No. 4	Unit Type: Gouge Auger	Location:
Vegetation: none		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 43	2.5Y 4/2	Fi-Lo Sa	loose	←	small-large shell frags	—	10-15%. small-large gravels clam + oyster shell

Additional Notes: Refusal @ 95 cmBs, could not retrieve below 43 cmBs

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JAK/MGC Date 9/16/10

Unit No. 5	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 84	2.5Y2 5/2 GB	M. SAND	LOOSE	NONE	MEDIUM	NONE	
84-103	2.5Y2 5/2 GB	F. SAND	LOOSE - MEDIUM	"	LOW	"	OXIDATION PRESENT
103 - 112	2.5Y 2.5/1 BLACK	SILTY SAND	DENSE	"	NONE	"	"

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
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CLIENT Apex PROJECT NewBedCDF3 Described By Jo JR Date 91 15/10

Unit No. 7	Unit Type: gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
	wast-	ge.	Several	attempts		made	in several areas cove
	was	unable	to penetrate				

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEWBEDCDF3 **Described By** JR, JO **Date** 9/15/10

Unit No. 8	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 40	5y 5/2 GYBN	MSd Dry	loose	no	<5% HASH	ø	10% pea gravel screened
		Auger Refusal @ 80cmbs					
		additional 40cm unable to be recovered - too dry + loose					

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/MGC Date 7/16/10

Unit No. 9	Unit Type: GOUGE	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-44cm	2.5Y5/3 L.O.BR.	C-M. SAND	LOOSE	NONE	BROKEN	NONE	-PEA GRAVEL
44-103cm	2.5Y4/2 DK.GR.BR.	M. SAND	LOOSE	NONE	BROKEN	NONE	-PEA GRAVEL → SMALL PEBBLES
103-130cm	2.5Y3/1 V.DK.GR.	F. SAND	MODERATE	NONE	BROKEN	NONE	
130-200cm	2.5Y3/1 V.DK.GR.	SA.GR.	DENSE	NONE	NONE	NONE	

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT NEWBEDCDF3 Described By PAL Date 014110

Unit No. 10	Unit Type: Gouge Auger	Location: North End of project Area
Vegetation:		Drainage:

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
Property Dispute - Auger not excavated after landowner visit							

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** New Bed CDF **Described By** EM. Jo **Date** 9/17/10

Unit No. 13	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: Moderate

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 34	2.5Y 5/2 GY BN	F-MSD	VERY LOOSE WET	Ø	5% HASH	Coal Frags (not kept)	oyster, some clam shell frags 05% assorted gravels 1 Apple sized Rock c bus of strat. Screened
34-48	5Y 4/2 OLGY	TRACE CSD F-MSD	LOOSE WET	Ø	<1% HASH	Coal Frag (not kept)	<1% pea gravel Screened
48-64	GLEY 1 3/N VDKGY	SiFSD	MOD WET	Ø	<1% HASH	NCM	mottled with GLEY 1 3/5GY VDKGNGY VFSD <1% pea gravel Screened
	Auger Refusal @ 64 cmbs. Multiple Groups attempts failed to penetrate further						

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT NEW BEDFORD Described By PAL Date 10/4/10

Unit No. 14	Unit Type: Gouge Auger	Location: north end of project area
Vegetation:		Drainage:

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
Property Dispute — Auger not excavated after landowner WBT							

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** South Terminal **Described By** DR.JR. **Date** 9/17/10

Unit No. 16	Unit Type: Auger	Location:
Vegetation: Ø		Drainage: moderate

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-54	2.5Y 5/2	fine-coarse Sa	loose	—	sm-lg frags	—	5% sm-lg gravels Clam, scallop
54-68	Gley 3/10Y	fine-med. Sa	semi-loose	—	sm-lg frags	—	<5% sm-gravel Crab, clam, scallop, mussel
68-79	Gley1 3/10Y	fine-med Sa	Compact	—	sm-lg frags	—	<5%, sm-med. gravel clam, crab, scallop, mussel, sea snail
79-142	Gley1 2.5/10Y	fine SiCl	Compact	—	few sm. frags		<5% sm-lg gravel mussel

Additional Notes: Coarse, unconsolidated sand layer @ 211 cmbs; unable to recover 142-cmbs.

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/16/10

Unit No. 17	Unit Type:	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-23	2.5Y 3/1	Fi-Me Sa	loose	—	small-large	—	5-10% small-large gravels clam, oyster, quahog, scallop, mussel
23-42	2.5Y 6/2	Me-Co Sa	moderately compact	—	small, broken	—	5-10% small-medium gravels clam, oyster, scallop
42-87	5Y 4/1	Fi-Me Sa	moderately compact	—	small, whole & broken	—	less than 1% pea-size gravels clam, quahog

Additional Notes: Couldn't retrieve sediment from second core. Tide came in and collapsed unit before third attempt.

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEW BEDCDF3 **Described By** JR, JO **Date** 9/15/10

Unit No. 19	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-9	2.5Y 7/2 LTGy	C-M SD DRY	very loose	Ø	Frags + hash	Ø	beach sand
9-35	2.5Y 4/2 DKGyBN	MSD wet	loose	Ø	<5% HASH	Ø	clam fragments <5% pea gravels Screened
35-53	2.5Y 4/2 DKGy BN	C-M SD wet	loose	Ø	<5% HASH	1 coal frag not kept	Screened oxidized @ base of strat (51-53 cmbs) 10YR 4/6 DKYW BN
53-60	2.5Y 3/1 VDKGy	M-CSD wet	loose	Ø	10% HASH	Ø	Pea sized gravel Screened
60-78	2.5Y 3/1 VDKGy	M-FSD wet	loose	Ø	<5% Hash	coal not kept Ø	trace of silt 19 Peach core sized coal @ base Screened
78-149	2.5Y 2.5/1 BLK	damp	compact	Ø	<1% HASH	Ø	15-19 cmbs very fine laminated sands w/ coarse laminae @ 15-17 cmbs (2.5Y 4/1 DKGy) Screened

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/17/10

Unit No. 20	Unit Type: Gouge Auger	Location:
Vegetation: None		Drainage: good, near low tide

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-29	2.5Y 5/2	Fi-Co Sa	loose	—	small-medium broken shell	—	small-medium size gravel <5% clam, oyster, scallop
29-51	2.5Y 5/1	Fi-Me Sa	loose	—	small-large broken shell	—	75% pea-size gravels oyster, clam, scallop
51-74	see notes	SiCl	Compact	—	—	—	Color: Gley 1 2.5Y/5GY w/ subsidiary bands of Gley 1 4/10y of Fi-Me Sa no gravels
74-118	Gley 1 2.5Y/N	SiCl	Compact	—	1 medium size sea-snail	—	no gravels
118-129	see notes	SiCl	Compact	—	some small clam	—	Gley 1 2.5Y/N w/ bands of Gley 1 4/N no gravels

Additional Notes: Second core went down to 193 cmBS; 129-193 cmBS unretrievable. Hole abandoned due to rising tide.

GOUGE AUGER LOG

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CLIENT Apex Co. PROJECT New Bedford Described By GAD/JR Date 9/21/10

Unit No. 21	Unit Type: ATU	Location: Low Tide Line
Vegetation: NA		Drainage: Acushnet River

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 38	2.5Y 2.5/1 Black	M-C Sand	Loose - Wet	NA	Yes	NA	< 5% shell frags 20% P. stone
38 - 58	2.5Y 3/1 V. Dark Gry	F-M Sand & Silt	Loose Wet	NA	Yes	NA	5% shell frags 5% P. stone
58 - 64	2.5Y 3/1 V. Dark Gry	F-M Sand w/ Silt	Dense Wet	NA	Yes	NA	<1% shell frags <1% P. stone
64 - 70	2.5Y 4/1 D. Gry	F. Sand	Dense Wet	NA	Yes	NA	<1% shell frags <1% P. stone
70 - 121	2.5Y 3/1 V. D. Gry 2.5Y 2/1 Black	F. Sand F. Sand & Silt	Dense Wet	NA	NA	NA	Organic odor <1% P. stone

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/MGC Date 9/15/10

Unit No. 23	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-80 cm	2.5Y6/2 L.GR.BR.	M-C SAND w/GRAVEL	VERY LOOSE	NONE	BROKEN	NONE	HAD DIFFICULTY w/ SLIPPAGE BUT GOT FAIRLY ACCURATE READING
80-96 cm	2.5Y5/2 GR.BR.	M-C SAND w/GRAVEL	LOOSE	NONE	BROKEN	NONE	

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT NBWBEDCDE3 Described By PAL Date 10/4/10

Unit No. 24	Unit Type: gouge auger	Location: North end of project area
Vegetation:		Drainage:

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
Property DB pole - Auger not excavated after landowner visit							

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/16/16

Unit No. 25	Unit Type: Auger	Location:
Vegetation:		Drainage: moderate @ low tide

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-38	Gley 1 2.5/10Y	fine-coarse Sand	loose	—	few very sm. shells (clam, quahog)	—	~1% sm-lg. gravel
38-70	Gley 1 3/N	fine-coarse	loose	—	SAA	—	~1% sm.-med. gravel
70-84	Gley 1 2.5/10Y	fine S:C	compact	—	sm-lg broken shell (clam, scallop, mussel)	—	~1%, sm-lg pea gravel
84-110	Gley 1 2.5/10Y	fine-med. Sand	Compact	—	some sm-lg shell	—	~1%, sm-lg gravel
110-124	Gley 1 2.5/N	Me-Co Sa	compact	—	few broken scallops, quahog, clam	—	5-10% pea-med size gravel
124-156	Gley 1 2.5/10Y	Fi Si Sa	compact	—	some small quahog	—	~1% pea-size gravel
156-202	2.5/5GY Gley 1	Fi Sa Si	compact	—	some sm. shell	—	1% sm-lg gravel
202-216	Gley 1 2.5/5GY	fine S:Cl	Compact	—	—	—	no gravels
216-235	Gley 1 2.5/N	fine SS:	Compact	—	sm-med shell	sm-lg Clam	no gravels
235-238	Gley 1 2.5/10Y	fine S:C	Compact	—	few broken clam	—	no gravels

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX CO. PROJECT NEW BEDFORD Described By GAD/JR Date 9/21/10

Unit No. 26	Unit Type: ATU	Location: TIDE LINE
Vegetation:		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-11	2.5Y 2.5/1 BLACK	M-C SAND	LOOSE-WET	NA	NA	NA	50% P. STONE & FINE GRAVEL
11-36	2.5Y 5/1 GRAY	F-M SAND W/SILT	LOOSE-WET	NA	YES	NA	5cm COBBLE 5% SHELL 5% P. GRAVEL
36-90	2.5Y 3/1 / 2.5Y 2.5/1	FINE SAND / SILT	DENSE-WET	NA	YES	NA	<1% SHELL <1% P. STONE
90-106	2.5Y 2.5/1 BLACK	F-M SAND TRACE C. SAND	DENSE-WET	NA	NA	NA	TRACE P. GRAVEL.
106-146	2.5Y 2.5/1 & 2.5Y 4/1	SILT	DENSE-WET	NA	NA	NA	NO P. GRAVEL. NO SHELL FRAGS
146-156	2.5Y 2.5/1 BLACK	F. SAND W/SILT	DENSE-WET	NA	YES	NA	50% SHELL FRAGS NO P. GRAVEL

Additional Notes: REFUSAL @ 156 cm

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT Apex PROJECT NEWBEDCDF 3 Described By GAD, EM JO Date 9/21/10

Unit No. 27	Unit Type: GAUGE AUGER	Location: Shoreline
Vegetation: NONE		Drainage: POOR

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-18	2.5Y 6/2 LT BN GY	F-MSD TRACE CSD	LOOSE WET	Ø	<1%	Ø	<1% P. GRAVEL <1% SHELL SCREENED
18-35	2.5Y 5/1 GY	F-MSD TRACE CSD	LOOSE WET	Ø	<1%	Ø	<1% P. GRAVEL <1% SHELL SCREENED
35-47	2.5Y 6/1 GY GL 1 4/N DK GY	VFSD VFSISD	MODERATE WET	Ø	<1%	Ø	<1% P. GRAVEL <1% SHELL SCREENED
47-63	2.5Y 6/1 GY GL 1 3/N VDKGY	VFSD VFSICI	MODERATE >WET COMPACT	Ø	<1%	Ø	NO <1% P. GRAVEL <1% SHELL SCREENED
63-69	GL 1 6/N GY	F-MSD	LOOSE WET	Ø	<1%	Ø	<1% PEABLES <1% SHELL SCREENED
69-85*	GL 1 4/10Y DKGNGY	VFSISD	MODERATE WET	Ø	YES	Ø	85-100 not recovered ONE SHELL FOUND SCREENED
100-146	2.5Y 5/1 GY	F-MSISD	LOOSE WET	Ø	<5% HASH	NCM	oxidized LENS 2.5Y 6/3 LTYWBN <5% PEA GRAVELS SCREENED
146-170	2.5Y 5/1 GY	si F-CSD	LOOSE WET	Ø	<1% HASH	NCM	<5% PEA GRAVELS SCREENED
170-175	2.5Y 6/1 GY	F VFSD	LOOSE WET	Ø	Ø	1 SLAG (NOT KEPT)	<5% PEA SIZED GRAVELS SCREENED
175-204	2.5Y 6/1 GY GLY 1 3/N VDKGY	FSD VFSISD	MODERATE DAMP	6	5% HASH	2 SLAG (NOT KEPT)	homogeneous SCREENED

Additional Notes: first Auger went 1m down but 85-100 was lost. a base of core was looked to be a sandier strat that we hit but lost. Second Auger went a full 2 meters and starts with that sandier strat.

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GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT New Bed CDF 3 Described By EM, JO Date 9/21/10

Unit No. 27	Unit Type: GAUGE AUGER	Location: Shoreline
Vegetation: None		Drainage: Poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
204-245	GL1 3/N VDKGY	F-MS SD	MODERATE LOOSE WET	Ø	10% HASH	NCM	<5% PEA GRAVELS <1% QUARTER GRAVELS SCREENED
245-269	GL1 3/N VDKGY	F-MS SD	MODERATE LOOSE WET	Ø	<1% HASH	NCM	<5% PEA GRAVELS SCREENED
269-304	GL1 5/10Y GL1 3/N	VF-FS SD F-MS SD	MODERATE WET	Ø	<1% HASH	NCM	<5% PEA GRAVELS SCREENED

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, SR, NGC Date 9/21/10

Unit No. 28	Unit Type: Gouge Auger	Location:
Vegetation: none		Drainage: Poor: closer to low-tidal area

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-35	2.5Y 3/1	Fi-Co Sa	loose	—	small-large Broken	—	>5% small-large gravels mussel, clam, scallop, oyster
35-49	2.5Y 5/1	Fi-Me Sa	loose	—	small-large Broken	—	>5% small-large gravels clam, mussel, scallop
49-57	2.5Y 3/1	Fi-Si Cl	compact	—	—	—	no gravels
57-67	2.5Y 5/1	Fi-Me Sa	loose	—	—	—	>5% small-medium gravel
67-78	Gley 1 5/10Y	Me-Co Sa	loose	—	few small, Broken	—	>5% small-large gravel clam.
78-87	Gley 1 5/10Y	Fi-Sa	compact	—	—	—	Banding w/ Gley 1 2.5/10Y Fi Sa Cl few, pea-size gravel
87-90	Gley 1 2.5/N	Si Cl	compact	—	—	—	no gravel.
90-116	Gley 1 5/10Y	Fi-Sa	compact	—	—	—	Banding w/ Gley 1 2.5/10Y Fi Sa Cl 2 pc. pea-size gravels
116-154	Gley 1 2.5/10Y	Si Cl	compact	—	—	—	Banding w/ Gley 1 3/10Y Si Cl
154-170	Gley 1 2.5/N	Si Cl	compact	—	—	—	no gravels

Additional Notes: Auger went down to 225cm Bs, 225-170 cmBs unretrievable

GOUGE AUGER LOG

JMA architects archaeologists planners
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CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR, NGC **Date** 9/21/10

Unit No. 29	Unit Type: Gouge Auger	Location:
Vegetation:		Drainage: poor near low-tide area

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-22	2.5Y 2.5/1	Fi-Co Sa	loose	—	small-medium	—	10-15% small-large gravels clam, scallop,
22-47	Gley 1 4/5GY	Fi-Co Sa	loose	—	small-large	—	5-10% small-large gravels scallop, clam, mussel, oyster
47-55	Gley 1 3/5GY	FiSaCl	compact	—	—	—	couple pea-size gravels
55-87	Gley 1 4/10Y	Si Fi-Me Sa	moderately compact	—	small-medium shell	—	>5% pea size-large gravel
87-110	Gley 1 2.5/10Y	FiSaCl	compact	—	1 periwinkle shell	—	some banding Gley 1 4/5GY FiSa 1 pc. pea-size gravel
110-120	Gley 1 5/5GY	SiFiSa	compact	—	—	—	w/ bands of Gley 1 3/10Y SiFiSa 1 pc. pea-size gravel
120-164	Gley 1 2.5/N	FiSiCl	compact	—	—	—	w/ 1cm bands of Gley 1 5/5GY SiFiSa no gravels
164-171	Gley 1 2.5/N	FiSa w/ some Cl	compact	—	small-medium	—	some pea-size-medium gravel periwinkle, clam
171-176	Gley 1 3/5GY	SiFiSa w/ some clay	compact	—	small-medium	—	much more shell oyster, scallop, clam
176-196	Gley 1 4/10Y	SiFiSa w/ some clay	compact	—	small-medium shell	—	few pea-size gravels scallop clam, mussel

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** South Terminal **Described By** JR, DR, NGC **Date** 9/21/10

Unit No. 31	**Unit Type:** Auger	**Location:**
Vegetation: Ø		**Drainage:** good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-10	2.5Y 3/1	med-coarse Sand	loose	—	sm-lg shell	—	sm-med gravel Clam, quahog, oyster
10-60	2.5Y 4/2	fine-coarse Sand	loose	—	sm-lg shell	—	dense shell band 40-51 cmbs. sm-lg gravels Clam, oyster, quahog, mussel, scallop
60-70	Gley 1 2.5/10Y	Silty fine Sand	Compact	—	no shell	—	<1cm bands throughout strat, Gley 1 4/10Y-silty fi S no gravel
70-110	Gley 1 2.5/N	S:Cl	Compact	—	no shell	thin plastic (81-83 cmbs)	very few, pea-sized gravel; 2 cm bands of Gley 1 3/10Y-fine Sand from 51-83 cmbs and 95-97 cmbs. <1cm bands throughout strat

Additional Notes: Rock @ 136 cmbs; unable to retrieve 110-136 cmbs.

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** New BEDCDF 3 **Described By** EM JR JO **Date** 9/17/10

Unit No. 32	Unit Type: Gouge Auger	Location: low tide line
Vegetation: none		Drainage: poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-23	GLEY 1 3/5GY VDKGNGY	F-MS SD	Loose wet	Ø	5% Hash	coal frag. (not kept)	10% pea gravels 5% quarter sized gravels screened
23-32	GLEY 1 2.5/5GY GNBLK	F-MSD	Loose wet	Ø	<5% Hash	NCM	<1% pea gravels oyster fragments screened
32-44	GLEY 1 3/10y VDKGNGY	F-MSD	LOOSE WET	Ø	<5% HASH	NCM	<5% pea gravels screened
44-113	MOTTLED	VFSD CLY FSISD FSISD	COMPACT COMPACT WET COMPACT	Ø	5% HASH	NCM	GLEY 1 4/5GY DKGNGY GLEY 1 6/10Y GNGY GLEY 1 2.5/10y GNBLK clam shell frag. 5% pea gravels screened
	Auger Refusal @ 113cmbs on rock unsure if it would fail in from top or till out repeated attempts failed to break through.						

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR. JR. Date 9/17/10

Unit No. 35	Unit Type: Auger	Location:
Vegetation: Ø		Drainage: Good

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-17	Gley 1 2.5/N	fine-Coarse Sa	loose	—	sm-med shell	—	<5% sm-med gravels clam, other
17-34	2.5Y 5/2	fine-coarse Sand	loose	—	see comments	—	4cm ~~dense band~~ of sm-lg shell from 20-24 cmbs <5% gravels sm-lg . . . oyster, scallop, clam
34-39	Gley 1 4/10Y banded w/ Gley 1 3/10Y	fine Sa	Compact	—	—	—	no gravels
39-42	Gley 1 2.5/10Y	Si Cl	compact	—	—	—	no gravels
42-59	Gley 1 3/10Y	f. Si Sa	compact	—	1 med shell	—	<5% sm-lg gravel

Additional Notes: Rock Impasse @ 59 cmbs (attempts throughout surrounding 1 m radius yielded same result)

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/MGC Date 9/16/10

Unit No. 36	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-28cm	2.5Y3/1 V.DK.GR.	F. SAND	MEDIUM	NONE	FEW, SMALL	NONE	
28-53cm	"	F. SILT	DENSE	NONE	NONE	NONE	
53-68cm	"	F. SAND	"	NONE	NONE	NONE	- FINE SAND LENSES W/IN
68-81cm	"	F. SILT	"	NONE	NONE	NONE	- FINE SAND LENSES W/IN
81-125cm	"	F. SAND	MEDIUM	NONE	NONE	NONE	- FINE SAND LENSES W/IN
							- AUGER REFUSAL / GRAVEL OBSTRUCTION @ 125cm bgs.

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/16/10

Unit No. 40	Unit Type: Gouge Auger	Location:
Vegetation:		Drainage: lower side area - more mud, silt than better drained higher side area

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 67	2.5Y 3/1	Fi-Me Sa	Moderately compact	—	small-large broken	—	Ban of coarse sand from 47-52 cmBS - 2.5Y 4/1 small-medium gravels <5% scallop, clam, oyster gravels
67 - 74	gley 1 2.5/N	Fi-Co Sa	Moderately compact	—	small-large broken	—	clam, quahog, oyster 5-10% small-large gravels, 1 large rock
74-	2.5Y 4/1	Si Fi-Co Sa	moderately compact	—	small, broken	—	clam, scallop 5-10% small-large gravels

Additional Notes: Most of top 10cm missing from photo of first core.
Refusal due to rocks @ 144 cmBS. 100 - 144 cmBS sediment unable to recover.

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** NEW BEDFORD 3 **Described By** EM, JR, JO **Date** 9/17/10

Unit No. 50	Unit Type: Gauge Auger	Location: Shoreline
Vegetation: none		Drainage: Moderate

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-37	5Y 4/1 DKGY	F-MSD	VERY LOOSE WET	Ø	5% HASH	BRK FRAG COAL FRAG CLINKER (NOT KEPT) → 7-8 frags	<5% pea gravels unidentified shell fragments Screened
37-45	GLEY 1 4/5GY DKGNGY GLEY 1 3/N VDKGY	FSD VFSiSD	LOOSE >WET MODERATE	Ø	Ø	NCM	<1% pea sized gravels Screened
45-53	GLEY 1 4/N DKGY	TRACE CSD F-MSD	LOOSE WET	Ø	Ø	NCM	5% pea sized gravels Screened
53-97	GLEY 1 4/5GY DKGNGY GLEY 1 3/N VDKGY	FSD VFSiSD	LOOSE >WET MODERATE	Ø	Ø	NCM	homogeneous Screened
97-111	GLEY 1 6/N GY GLEY 1 4/N DKGY	M-CSD F-MSD	MODERATE WET	Ø	Ø	NCM	<5% pea-sized gravels Screened
111-121	GLEY 1 6/NGY GLEY 1 3/N VDKGY	FSD VFSiSD	MODERATE WET	<0.01% ROOTLETS	Ø	NCM	homogeneous Screened
121-132	GLEY 1 4/10Y DKGNGY GLEY 1 3/N VDKGY	FSaCl SiSaCl	COMPACT MOIST	Ø	Ø	NCM	<1% pea sized gravel Screened
132-139	GLEY 1 2.5/N BLACK	M-CSD	COMPACT	Ø	<5% HASH	NCM	Possible charcoal? <5% pea sized gravel unidentified fragments Screened
	Auger Refusal @ 139 cmbs. Very Compact						

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT NewBedCDF3 Described By EM Date 9/17/10

Unit No. 56	Unit Type: Gouge Auger	Location:
Vegetation: None		Drainage: well-moderate

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-45	2.5Y5/2 GYBN	M-CSD	VERY LOOSE Wet	Ø	10% Hash	GLS (NOT KEPT)	<0.01% larger gravels <5% pea sized gravels unidentified shell fragments screened
45-59	2.5Y5/1 GY	F-MSD TRACE CSD.	Loose Wet	Ø	10% HASH	Clinker (NOT KEPT)	<1% pea sized gravels unidentified shell fragments screened
59-77	G[illegible] 5/1GY Mottled	FMSD VFSiSD FSD	Loose Wet	Ø	<1% HASH	NCM	GLEY1 5/10Y GNGY GLEY1 3/10Y VDKGNGY GLEY1 5/GY GNGY <1% pea sized gravels screened
77-138	Mottled	FSD VFSiSD MSiSD	Loose Wet	Ø	<1% Hash	NCM	GLEY1 5/GY GNGY GLEY1 3/10Y VDKGNGY GLEY1 2.5/N BLK <1% pea gravel screened possible charcoal, greasy, no smell
	Auger Refusal on Rock @ 138 cmbs. Possible Till refusal.						

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** NEW BEDCDF 3 **Described By** EM JR Jo **Date** 9/17/10

Unit No. 62	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: moderate-poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-18	2.5Y 5/2 GY BN	M-CSD	VERY LOOSE DAMP	Ø	25% HASH	NCM	possible charcoal fragments intermixed in association w/ shell fragments. 1 quarter-sized gravel. <5% pea-gravel Screened
18-57	2.5Y 6/2 LT BN GY	F-MSD	LOOSE SATURATED	Ø	10% HASH	coal frag. Brk frag. (NOT KEPT)	34-39 cmbs oxidized pocket of shell 1 large quarter-sized gravel <1% pea gravel unidentified shell fragments Screened
57-119	GLEY 1 4/5GY DKGNGY GLEY 1 3/10Y VDKGNGY	FSD VFSSD	MOD. LOOSE WET	Ø	<5% HASH	Slag in situ	Sml oxidized lens → 74 cmbs slag (not kept) unidentified shell fragments Screened
119-139	GLEY 1 2.5/N BLK	FSSDCL	MOD Compact Wet	Ø	<0.01% Hash	NCM	<1% pea gravels unidentified shell hash Screened
	Auger Refusal @ 139 cmbs on Rock						

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex PROJECT NEWBEDCOF 3 Described By EM, RS JO Date 9/16/10

Unit No. 68	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-23	2.5Y 6/2 LT BN GY	F-MSD	Loose Damp	Ø	<5% HASH	NCM	0-15 fell out <5% pea sized gravel Screened
23-81	2.5Y 6/1 GY	F-MSD	Loose Damp	Ø	<5% HASH	NCM	2.5Y 6/3 LT YW BN F-MSD w/ shell fragments oxidization pockets <5% pea gravel oyster + clam Screened
81-100	GLEY 1 4/- GY	SiF-MSD	Loose Wet	Ø	5% HASH	NCM	<1% pea sized gravel clam, oyster shell fragments Screened
100-131	GLEY 1 5/- GY	M-CSD	Loose Wet	Ø	<5% Hash	NCM	2 x 1 cm sized gravel <5% pea gravel limpet, clam, oyster shell Screened
131-185	2.5Y 5/1 GY GLEY 1 3/- VDK GNGY	M-CSD Si Sacl	FIRM Wet	Ø	<1% Hash	NCM	<1% pea sized gravel Screened
185-204	GLEY 1 2.5/- BLK	Si cl	VERY COMPACT Wet	Ø	<0.01% Hash	NCM	<0.01% pea sized gravel 1 oyster shell fragment Screened
		Auger Refusal @ 204 cmbs					

Additional Notes: first auger attempt went a full meter but sample was lost with core extraction. Relocated about 50 cm away from original.

GOUGE AUGER LOG

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CLIENT Apex PROJECT South Terminal New Bedford Described By TAK/NGC Date 9/15/10

Unit No. 74	Unit Type: Gouge Auger	Location:
Vegetation: None		Drainage: Acushnet River

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-88cm	2.5Y4/2 D.Gr.Br.	M-C SAND WITH GRAVEL	LOOSE	NONE	LIGHT BROKEN SHELL	NONE	DENSE BROKEN SHELL LOWER 10cm
88-110cm	2.5Y4/1 DK.GR.	M-C SAND	LOOSE	NONE	FEW BROKEN	NONE	-BRICK FRAGMENT, NOT SAVED
							- AUGER REFUSAL @ 110cm b.g.s.

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT Apex PROJECT South Terminal Described By DR, JR Date 9/15/10

Unit No. 80	Unit Type: Auger	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-13	2.5Y 6/2	fine-med Sand	loose	—	Sm.-med broken Shell	—	very little pea-sized gravel (<5%)
13-15	2.5Y 5/3	fine-coarse Sand	loose	—	Sm. broken Shell	—	very little pea-sized gravel (<5%)
15-92	5Y 4/2	fine-coarse Sand	loose	—	Sm. broken shell	1 chunk Coal	5% pea-sized gravel
92-107	2.5Y 4/1	fine-coarse Sand	loose	—	few Sm. broken scallop shell	—	<5% pea-sized gravel-large gravels
107-165	Gley1 2.5/10Y	fine-coarse Sa w/Si	semi-loose	—	Sm-med shell	—	5% pea-sized gravel-large gravels
165-191	Gley1 2.5/N	SiCl	compact	—	no shell	—	3 pea-sized gravels
191-192	Gley1 2.5/N	fine-med. Sand	semi-loose	—	no shell	—	no gravels

Additional Notes: Defeated by the rising of the tide @ 192 cmbs

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT Apex Co. PROJECT New Bedford Described By GAD Date 9/15/10

Unit No. 86	Unit Type:	Location:
Vegetation:		Drainage:

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	2.5Y 7/2	F-M SAND	LOOSE MOIST	NA	NA	NA	< 5% PEAGRAVEL
12-38	2.5Y 6/2	F-MS	LOOSE MOIST	NA	19 CLAM FRAGS SOME OYST.	1 COAL FRAG.	< 5% PEAGRAVEL
38-86	2.5Y 5/1	F-CS	LOOSE WET	NA	5 OYSTER SHELL FRAGS	NA	5% PEAGRAVEL
86-105	2.5Y 5/1	SILTY SAND	LOOSE WET	NA	5 OYSTER SHELL FRAG	NA	HANDFULL OF PEAGRAVEL
105-121 (19, 36)	2.5Y 6/1	M-C SAND	LOOSE WET	NA	5 CLAM FRAGS	NA	10 PEAGRAVEL
121-147	2.5Y 6/2	F-M SILTY SAND	LOOSE WET	NA	SOME OYSTER & CLAM FRAGS	NA	< 5% PEAGRAVEL 2 FINE GRAVEL

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT Apex PROJECT South Terminal Described By DR. JR. NGC Date 9/21/10

Unit No. 87	Unit Type: Auger	Location:
Vegetation: Ø		Drainage: good (near low tide point)

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-88	5Y 4/2	med-coarse Sand	loose	—	Sm-lg shell	—	Sm-o med gravel (5-10%)
88-102	Gley1 2.5/10Y	med-coarse Sand	loose	—	Sm shell	—	sm-med gravel (<5%) clam, oyster
102-131	Gley1 2.5/N	Slightly Sandy S:Cl	Compact	—	Sm-med shell	—	no gravel clam, periwinkle
131-137	Gley1 2.5/10Y	Silty fi-med Sand	moderately Compact	—	Sm shell	—	no gravel clam

Additional Notes: Rocky layer detected ~188 cmbs; unable to extract 137-188 cmbs

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX **PROJECT** NEW BEDCDF 3 **Described By** JR, JO **Date** 9/15/10

Unit No. 92	Unit Type: Gouge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-21	2.5Y 5/3 LTOLBN	CSD	very loose Dry	Ø	<1% SHELL FRAGS	Ø	assorted gravels Screened
21-28	2.5Y 4/2 DKGYBN	M-FSD	moderately loose DAMP	Ø	Ø	Ø	homogeneous Screened
28-31	2.5Y 4/2 DKGYBN w/ 10YR 4/6 DKYNBN	F-C	Mod-loose Damp	Ø	<1%	Ø	oxidized pockets fining up sequence w/ oxidization in middle Screened
31-42	2.5Y 3/1 VDKGY	M-VCSD	loose damp	Ø	5% HASH	Ø	oxidazation pocket (10YR 4/6 DKYWBN). 10% shell fragments Screened
42-53	2.5Y 4/2 DKGYBN	M-FSD	loose damp	Ø	<1% HASH	Ø	oyster + clam shell fragments <0.1% pea gravel ~~7 coal fragments @ interface~~ Screened
53-59	2.5Y 4/2 DKGYBN	M-FSD	loose wet	Ø	15% HASH	Ø	assorted gravels 1 quarter-sized rock Screened
59-79	2.5Y 4/2 DKGYBN	M-FSD	loose wet	Ø	5% HASH	Ø	no gravels, just shell Screened
79-94	2.5Y 4/2 DKGYBN	C-MSD	Loose wet	Ø	10% HASH	Ø	oyster shell fragments <1% pea gravels, quarter-sized rk Screened
	auger Refusal @ 94 cmbs						

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By SAK/MGC Date 9/16/10

Unit No. 93	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-71cm	2.5Y4/2 DK GR. BR.	M-C SAND	LOOSE	NONE	BROKEN, LOW	NONE	
71-90cm	2.5Y4/1 DK. GR.	F. SAND	LOOSE/MODERATE	NONE	NONE	NONE	
90-160cm	2.5Y3/1 V. DK GR.	SA. SI.	DENSE	NONE	NONE	NONE	- LOWER 30cm CONTAINS SMALL PEBBLES
							- STOPPED DUE TO INABILITY TO RETRIEVE AUGER SAMPLE

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** NEW BEDCDF 3 **Described By** JO, JR **Date** 9/15/10

Unit No. 98	Unit Type: Gauge Auger	Location:
Vegetation: None		Drainage: Well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-13	2.5Y 5/2 GYBN	M-CSD	LOOSE DAMP	Ø	<1% HASH	Ø	Pea size gravels (<5%) <0.1% nickel-sized gravels Screened
13-17	10YR5/8 YNBN	C-SD	LOOSE DAMP	Ø	2 LG OYSTER FRAGS	Ø	oxidized layer more shell hash than gravel Screened
17-70	2.5Y5/2 GY BN	C-M SD	LOOSE DAMP	Ø	<5% HASH	chunk of coal @ 68 cmbs not kept	<5% pea gravels 1% nickel-sized gravels Pocket of oxidization around chunk of coal Screened
70-77	2.5Y 3/1 VDKGY	M-F SD	LOOSE DAMP	Ø	20% HASH	Ø	no gravels, mostly shell hash Screened
77-84	2.5Y 3/2 VDKGYBN	M-F SD	LOOSE DAMP	Ø	<5% HASH	Ø	80-84 cmbs Peach core sized rock mottled w/ 2.5Y 4/4 OLBN and 2.5Y 2.5/1 BLK TRACE SILT 1% pea sized gravels Screened
84-95	2.5Y 3/2 VDKGYBN	C-M SD	LOOSE WET	Ø	<5% HASH	Ø	pea gravel Screened
95-102	5Y 4/1 DKGY	F SD	LOOSE WET	Ø	<5% HASH	Ø	<0.1% assorted gravels Screened
102-121	5Y 2.5/1 BLK	F SD SI	MOD. WET	Ø	Ø	Ø	homogeneous Screened

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** New Bed CDF3 **Described By** RS, EM JO **Date** 9/16/10

Unit No. 99	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-40	full	Out	Super saturated		CSD + gravels		
40-59	2.5Y 6/1 GY	M-CSD	Loose Wet	Ø	<5% HASH	NCM	<1% pea gravels oyster + clam fragments Screened
59-78	2.5Y 6/2 LTBNGY	F-CSD	Loose Wet	Ø	Ø	NCM	<1% pea size gravels Screened
78-92	2.5Y 5/1 GY	F-CSD	Loose-Mod Wet	Ø	Ø	NCM	<1% pea gravels Screened
92-120	GLEY 1 4/-	Sicl	FIRM Wet	Ø	Ø	NCM	<0.01% pea gravels Screened
120-125	GLEY 1 3/N VDK GRAY	VF-F SISD	MOD FIRM	Ø	Ø	NCM	<0.01% pea gravels Screened
	Auger refusal @ 155 cm on rocks / fill						
	120-125 not photographed						
	Only 125 cm of sedi. was able to be retrieved in core						

Additional Notes: First auger attempt and entire sample fell out. Relocated ~25cm away from original location

GOUGE AUGER LOG

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CLIENT Apex Co PROJECT New Bedford Described By GAD Date 9/15/10

Unit No. 104	Unit Type:	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-17	2.5Y 5/1	F-MS	LOOSE / WET	NA	17 CLAM FRAGS	NA	6 TOTAL PEAGRAVEL, WET
17-28	2.5Y 6/2	F-MS	LOOSE / WET	NA	HIGH CONTENT	WOOD & BRICK FRAGS	<5% PEAGRAVEL, WET HIGH CONTENT OYSTER & SHELL FRAGS
28-56	2.5Y 5/1	F-MS	LOOSE / WET	NA	HIGH CONTENT FRAGS	1 PIECE COAL	5% PEAGRAVEL, OYSTER & CLAM FRAGS 2 FINE GRAVEL PIECES
~~40-56~~	~~2.5Y 5/1~~						
56-69	2.5Y 5/1	F-MS	LOOSE / WET	NA	SOME OYSTER FRAGS	NA	<5% PEAGRAVEL, WET
69-94	1GLEY 4-1	SILTY F-S	MEDIUM / WET	NA	3 OYSTER FRAGS	NA	<5% PEAGRAVEL, WET
94-105	1GLEY 5-1	F-MS	MEDIUM / WET		OYSTER & CLAM FRAGS	2 COAL CINDERS	<5-6 PEAGRAVEL, WET
105-137	1GLEY 3-1	SILT SANDY CLAY	MEDIUM WET	NA	CLAM SHELL & OYST SHELL FRAG	NA	5 PEAGRAVELS, WET CLAYEY SAND

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEWBEDCDF3 **Described By** RS, JO EM **Date** 9/16/10

Unit No. 109	Unit Type: Gauge Auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-32	2.5Y 5/1 GY	M-CSD DAMP	LOOSE	Ø	5% HASH	NCM	5% assorted gravels oyster clam + snail shell fragments Screened
32-52	2.5Y 5/2 GY BN	F-MSD DAMP	LOOSE	Ø	<1% HASH	NCM	<5% pea sized gravel clam + oyster shell fragments Screened
52-69	GLEY 1 5/1 GN-GY	M-FSiSD DAMP	MOD. LOOSE	Ø	20.1% HASH	1 piece of coal (not kept)	<1% pea sized gravel clam fragments Screened
69-106	GLEY 1 4/1 DKGNGY	SiFSD WET	MOD-LOOSE	Ø	<5% HASH	coal not kept	5% pea sized gravels oyster, clam Screened
106-136	GLEY 1 3/1 VDKGNGY GLEY 1 4/1 DKGY	SiCl VF-FSiSa	MOD COMPACT FIRM	Ø	<0.1% HASH	WOOD FRAG COAL FRAG (NOT KEPT)	<1% pea gravels Snail + unident. shell frags Screened
136-162	GLEY 1 4/- DKGY GLEY 1 3/- VDKGY	VF-FSiSa SiCl	FIRM	Ø	<0.1% HASH	ROUND/FLAT PIECE OF WOOD not kept	~~<0.1% pea gravels~~ 157-162 cmbs 5cm DIAM DRIFTWOOD CHUNK @ BASE Screened
162-169	GLEY 1 3/- VDKGY	F-MSiSD	MOD COMPACT	Ø	<0.1% HASH	NCM	<1% ~~pea~~ gravels unidentified shell fragments Screened

Additional Notes: after second photo was taken it was determined that top 10cm was fall in

GOUGE AUGER LOG

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CLIENT Apex Co. PROJECT New Bedford Described By CAD Date 9/15/100

Unit No. 119	Unit Type:	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-14	2.5Y 6/2	F-M S	LOOSE	NA	5 FRAG	NA	5% PEA GRAVEL, WET, LOOSE 5 FINE GRAVEL PIECES, OYSTER SHELLS
14-27	2.5Y 5/2	F-M S	LOOSE	NA	5 FRAG	NA	< 5% PEA GRAVEL, WET, LOOSE OYSTER SHELLS.
27-56	2.5Y 4/2	F-M S	LOOSE	NA	2 FRAG	2 COAL CINDERS	< 5% PEA GRAVEL, WET, LOOSE
56-63	2.5Y 5/2	F-MSS	MEDIUM	NA	1 OYSTER	2 COAL FRAGS	< 5% PEA GRAVEL, WET, LOOSE
63-78	2.5Y 5/1	M-CSW/ SILT	LOOSE	NA	9 OYST. & CLAM SHELL FRAG.	NA	< 5% PEA GRAVEL, WET
93-104	1 GLEY 4-1	F-SILTY SAND	MEDIUM	NA	5 OYST. SHELLS	NA	< 5% PEA GRAVEL, WET

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEWBEDCDF 3 **Described By** Jo, JR **Date** 9/15/10

Unit No. 125	Unit Type: Gang auger	Location:
Vegetation: none		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-18	2.5Y 4/2 DKGYBN	CSD	LOOSE MOIST	Ø	<5% HASH	Ø	Assorted gravels screened
18-22	MOTTLED 2.5Y 3/2 VDK GYBN 2.5Y 4/2 DKGYBN	TRACE SILT M-FSD	LOOSE DAMP	Ø	<1% HASH	Ø	Slightly oxidized lens <1mm thick screened
22-30	2.5Y 3/2 VDKGYBN	C-MSD	LOOSE WET	Ø	5% HASH	Ø	<1% pea gravels screened
30-42	2.5Y 4/2 DKGYBN	TRACE SILT M-F SD	MOD-LOOSE MOIST	Ø	<5% HASH	Ø	<1% pea gravels screened
Rising tide has collapsed augur hole, rock impasse							

Additional Notes:

GOUGE AUGER LOG

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John Milner Associates, Inc.

CLIENT APEX PROJECT South Terminal Described By JR, DR Date 9/16/10

Unit No. 125	Unit Type: Auger	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-33	2.5Y 4/1	fine-coarse Sand	loose	—	sm-large frags clam, oyster	—	~5% sm-lg. gravels, rocks
33-36	Gley 1 3/10Y	fine S:Cl	Semi-loose	—	few sm clam, mussel frags	—	<1% sm-lg gravels
36-53	2.5Y 5/1	fine-coarse Sand	Semi-loose	—	sm-med frags clam, mussel	—	<1% sm-lg gravels
53-61	2.5Y 5/1	med-coarse Sand	Semi-loose	—	sm-lg frags clam, mussel	—	<5% sm.-lg. gravels
61-69	Gley 1 3/10Y banded w/ 2.5Y 5/1	→ fine S:Cl → fine S.S:	Compact	—	no shell	—	No gravels
69-72	2.5Y 5/1 banded w/ Gley 1 3/10Y	→ fine S.S: → fine S:Cl	Compact	—	no shell	—	No gravels
72-107	Gley 1 3/10Y banded w/ 2.5Y 5/1	→ fine S:Cl → fine S.S:	Compact	—	no shell	—	<1%, pea-sized gravel

Additional Notes: Refusal @ 120cmBS by rocks. No sediment recovered below 107cmBS.
Photograph only of first core

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEWBEDCDF 3 **Described By** EM, JO JR **Date** 9/15/10

Unit No. 135	Unit Type: GAUGE AUGER	Location: Ø
Vegetation: Ø		Drainage: WELL

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-11	2.5Y 7/2 LT GY	M-C SD	LOOSE DAMP	Ø	<5% HASH	15ml piece of coal	5% Pea gravel w/ 1.5cm diam. gravel clam, oyster shell fragments Screened
11-33	2.5Y 6/1 GY	F-M SD	LOOSE DAMP	Ø	10% HASH	Ø	shell, oyster, clam shell fragments ~10 pea gravel Screened
33-64	2.5Y 4/1 DK GY	Si F SD	MODERATELY COMPACT DAMP	Ø	<5% HASH	Ø	Clam + snail fragments w/ pea gravel w/ <5% larger nickel gravel Screened
64-80	2.5Y 6/1 GY	F-M SD	LOOSE DAMP	Ø	<5% HASH	Ø	<5% pea gravel, small amount of clam, oyster shell Screened
80-101	2.5Y 5/1 GY	Trace Silt F-M SD	MOD COMPACT DAMP	Ø	<5% HASH	Ø	<5% pea gravel clam, oyster shell fragments Screened
101-117	2.5Y 5/2 GY BN	M-F SD	LOOSE WET	Ø	<1% HASH	Ø	pea gravel Screened
117-125	2.5Y 3/1 VDK GY	TRACE Si F SD	LOOSE WET	Ø	<0.1% HASH	Ø	clean, homogeneous screened
125-130	MOTTLED 5Y 4/2 OLGY 5Y 3/2 DKOLGY 10YR 2/1 BLK	Si F SD	MOD. COMPACT WET	Ø	<0.1% HASH	Ø	clean, homogeneous screened
130-138	2.5Y 3/2 VDK GY BN 2.5Y 2.5/1 BLK	F-M SD TRACE Si	LOOSE WET	Ø	80% HASH	Ø	channel lag pea gravel screened
138-163	5Y 2.5/1 BLK	Si cl	FIRM MOIST	trace organics	Ø	Ø	clean, homogeneous 0.1% Pea gravel; 0.1% HASH @ base of strat screened

Additional Notes: Auger location is on a very rocky/shelly area of beach + hinders initial coring.

163-173	10YR 2/1 BLK	cl Si	FIRM	Ø	Ø	Ø	clean, homogeneous 2 small oxidized areas @ base of core

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By PR, JR Date 9/15/10

Unit No. 142	Unit Type:	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO (47-147 cm bs photodocumented, w/ close-up of oscillating bowls 122-149 cm bs)

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-10	2.5Y 6/2	Me-Co Sa	loose	no	very few Broken	no	very little pea-gravel, 0-5 cm Bs oyster shell <5%
10-90	2.5Y 6/2	Fi-Co Sa	loose	no	very few Broken	no	very little pea-gravel; clam + oyster shell <5%
90-109	2.5Y 6/2	Me-Co Sa	loose	no	broken + whole	no	clam, oyster, rivsed shells, very little pea-gravel <1%
109-121	10YR 3/1	Fi-Me Sa	loose	no	Very few Broken	no	some small pea-gravel <1%
121-130	10YR 3/1	Fi Sa	compact	no	very few broken	no	some small pea-gravel <1%
130-133	10YR 5/1	Co Sa	loose	no	Broken shell	no	larger pieces of broken shell, some small pea-gravel <1%
133-135	2.5Y 2.5/1	Fi Si	compact	no	very few small Broken	no	some small pea-gravel <1%
135-137	10YR 5/1	Fi Sa	compact	no	no	no	
137-164	2.5Y 2.5/1	Fi Si	compact	no	2 small shell fragments	no	rich in organics, dank smell

Additional Notes: Bottomed out on rock @ 164 cm BS

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** NEWBEDCDF 3 **Described By** EM, JO **Date** 9/15/10

Unit No. 147	Unit Type: Gauge Auger	Location:
Vegetation: None		Drainage: well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-74	2.5Y 6/2 LT BN GY	F-M SD	LOOSE MOIST	Ø	<5% HASH	1 pea sized piece of coal not kept	19 gravel @ 25 cm bs Screened Small - pea sized gravels ~3 large (quarter sized) gravels
							20-25 shell conformity of mostly clam. water content increases with depth as do clast size & gravelly (more quarter sized)
74-107	2.5Y 7/3 PLYW	F-M SD	LOOSE WET	Ø	<5% HASH	1 coal Frag not kept	~10% quarter sized gravels + pea sized gravels crushed clam shell Screened
107-119	2.5Y 6/3 LTYW BN	M-C SD	LOOSE WET	Ø	<5% HASH		also oxidized, lots of clam shell fragments 1 quarter + sized pebble oyster + clam shell frags <1% pea gravel Screened
119-135	2.5Y 6/1 GY	F-M SD TRACE Si			<5% HASH	Ø	Slightly oxidized Fm single crushed shell (clam) no gravels Screened

Additional Notes: First Auger attempt got to 34 cm bs. Area of beach is very gravelly of shelley additional core attempts failed to retain marine mud. auger hole is super saturated with sea water & may be why we can't retain anything in the core.

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JAK/NGC Date 9/15/10

Unit No. 156	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

	Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
STRAT. 1	0-29cm	2.5Y5/2 G-B	F-M SAND PEA GRAVEL	LOOSE	NONE	BROKEN	NONE	
	29-48cm	"	"	"	"	LESS SHELL	"	OXIDATION W/IN THIS LOWER PART OF STRATUM
STRAT. 2	48-65cm	2.5Y4/2 D. GR BR.	M-C SAND	GRANULAR	"	BROKEN	"	NOT AS MUCH SHELL AS OVERLYING STRATUM
	65-70cm	"	"	"	"	"	"	
STRAT. 3	70-161cm	2.5Y4/1 D. GR.	F-M SAND	LOOSE	"	"	"	LIGHT GRAVEL CONTENT

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT HPEX **PROJECT** SOUTH TERMINAL/ NEW BEDFORD **Described By** MGC/JAK **Date** 09/15/2010

Unit No. 163	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-45 cm	2.5Y 6/2 LBG	F-M SAND/ SMALL GRAVEL	LOOSE - MED	NONE	BROKEN	NONE	/
45-61	2.5Y 3/1 G	F SAND	MEDIUM	NONE	BROKEN	NONE	OXIDATION
61-64	2.5Y 3/1 VDG	SILTY SAND	MEDIUM	LOW	NONE	NONE	/
64-89	2.5Y 5/2 GB	F-M SAND	MEDIUM	NONE	SMALL AMOUNT	NONE	/
							AUGER REFUSAL @ 89cm bgs.

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/NGC Date 9/15/10

Unit No. 164	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-31cm	2.5Y5/2 G.B.	F-M SAND	LOOSE	NONE	BROKEN	NONE	- PHOTO 100-0009
31-70cm	"	"	"	"	"	"	- PHOTO 100-0010 @ MEMORY FULL ON CAMERA AFTER THIS SHOT
70-100cm	"	"	"	"	"	"	
100-140cm	"	"	"	"	"	"	

ALL SAME STRATUM

Additional Notes:

GOUGE AUGER LOG

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John Milner Associates, Inc.

CLIENT Apex **PROJECT** New Bed CDF 3 **Described By** JR, EM JO **Date** 9/16/10

Unit No. 171	Unit Type: Gouge Auger	Location: adjacent to salt marsh
Vegetation: endangered grass		Drainage: mod. well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-16	2.5Y 5/2 GY BN	MSD	LOOSE DRY	Ø	<0.01% HASH	NCM	<1% pea sized gravels Screened
16-28	2.5Y 5/1 GY GLEY 1 4/1 DKGNGY	MSD F-MSD	LOOSE DAMP	Ø	<1% HASH	NCM	<5% pea sized gravels Screened
28-62	GLEY 1 6/1 GNGY	F-MSD	COMPACT DAMP	Ø	Ø	BTL GLS @ 48cmbs PLUS →	<0.01% pea sized gravels 5 frags of modern bottle glass Screened
62-86	GLEY 1 6/1 GNGY	F-MSD	VERY COMPACT DAMP	Ø	5% HASH		very, very compact Screened
		Auger Refusal @ 86 cmbs					

Additional Notes: first auger attempt went 50cmbs & was refused. 35cm was recovered as rest fell out. last strat is very compact such that even the core itself was twisting. Cannot core any deeper

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT New Bedford (South Terminal) Described By NGC, TAK Date 09/14/2010

Unit No. 172	Unit Type: Gouge Auger	Location:
Vegetation:		Drainage: Acushnet River

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-87	2.5Y 5/3 LOB	M-C SAND/ LOW GRAVEL	HIGH	MODERATE	BROKEN	NONE	CELOPHANE PLASTIC
87-105	2.5Y 5/1 G	F. SAND	HIGH	YES	NONE	NONE	CELOPHANE PLASTIC @ 92CMBS
105-114	2.5Y 6/2 LGB	M. SAND	HIGH	NONE	BROKEN	NONE	
114-140	2.5Y 6/1 LG	F-M SAND/ PEA GRAVEL	HIGH	YES	BROKEN	NONE	REFUSAL @ STONE/GRAVEL/SAND

Additional Notes: ON ELEVATED PORTION OF BEACH BETWEEN HIGH TIDE TO THE E. + SALT MARSH VEGETATION TO THE W. (≈2M.)

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX **PROJECT** SOUTH TERMINAL NEW BEDFORD **Described By** NGC, TAK **Date** 09/14/2010

Unit No. 173	**Unit Type:** GOUGE AUGER	**Location:**
Vegetation: NONE NOTED		**Drainage:** ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-21	2.5Y 5/2 GB	F-M SAND	HIGH	NONE	BROKEN	NONE	
21-46	2.5Y 5/3 LOB	F-M SAND/ W/GRAVEL	HIGH	NONE	BROKEN	NONE	
46-85	"	"	"	"	"	NONE	
85-97	2.5Y 3/1 VDG	S, SA / W/PEA GRAVEL	"	NONE	BROKEN	NONE	AGING TIDE FILLED CORE

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT NEW BEDCDE 3 Described By EM, JO Date 9/21/10

Unit No. 174	Unit Type: GOUGE AUGER	Location: Shoreline
Vegetation: none		Drainage: poor

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-33	2.5Y 6/2 LT BN GY	F-M SD W/CSD	LOOSE WET	Ø	5% HASH	NCM	<1% PEA GRAVELS Screened
33-42	GLEY 1 5/10Y GN GY	F-M SD W/CSD	LOOSE WET	Ø	<5% HASH	NCM	<5% PEA SIZED GRAVELS Screened
42-45	GLEY 1 4/N DK GY	F-MSi SD	LOOSE-MODERATE WET	Ø	<5% HASH	BRICK FRAGT (NOT KEPT)	<5% Pea Sized Gravels Screened
45-70	GLEY 1 4/N DK GY	F-M SD W/CSD & GRAVELS	LOOSE WET	Ø	<1% HASH	NCM	<1% PEA GRAVELS Screened PEACH CORE SIZED ROCK @ INTERFACE w/ ↲
70-78	GLEY 1 3/10Y VDK GN GY	VF-F SiSD	MODERATE WET	Ø	Ø	NCM	homogeneous Screened
78-111	GLY 1 5/1 GN GY, GLY 1 3/10Y VDK GN GY	VF SD SDSi	MODERATE WET	Ø	Ø	NCM	homogeneous Screened
111-124	2.5Y 5/1 GY	C-M SD	MOD-LOOSE WET	Ø	<5% HASH	NCM	5% PEA GRAVELS Screened
124-134	2.5Y 2.5/1 BLK	Si	MOD-COMPACT WET	Ø	<5% HASH	NCM	<5% PEA GRAVELS Screened
134-139	2.5Y 2.5/1 BLK	F-M COAL	MOD-COMPACT WET	Ø	Ø	NCM	INDUSTRIAL LAYER Coal Hash Whole Clam Shell Screened
	Auger	Refusal					

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/NGC Date 5/16/10

Unit No. 180	Unit Type: GOUGE AUGER	Location:
Vegetation: IN SALT GRASS/MARSH		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-25cm	2.5Y 4/2 D.GR.BR.	M-C. SAND	LOOSE	NONE	NONE	NONE	
25-106cm	2.5Y4/1 D.GR.	M-F SAND	MEDIUM	NONE	LOW, BROKEN	NONE	-MOTTLED W/ 2.5Y4/2 D.GR.BR. + 2.5Y2.5/1 BL. -FEW PEA GRAVEL
106-140cm	2.5Y4/2 D.GR.BR.	M. SAND	LOOSE/MEDIUM	NONE	FEW	NONE	-MOTTLING W/ 2.5Y2.5/1 BL. SILT
140-184cm	2.5Y2.5/1 BL.	F. SILT	DENSE	NONE	NONE	NONE	-SOME SAND W/IN
							-PHOTOED SECTION FROM 89-184cm b.g.s. 100-COLOR FRAME

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT South Terminal Described By JR, DR Date 9/14/10

Unit No. 181	Unit Type:	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 24	10YR 6/2	fine - Coarse Sand	loose	---	broken	—	standing water 5cmbs
24-34	10YR 4/2	fine - med. Sand	moderately loose	Y	no	—	Plastic in strata
34 - 59	2.5Y 4/1	fine - coarse Sand	loose	Y	broken	—	very few pea-size gravels present

Additional Notes: Possible rocky layer sensed ≈ 1mbs; unable to recover sediment from 59 - 100 cmbs due to loose, wet consistency (standing water 5cmbs)

GOUGE AUGER LOG

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CLIENT APEX PROJECT NEWBED CDF3 Described By JO/JR Date 9/14/10

Unit No. 182	Unit Type: GAUGE AUGER	Location:
Vegetation: NONE		Drainage: GOOD

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
	SOIL COULD NOT BE RETAINED AFTER SEVERAL ATTEMPTS						
	VERY COARSE BEACH SAND						

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** SOUTH TERMINAL/NEW BEDFORD **Described By** MGC/TAK **Date** 9/15/2010

Unit No. 18-3	Unit Type: GOUGE AUGER	Location: ADJACENT TO TELESCOPING DRAIN
Vegetation:		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 56	2.5Y 5/2 GY	M-C SAND	LOOSE - MOD. COMPACTION	NONE	BROKEN		OXIDIZED POCKETS PHOTO 100 - 0078
56 - 66	2.5Y 4/1 DG	F-M SAND	MOD COMPACTION	NONE	BROKEN		PHOTO "
66 - 80	2.5Y 4/1 DG	SANDY SILT	HIGH COMPACTION	NONE	BROKEN		" " PHOTO "
80 - 135	2.5Y 5/1 G	M-C SAND	LOOSE	NONE	BROKEN/ SMALL GRAVEL		MOTTLED w/ 2.5Y 4/1 DG (OVERLYING STRATA) PHOTO "

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex Co PROJECT New Bedford Described By GAD/ECM Date 9/20/10

Unit No. 189	Unit Type: ATU	Location: Just upstream of Salt Marsh
Vegetation: None		Drainage: Acushnet River

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-40	2.5Y 5/2 Gray Brown	F-M Sand	Loose Damp	NA	Yes	NA	1% shells <1% pea gravel
40-75	2.5Y 6/2 Lt Brown/Gray	F-M Sand	Loose - Damp	NA	Yes	NA	<1% shells <1% pea gravel
75-86	2.5Y 6/3 Lt Yellow Brown	F-M Silty Sand	Loose - Med Compaction	NA	Yes	NA	<1% shell <1% pea gravel wet

Additional Notes: Refusal at 115 cm.

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR **Date** 9/16/10

Unit No. 190	Unit Type: Gouge Auger	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 11	10YR 5/3	Fi-Me Sa	loose	—	1 pc. Broken clam	—	No gravels
11 - 29	2.5Y 4/1	Fi-Me Sa	loose	—		—	10-15% small-medium gravels
29 - 35	2.5Y 4/1	Co Sa	moderately compact	—	some small-medium	—	Thick shell deposit; 1% small-medium size quahog, clam, oyster, scallop: broken + whole gravels
35 - 39	2.5Y 5/1	Fi-Me Sa	compact	—	small-medium broken + whole	—	1% small-medium size quahog, clam, oyster gravels
39 - 47	2.5Y 4/1	Fi-Me Sa	compact	—	small-large broken + whole	—	Thick shell deposit, 1% small-medium gravels quahog, clam, oyster
47 - 50	Gley 1 2.5/N	Fi Sa Si	compact	—	—	—	No gravels
50 - 110	Gley 1 2.5/10Y	Fi Sa Si	compact	—	Some small broken	—	1% gravel quahog, clam, oyster, scallop

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/16/16

Unit No.	91	Unit Type: Auger	Location:
Vegetation: marsh grasses			Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	2.5Y 4/3	med-coarse Sand	loose	Y	med-sm broken	—	25% sm-lg gravel. clam, scallop, mussel
12-33	Gley1 4/10Y	med-coarse Sand	loose	Y	few sm-med.	—	1% gravel clam, scallop, mussel
33-38	Gley1 3/5GY	fine-med Sand	semi-loose	—	—	—	no gravel no shells
38-47	Gley1 4/5GY	fine-med Sand	Semi-loose	—	sm-med	plastic	no gravel clam, scallop
47-54	Gley1 2.5/5GY	fine-med Sand	Compact	—	few shell	—	5% sm-lg gravels Clam, scallop
54-80	Gley1 4/10Y	fine-coarse Sand	semi-loose	—	few med-sm		5-10% sm-lg gravel clam, scallop
80-129	2.5Y 5/1	fine-coarse Sand	semi-loose	—	med/level sm-med shells	—	10-15% pea size-med gravels Clam, scallop
129-137	Gley1 2.5/N	fine S:Cl	Compact	—	—	—	<5% pea-sized gravels clam, scallop, mussel
137-148	Gley1 2.5/5GY	fine Sa:Si	Compact	—	—	—	no gravel
148-175	Gley1 2.5/N	fine S:Cl	Compact	—	quahog 3 shell no gravel	—	no gravel

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/NGC GAD Date 9/17/10

Unit No. 192	Unit Type: GOUGE AUGER	Location: SALT MARSH
Vegetation: SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-29cm	2.5Y3/2 V.DK GR.BR.	F. SAND	MODERATE	ABUNDANT	NONE	NONE	- PHOTOS 106-108; 0-100cm b.g.s. - 3" OF STANDING WATER @ SURFACE
29-61cm	GLEY1 3/10Y V.DK GREENISH	F-SAND	LOOSE	NONE	NONE	NONE	
61-82cm	GLEY1 3/N V.DK GR.	F-M SAND	LOOSE/MODERATE	NONE	LOW	NONE	- SMALL GRAVEL CONTENT - BASE HAS SMALL SHELL PIECES
82-86cm	GLEY1 2.5Y/N BLACK	SILT	DENSE	NONE	NONE	NONE	- LENSES OF GRAY LAGOON SAND (GLEY 1-6/10Y)
86-124cm	GLEY1 4/N V.DK.GR.	F. SILT	DENSE	NONE	NONE	NONE	-PHOTO 109-111
124-134cm	GLEY 1 4/N DK.GR.	M. SAND	LOOSE/MODERATE	NONE	LOW SHELL	NONE	-PHOTO 109-111
134-165cm	GLEY 1 2.5N BLACK	SILT W/ CLAY	DENSE	"	NONE	NONE	-PHOTO 109-111 AUGER REFUSAL DUE TO DENSITY

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex Companies PROJECT S. Terminal Ext. Described By _____ Date 9/14/2010

Unit No. 193	Unit Type: Gouge Auger	Location: New Bedford, Black Street
Vegetation: No Vegetation		Drainage: Sand - Good Drainage

PHOTOGRAPHED YES / NO * Picture taken 95-169 cm bottom of picture Not recovery on core.

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-11	2.5Y63	Med-Coarse	Loose	No	Yes	No	Small well rounded gravel w/ Med to coarse grained sand. Small broken shell pieces.
11-23	2.5Y62	Med. Sand	Loose	No	Yes	No	5% rounded pebbles. Broken shells fragments Med. Sand
23-45	2.5Y61	Med.-Coarse Sand	Loose	No	Yes	No	5% rounded pebbles. Broken shells. Med to coarse sand.
45-52	2.5Y62	Med.-Coarse Sand	Loose	No	Yes	No	Small well rounded gravel to Med grained sand. Small broken shell fragments
52-61	2.5Y63	Fine-Med. Sand	Very Loose	No	Yes	No	11 shell fragments 9 small pebbles. Fine to Med very loosely cons. sand some organics
61-89	2.5Y62	Med.-Coarse Sand	Loose	No	Yes	No	Singular large pebbles. Some shell fragments Several pieces of coal fragments organic trace
89-95	2.5Y63	Fine-Med Sand	Loose	No	Yes	No	Some small peddles <5% Med. pebbles. Piece of Coal. Fine to Medium grained Sand
95-118	2.5Y52	Med-Coarse Sand	Loose	No	Yes	No	Shell fragments, small & med pebbles. cynder fragment Med to Coarse grained sand
118-127	2.5Y51	Fine-Med Sand	Loose	No	Yes	No	Shell fragments Small to med well rounded pebbles. Coal fragments
127-169	2.5 Black	Silt w/ Some Sand	Dense	No	Yes	No	Dense organic silt w/ some fine grained sand small coal & shell fragments. some small pebbles

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX **PROJECT** South Terminal **Described By** DR. JR. NGC **Date** 9/21/10

Unit No. 193	Unit Type: Auger	Location:
Vegetation: Ø		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-39	2.5Y 6/1 LGW BR	fine-med Sand	loose wet	—	sm-med	—	fine-coarse pebbles (<5%) clam, scallop
39-78	2.5Y 5/2 - GY BR	fine-med Sand	loose wet	—	sm-med	1 coal	fine-coarse pebbles (<5%) clam
78-114	Gley 1 2.5/10Y	med-coarse Sand	loose wet	—	—	—	<5% pea-gravel
114-117	Gley 1 2.5/5GY	slightly sandy S:Cl	moderately compact wet	—	—	—	1 pea-sized gravel.
117-121	Gley 1 4/10Y	Silty f: Sa	compact wet	—	—	—	1 pea-sized gravel
121-130	Gley 1 3/10Y	S:Cl	compact wet	—	sm shell	—	few pea-sized gravels clam

Additional Notes: Rock Impasse 146 cmbs; unable to extract 130-146 cmbs

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** SOUTH TERMINAL/NEW BEDFORD **Described By** MGC/TAK **Date** 9/15/2010

Unit No. 194	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 94	2.5Y 6/2 LBG	M-C SAND	LOOSE	NONE	BROKEN/ HIGH CON.	NONE	
94 - 107	2.5Y 5/1 G	F SAND	MODERATE	NONE	BROKEN/ MOD. CON.	NONE	
107 - 114	2.5Y 3/1 VDG	SILTY SAND	MOD - DENSE	NONE	NONE	NONE	

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX **PROJECT** NEWBEDCDF3 **Described By** EM, JO **Date** 9/21/10

Unit No. 195	Unit Type: GOUGE AUGER	Location: Shoreline
Vegetation: none		Drainage: Poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-37	2.5Y 6/2 LTBNGY	F-MSD W/CSD+ GRAVELS	LOOSE WET	Ø	<5% HASH	LAMP + WINDOW GLS (NOT KEPT)	10% PEA GRAVELS SCREENED
37-46	GLY 1 3/10Y VDKGNGY	VFSiCl	MODERATE-FIRM WET	Ø	<1% HASH	WOOD FRAGS → (NOT KEPT)	45cmbs WOOD (3cm long) PLUS A few smaller pieces ATU IS ~ IN LINE W/ OLD WOOD PILINGS THAT RUN ‖ TO PIPE <1% PEA SIZED GRAVELS SCREENED
46-61	GLY 1 6/10Y GNGY	F-MSD W/CSD	LOOSE WET	Ø	<5% HASH	NCM	<5% PEA SIZED GRAVELS SCREENED
61-73	GLY 1 3/10Y VDKGNGY	VF-FSiSD	MODERATE WET	Ø	<1% HASH	COAL (NOT KEPT)	<1% PEA SIZED GRAVELS SCREENED
73-100	GLY 1 5/1 GNGY GLY 1 3/10Y VDKGNGY	VFSD SDSi	MODERATE WET	Ø	<0.01% HASH	NCM	<1% PEA SIZED GRAVELS SCREENED
100-105	GLEY 1 2.5/N BLK	F-M COAL	MODERATE-FIRM WET	Ø	<1% HASH	NCM	INDUSTRIAL LAYER <1% PEA GRAVELS SCREENED
105-121	GLEY 1 4/10Y DKGNGY	VFSiSD	MODERATE WET	Ø	<1% HASH	NCM	HOMOGENEOUS OYSTER SHELL @ INTERFACE W/ ↵ SCREENED
121-152	GLEY 1 3/N VDKGY	VF-MSiSD	MODERATE WET	Ø	<1% HASH	NCM	5% PEA GRAVELS SCREENED
	Auger Refusal on Rock						

Additional Notes:

GOUGE AUGER LOG

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CLIENT Apex **PROJECT** New Bed CDF 3 **Described By** JR, EM, JO **Date** 9/17/10

Unit No. 200	Unit Type: Gauge Auger	Location: Salt marsh edge
Vegetation: Salt Marsh grass		Drainage: mod

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	10YR 4/4 DKYW BN 2.5Y 6/2 LT BN GY	M-CSD F-MSD	Loose Damp	roots + rootlets	<5% HASH	Plastic, coal frag (not kept)	10YR color is an oxidized mottling 10% pea gravels unident. shell Screened
12-23	2.5Y 5/1 GY	TRACE CSD F-MSD	Loose Damp	Ø	<1% Hash	coal frags (not kept)	5% Pea sized gravels oyster + clam shell Screened
23-37	GLEY 1 4/1 DK GY	F-MSD	Moderately Loose Wet	Ø	<1% Hash	coal frag (not kept)	<0.01% nickel sized gravel <1% pea sized gravel unidentified shell frag Screened
37-63	2.5Y 6/2 LT BN GY	F-MSD	Moderately Loose Wet	Ø	<5% HASH	NCM	<1% quarter sized gravel <5% pea gravel clam shell frags Screened
63-123	2.5Y 5/2 GY BN	TRACE CSD F-MSD	Moderately loose wet	Ø	<5% HASH	coal frag (not kept)	<5% pea gravel unidentified shell frags Screened
123-132	2.5Y 5/1 GY	TRACE CSD F-MSD	Saturated	<0.01% rootlets	<1% Hash	NCM	<0.01% quarter sized gravel <5% pea sized gravels clam shell frags Screened
	Auger Refusal @ 132 cmbs						

Additional Notes:

GOUGE AUGER LOG

CLIENT Apex PROJECT NEW BEDCDF 3 Described By JR, EM, JO, AK, GD, NC Date 9/16/10

Unit No. 201	Unit Type: Gauge Auger	Location: Salt marsh
Vegetation: marsh grass / entangled marsh grass		Drainage: Poor - moderate

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-17	2.5Y 3/1 VDKGY	Si MSa	Compact Wet	Roots + rootlets	Ø	NCM	Marsh Mud Screened
17-20	GLEY 1 3/- VDKGY	M Sa	Mod. compact wet	rootlets roots	Ø	NCM	homogeneous Marsh Mud Screened
20-85	GLEY 1 4/- DKGY	F-MSa	Mod. Compact Wet	rootlets	<5% Hash	NCM	2 nickel-sized pebbles <5% pea gravel Clam, oyster Screened
85-94	GLEY 1 5/- GY	M Sa	Compact Wet	Ø	<1% Hash	NCM	mottled w/ GLEY 1 5/1 GN GY VFSa → GL 4/- → GL 5/1 Screened
94-102	GLEY 1 4/- DKGY	F-MSa	Mod compact	Ø	<0.1% HASH	NCM	1 pea gravel Screened
102-115	GLEY 1 2.5/- BLUE GLEY 1 5/- GY	SiCl VFSa	compact	Ø	<1% Hash	tiny coal frag not kept	<1% pea gravel oyster, snail Screened
		Auger Refusal @ 115 cm					

Additional Notes: last photo has an additional 5cm which was determined to be wall fall after photo taken

GOUGE AUGER LOG

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CLIENT APEX [illegible] **PROJECT** SOUTH TERMINAL **Described By** MGC/TAK **Date** 09/17/2010

Unit No. 202	Unit Type: ACTU	Location: SALT MARSH
Vegetation: SALT MARSH GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 27	2.5Y 5/1 G	F-M SAND w/ GRAVEL	LOOSE	NONE	MOD.	NONE	/ PHOTOS 100 - 0094 - 0096
27 - 58	GLEY1 2.5/N BLACK	F. SAND	MOD.	"	LOW	"	/ PHOTOS "
58 - 83	GLEY1 6/10Y GG	VERY FINE SAND.	MOD.	"	LOW	"	POSSIBLE LAGOON SEDIMENTATION PHOTOS " "
83 - 128	GLEY1 3/N VDGG	FINE SILTY SAND	MOD.	"	LOW/ NEAR BASE	"	/ PHOTOS " " / 100 - 0097 - 0099
128 - 141	2.5Y 4/1 DG	F. SAND	M. DENSE	"	HIGH/ DENSE	"	PHOTOS 100 - 0097 - 0099
141 - 162	GLEY1 2.5/N	F. SILT	DENSE	"	NONE	"	BANDS OF GLEY1 5/10Y / F. SAND PHOTOS " "
162 - 174	GLEY1 2.5/N BLACK	F. S SILT	DENSE	SPARSE	NONE	"	REFUSAL SOME SMALL COARSE FRAGS. / GRAVEL PHOTOS LAYER SEM

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/NGC GAD Date 9/17/10

Unit No. 203	Unit Type: GOUGE AUGER	Location: SALT MARSH
Vegetation: SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-34cm	2.5Y3/2 V.DK GR. BR.	F. SAND w/ TRACE SILT	MEDIUM	ABUNDANT	NONE	NONE	- STANDING 2" OF WATER @ SURFACE - PHOTOS 100-102; 0-100cm bgs.
34-74cm	GLEY1 2.5/10Y GREEN. BL.	F-M SAND	MEDIUM	NONE	NONE	NONE	
74-112cm	GLEY1 2.5/5BY GREEN. BL.	SILT w/ TRACE CLAY	DENSE	NONE	LIGHT SHELL	NONE	- PHOTOS 103-105; 100-179cm bgs.
112-117cm	GLEY1 2.5/10Y GREEN. BL.	F. SAND	LOOSE	NONE	"	NONE	
117-131cm	GLEY1 2.5/10BY GREEN. BL.	SILTY CLAY	MEDIUM	NONE	NONE	NONE	
131-161cm	GLEY1 2.5/10Y GREEN. BL.	F-M. SAND w/ TRACE SILT	VERY LOOSE	NONE	LIGHT SHELL GRAVEL	NONE	
161-179cm	GLEY1 2.5/N BLACK	SILT w/ CLAY	DENSE	NONE	NONE	NONE	- AUGER REFUSAL @ 179cm DUE TO DENSITY OF SOILS

Additional Notes: 2M. W. FROM E. EDGE OF SALT MARSH.

GOUGE AUGER LOG

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CLIENT APEX PROJECT NEWBEDCDF3 Described By JO/JR Date 9/14/10

Unit No. 204	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: GOOD

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-12	2.5Y 5/2 GY BN	C-MSD	VERY LOOSE	Ø	<5% MASH	Ø	SCREENED VERY LOOSE HARD TO KEEP IN AUGER
12-24	2.5Y 4/3 OL BN	M-CSD <1% SMALL GRAVELS	LOOSE MOIST	Ø	<5% MASH	Ø	SCREENED Sa 9
24-37	2.5Y 4/2 DK GY BN	CSD SML 25% GRAVELS	LOOSE WET	Ø	15% MASH	Ø	AUGER REFUSAL @ 37CM BELOW SURFACE SCREENED Sa 9

Additional Notes:

GOUGE AUGER LOG

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CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By TAK/MGC Date 9/15/10

Unit No. 205	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

	Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
STRAT. 1	0 – 61cm	2.5Y4/2 D.GR.BR.	M. SAND PEA GRAVEL	LOOSE	NONE	BROKEN	NONE	
STRAT. 2	61-101 cm	2.5Y3/1 V.DK.GR.	SA. SI.	COMPACT/ DENSE	"	NONE	"	W/ ROUNDED PEBBLES
STRAT. 3	101-107cm	2.5Y4/1 DK.GR.	C. SAND PEA GRAVEL	LOOSE	"	BROKEN	"	
								@ LOSS OF RETRIEVAL DUE TO ADVANCING TIDE; AUGER TEST SATURATED

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
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CLIENT APEX PROJECT South Terminal Described By DR, JR Date 7/9/10

Unit No. 211	Unit Type: Gauge Auger	Location:
Vegetation: Salt marsh grasses		Drainage: within salt marsh

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-7	2.5Y 3/2	F.Sa Si	loose	small roots	w/a few broken	—	5% < small pebbles clam, mussel
7-21	2.5Y 4/1	F.Me Sa	loose	large roots	small, broken	1 pc. plastic	5% < small-medium gravels clam, scallop, oyster
21-38	Gley 1 2.5/N	F.Co. Sa	loose	—	few small broken	1 pc. coal slag	5-10% small-medium pebbles, clam, scallop
38-54	Gley 1 2.5/5GY	F.Co Sa	loose	—	small-medium broken	—	5-10% pea-size gravels clam, oyster, scallop
54-64	Gley 1 2.5/N	Si F.to Sa	loose	—		—	5% < fine-medium gravel

Additional Notes: Refusal @ 85 due to rock. 64-85 cmBS unable to recover.

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR **Date** 9/17/10

Unit No. 212	Unit Type: Gouge Auger	Location:
Vegetation: salt-marsh grasses		Drainage: Poor: in middle of salt-marsh

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-32	2.5Y 4/1	F.-Co Sa	loose	small + large	some small-medium Broken	—	scallop. oysters. <5% small-pea-size gravels
32-65	Gley 1 3/N	F.-Co Sa	loose	—	some small-medium Broken	—	<5% pea-size gravel; clam + oysters
65-82	see comments	Si.F.Sa	compact	—	1 pc. scallop Broken	—	Color: Gley 1 4/10Y Banded w/ 3/10Y no gravels
82-94	see comments	F.Si.Cl	compact	—	small-medium	1 pc. clear flat glass	Gley 1 4/5GY w/ Band of Me-CoSa Gley 1 3/5GY Band is 87-88 cmBS <5% pea-size gravels; clam + mussel
94-100	see comments	Si.F.Sa	compact	—	2 small broken pieces	—	Color: Gley 1 4/10Y Banded w/ 3/10Y <5% pea-size gravels 2
100-106	2.5Y 4/5GY	Si.Cl	compact	—	none	—	no gravels
106-112	2.5Y 4/5GY	F.-Me Si.Sa	moderately compact	—	small-medium broken	—	sea snail, clam, scallop, mussel <5% pea-gravel
112-124	2.5Y 4/5GY	Si.Cl	compact	—	none	—	no gravels

Additional Notes: Rock Impasse @ 124 cmbs

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By JAK/NGC Date 9/17/10

Unit No. 213	Unit Type: GOUGE AUGER	Location: SALT MARSH
Vegetation: SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-29cm	10YR3/2 V.DK.GRBR	M. SAND, PEA GRAVEL	MODERATE	ABUNDANT	NONE	NONE	-PHOTOS 112-114; 0-100cm b.g.s.
29-62cm	GLEY1 3/10Y V.DK.GRE.GR.	M. SAND	LOOSE/MODERATE	NONE	NONE	NONE	
62-70cm	GLEY1 3/N V.DK.GR.	F-M SAND	MODERATE	NONE	FEW, BROKEN	NONE	
70-120cm	GLEY1 5/N GRAY	SANDY SILT	DENSE	NONE	SOME	1	1- CLEAR, FLAT GLASS (NOT SAVED) SOME SHELL FRAGS.

Additional Notes: CLOSE TO CENTER OF SALT MARSH

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By NGC/TAK Date 9/14/10

Unit No. 214	Unit Type: GOUGE AUGER	Location:
Vegetation:		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-22cm	2.5Y5/3 L.o.BR.	M-C SAND PEA GRAVEL	HIGH	NONE	BROKEN	NONE	-PIECE OF COAL
22-52cm	"	"	"	"	"	"	-LOCALIZED OXIDATION W/IN -CELLOPHANE PLASTIC
							AUGER REFUSAL @ 52cm bgs.

Additional Notes: < 1M. E. OF SALT MARSH VEGETATION

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT South Terminal Described By DR / JR Date 9/14/10

Unit No. 215	Unit Type:	Location:
Vegetation: None		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 14	10YR 7/2 w/ 10YR 6/3	Fi-Me Sa	loose	no	yes, broken	no	w/ pea-gravel; dry
14 - 30	10YR 7/2 w/ 10YR 5/2	Me-Co Sa	loose	no	yes, broken-whole	no	w/ pea gravel; much more wet

Additional Notes: Refusal on coarse sand.

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/15/10

Unit No. 216	Unit Type: Auger	Location:
Vegetation: none		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 98	2.5Y 5/2	mo-Co Sa	loose	—	sm-med shell Clams scallop	—	~5%, pea-size gravel
98-107	2.5Y 4/1	med-Coarse Sand	loose	—	Very few sm/ shell	—	very few pea-size gravel
107-120	2.5Y 4/1	fine-med. Sand	Compact	—	very few broken shell	—	very few pea-sized gravels
120-140	Gley 1 2.5/10Y	SiCl	Compact	—	<5 small shell (mussel)	—	No gravels

Additional Notes: Ref-sml @ 140cmBs due to rock

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

SOUTH TERMINAL

CLIENT APEX **PROJECT** NEW BEDFORD **Described By** TAK/NGC GAN **Date** 9/17/10

Unit No. 221	Unit Type: GOUGE AUGER	Location: SALT MARSH, NEAR CENTER OF VEGETATION
Vegetation: SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-24cm	2.5/10Y GREEN. BL	SILT	MEDIUM	ABUNDANT	LOW SHELL	NONE	- ON EDGE OF VEGETATION/ SALT MARSH W/IN TIDAL INLET C S. END OF PROJECT AREA
24-41cm	2.5/10Y GREEN BL.	SILTY SAND	MEDIUM/ COMPACT	LOW ROOT	NONE	NONE	- LOW GRAVEL CONTENT
41-101cm	2.5/5G GREEN. BL.	M. SAND	LOOSE	NONE	BROKEN MODERATE	NONE	- LOW GRAVEL CONTENT - 2 BRICK FRAG. (NOT SAVED), 1 SLAG (NOT SAVED)
101-123cm	3/5GY V.DK GREEN (B.	F. SAND W/ SILT	MODERATE/ LOOSE	NONE	LOW	NONE	- PEA GRAVEL
123-146cm	2.5/N BLACK	F. SILT W/ F. SAND	DENSE	NONE	LOW	NONE	- PEA GRAVEL
146-152cm	5/N GRAY	F. SAND	DENSE	NONE	LOW	NONE	
152-165cm	2.5/N BLACK	F. SILTY CLAY	DENSE	NONE	NONE	NONE	- PIECE OF COAL (NOT SAVED)

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT NEW BEDFORD SOUTH TERMINAL Described By JAN/NGL Date 9/17/10

Unit No. 222	Unit Type: GOUGE AUGER	Location: SALT MARSH
Vegetation: SALT GRASS		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-54 cm	GLEY 1 3/N V DARK	F-m SAND	MOD - DENSE	YES A FEW	SOME SHELLS	NA	SOME SEA WEED AT TOP
54-60 cm	GLEY 1 4/N DARK GRAY	F SAND		NA	NA	NA	LOW PEA GRAVEL
60-70 cm	3/N DRK. GRAY	F SAND		NA	NA	NA	AUGER REFUSAL @ 70 cm

Additional Notes: MOVED AUGER TO WITHIN 1 FOOT OF TARGET TO EVALUATE REFUSAL. HIT REFUSAL @ 70 cm EVERY TIME.

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR **Date** 9/14/10

Unit No. 223	Unit Type:	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 40	10YR 6/2 - 10YR 6/1	Me - Co Sa	loose	No	Broken + whole	modern glass (uncollected)	glass @ 20 cmBS; some Rec-gravels

Additional Notes: Refusal @ 70 cmBS, unable to recover last 30 cm; water filling in unit to 10 cmBS

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** SOUTH TERMINAL NEW BEDFORD **Described By** MCC TAK **Date** 09/14/2010

Unit No. 224	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE NOTED		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-23	2.5Y 5/2 OB	F-M SAND	HIGH	NONE	BROKEN	NONE	
23-37	2.5Y 5/3 LOB	F-M SAND W/GRAVEL	MEDIUM	NONE	BROKEN/ HIGH CONCT.	NONE	
37-67	"	F-M SAND	"	"	BROKEN	NONE	
67-90	"	M-C SAND/ W/FEW GRAVEL	HIGH	"	BROKEN	NONE	DENSE COARSE SAND REFUSAL

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT South Terminal Described By DR, JR Date 9/15/10

Unit No. 225	Unit Type: Auger	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-40	2.5Y 6/2	fine-coarse sands w/ 5-10% gravels	loose	—	very few sm. broken shell	—	5-10% sm-lg gravels
40-49	2.5Y 5/2	fine-med sand w/ gravel	semi-loose	—	clam, scallop (lg. frags)	—	
49-61	2.5Y 4/2	fine-med sands	semi-loose	—	clam, scallop (lg. frags)	—	very few gravels
61-87	2.5Y 4/2	fine-coarse sands w/ larger sed. + shell particles	semi-loose	—	some sm. shell frags	—	<5% gravels
87-120	2.5Y 2.5/1	fine-med sand, <5% gravel	loose	—	10-20 sm. shell frags	—	
120-157	Gley 1 2.5/N	fine S.Cl, very few sm. pebbles	compact	—	very sm. shell	—	very few small pebbles in fine, compact S.Cl. marine sediments
157-161	Gley 1 2.5/N	med-coarse sand few sm. pebbles	semi-compact	—	few sm. shell	—	larger grains, coarser particles
161-163	2.5Y 3/2	med-coarse sand few large pebbles	semi-compact	—	few sm. shell	—	sm-large gravels found

Additional Notes: Bottomed out @ 163 cmbs on rock

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex PROJECT South Terminal New Bedford Described By JR/NGC Date 9/20/10

Unit No. 230	Unit Type: Gouge Auger	Location: 2" of standing water w/in salt marsh
Vegetation: 1m. E. of salt marsh grasses		Drainage: Acushnet River

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0–56cm	GLEY1 2.5/N Black	F-M Sand	Semi-Loose	None	Many, Small	None	Small → medium pebbles Clam/Mussell/Scallop/Oyster
56–63cm	2.5Y5/2 Gr. Br.	F-M Sand	Semi-Loose	None	Few, Small	None	Few small pebbles Mussell/Scallop/Oyster
63–77cm	GLEY1 5/10Y Green. Gr.	F-C Sand	Compact	None	Abundant	None	Small → medium pebbles Mussell/Clam/Oyster/Snail/Scallop
77–81cm	GLEY1 2.5/10Y Gr. Bl.	Silt Clay	Compact	None	None	None	
81–83cm	GLEY1 6/5GY Green. Gr.	F. Sand	Compact	None	None	None	1 pea gravel Lagoon deposit?
83–88cm	GLEY1 2.5/N Black	Silt Clay	Compact	None	None	None	[illegible]
88–90cm	GLEY1 5/5GY Green. Gr.	F-M Sand	Compact	None	Fine	None	Lagoon deposit? Oyster
90–98cm	GLEY1 2.5/N Black	Silt Clay	Compact	None	None	None	
98–100cm	GLEY1 5/5GY Green. Gr.	Silty F. Sand	Compact	None	None	None	
100–130	GLEY1 2.5/N Black	Silt Clay	Compact	None	None	None	– Alternating bands of GLEY1 5/5GY Green. Gr. fine sands w/in these 30cm

Additional Notes: – Auger refusal @ 130cm bgs; not sure what stopped us.

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Cpix **PROJECT** New Bed CDF 3 **Described By** JR, JO **Date** 9/20/10

Unit No. 231	Unit Type: Gouge Auger	Location: in Salt Marsh
Vegetation: Some marsh grasses		Drainage: Mod

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-15	2.5Y 4/2 DKGYBN	MSD	Loose wet	Ø	<5% HASH	coal frag (not kept)	<5% pea gravel Screened
15-54	5Y 2.5/1 BLK	C-MSD	Loose wet	1 ROOT	5% HASH	NCM	odoriffic 5% pea gravel Screened
54-75	5Y 2.5/1 BLK	VFSDSI TRACE CI	compact Damp	Ø	<5% HASH	NCM	<5% pea gravel Screened
75-83	5Y 2.5/1 BLK	SIFSD TRACE CI	loose wet	Ø	<5% HASH	NCM	<1% pea gravel Screened
		Auger Refusal @ 83 cm				very	compact

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT SOUTH TERMINAL NEW BEDFORD Described By MGC/TAK Date 9/14/90

Unit No. 232	Unit Type: GOUGE AUGER	Location:
Vegetation: NONE		Drainage: ACUSHNET RIVER

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-13cm	2.5Y5/2 GR. BR.	F-M SAND	HIGH	NONE	BROKEN	NONE	
13-30cm	2.5Y5/3 L.O.BR.	F-M SANDY FINE GRAVEL	MEDIUM	NONE	BROKEN	NONE	
30-65cm	"	"	"	"	"	"	

Additional Notes: ≈ 3M. E. OF SALT MARSH

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT AIDEX PROJECT NE NW BEDCDF 3 Described By JO / JR Date 9/14/10

Unit No. 233	Unit Type: GAUGE AUGER	Location:
Vegetation:		Drainage:

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-13	2.5Y 5/2 GY BN	C-MSD	VERY LOOSE	Ø	<5% HASH	Ø	Screened
13-23	2.5Y 4/2 OL BN	M-CSD	LOOSE WET	Ø	<5% HASH	Ø	Screened
23-33	2.5Y 4/2 OL BN	CSD	LOOSE WET	Ø	<10% HASH w/	Ø	<1% WHOLE SHELL SPECIES UNKNOWN Screened
Auger Refusal @ 80cmbs very crunchy. Unable to be retrieved in core							
Auger hole filling with water as hole comes in							

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT NEW BEDCDF 3 Described By EM, JO Date 9/21/10

Unit No. 234	Unit Type: GOUGE AUGER	Location: SHORELINE
Vegetation: NONE		Drainage: POOR

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-32	GLY 1 4/10Y DKGNGY	F-CSD AND GRAVELS	LOOSE WET	Ø	<1% HASH	NCM	OXIDIZED LENS 2.5Y 6/3 LTYWBN 25% PEA SIZED GRAVELS; 1% QUARTER SIZED GRAVELS SCREENED
32-51	GLY 1 4/10Y DKGNGY	F-MSD TRACE CSD	LOOSE WET	Ø	10% HASH	BURNED WOOD (NOT KEPT)	15% PEA SIZED GRAVEL ANIMAL BONE SCREENED
51-70	GLY 1 5/10Y GNGY	F-MSD TRACE CSD	LOOSE WET	Ø	5% HASH	NCM	10% PEA GRAVEL SCREENED
70-73	GLY 1 4/5GY DKGNGY	VFSDSi	MODERATE WET	Ø	<5% HASH	NCM	<1% PEA GRAVEL SCREENED
73-77	GLY 1 2.5/N BLK	M-F COAL	MODERATE WET	Ø	Ø	SLAG (NOT KEPT)	INDUSTRIAL LAYER COAL HASH SCREENED
77-100	GLY 1 3/N VDKGY	VFSiCl	MODERATE FIRM WET	Ø	Ø	NCM	HOMOGENEOUS SCREENED
	Auger Refusal on Rock						

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT Apex Companies PROJECT S. Terminal Described By Eric Date 9/14/2010

Unit No. 239	Unit Type: Gouge Auger	Location: NBH
Vegetation: None		Drainage: Good Drainage

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-22	2.5Y6/3	Fine-Med Sand	Loose	No	Yes	No	Few small pebbles, 3 pieces of coal, 1 clinker-shell fragments
22-42	2.5Y6/2	Med-Coarse Sand	Loose	No	Yes	No	Small-Med Pebbles. Shell fragment 1 piece of coal, med coarse well rounded sand

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Apex **PROJECT** New Bed CDF 3 **Described By** JR, JO **Date** 9/20/10

Unit No. 239	Unit Type: Gauge Auger	Location: adjacent to Salt marsh
Vegetation: none		Drainage: moderate

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-67	2.5Y 5/3 LT OL BN	F-M SD TRACE CSD	very Loose Damp	Ø	5-10% Hash	coal frag (not kept)	<1% pea gravels Screened
67-98	2.5Y 4/1 DK Gy	M-CSD	Mod Loose Damp	Ø	<1% HASH	NCM	10-15% pea gravels Screened
98-117	GLEY1 6/10Y GN Gy GLEY1 3/10Y VDK GN Gy	Cl Si Sd	Mod Damp	Ø	Ø	NCM	<1% pea gravels minimal oxidization (<0.01%) Screened
117-121	2.5Y 4/1 DK Gy	M-CSD	Mod-Loose Damp	Ø	5% HASH	NCM	40% pea gravels Screened
121-141	GLEY1 2.5/- BLK	Cl FSiSD	very compact wet	Ø	1% Hash	NCM	3-4 larger shell frags <1% pea gravels Screened
Auger Refusal on third attempt. Very compact also could not get core out - took 4 people to remove							

Additional Notes: first auger attempt went ~60 cmbs but slid out & core upon extraction

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT South Terminal Described By DR, JR Date 9/14/10

Unit No. 240	Unit Type:	Location:
Vegetation:		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 81	10YR 6/2	Me-Co Sa	loose	no	Broken + whole	NCM	pea-gravels
81 - 101	10YR 6/2	Fi-Co Sa	loose	no	Broken + whole	NCM	Textural change to finer sands pea-gravels
101 - 125	6Gy1 3/n	Fi-Me Sa	moderately compact	no	Articulated shells	NCM	articulated clams in strat

Additional Notes:

GOUGE AUGER LOG

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John Milner Associates, Inc.

CLIENT APEX **PROJECT** South Terminal **Described By** DR, JR **Date** 9/15/10

Unit No. 241	Unit Type: Auger	Location:
Vegetation: None		Drainage: good

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 95	2.5Y 6/2	Fi-Co Sa	loose	—	large small Broken shell frag	—	10-15% small-large gravels clam, oyster, scallop, mussel
95 - 118	2.5Y 4/1	Fi-Co Sa	loose	—	small-large Broken,	—	10-15% small-large gravels; small-large shell fragments clam, oyster, scallop, mussel
118 - 133	2.5Y 2.5Y/1	Fi-Co. Sa	loose	—	small broken shell	—	5-10% small gravels, oyster + clam shell
133 - 140	2.5Y/1 w/ Bands of 2.5Y 4/1	Fi Si Cl	compact	—	very few Broken shell	—	oscillating bands, very few pea-size gravel
140 - 149	2.5Y 4/1 w/ Bands of 2.5Y 6/1	Si Cl	compact	—	very few, small Broken	—	oscillating bands, very few gravels
149 - 166	Gley 1 2.5/N	Si Cl	compact	—	very few, small, broken	—	dark smell, some oyster shell, less than 5 small gravels
166 - 170	Gley 1 2.5/5GY	Me-Co Sa	moderately compact	—	few small Broken	—	some large gravels, very few small shell fragments

Additional Notes: 2 photos taken, one of 70-170 cmBs and a close-up of the oscillating bands @ 133-149 cmBs. -Rock impass @ 190 cmBs

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** NEWBEDCDF3 **Described By** Jo/JR **Date** 9/14/10

Unit No. 246	Unit Type: Gouge auger	Location:
Vegetation: NONE		Drainage: Well

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 30	2.5Y 4/2 DKGY BN	F-MSD WET	VERY LOOSE	Ø	<5% HASH	COAL + GNGLS → NOT KEPT	<5% Small gravels
no more soils could be retrieved in core							

Additional Notes: FIRST AUGER ATTEMPT WENT A FULL METER, ONLY 30cm was retrieved
Second attempt went 1.25m - No soil could be collected, fell out. Beach is super saturated
as we are coring just after high tide is ebbing

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** NEW BEDCDF 3 **Described By** everyone **Date** 9/14/10

Unit No. 247	Unit Type:	Location:
Vegetation: NONE		Drainage: WELL

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-52	2.5Y 6/2 LT BNGY	F-MSa	LOOSE WET	Ø	<5% HASH	Plastic (not kept)	~1% larger pieces & broken shell (mostly clam) ~10% Pea size gravels ~
	Auger Refusal @ 90cm but on compact gravels						

Additional Notes: FIRST AUGER ATTEMPT WENT 1m, 31 cm retrieved in core
Second attempt auger went down 90 cm, still slid out

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT Epix PROJECT New Bed CDF Described By JR, JO Date 9/20/10

Unit No. 248-	Unit Type: Gouge Auger	Location: low-tide shoreline
Vegetation: none		Drainage: Poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0-55	2.5Y 4/2 DKGY BN	M-CSD	Very loose Wet	Ø	<5% Hash	NCM	20% assorted gravels Screened
55-66	GLEY 1 2.5/- BLK	M-FSD	Mod-compact WET	Ø	10% HASH	NCM	5% PEA-SIZED GRAVELS Screened
66-84	GLEY 1 2.5/-BLK GLEY 1 4/10Y DKGYGN GLEY 1 5/10Y GNGY	FSD Si TRACE CL	COMPACT WET	Ø	<5% HASH	NCM	<5% PEA-SIZED GRAVELS SCREENED
84-90	GLEY 1 3/10Y VDKGNGY	FSD Si TRACE CL	COMPACT WET	Ø	Ø	NCM	HOMOGENEOUS SCREENED
90-112	GLEY 1 3/10Y VDKGNGY	FSD Si TRACE CL + CSD	LOOSE WET	Ø	<5% HASH	NCM	<5% PEA-SIZED GRAVELS SCREENED
112-130	2.5Y 3/3 DKOLBN	MSD	COMPACT WET	Ø	<1% HASH	NCM	POSSIBLE UPLAND / OLD BEACH <5% PEA-SIZED GRAVELS SCREENED
Auger Refusal @ 130cmbs on Rock							

Additional Notes:

GOUGE AUGER LOG

JMA architects archaeologists planners
John Milner Associates, Inc.

CLIENT APEX **PROJECT** SOUTH TERMINAL/NEW BEDFORD **Described By** NBC/TAK **Date** 09/15/2010

Unit No. 253	**Unit Type:** GOUGE AUGER	**Location:** NORTH OF TIDAL INLET
Vegetation:		**Drainage:** ACUSHNET RIVER

PHOTOGRAPHED YES/NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 124	2.5Y 5/2 GB	F-M SAND	L. COMP.	NONE	BROKEN/ MOD CONTENT	NONE	REFUSAL @ ROCK

Additional Notes:

GOUGE AUGER LOG

JMA architects archeologists planners
John Milner Associates, Inc.

CLIENT APEX PROJECT NEWBEDCDF3 Described By EM, JO Date 9/21/10

Unit No. 254	Unit Type: GOUGE AUGER	Location: Shoreline
Vegetation: none		Drainage: poor

PHOTOGRAPHED YES / NO

Depth (cm)	Color	Texture	Consistence	Roots	Shells	Artifacts	Comments
0 - 30	2.5Y 6/2 LT BN GY	CSD + GRAVELS	LOOSE WET	Ø	<1% HASH	NCM	25% ASSORTED GRAVELS SCREENED
30-46	GLEY 1 3/N VDKGY	FSi F-MSD AND GRAVELS	LOOSE WET	Ø	<5% HASH	NCM	10% ASSORTED GRAVELS SCREENED
46-53	GLEY 1 2.5/N BLK	VF-FSi SD	MODERATE WET	Ø	<5% HASH	NCM	<5% PEA SIZED GRAVELS <1% QUARTER SIZED GRAVELS SCREENED
53-60	GLEY 1 4/N DKGY	VF-FSi SD	MODERATE WET	Ø	20% HASH	SLAG (NOT KEPT)	5% PEA SIZED GRAVELS UNIDENTIFIED SHELL FRAGMENTS SCREENED
60-62	GLEY 1 5/10Y GNGY	VFSD	MODERATE WET	Ø	Ø	NCM	<1% PEA SIZED GRAVELS SCREENED
62-70	GLEY 1 4/5GY GNGY	VFSDSi	MODERATE WET	Ø	<0.01% HASH	SLAG COAL (NOT KEPT)	HOMOGENEOUS SCREENED
70-75	GLEY 1 2.5/N BLK	FCOAL	MODERATE WET	Ø	Ø	NCM	INDUSTRIAL LAYER COAL HASH SCREENED
75-100	GLEY 1 2.5/N BLK	SiCl	MODERATE FIRM WET	Ø	Ø	NCM	<1% PEA SIZED GRAVELS SCREENED
	Auger Refusal on Rock						

Additional Notes:

Appendix II:

Draft Technical Boring Logs

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/14/2010
Time: 8:00 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816198.2
Location	South Terminal Expansion		Y: 2688154.5
Elevation at mudline:	-23.15'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.15'	Boring No: A-2010-B1
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 6"	11,2,11,13	Dark Grey, fine to coarse SAND, some Silt, some fine to coarse Gravel.
4		24" 5"	19,33,39,18	Grey SILT and fine to coarse SAND, some fine to coarse Gravel - TILL
6		9" 4"	15, 100/3"	Grey SILT some fine to coarse Sand, some fine to coarse Gravel - Drove casing to refusal, and cleaned hole for coring run, drilled from 27.9 to 28.5
8	50%	5' 4.6'	7,6,6,10,14	28.5 - 33.5 Highly fractured Granitic Gneiss
10	97%	5' 4.85	6,6,6,9,11	33.5-38.5 Fractured Granitic Gneiss
12				
14				
16				
18				
20				
22				
24				
26				
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, so drill time is not a good indicator of rock competency.

Refusal: Split Spoon refusal at -27.9'

Elevation of Bedrock: -28.5'

NOT A LEGAL DOCUMENT
DRAFT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/15/2010
Time: 11:30 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816277.4
Location	South Terminal Expansion		Y: 2688458.0
Elevation at mudline:	-6.3'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.40'	Boring No: A-2010-B2
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 15"	1,1,1,1	Black to dark grey, Organic SILT, some fine Sand, little shell hash, becomes grey in nose of spoon
4		24" 15"	2,5,10,14	Dark Grey fine SAND, some organic Silt grades to fine SAND some Inorganic Silt, trace fine to coarse Gravel
6		24" 21"	12,14,14,19	4.0-4.5 Grey fine SAND some Fine to Coarse Gravel, trace coarse Sand 4.5-5.7 Grey fine SAND grading to Inorganic SILT and fine SAND 5.7-6.0 Grey Coarse SAND and fine to coarse GRAVEL
8		24" 15"	9,17,16,20	Grey, medium to coarse SAND, little fine to coarse Gravel
10		24" 14"	5,15,15,12	Grey, medium to coarse SAND, little fine to coarse Gravel, grades to fine to medium SAND
12		24" 21"	3,4,10,12	10 - 11 Grey, fine SAND, trace Silt, grades to fine to medium SAND. 11-12 Grey, fine to coarse SAND, trace fine Gravel, grading to coarse SAND
14		24" 21"	6,7,9,12	Grey, fine to medium SAND, little fine to coarse Gravel
16		24" 12.5"	14,16,24,24	Grey fine to coarse SAND, some Silt, some fine to coarse Gravel, mottle at 15.0 to 15.4 red/orange tan.
18		24" 11"	8,10,3,3	Grey and Tan mottled, fine to coarse SAND, some Silt, some fine to coarse Gravel, grades to fine to medium SAND and SILT in nose of spoon
20		21" 16"	23,32,34, 100/3"	Grey and tan mottled, fine to coarse SAND, and SILT, some fine to coarse Gravel.
22				Drilled with button tooth roller bit through cobbles, drove casing to refusal and began core run at -29.9 MLLW
24			6,8,8,10, 5min/6"	29.9-34.4 Fractured Granitic Gneiss, core barrel jammed at 4.5'
26			7,8,10,10, 10	34.4-39.4 Fractured Granitic Gneiss
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: 29.9'

NOT A LEGAL DOCUMENT
DRAFT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/16/2010
Time: 11:20 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816365.6
Location	South Terminal Expansion		Y: 2688161.5
Elevation at mudline:	-1.1'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.40'	Boring No: A-2010-B3
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
1		24" 18"	7,5,5,4	Dark Grey, very fine to fine SAND, little organic Silt, trace shell hash, one juvenile clam.
5		24" 5"	10,13,20,17	Grey, fine to coarse SAND, trace Silt, charp color change to Tan, fine to medium SAND, little Silt. Gravel caught in nose of spoon
10		24" 6"	16,19,20,23	4" of Grey, fine to coarse GRAVEL and fine to medium SAND, trace Silt. 2" of Grey tan, SILT, some fine to coarse SAND, some fine to coarse Gravel. TILL
15		24" 4"	17,18,14,14	Grey, SILT and fine SAND, some fine to coarse Gravel, little medium to coarse Sand, Gravel stuck in top of sample.
20		6" 6"	80,60,40,61	Tan, fine SAND, some Silt, some fine to coarse Gravel, trace medium to coarse Sand, Gravel stuck in top of sample
				Drilled with button toothed roller bit to obstruction, cleaned, drove casing, flushed hole and began coring at -25.7' MLLW
	10%	5' 3.3'	5,6,19	25.7 - 30.7 Highly fractured Granitic GNEISS, with pegmatic intrusions.
	33%	5' 4.6'		30.7 - 35.7 Highly fractured Granitic GNIESS with pegmatic intrusions.

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency, drill times were not recorded after the first 3 feet of penetration, due to frequent starts and stops of coring process as barrel jammed and was cleared.

Elevation of Bedrock: 25.7'

DRAFT DOCUMENT
NOT LEGAL

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/20/2010
Time: 8:05 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816439.9
Location	South Terminal Expansion		Y: 2687856.3
Elevation at mudline:	-2.5'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 43.75'	Boring No: A-2010-B4
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 24"	W.O.H., W.O.H.,	Black, Organic SILT, little shell hash, little fine to medium Sand.
4				
6		24" 3.5"	1,1,1,1	Dark Grey to Black, fine to medium SAND and SILT, little shell hash.
8		24" 13"	13,6,8,9	Grey, fine to medium SAND, some Silt, little fine to coarse Gravel
10		24" 12"	9,17,20,20	Grey, fine GRAVEL, some coarse Sand, little coarse Gravel. Coarse gravel stuck in nose of spoon.
12		24" 11"	10,8,10,12	Grey, fine SAND, some Silt, some fine to coarse Gravel, trace medium to coarse Sand.
14		24" 8"	8,14,16,11	Grey, fine SAND, some fine to coarse Gravel, trace Silt.
16		24" 9"	49,9,8,13	Grey, SILT some fine Sand little fine to coarse Gravel, little medium to coarse Sand. Mottled interval approx 0.25 to 0.5' becomes Brown, then back to Grey
18		24" 10"	24,20,18,16	SILT, some fine to coarse Sand, some fine to coarse Gravel, Color changes 0.0-0.25' Grey, 0.25-0.55' light Grey,0.55-0.80' Brown
20		21" 10"	13,12,21,14	Tan SILT and GRAVEL, some fine to coarse Sand
22		20" 10"	17,10,15, 100/2"	Tan, SILT, some fine to coarse Gravel, some fine to coarse Sand. 3" of Grey completely weathered Granitic Gneiss in nose of spoon.
24	0%	48" 23"	10,12.19	25.2-29.2' Exploded greenish Grey Granitic Gneiss (12" in pieces none longer than 3") Potassium Feldspar rich Pegmatic intrusion (11" in pieces none longer than 3"), core barrel jammed at 1.5, water return stopped intermittently through core run, drilling paused each time
26	35%	36" 25"	6,6,14	29.2-32.2' Interface of Pegmatite and Granitic Gneiss (2"), highly fractured grey Granitic Gneiss (23")
28		60"		Core Incomplete - recovery needs review.

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: 25.2'

DRAFT NOT A LEGAL DOCUMENT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/23/2010
Time: 9:30 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816518.5
Location	South Terminal Expansion		Y: 2687561.6
Elevation at mudline:	-9.4	Datum: MLLW	
Casing Type: Steel		Boring Depth: -31.6'	Boring No: A-2010-B6
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GAD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 6"	WOR,WOR, WOR,WOR	0-1' Black, organic SILT 1'-2' Olive Grey, medium to coarse SAND, some fine sand, trace Silt
4				
6		24" 12"	20,22,41,30	Greenish Grey, medium to coarse SAND, some fine Gravel
8				
10		24" 12"	12,16,22,15	Greenish Grey, medium to coarse SAND, some fine Gravel.
12				
14		60" 56"	7,7,6,5,7	Core information incomplete needs review
16		60'	8,12,6,7,6	Core information incomplete needs review
18				
20				
22				
24				
26				
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: -21.6

NOT A LEGAL DOCUMENT
DRAFT

Appendix III:

Radiocarbon Results

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Peter A. Leach — Report Date: 10/11/2010

John Milner Associates, Inc. — Material Received: 10/1/2010

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 285530	1730 +/- 40 BP	-25.9 o/oo	1720 +/- 40 BP

SAMPLE : NB-GA-RC1
ANALYSIS : AMS-PRIORITY delivery
MATERIAL/PRETREATMENT : (plant material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 230 to 410 (Cal BP 1720 to 1540)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

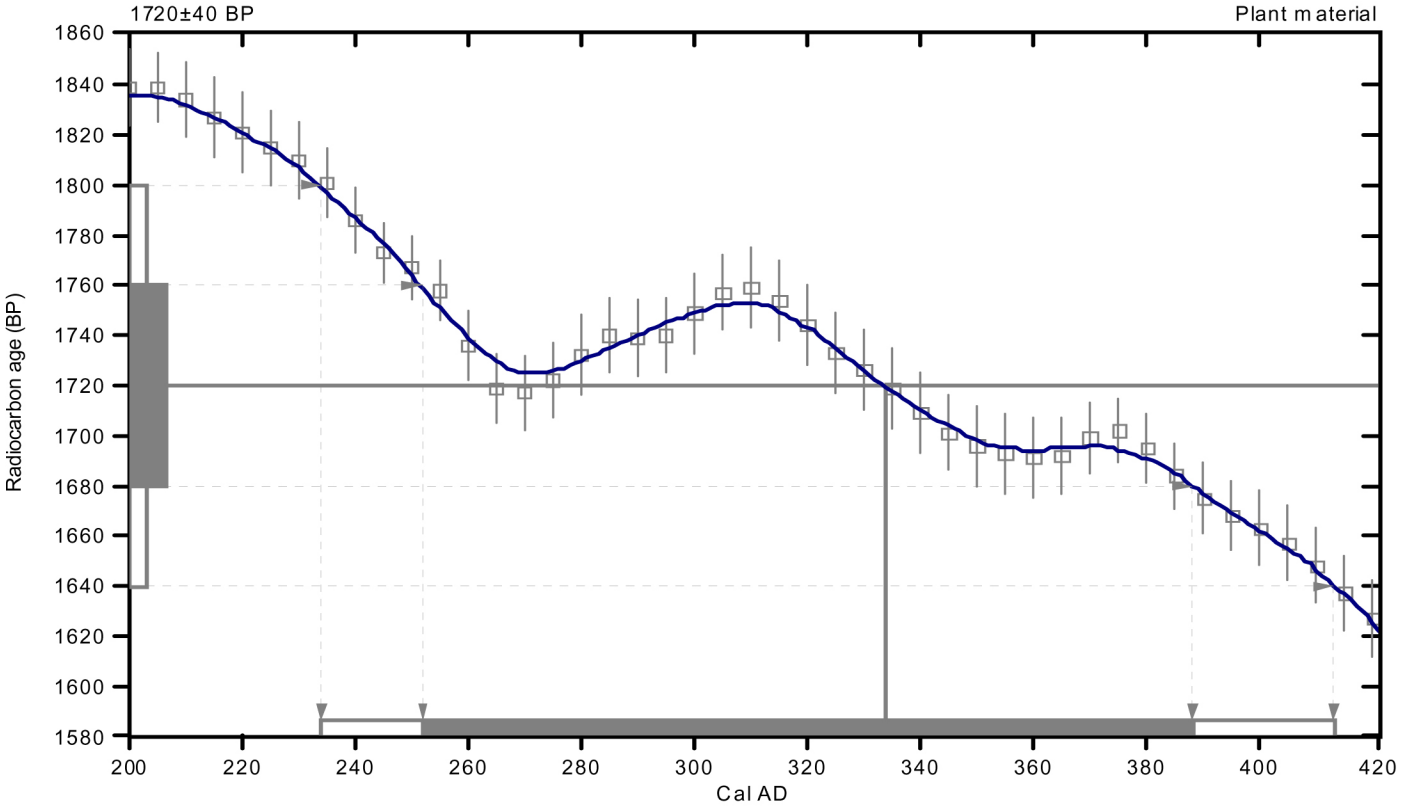
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.9:lab. mult=1)

Laboratory number:	**Beta-285530**
Conventional radiocarbon age:	**1720±40 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 230 to 410 (Cal BP 1720 to 1540)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal AD 330 (Cal BP 1620)
1 Sigma calibrated result: (68% probability)	Cal AD 250 to 390 (Cal BP 1700 to 1560)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

Appendix IV:

Permits and Letters from MBUAR and MHC

August 31, 2010

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Joel I. Klein
William Chadwick
Principal Investigators
John Milner Associates, Inc.
1 Croton Point Avenue, Suite B
Croton-on-Hudson, NY 10520-3028

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA.
MHC #RC.48892.

Dear Mr. Klein & Mr. Chadwick:

Staff of the Massachusetts Historical Commission, office of the State Historic Preservation Officer and the State Archaeologist, have reviewed the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project. Your proposals indicate that you will coordinate and take into account findings by Dolan Research Inc. to avoid duplication of effort and to provide an adequate identification and evaluation effort for the project area of potential effect.

The background research and cultural historical context, and the proposed methodology for the investigation were generally well researched and well developed. However, the methods proposed for the investigation should be revised in consideration of recent, relevant findings in New England for similar investigations. MHC staff are able to direct you to previous, relevant research findings in MHC's archaeological report archive.

The core strata should be photographed in color. Samples should be taken of formerly terrestrial surfaces from one side of split cores. The samples of terrestrial surfaces should be floated to recover heavy and light organic fractions, and analyzed to interpret the findings. Radiocarbon dating of organic material from a sample of the cores should be proposed to date terrestrial surfaces that may be associated with cultural activity.

It is also conventional to curate core samples. Because of the number of core samples proposed, JMA may propose to have only intact cores with significant findings curated. The Woods Hole Science Center Core Lab is a regionally appropriate curation facility.

Please prepare a letter addendum to the research designs and methodologies that take into account these comments, offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

xc:
Lois K. Adams, US Environmental Protection Agency
New Bedford Harbor Development Commission
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
George Green, Jr., Mashpee Wampanoag Tribe
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
Jennifer T. Nersesian, NPS New Bedford Whaling NHP
Derek J. Santos, New Bedford Historical Commission
Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Martin G. Dudek, JMA, Inc.

JMA architects archeologists planners

JOHN MILNER ASSOCIATES, INC.

Restoration & Rehabilitation • Preservation Planning • Archeological & Historical Research • Cultural Landscapes • Materials Conservation

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Sarah Jane Ruch

VIA ELECTRONIC MAIL

September 8, 2010

Mr. Victor Mastone, Director
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114-2199

RE: MBUAR ARCHEOLOGICAL SURVEY PERMIT NO. 10-005
AMENDED RESEARCH DESIGN AND METHOLOGY
SUBTIDAL PORTIONS OF THE SOUTH TERMINAL MARINE INFRASTRUCTURE PROJECT
NEW BEDFORD, MASSACHUSETTS
MHC #RC.48892

Dear Mr. Mastone:

This letter constitutes JMA's request to amend the existing Research Design and Methodology component of our previously submitted and approved permit application for work in the sub-tidal portions of the South Terminal Marine Infrastructure Project (the Project) in New Bedford. These changes have been requested by the Massachusetts Historical Commission (MHC) as a result of their review of our permit application. It is my understanding that the requested modifications have been requested to insure that the work and subsequent analyses undertaken by JMA under out MBUAR permit will meet the needs of the MHC when they carry out their review of the Project under Section 106 of the National Historic Preservation Act.

In accordance with MHC's request of August 31, 2010 (attached) JMA intends to modify our previously submitted research design and methodology as follows:

After recovery and transport to a suitable work area, marine sediment cores (Vibracores) recovered as part of the survey effort will be split. One side of each core will be retained for subsequent curation. Both sides of each core strata will be photographed in color. Samples (from the non-curated half of each core) will be taken from strata believed by JMA's geoarcheologist to be from previously terrestrial surfaces. These samples will be subject to flotation analyses at a JMA laboratory utilizing a SMAP-type flotation device. Both light and heavy fractions recovered through flotation will be analyzed. Special attention will be given to possible presence of micro-flakes suggesting the presence of a pre-Contact archeological resource. If organic material is identified in any core strata possibly associated with a former terrestrial surface samples for radiocarbon dating will be collected. Any such samples will be submitted to a qualified laboratory (e.g Beta Analytic) for dating.

One Croton Point Avenue, Suite B, Croton-on-Hudson, New York 10520-3028 • 914-271-0897 / fax 914-271-0898

West Chester, PA Philadelphia, PA Alexandria, VA Charlottesville, VA Croton-on-Hudson, NY Louisville, KY Littleton, MA
www.JohnMilnerAssociates.com

JMA will provide for temporary curation of intact cores with significant findings until such time as a permanent curation facility can be located. JMA will work with both MBUAR and MHC to locate an acceptable permanent curation facility (e.g. the Woods Hole Science Center Core Lab.

A copy of this request is being sent to the MHC and the Mashpee Wampanoag and Wampanoag Tribe of Gayhead (Aquinnah). If you have any questions or require clarification or additional information please contact me.

Sincerely,

JMA

Joel I. Klein, Ph.D., RPA
Associate Director, Cultural Resources

Cc: E. Bell (MHC)
J. Borkland (Apex)
P. Leach (JMA – West Chester)
W. Chadwick (JMA – West Chester)
L. Cox (Dolan Research)

August 31, 2010

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Joel I. Klein
William Chadwick
Principal Investigators
John Milner Associates, Inc.
1 Croton Point Avenue, Suite B
Croton-on-Hudson, NY 10520-3028

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA.
MHC #RC.48892.

Dear Mr. Klein & Mr. Chadwick:

Staff of the Massachusetts Historical Commission, office of the State Historic Preservation Officer and the State Archaeologist, have reviewed the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project. Your proposals indicate that you will coordinate and take into account findings by Dolan Research Inc. to avoid duplication of effort and to provide an adequate identification and evaluation effort for the project area of potential effect.

The background research and cultural historical context, and the proposed methodology for the investigation were generally well researched and well developed. However, the methods proposed for the investigation should be revised in consideration of recent, relevant findings in New England for similar investigations. MHC staff are able to direct you to previous, relevant research findings in MHC's archaeological report archive.

The core strata should be photographed in color. Samples should be taken of formerly terrestrial surfaces from one side of split cores. The samples of terrestrial surfaces should be floated to recover heavy and light organic fractions, and analyzed to interpret the findings. Radiocarbon dating of organic material from a sample of the cores should be proposed to date terrestrial surfaces that may be associated with cultural activity.

It is also conventional to curate core samples. Because of the number of core samples proposed, JMA may propose to have only intact cores with significant findings curated. The Woods Hole Science Center Core Lab is a regionally appropriate curation facility.

Please prepare a letter addendum to the research designs and methodologies that take into account these comments, offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

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Derek J. Santos, New Bedford Historical Commission
Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Martin G. Dudek, JMA, Inc.

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

September 9, 2010

Lois K. Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
US Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. MHC #RC.48892.

Dear Ms. Adams:

Staff of the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer and the State Archaeologist, have reviewed additional information submitted to the MHC for the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project referenced above.

Staff of the MHC reviewed the "Revised Supplemental Permit Application Information and Research Design and Methodology (RDM) for an Archeological Intensive (Locational) Archaeological Survey of the Sub-Tidal Portions of the South Terminal Marine Infrastructure Park, New Bedford, Massachusetts," prepared by Dolan Research Inc. and received by the MHC on September 7, 2010.

In MHC's opinion, the research design and methodology for the investigation proposed by Dolan Research Inc. in the subtidal portions of the project area is adequate.

Staff of the MHC reviewed the letter addendum prepared by John Milner Associates Inc., and received on September 8, 2010, prepared in response to MHC's comments of August 31, 2010, amending the proposed research design and methodology for archaeological investigations in the intertidal and subtidal portions of the project, received on August 20, 2010.

In MHC's opinion, the research design and methodology for the investigation proposed by John Milner Associates Inc. is adequate. The Massachusetts State Archaeologist has also issued a field investigation permit (950 CMR 70) to John Milner Associates, Inc. for the intertidal portion of the archaeological survey area.

MHC looks forward to review and comment on the results of these archaeological investigations.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
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xc:
New Bedford Harbor Development Commission
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
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Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Joel I. Klein, John Milner Associates, Inc.
William Chadwick, John Milner Associates, Inc.
Martin G. Dudek, John Milner Associates, Inc.

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

August 12, 2010

Dr. Joel I. Klein, Associate Director
Cultural Resources Department
John Milner Associates, Inc.
1 Croton Point Avenue
Croton-on-Hudson, NY 10520

RE: Special Use Permit 10-006, Intertidal Area of the South Terminal Marine Infrastructure Park, New Bedford

Dear Dr. Klein:

This letter confirms the acceptance and provisional approval of John Milner Associates, Inc's Special Use Permit application by the Massachusetts Board of Underwater Archaeological Resources. This permit (10-006) is for the marine archaeological and associated remote sensing survey for the intertidal area of the proposed the South Terminal Marine Industrial Infrastructure Project area in New Bedford as detailed on the chart accompanying the application. The permit is effective upon issuance for the duration of one year, but a formal approval of this permit will be considered by the Board at its next regularly scheduled meeting where a quorum is present. This meeting is scheduled for 30 September 2010.

This permit is herein granted dependent upon John Milner Associates, Inc's compliance with the Board's Regulations (312 CMR 2.00) and the research design and methodology included in the permit application. For projects subject to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), permittees are directed to consult with and provide their proposed research design and methodology to the State Historic Preservation Office/Massachusetts Historical Commission and the lead federal agency in accordance with 36 CFR 800.4, prior to conducting the field investigation

This permit does not relieve the permittee or any other person of the necessity of complying with all other federal, state and local statutes, regulations, by-laws and ordinances.

If you should have any questions or need further assistance, do not hesitate to contact the Board at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

Cc: Brona Simon, MHC
Kate Atwood, ACOE (via email)
Robert Boeri, MCZM (via email)
David Janik, MCZM (via email)
Mary Bruno, Apex Companies LLC (via email)

Printed on Recycled Paper

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

September 30, 2010

Dr. Joel I. Klein, Associate Director
Cultural Resources Department
John Milner Associates, Inc.
1 Croton Point Avenue
Croton-on-Hudson, NY 10520

RE: Special Use Permit 10-006, Intertidal Area of the South Terminal Marine Infrastructure Park, New Bedford

Dear Dr. Klein:

This letter confirms the vote taken by the Massachusetts Board of Underwater Archaeological Resources on 30 September 2010 to issue a Special Use Permit 10-005 to John Milner Associates, for the marine archaeological and associated remote sensing survey for the intertidal area of the proposed the South Terminal Marine Industrial Infrastructure Project area in New Bedford as detailed on the chart accompanying the application. The duration of this permit is one year from the date of issuance with its expiration date as 30 September 2011.

This permit is herein granted dependent upon John Milner Associates, Inc's compliance with the Board's Regulations (312 CMR 2.00) and the research design and methodology included in the permit application. For projects subject to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), permittees are directed to consult with and provide their proposed research design and methodology to the State Historic Preservation Office/Massachusetts Historical Commission and the lead federal agency in accordance with 36 CFR 800.4, prior to conducting the field investigation. This permit does not relieve the permittee or any other person of the necessity of complying with all other federal, state and local statutes, regulations, by-laws and ordinances.

If you should have any questions or need further assistance, do not hesitate to contact the Board at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

Cc: Brona Simon, MHC
Kate Atwood, ACOE (via email)
Mary Bruno, Apex Companies LLC (via email)

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit Number 3214 Date of Issue September 9, 2010
Expiration Date September 9, 2011

John Milner Associates, Inc. - Croton-on-Hudson, NY is hereby authorized to conduct an archaeological field investigation pursuant to Section 27C of Chapter 9 of General Laws and according to the regulations outlined in 950 CMR 70.00.

State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford

Project Location

Brona Simon

Brona Simon, State Archaeologist
Massachusetts Historical Commission

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

Assessment *of* Prehistoric Archeological Site Potential: Subtidal Portions *of the* Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts

Prepared For
Apex Companies, LLC
Boston, Massachusetts

Submitted To
The Commonwealth *of* Massachusetts
Board *of* Underwater Archeological Resources
Boston, Massachusetts

And
The Massachusetts Historical Commission
Boston, Massachusetts

By

JMA architects archeologists planners
John Milner Associates, Inc.

John Milner Associates, Inc.
Croton-On-Hudson, New York

October, 2010

ASSESSMENT OF PREHISTORIC ARCHEOLOGICAL SITE POTENTIAL: SUBTIDAL PORTIONS OF THE PROPOSED SOUTH TERMINAL MARINE INFRASTRUCTURE PARK, NEW BEDFORD, MASSACHUSETTS

PREPARED FOR

APEX COMPANIES, LLC

184 HIGH STREET

BOSTON, MASSACHUSETTS 02110

SUBMITTED TO

THE COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
251 CAUSEWAY STREET, SUITE 800, BOSTON, MA 02114

AND

THE MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD, BOSTON, MA 02125

BY

PETER A. LEACH, RPA

JOEL I. KLEIN, PH.D., RPA

WILLIAM CHADWICK, PH.D., RPA, PG

MARTIN A. DUDEK

WITH CONTRIBUTIONS BY

DR ALLEN GONTZ, UNIVERSITY OF MASSACHUSETTS, BOSTON CAMPUS

MARY L. BRUNO, APEX COMPANIES, LLC

JOHN MILNER ASSOCIATES, INC.
1 CROTON POINT AVENUE,
CROTON-ON-HUDSON, NEW YORK 10520

OCTOBER, 2010

MANAGEMENT SUMMARY

Apex Companies, LLC, on behalf of the New Bedford Redevelopment Authority, contracted John Milner Associates, Inc. (JMA) to conduct a marine archaeological assessment comprising remote sensing and coring survey of the subtidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Bristol County, Massachusetts . The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

A total of 69 individual seismic profiles, collected on September 16, 2010 by Dr. Allen Gontz with assistance from JMA and Apex Companies, LLC personnel, were analyzed on September 18, 2010 and five vibracores targets were selected. Vibracore analysis and interpretation of sediments resulted in the identification of an intact, buried and submerged paleosol in Vibracore NB-VC-04, and a truncated B horizon in Vibracore NB-VC-05. The paleosol is located in the south/southwestern portion of the proposed turning basin. Resultant sieving, floatation, and detailed analysis of resulting sorted sediments under magnification did not identify prehistoric cultural materials. In sum, no prehistoric cultural materials were identified in any of the five vibracores. However, the paleosol is well preserved, and represents a paleolandscape that would have been available for human use at a lower stand of sea-level. As such, it is JMA's opinion that the paleosol has moderate archeological potential.

JMA concluded that a small portion of the southern end of the proposed turning basin has moderate potential for submerged prehistoric sites. Should this area be impacted by dredging as planned, it is JMA's recommendation that a suitably trained archeologist be on board the dredging vessel to monitor ground-disturbing activities in the areas designated. If possible, the sediments should be closely examined for color and texture characteristics consistent with a paleosol. Additionally, sediments exhibiting the characteristics of a paleosol should be screened to assess whether cultural materials are present. Should cultural materials be recovered from dredged sediments, the MHC and MBUAR should be contacted immediately to provide guidance on how best to proceed.

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1.0 INTRODUCTION

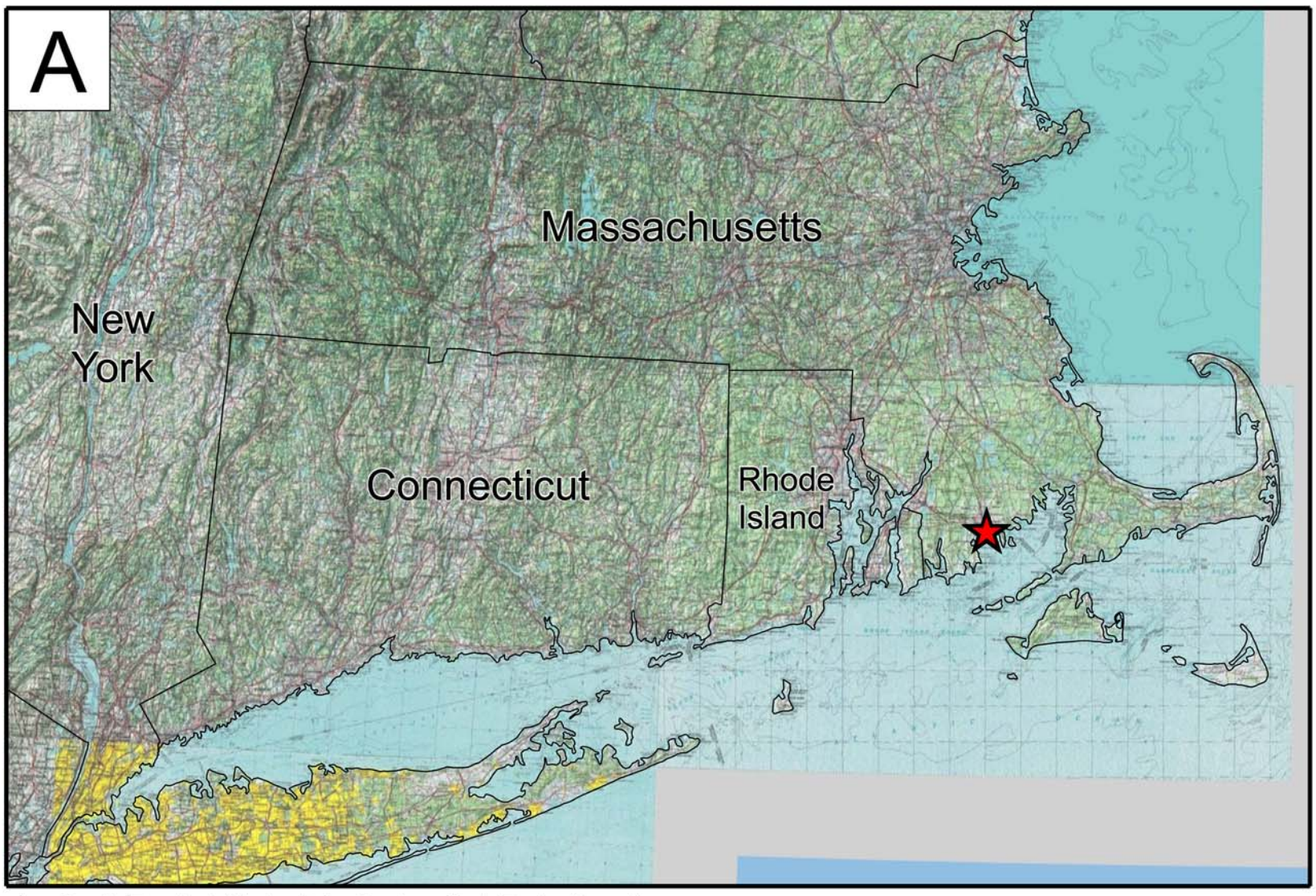
Apex Companies, LLC, on behalf of the New Bedford Redevelopment Authority, contracted John Milner Associates, Inc. (JMA) to conduct a marine archaeological assessment comprising remote sensing and coring survey of the subtidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Bristol County, Massachusetts (Figure 1, A,B). The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet (Figure 2). Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

The following steps will be required in order to complete the proposed bulkhead extension Project as envisioned:

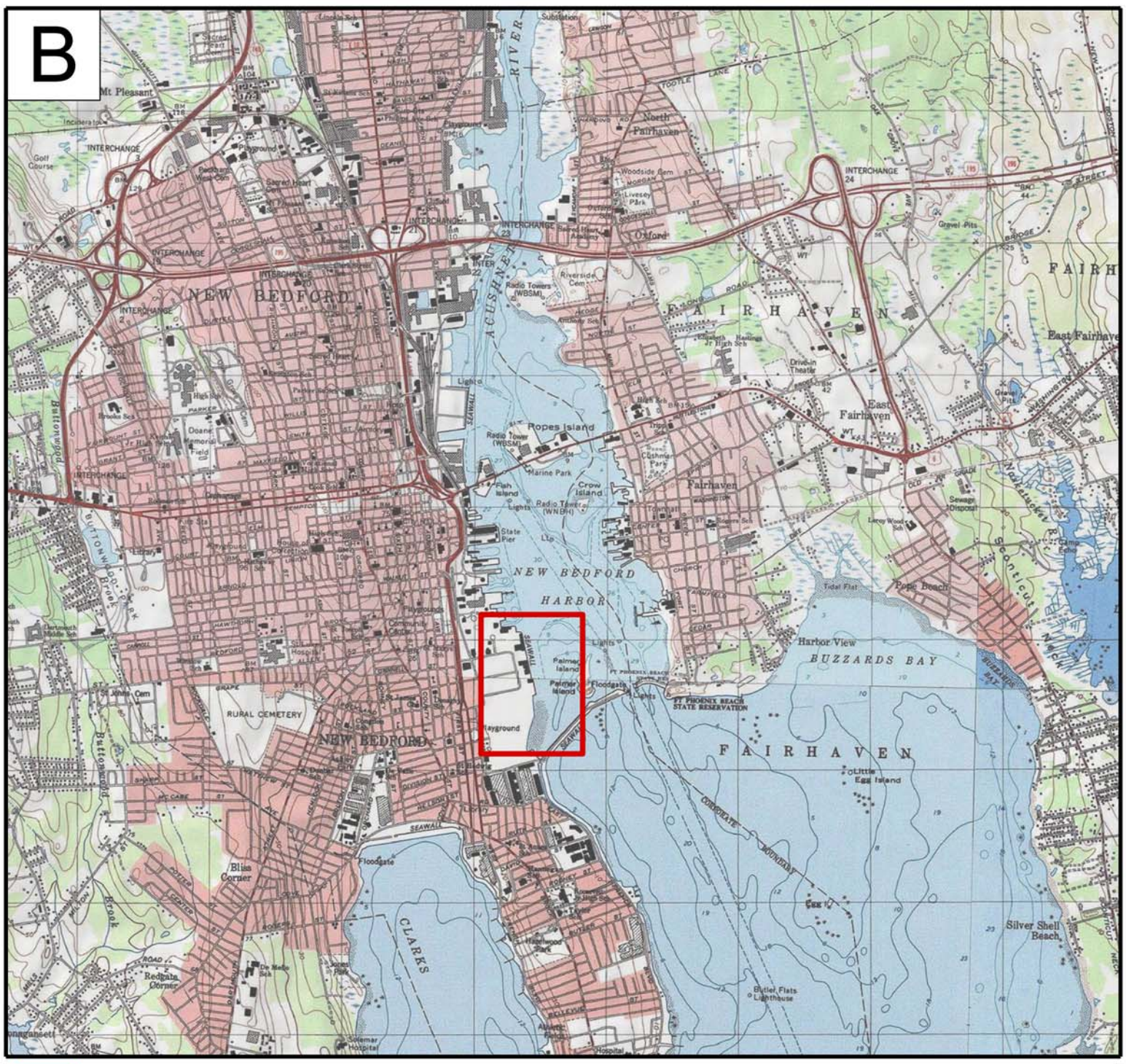
- A bulkhead extension will need to be installed along the existing bulkhead line of South Terminal for approximately 800 linear feet.
- The bulkhead will turn 90 degrees and head to shore along the extension of the property line.
- The area in front of the bulkhead would be dredged to -30 MLLW. A channel from the new bulkhead area would be installed, extending to the existing federal channel.
- Material generated from dredging from creation of a Confined Aquatic Disposal (CAD) Cell (depending on timing and suitability) would be placed behind the bulkhead to fill the area to grade.
- The material behind the bulkhead would be allowed to drain and settle in order to create a surface with sufficient support.
- Tiebacks and whales, if necessary, would be installed to support the new bulkhead wall.
- Currently forested area on the remainder of the facility would be cleared and graded to meet the top of the bulkhead grade to create a relatively flat facility.
- The surface of the new facility of crushed stone would be installed.

A previous archeological sensitivity assessment of the associated upland portions of the Project area was conducted in June 2010 and found that the upland area immediately adjacent to the intertidal zone had been extensively disturbed by nineteenth-twentieth century industrial development (Kotlensky and Klein 2010). The MHC concurred with this conclusion and recommended additional investigation of the non-upland portions of the Project site to evaluate “the likelihood of preserved ancient or historical period Native American sites to be present in the area of potential effect” (MHC 2010).

The proposed South Terminal Marine Infrastructure Park in New Bedford Harbor has the potential to impact submerged cultural resources, thus a comprehensive Phase I Underwater Archaeological Investigation was designed to assess the potential presence or absence of potential submerged pre-contact



★ South Terminal Marine Infrastructure Park Project Location



South Terminal Marine Infrastructure Park Project Area

Figure 1. Location Maps for the South Terminal Marine Infrastructure Park Project Area. A) regional view; B) Local view.

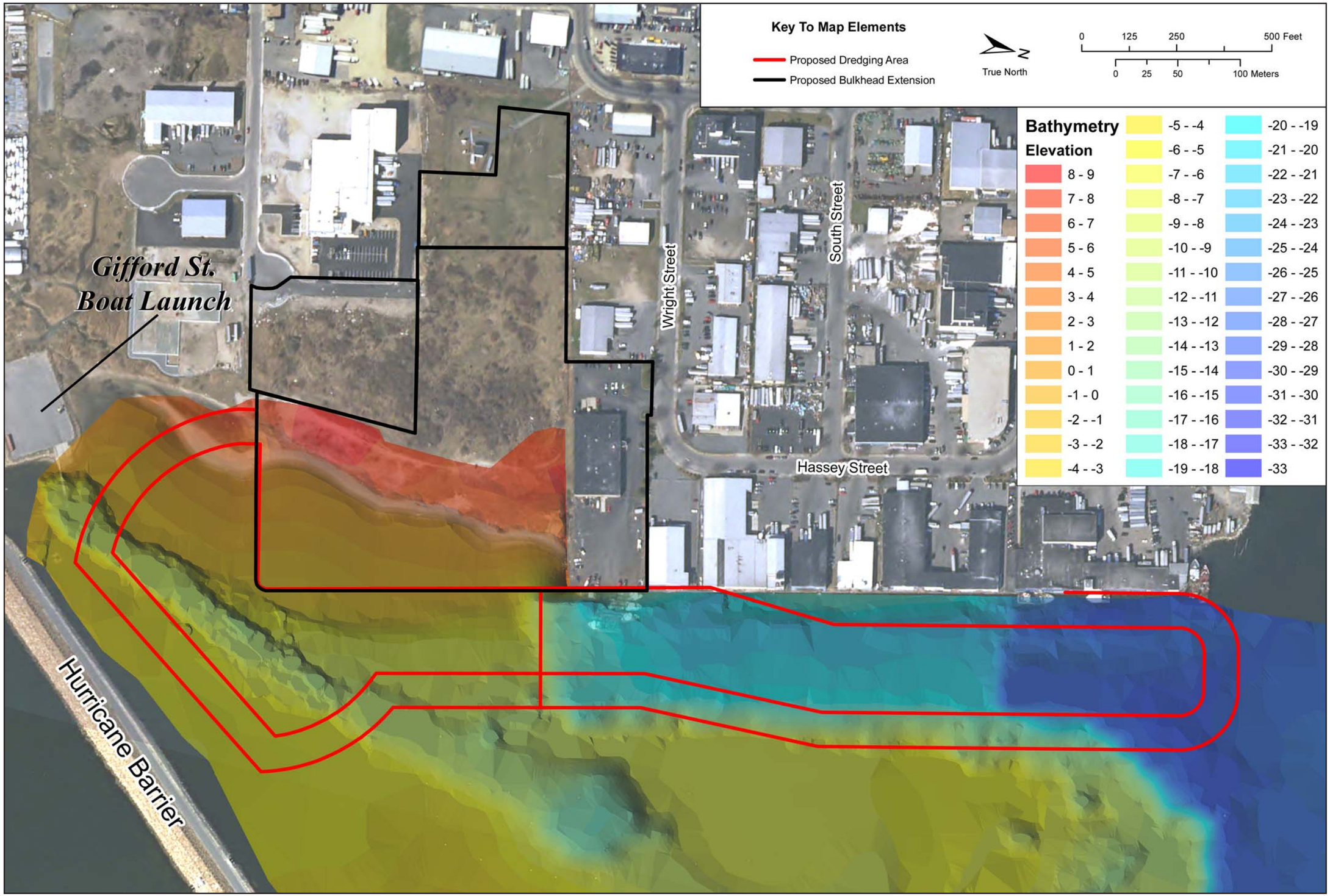


Figure 2. Map of South Terminal Marine Infrastructure Park Project Areas.
Bathymetric Data Provided by Apex Companies, LLC.

cultural resources within proposed construction areas. The underwater archaeological investigation aimed to assess the potential for submerged pre-contact archaeological resources through the following research avenues:

1) Intensive background research regarding the local geomorphic evolution, including sea-level rise, marine transgression, sedimentation, and historic dredging and other disturbance;

2) Seismic reflection profiling survey to investigate subsurface marine stratigraphy, for the purpose of assessing the potential for submerged pre-contact cultural resources;

3) Analysis and interpretation of seismic reflection profiling data, and selection of coring targets with potential for submerged pre-contact cultural resources;

4) Extraction of marine core samples in possible high-potential locations, and subsequent analysis of stratigraphy and identification of possible cultural materials.

The purpose of the intensive (locational) survey proposed here is to identify whether potentially significant archeological resources that may be adversely affected by Project construction and operation are present in the subtidal portions of the Project area. A separate investigation of intertidal portions of the Project area was conducted as well and will be reported under separate cover. This work was conducted under a permit from the Massachusetts Board of Underwater Archaeological Resources (MBUAR) and the State Archeologist and is intended to meet or exceed the standards outlined in the MBUAR's Regulations (312 CMR 2.00), the State Archeologist's Permit regulations (950 CMR 70.14 (2)), and the research design and methodology included in the RDM supplied by JMA during the permit application process. This work is being conducted in compliance with the Secretary of Interior's *Standards and Guidelines for Archeology and Historic* Preservation (48 Fed. Reg. 190 (1983)), and Massachusetts General Laws Chapter 9, Sections 26-27C (950 CMR 70).

2.0 PROJECT CONTEXT

2.1 ENVIRONMENTAL CONTEXT

The area proposed for the dredge bulkhead expansion is situated to the east of New Bedford, Massachusetts in the southern portion of Bristol County. The locale of interest, an approximately 32 acre area encompassing potentially affected subtidal environments, is sited on New Bedford Harbor within the Acushnet River estuary which empties into Buzzards Bay. New Bedford Harbor is partially separated from greater Buzzards Bay by a large hurricane Barrier constructed by the US Army Corps of Engineers in 1964. The Project Area lies within the Seaboard Lowland Section of the New England Province, which is within the greater Appalachian Highlands physiographic division. The adjacent upland area comprises approximately 12 acres of a largely undeveloped brownfield site containing graded, previously developed land. Two soil map units denote the soil types within the Project Area, which are composed of filled or heavily graded deposits, with standing structures or not, related to intensive previous land use. Table 1 provides a summary of soil units within the Project Area (USDA 1981).

Table 1. Soils adjacent to the project area.

Map Unit	Soil	Slope %	Drainage	Description	Parent Material
602	Urban Land	0 - 15	Variable; Site Specific	Urban Land	Excavated and Filled Land
651	Urdorthents Smoothed	0 - 15	Variable, Site Specific	Urban Land	Made Land over Gravelly Glaciofluvial Deposits and Basal Till

The Project Area is bound to the east by the Acushnet River estuary and nearby Palmer Island; to the north, west, and south by commercial warehouses and large paved areas, with Blackmer Street to the south, South Front Street to the west, and Potomska and Wright Streets to the north. Currently there is one standing multi-storied structure near the northern margin of the Project Area, listed as a property of the Shuster Corporation and a radio tower assembly is sited along the western margin of the Project Area. A recent field study of soils adjacent to the Project Area notes:

> The entire site had been impacted by filling with construction waste and other material over a long period of time, and sufficiently long ago to permit growth of extensive opportunistic vegetation. In general, progressing from the west to the east, the property was more finished (i.e., level and maintained) around the radio station transitioning to the roughest part nearest to the beach, and groundwater fluctuations appeared to become closer to the surface. At two thirds of the distance to the beach, waste piles were more evident, the land surface became more hummocky, and the vegetation turned to an unkempt, scrub forest of low lying trees and shrubs . . . The area qualifies as urban fill, reflecting its historic use as a construction debris landfill area and previous filling of what was long ago coastal wetlands (Pickering 2010).

The Project Area was covered by the Laurentide Ice Sheet *circa* 15000 yrs BP (Borns, 1973; Mayewksi et al., 1981). During the last glacial maximum (LGM) the Laurentide Ice Sheet extended seaward of New

Bedford Harbor to the approximate present day location of Long Island, Martha's Vineyard, and Nantucket Island (Borns, 1973; Mayewksi et al., 1981). The Buzzards Bay Lobe of the Laurentide Ice Sheet had the greatest effect on the present configuration of New Bedford Harbor (Howes and Goeringer, 1996). Rapid warming of the climate after *circa* 15,000 yrs B.P., causing the retreat, thinning, and melting of the ice sheet, resulted in the deposition of moraines and outwash deposits within the region. As the Laurentide Ice Sheet melted and retreated, regional sea level began to rise at a rate of approximately 0.011 m /yr in the region (Howes and Goeringer 1996). This rate of sea level rise slows in the region approximately 4000 years B.P. to an average rate of approximately 0.001 m/yr (Howes and Goeringer 1996). With the rise in sea level, the ocean transgressed the exposed glaciated landscape of the Pleistocene Epoch. Considering the rates of sea level rise in the region, inundation of Buzzards Bay by the rising sea level began *circa* 8,500yrs BP. The Acushnet River did not become inundated until *circa* 4,500yrs BP. The Upper Harbor was not influenced by tidal processes until *circa* 3,600 yrs BP, while the intertidal zone of the Upper Harbor did not become subjected to tidal processes until after *circa* 1000 yrs BP.

The Acushnet River estuary formed as a response to late Pleistocene and Holocene relative sea-level rise and the submergence of the Acushnet River valley. As sea-level has risen the transgression of coastal processes into the Acushnet River estuary has resulted in either the erosion or preservation of prehistoric archeological sites in relation to the rate of local sea-level rise, the level of energy related to coastal processes, and their geographic location (Hoyt et al., 1990; Kraft et al. 1983; Stright, 1990). The Acushnet River estuary is affected by the characteristic low-energy coastal processes associated with small coastal plain, tide-dominated estuaries. The energy regime is further diminished in the upper reaches of the estuary north of the hurricane barrier. New Bedford Harbor is fetch-limited due to its narrow width, resulting in fairly negligible wave-energy except during storm events. Tidal energy, related to diurnal tidal cycles, and currents are the major coastal processes affecting local marine energy regimes. Upper estuarine settings are dominated by resuspension of sediments from outer portions of the estuary and sediment deposition in the low-energy, inner portions. In contrast, more open-ocean settings such as Nantucket Bay have a much higher energy regime, resulting in widespread reworking of sediments (Lidz, 1965).

Modern bathymetric data reveal an extensive, submerged sediment bank behind the hurricane barrier that connects the Project Area to Palmer Island. A nautical survey from 1844 (Bache, 1946) depicts a similar bank of sediment, implying that the area contained a significant amount sediment before construction of the hurricane barrier (Figure 3). Historic industrial use of the Project Area vicinity has clearly modified the adjacent upland landscape, resulting in widespread disturbance, though within the Project Area there is no indication of extensive disturbance. Historic topographic (USGS, 1890) and coastal survey (Bache, 1844) maps reveal no ostensible disturbances within the project area; they do however depict extensive marshes and natural coastal environments. It is likely that historic use of the vicinity, including addition of fill and other sediment to terrestrial environments through industrial activities, and marine and intertidal sediment deposition related to the construction of the hurricane barrier, have served to bury earlier landforms and reduce the impact of coastal erosion processes and modern maritime activities on the Project Area. Consequently, preservation potential of buried, submerged landforms is high in this location due to its sheltered nature, sediment accumulation in the estuarine setting, historic evidence of coastal marsh presence, indirect sheltering by palmer island, and increased sedimentation due to hurricane barrier construction.

2.2 PRE-CONTACT AND CONTACT PERIOD CONTEXTS

The following section presents a general summary of the archeological research on Native American societies that inhabited southern New England following the end of the last Ice Age, with special

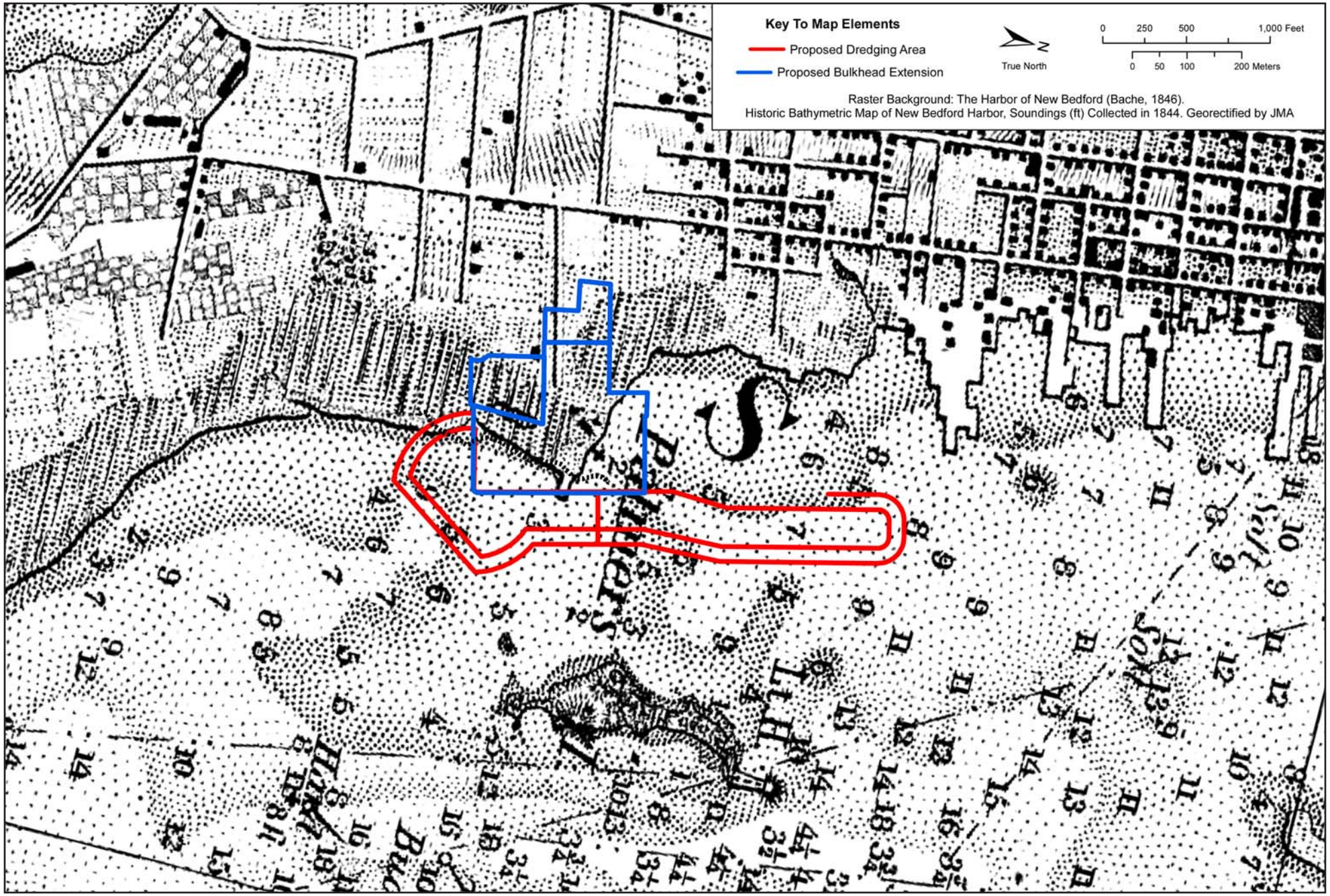


Figure 3. South Terminal Marine Infrastructure Park Project Areas Overlaid on 1844 Coastal Survey (Map Source: Bache, 1846).

reference to the New Bedford, Massachusetts vicinity. The prehistory (pre-Contact period) of eastern North America is divided into three major chronological stages of cultural development: Paleoindian (12,000-9,000 Before Present or BP), Archaic (9,000-3,000 BP), and Woodland (3,000-450 BP). The Archaic and Woodland periods are further divided into Early, Middle, and Late sub periods. Subsequent research and radiocarbon dating have helped to refine the chronology, cultural trends and artifact traditions as discovered on sites from these periods.

The purpose of this introductory section is to sketch the main trends of Massachusetts prehistory and to identify evidence pertinent to the project area, in order to provide the pre-Contact background necessary for assessing the potential for archeological resources within the project area.

For most of the pre-Contact period in the region, river drainages define physiographic units within which human communities operate. This pattern follows from the longitudinal diversity of habitats that occurs along drainages, forming ecologically unique wetland habitats, together with the transportation routes afforded by their water courses. In the clearest examples, rivers provide access to maritime and upland resources at each end of the drainage, and to the diverse habitats in between. The exploitation of those habitats can be integrated into a seasonal round that differs at various historical moments.

The following review is arranged chronologically by major periods recognized for New England. Each chronological section will present the major trends and patterns.

Paleoindian (12,000-9,000 BP) and Early Archaic (9,000-8,000 BP). The late Pleistocene geological period witnessed major environmental changes which, in time, impacted the peopling of the Americas, and thus the earliest Native American occupations in the New England area. Southern New England was covered by a sheet of ice 1.5 km. thick, which extended over what are now Long Island, Martha's Vineyard and Nantucket. At this time, the sea level was about 100 m lower than it is at present, because of the enormous amount of water tied up in the glacial ice sheets. Only when the ice sheet began to melt, beginning ca. 15,000 BP, was southern New England habitable; by ca. 13,000 BP the ice sheet had retreated to expose Connecticut, Rhode Island, and southeastern Massachusetts and by ca. 12,000 BP all of New England was uncovered (Stone and Borns 1986).

During this time, sea levels rose sharply as deglaciation liberated enormous amounts of water, while isostatic rebound of land depressed by the weight of the former ice sheet quickly elevated large regions, especially in Maine. The physical landscape of New England in the terminal Pleistocene period was very different from that of today. The coastline was well seaward of its present position, and the modern coastal configuration was not reached until about 3000 BP, when sea levels were still several meters below those of the present. Deglaciation created large lakes in the Hudson-Champlain drainages and in the Connecticut Valley and many other smaller bodies of water in Massachusetts (Curran and Dincauze 1977, Dincauze 1974, Koteff 1982, Larsen and Hartshorn 1982, Stone and Peper 1982). The major lake systems were drained by 12,500 BP, while the smaller bodies of water gradually filled with sediment, leaving marshes, bogs, ponds and small lakes. With progressive deglaciation and rising regional temperatures, vegetation changed relatively quickly, from tundra to spruce parkland (by ca. 9000 BP) to an oak-hemlock association (by 7000 BP); at the same time, general climatic conditions shifted from cool and dry (ca. 11,000 BP) to warmer and moister (ca. 9000 BP) and then warmer and drier again (ca. 8000-5000 BP). The human communities that initially colonized southern New England thus were faced with a rapidly changing landscape, one in which resources were of low density and relative unpredictability.

This condition resulted in a very generalist adaptation, with emphasis on flexibility, mobility, large and probably loosely defined foraging territories, and maintenance of wide kinship ties (Dincauze 1980; Snow 1980). While subsistence strategies for Paleoindians have not been determined, Snow (1980) has argued

that Paleoindian subsistence was focused on migratory big game animals such as caribou, mammoth or mastodon, while exploiting other food resources as the people chanced upon them. An alternate view by Dincauze (1981) is that the Paleoindians were generalist foragers. One proposed model for this period postulates that glacial lake basins were the focus of occupations; these areas included a mosaic of habitats that provided richer subsistence possibilities than elsewhere in New England (Nicholas 1988). In New England, Paleoindian sites often reflect occupations of the recently drained proglacial lake bottoms and wetlands (Thorbahn 1982, Thorbahn and Cox 1983). Another model proposes the possibility that Paleoindians may have used pioneering or staging areas from which large, more-or-less permanent groups sent out smaller groups to colonize or pioneer the newly deglaciated terrain (Dincauze 1993, 1996). As the physical environment began to stabilize (i.e. changed less quickly and became more predictable), human groups grew less generalized in adaptation and settled into more restricted foraging territories.

Diagnostic artifacts from the Paleoindian period include finely flaked fluted lanceolate points (Clovis and Folsom), with three phases identified on the basis of point styles (Spiess et al.1998). Other Paleoindian tools include scrapers, (presumably for working animal hides), gravers and bifacial blades. Lithic materials used consisted primarily of fine quality microcrystalline rock, often from sources more than a hundred miles away from the site of recovery.

The nearest site with a documented Paleoindian component is the Wapanucket No. 8 site in Middleboro, Massachusetts (Snow 1980:138), lying some 40 miles north of the New Bedford area.

The Early Archaic period is still being evaluated as to whether the changes in artifacts used to define this period represent continuity of Paleoindian populations. Dincauze (1990) used the common term pioneers for Paleoindian and Early Archaic populations (Pioneers and Late Pioneers, respectively). Snow (1980:171) considered that there was continuity from the Paleoindian Period into the Early Archaic Period, with “restricted wandering” of groups within territories during the Early Archaic. As the physical environment began to stabilize (i.e., changed less quickly and became more predictable) into a closed boreal environment dominated by spruce, fir and birch, human groups grew less generalized in adaptation and settled into more restricted foraging territories (Dincauze 1980, Meltzer 1988).

A major change in artifacts from the Early Archaic period was that fluted points were no longer used. Late Paleoindian diagnostic artifacts include Dalton-like points and unfluted Eden lanceolate points; the latter are rare in Eastern Massachusetts, while the former may date into Early Archaic times (E. Johnson and Mahlstedt 1984). Early Archaic diagnostic points include Bifurcate Base, Kirk Stemmed, and Kirk Corner Notched points. Overlapping dates for the late Paleoindian and Early Archaic as well as the small number of Early Archaic sites in the Northeast still challenge this research issue. The latter may reflect low population numbers during the Early Archaic (Salwen 1978), the combined outcome of site destruction and meager or inadequate surveys, or our inability to recognize the entire range of artifact types for the period (Dincauze and Mulholland 1977). Some Early Archaic sites may have been buried or destroyed by rising sea levels or river alluvium (Dincauze and Meyer 1977). Subsequent collection research has found a wider range of sites with Bifurcate Base points than had previously been recognized (E. Johnson 1984). This may reflect a wider range of food resources being exploited.

Most Early Archaic sites have been discovered in southern New England and in coastal areas. These small groups, it appears, did not camp together in larger numbers as did the earlier Paleoindians, with the result that there may be fewer recognized sites with sparse evidence of human presence. Sites from the Early Archaic period are perhaps best known in southeastern Massachusetts, especially in the Taunton River drainage (for example, the Titicut and Seaver Farm sites, Dincauze and Mulholland 1977; Double-P site, Thorbahn 1982; the upper Taunton concentration, Taylor 1976). The Titicut site is the largest site identified from the Early Archaic period. It has been interpreted as a base camp for several families.

Several Early Archaic sites identified in Massachusetts contained evidence that suggests that small hunting groups returned to camps with seasonal regularity. Deep pit features that may have been used for storage were discovered in the Taunton and Shawsheen River drainages (Simon 1982; Harrison and McCormack 1990, Glover and Doucette 1992). These sites contained material suitable for radiocarbon age determinations, stone tools diagnostic of the Early Archaic Period, or both.

During the Paleoindian and Early Archaic periods, most diagnostic tools were made of non-local or exotic stone, a pattern that generally is predominant throughout southern New England. However, it has recently been argued that until more Paleoindian and Early Archaic components are excavated and archeologists achieve better microscopic identifications of stone types and their origins, this pattern may be an artificial one reflecting biases in sample size and archeological recovery history (Moeller 1999:72-73).

Sites containing a predominately non-bifacial quartz tool tradition referred to as the Gulf of Maine tradition are commonly found in Maine and northern New England (Robinson 1992) from this time period. Similar sites containing this tool tradition have been found at Lake Winnipesaukee (Bolian 1980) and within the Merrimack River drainage (Robinson 1992; Dudek 2005). At least two significant habitation sites utilizing a similar quartz tool technology have been found in southern New England on south-facing hillsides – the Sandy Hill site in Connecticut and the Whortleberry Hill site in Dracut, Massachusetts; these sites had deep pit features, interpreted as pit houses, with an abundance of charred hazelnut shells at Sandy Hill (Forrest 2000; Jones and Forrest 2003) and charred hazelnut and acorn shells at Whortleberry Hill (Dudek 2005).

The Middle Archaic (8000-6000 BP). Throughout southern New England, human occupation becomes more evident and apparently more complex during the Middle Archaic. In southern New England, a mixed pine-oak forest was established and expanding north by 8500 BP, followed by an oak-hemlock forest in southern New England by about 6000 BP (Dincauze 1976:119). The greater number of sites from this time relates to a presumed increase in population density, while the greater disparity in size and differentiation of individual sites suggests a more complexly ordered social landscape than previously found. Stemmed bifacial points, atlatls (spear-thrower weights), pecked, ground and polished woodworking tools such as axes, adzes and celts, and plant-processing tools, such as mortars, pestles, grinding stones and nutting stones, are new forms in use during this time. The cultural traditions of the Middle Archaic complexes, as seen at the Neville site, reveal a close relationship to the Atlantic seaboard (Mid-Atlantic) and piedmont (Southeast) regions during the Middle Archaic period (Dincauze 1976:124).

Dincauze and Mulholland (1977) have suggested that effective integration of seasonally available resources into a single adaptive schedule appeared during this period, while maintenance of territorial boundaries between groups intensified in consequence of this emergent adaptation; this response may have been a consequence of more stable regional environments. The predominant settlement pattern would be one of small sites oriented toward seasonally abundant resources, including spring fish runs. The earliest documented or inferred harvesting of anadromous fish during spring runs up the Connecticut (Thomas 1980) and the Merrimack (e.g., Dincauze 1976, Barber 1980) rivers, marks both a fundamental adaptation to foraging possibilities and a seasonal determinant of site location, meaning spring occupations at rapids, falls and constrictions on larger river courses. Exploitation of anadromous fish would continue throughout the rest of regional prehistory as a principal component of aboriginal economies. On the Mashantucket Pequot Reservation in southeastern Connecticut, the Great Cedar Swamp was important in seasonal subsistence rounds during the Neville phase from 8000 to 7000 BP. Several settlement models for New England "suggest that subsistence activities became more intensively focused on the valley floors of the major river drainages with the onset of the Hypsithermal after about 7500 radiocarbon years ago" (Jones 1999:120).

During the Middle Archaic period, there is a wide variety of environmental settings for sites, including the margins of bogs, swamps, rivers, lakes and ponds, with differentiation of sites based on size and apparent function. This may reflect the incipient seasonal rounds or scheduled subsistence activities, possibly related to a growing territoriality within drainage areas (Dincauze and Mulholland 1977). Site types include semi-permanent base camps along rivers, streams or wetlands, special-purpose camps in uplands or near wetlands, rockshelters, stone quarries, and workshop areas.

Evidence of site differentiation and a more complexly ordered social landscape can be extrapolated from a number of large Middle Archaic sites containing a variety of features. At the Annasnappet Pond site in the Taunton River drainage, 119 cultural features were identified, while three of nine loci formed a nearly continuous distribution of Middle Archaic and Late Archaic material over nearly 14,000 sq. m. A mortuary feature containing calcined human cranial fragments, winged atlatl weights and Neville points at the Annasnappet Pond site was radiocarbon-dated to 7570 $\pm$ 150 BP (Cross 1999); it is the only known human burial associated with Neville points in the Northeast. Middle Archaic radiocarbon dates were obtained from nine features, while the overall Middle and Late Archaic assemblage from the site included 70,000 pieces of debitage, 166 Neville points, 31 Neville Variants, 38 Stark points, four Merrimack points, cylindrical and winged atlatl weights, ground hematite, bifaces, drills, cores and unifaces (Cross 1999:60-63).

Extensive archeological excavations along the Merrimack River relating to this time period have been conducted at the Shattuck Farm site in Andover and at the Neville and Smyth sites in the Manchester/Amoskeag falls area of southern New Hampshire. Dincauze identified three distinct temporal complexes of tools spanning the Middle Archaic period (7,740 $\pm$ 280 to 5,910 $\pm$ 180 BP); these were the Neville, Stark, and Merrimack complexes, stratigraphically separated at the site (Dincauze 1976). Circumstantial evidence revealed a focus on fishing at the Neville site during most of the Middle Archaic, with a reduced emphasis on fishing in the Merrimack complex.

Cross (1999), examining the distinction between the Neville and Stark point types, has demonstrated differences in production technology and functional qualities of Neville and Stark points at the Annasnappet Pond site that imply differences in use (Neville points being used on atlatl darts while Stark points may have used on thrusting spears). Cross posits that, to judge from the functional and technological differences, the two kinds of bifaces may therefore be contemporary (Cross 1999:72). While Dincauze (1976) has argued for temporal overlap with Starks' becoming more common over time, a closer examination of different temporal contexts in southern New England throughout the entire span of the Middle Archaic may resolve this issue.

While population levels were certainly lower during Early and Middle Archaic times than during the Late Archaic (see below), there may be reasons other than population size to account for the apparent paucity of sites dating to the earlier sub-periods. Poor preservation and inappropriate survey techniques have been identified as two problems contributing to the low number of recorded Early Archaic sites. According to Nicholas (1987:103), Early Archaic sites were subject to kinds and degrees of post-depositional factors different than those represented at younger sites, and typical survey methods are not designed to locate deeply buried archeological deposits. Using a field methodology oriented toward the discovery of early sites (both Paleoindian and Early Archaic), Nicholas has recorded approximately 40 such sites at Robbins Swamp in the Housatonic drainage of northwestern Connecticut (Nicholas 1987). Closer to the project area are the Titicut and Seaver Farm sites on the Taunton River (Dincauze and Mulholland 1977). Within the Acushnet River drainage, and within New Bedford specifically, the Lawson site has produced Middle Archaic Neville, Stark, and Merrimack points (Fitts et. al. 2000).

Late Archaic Period (6000-3000 BP). Many attributes of this period are well rooted in the Middle Archaic, but become much more evident in the Late Archaic. In some regions outside New England, the period is characterized by a shift to reliance on protocultigens or intensive gathering, perhaps precipitated by environmental changes. In southern New England, however, no one has yet identified cultivated or domesticated plants in a context earlier than the Woodland period. In the Southeast, in the Savannah River area of Georgia and South Carolina and in northeast Florida, the emergence of pottery has been dated as far back as 4500 BP (Sassaman 1999). In the Northeast, pottery did not come into use until around 3200 BP, while soapstone vessels were in use during the latter part of the Late Archaic into the Early Woodland, from about 3700 to 2400 BP (Sassaman 1999).

Another marker of the period is the proliferation of archeological tool traditions and phases: Laurentian (Brewerton), Narrow Point (Small Stemmed), and Broadpoint or Susquehanna (Cook 1976, Custer 1984). A fourth tradition, the Maritime Archaic, is found primarily in coastal areas of northern New England, Nova Scotia, New Brunswick, Newfoundland, and Labrador. These Late Archaic traditions have been long-standing topics of discussion on their relationship to each other and their social and adaptational placement in Southern New England prehistory (W. Ritchie 1971; Dincauze 1975). Each of these artifact assemblages has identifiable antecedents, originating mostly in the Middle Archaic (Cross 1996:48). Dincauze associates the Laurentian Tradition with the west, in the Great Lakes and Ohio River drainages, rather than the Atlantic drainage (Dincauze 1976:125). Pfeiffer (1990:85-104) has argued that the Late Archaic Laurentian tradition, or Lake Forest adaptation, of southern New England was the progenitor of both the Susquehanna tradition, or River Plain adaptation, and the Narrow Point tradition, or Mast Forest adaptation. These adaptations were coexistent, and may have vied for territory (Pfeiffer 1990: 85). The Narrow Point appears to have been a local development not derived from outside the region (Dincauze 1976).

Debate about the Late Archaic Period centers on what the observed relationships of the tools mean in terms of the people behind them. Some of the tools co-occur at sites sequentially, others contemporaneously. The orthodox view is that correctly tying an artifact assemblage to one of these traditions allows an archeologist to infer an adaptation category, including subsistence adaptation and possibly a belief system (Dincauze 1972, 1975; Pagoulatos 1988; Pfeiffer 1984; Turnbaugh 1975). Some archeologists also tie these artifacts to genetic populations, and believe that they imply the movement, contemporaneity, or physical descent of the actual people who used the tools. Susquehanna Broad-like projectile points (E. Johnson and Mahlstedt 1984) and Wayland Notched (Hoffman 1991:20) have, in some cases, also been associated with mortuary sites (Dincauze 1968; Hoffman 1991:20). Stone-tool production may have been undertaken by a small group of experienced, older artisans whose skills and knowledge were respected and called upon. The lithic assemblages of such artisans would look very much the same and exhibit fewer signs of accidental breakage. There may also have been specific spaces set aside for use by such artisans in some settlements (Cross 1990 has an in-depth discussion of these possibilities in New England).

The Late Archaic is the most visible period of Massachusetts prehistory, in terms both of numbers of sites and of typological attribution of materials. Even allowing for the chronological ambiguity of Small Stemmed points (cf. Mahlstedt 1987) and their use into the Middle Woodland in the Connecticut River Valley (Hasenstab et al. 1990), and Late Woodland/Contact Period use on Martha's Vineyard (Herbster and Cherau 2003), Late Archaic patterns in Massachusetts indicate unprecedented population density, with communities well settled into narrow foraging territories defined by drainages and highly specialized to the habitats within these drainages. Confined to these territories, extractive activities were seasonally adjusted to meet the opportunities of the annual cycle. Sites were located in a wide variety of topographic situations -- river banks; margins of lakes, ponds, bogs and springs; around meadow lands; in rockshelters and at quarries; and along the coastline. The differentiation of site sizes suggests use of a radiating,

seasonally-dynamic settlement pattern (Dincauze 1974, 1975, 1980; Thorbahn and Cox 1983). Although some technological innovations (e.g., the stone bowl) are apparent in this period, and some long-distance exchange of materials occurred, emphasis seems to have been placed increasingly on locally available raw materials for chipped stone tools, often distributed within river drainages.

The settlement pattern of human communities during this period is best viewed as a response to establishment of the temperate forest in which resources are heterogeneous but relatively stable and predictable. This period was marked by a progressive drying and warming trend, beginning perhaps ca. 6000 BP and peaking at ca. 4000-3000 BP. In southeastern Massachusetts, the water table was significantly lower and surface-water flow was reduced, leading to a disappearance of all but the largest bodies of water (Thorbahn 1982). The latter changes may not have been the result of climatic drought, but rather of local geomorphic changes causing lowered stream flow (Simon 1991:69). These climatic trends, if regional in scale, would intensify the association between human communities and water, particularly in summer. As sea levels approached those of the present, shorelines stabilized and extensive shellfish beds developed, while anadromous fish populations may have benefited from the expanded continental shelf (Luedtke 1985:289). The Boylston Street Fish Weir site in Boston reveals intensive estuarine exploitation of fish populations by Late Archaic peoples (F. Johnson 1942, 1949). The Boylston Street Fish Weir is an extensive structure of wooden stakes set in the tidal mud flats of the Back Bay some 4,000 years ago, and was presumably designed to capture fish and other marine resources at low tide.

Around 4600 BP (Webb 1982:570) there was a dramatic decline in hemlock pollen, which is attributed by Davis (1981) to an as-yet-unidentified insect predator and/or disease rather than climate. Hemlock is today a very competitive species in the region, the loss of which caused what appears to have been a long-term increase in species diversity. At approximately this time oak, white pine, and hickory increased dramatically throughout the region, while chestnut first appeared. This combination of events (added to warm temperatures) would have created a very suitable environment for aboriginal populations (Mulholland 1984:335). Oak and to some extent white pine provide food for game animals like deer and turkeys, while hickory and chestnut provide food for both game animals and people. At Kampoosa Bog in Stockbridge, Massachusetts, this environmental change coincided with evidence that people began visiting the bog more often and in greater numbers. There was also evidence to suggest that the people used fire to improve and maintain the natural abundance of important plants and animals in the area (E. Johnson 1996:22; E. Johnson et al. 1994).

The pattern of a riverine-uplands subsistence settlement system apparently emerged during the Middle Holocene, between 6000 and 5000 BP, when the climax oak-hickory forest had matured and population levels increased, leading to regional Late Archaic strategies of extensive and intensive resource exploitation (Dincauze 1974, 1990). In the Sudbury-Assabet region, the number and diversity of Late Archaic sites and their distribution in riverine and inter-riverine, upland settings suggest a "broad-base [collecting, see Binford 1980] approach to resource use and considerable attention to small scale environmental features," including "bogs and kettle-hole swamps" (D. Ritchie 1983:89). Duncan Ritchie's work in the Sudbury-Assabet area (1980:87-88,1983), indicates that patterns of upland use became more intensive about 4,500 years ago; more activities were now taking place there and some localities began to be reused time and again. Evidently, these shifts were shaped by ongoing environmental histories; as the region's deciduous forest ecosystems became more varied and productive, longer settlement occupations became possible (D. Ritchie 1983:89-91).

Research by Curtiss Hoffman (1985) suggests that the process of diversifying and intensifying land and resource use increases measurably in many southern New England regions between 5000+ and 2700 BP. In these regions, some landscapes became a locus for year-round settlement and resource exploitation in the Middle Holocene, a pattern seen in some coastal settings and along major rivers (Bernstein 1990 and

1993, Handsman 1995, Kenyon and McDowell 1983). Studies of collections and excavations indicate that some parts of the Sudbury-Assabet uplands contained extensive and diverse complexes of Late Archaic sites where Native people hunted deer, collected and processed hickory nuts and aquatic plants, and fished. Sites are so numerous and sometimes so often reused that Hoffman is certain that the archeological record between 4500 and 4000 BP (and for some time after) represents a "climax" of extensive, year-round occupation by sedentary groups of hunter-gatherers (Hoffman 1990:110-149).

The Late Archaic archeological record in the uplands of the Assabet and Sudbury rivers reveals that a greater range of activities took place on a seasonal, multiseasonal, or even year-round basis. Along the upper reaches of the Assabet in Marlborough, a complex of sites (19-MD-489 to -493) discovered near I-495 suggests a pattern of upland adaptation. Features such as hearths and concentrations of chipping debris (stone-tool manufacture, repair, and resharpening) from the Robin Hill, Cook, and Howe sites are evidence of the periodic use of particular localities by successive generations during the Late Archaic (D. Ritchie et al. 1984). Similarly, multiple surface hearths, tool-making workshops, and activity areas at the Old Stony Brook site near Crane Swamp in Marlborough are cited as evidence of recurrent use of a short-term campsite (Dudek, et al. 2001). The archeological record at the Flagg Swamp Rockshelter, excavated in 1980 as part of a larger study of Route 85 in Hudson and Marlborough, suggested a "winter camp repeatedly inhabited by small, complete social and economic groups," who went there to hunt deer and turtle, to fish, and then to return to their base settlements, possibly located along the Concord or lower Merrimack rivers, or along the nearby coast (Huntington 1982). Further east, a town historian in the 1890s described a site next to a small wetland in Sudbury where hundreds of points, some woodworking tools, and burned rock features were found (D. Ritchie 1980:87).

Late Archaic cemetery sites also suggest that native communities were well established within river drainages and upland areas. At the Millbury III cremation cemetery, located near the Blackstone River in Millbury, Massachusetts, sixteen cremation burials spanned from 3500 BP to 2500 BP and contained a mixture of human and animal remains within the same burial. On average, non-humans represented 79% of all skeletal elements identified, while human remains represented only 21% (Bellantoni 1998:4). This may indicate that animals were integral aspects of the ceremonial complex associated with burials from the Late Archaic to Early Woodland. The site Wapanucket 8 is located in the Taunton River drainage and contained a ceremonial complex, around 4,300 years old, with 11 cremation burials clustered within a larger pit (Robbins 1968). The Mansion Inn and Vincent sites, both located in the uplands above the Sudbury River, are cremation cemeteries about 3,500 years old. Habitation areas do not seem to be directly associated with either site. At each, assemblages of burned artifacts, cremated human remains, and burned wood and reddened earth (both from the nearby crematories) were deposited into shallow pits; some pits were used only once while others were the locus of multiple reburials. Typically, the artifacts in the pits included a full range of household and subsistence technologies such as wood- and hide-working tools, projectile points and knives, pestles, and hammer stones. Less abundant were single specimens or sets of finely flaked bifaces, known as Mansion Inn blades (Dincauze 1968:16-17, 48, 64-66). At Mansion Inn, the archeological data indicate "the cemetery was used repeatedly through a fairly long span of time" (Dincauze 1968:66), leading one to infer that the surrounding region was home to generations of Native people.

Archeological sites in the Acushnet drainage with confirmed Late Archaic components include the Lawson Site (19-BR-378) and the Swift III Site (Klein and Chadwick 2003). At the Blue Feather site (19-BR-211) Simon et al. (1980:31-34) reported recovering a single Susquehanna Tradition projectile point. Two pieces of debitage were also recovered from a garden plot at this location and the investigators speculated that this might be a good-sized site, perhaps a Terminal Archaic hunting camp.

The Woodland Periods (3000-450 BP). The Woodland is traditionally divided into Early (3000-1700 BP), Middle (1700-1000 BP) and Late (1000-500 BP) periods, defined by changing artifact types. This period is marked by basic technological and economic changes, notably the production and use of pottery and a gradual shift to food production (maize, beans, squash, sunflower and other vegetables). Horticulture is documented for the Late Woodland on Martha's Vineyard (W. Ritchie 1969) but perhaps began by ca. 2000 BP (Thorbahn 1982). Within Massachusetts generally, the Woodland periods are best known in the coastal regions and in the Connecticut River Valley. In both cases, this higher visibility may be ascribed to local opportunities for increasing sedentism and larger communities – in the former area due to a combination of horticulture with rich marine resources and in the latter area to large expanses of soils well suited to horticulture in combination with rich fishing, harvesting and other terrestrial resources.

The shift from the Late Archaic period to the Early Woodland period includes several changes on which archeologists generally agree. These changes consist of the introduction of ceramics, the formation of stable estuaries with tidal flats (Cross 1996:5-6), an apparent increase in the amount of exotic raw materials used such as non-local chert, red ochre, and copper (especially in mortuary contexts), and an inferred increase in formalized trade and communication. Some influences from the Adena culture to the west have been noted in artifact types of the period.

While some archeologists have suggested that there was a regional demographic collapse and a shift during the Terminal Archaic to coastal settings, thus largely depopulating interior upland regions (Dincauze 1974:49-50), survey information from southeastern Massachusetts shows no decline in numbers of sites during the Early Woodland (Thorbahn 1982), and comparable patterns are evident in other parts of Massachusetts. Loring (1985) found continuity of subsistence patterns from the Late Archaic, with little more change than the grafting of long-distance trade onto existing developments, such as increasing sedentism, evident in the Late Archaic period.

Archeologists have since improved their ability to recognize habitation assemblages of the Early Woodland period, as Shaw (1996a:67-79) points out. In addition to classic Meadowood and Rossville projectile points and cache blades and Vinette I ceramics, thicker side-notched bifaces, lobate-stemmed Adena, rare Fulton Turkey Tail, Small Stemmed points, and modified Vinette I ceramics are consistently reported from Early Woodland contexts. It is clear that pre-Contact peoples used some tools for much longer than just one period. Small Stemmed points are associated with the Late Archaic and Early Woodland periods and may have been in use as late as the Middle Woodland. Rossville points also occur in Middle Woodland contexts, and perhaps Late Woodland.

This period is marked by an increase in the number of exotic lithic materials, indicating long-distance trade, and by changes in mortuary practice (increase in secondary interments, less use of ocher, fewer grave goods, and more variation in preparation of the dead). While the roots of ceramic and lithic variability are found in the preceding periods, more rapid variation in sequence through time and more regional variation characterize this period. Ceramics vary more in decoration and form. Lithic projectile points are less important in the tool kit, and bone and antler tools are preserved at some sites where matrix conditions are appropriate (Shaw 1996b:84-87). By the end of the period there is evidence of maize horticulture (Thorbahn 1982).

There is overlap in the dates of ceramic types formerly considered diagnostic of the Early and Middle Woodland. Some Vinette I ceramics date to the first few centuries of the new period. The new Middle Woodland ceramics are cord-impressed, fabric-impressed, or smoothed in Southern New England. Most are decorated with dentate or cord-wrapped-stick impressions. Dentate-stamped, scallop-shell-impressed and cord-wrapped-stick-impressed decorations characterize the middle Middle Woodland, with decoration at times confined to the rim or shoulder. Scallop-shell-impressed or pseudo-scallop-shell-

impressed ceramics are recovered more commonly in Northern New England (Shaw 1996b:90). Decoration may be only around the rim or shoulder. These designs are often applied in a rocker fashion, or in vertical or horizontal zones. Undecorated fabric-paddled pieces with smoothed interiors also occur.
Fox Creek and Steubenville bifaces characterize this part of the period (Moore 1997). There is some overlap in time between the Fox Creek and Jack's Reef points during this part of the Middle Woodland. Jack's Reef points, often made of non-local chert (Shaw 1996b:92-93), continue to be used into the Late Woodland. Exotic lithic materials increase in the Middle Woodland, except in the Champlain drainage. Some lithic tool types, such as Rossville (Shaw 1996b:90) and Small Stemmed (Hasenstab et al. 1990) continue into the Middle Woodland.

Late Middle Woodland ceramics include types that continue in the Late Woodland, such as the cord-wrapped-stick-impressed ceramics. Projectile points now include concave-base triangular points often made of local materials. These points also continue into the Late Woodland period (Shaw 1996b:93). Settlement and subsistence are similar to the Early Woodland period, but sedentism increases. Stays at large sites along waterways are believed to have increased in duration, while upland areas were used short-term for procurement. Long-distance communication and exchange appear to shut down by the end of the period. Middle Woodland sites in coastal areas and New York have produced house remains. Middle Woodland sites tend to have more pit features, which vary greatly in shape and size, and are frequently dug out and reused for trash (Shaw 1996b:94-100).

Research issues for the period are similar to those of the Early Woodland period, from which it is divided only by arbitrary artifact style boundaries. These issues include explanation of the quick adoption of ceramic styles, the role of exchange networks, and the description of the behavior behind increasing regional style variation in artifacts (Shaw 1996b:100).

The Late Woodland represents the regional demographic peak prior to European contact, a florescence that may be related to increasing food production, sedentism, and population agglomeration. The period is characterized by changes in burial ceremony. Burials can be single or mass, as in ossuaries, and can be primary, secondary, or cremation. Group interments tend to be at special mortuary sites, while single burials are usually at habitations.

Ceramics are often shell-tempered or made with fine grit temper and thinner bodied; there is a shift to globular forms, and the addition of collars, sometimes decorated with human faces. Elaborate collars similar to those of Iroquois ceramics are found in the Merrimack and Champlain drainages. Triangular projectile points consisting of smaller Madison points or larger Levanna points are diagnostic for this period. This period is marked by an increasing importance of food production (maize, beans, squash, sunflower and other vegetables) in coastal or riverine zones, which begins by ca. 840 BP on Martha's Vineyard (W. Ritchie 1969).

These changes in assemblage, and by implication, adaptation, are attributed to increasing population and concentration of people at larger sites. Research issues include the extent of permanency in Late Woodland settlements, the nature of such settlements (i.e., whether such settlements were villages; Hasenstab 1999; Kerber 1988; Luedtke 1988; Thorbahn 1988) and the identification of horticulture with non-native plants and definition of the effects on humans. In addition, researchers might ask about the use of different ecozones, the reality of population growth, and whether or not climate change (e.g., the Little Ice Age), affected settlement and subsistence. There is some evidence of the development of long-distance exchange again, and some workers have suggested that a native beaver trade was developed before Contact. Regional differences are visible; in Vermont, there are fewer late Late Woodland sites than early Late Woodland. This may be a response to Iroquois settlement changes. In southern New England, horticulture did not replace existing gathering and hunting strategies and large settlements did

not replace small seasonal sites. Differential dependence on horticulture is likely to have affected society and politics. Cultural differentiation of the Iroquois from the Algonquin also presents research opportunities (Shaw 1996c).

Archeological investigations at the Swift I and II Site (19-BR-212) and the Swift III Site on the east bank of the Acushnet yielded diagnostic Late Woodland Levanna projectile points and ceramics, along with lithic debitage, animal bone, shell, and a small pit feature (Thorbahn 1988).

The Contact Period (AD 1500-1620) and post-Contact Native American Settlement (AD 1620-1700). This period marks the initial presence in the region of European explorers and fishermen, followed in the early seventeenth century by English colonization. From the Native viewpoint, the period was one of intense social, economic and demographic disruption and depopulation for native inhabitants due to disease, warfare and displacement related to European contact and colonization. The Acushnet drainage was part of a Contact Period core area that extended along Buzzard's Bay from Rhode Island to Wareham (MHC 1982:Map2).

Circa AD1600, Native Americans known as the Wampanoag (also referred to as the Pokanoket) were documented as inhabiting southeastern Massachusetts, including Cape Cod, Martha's Vineyard, and Nantucket, as well as eastern Rhode Island (i.e. east side of Narragansett Bay). The Wampanoag were longstanding allies of the Massachusetts to the north, and traditional enemies of the Narragansett to the west (Gookin 1972, in Salwen 1978:171). The exact date of first contact with Europeans is uncertain, though one source puts it as early as Verrazano's AD 1524 visit to Narragansett Bay (Salwen 1978:171). Later contacts included Gosnold (AD 1602), Pring (AD 1603), Champlain (AD 1605-1606), and Hudson (AD 1609) (Salwen 1978:171). Bragdon (1996:xi) characterizes southern New England as "Ninnimissinouk," an indigenous term used to refer to the people of the region. Included among the Ninnimissinouk were groups known as the Pawtucket, Massachusett, Narragansett, Peqout, and the Wampanoag. The term "Wampanoag" designates the descendants of the Pokanokets, or the people associated with the sachem Massasoit and the village of Pakanokick noted by John Smith in 1614 (Bragdon 1996:20-25; Grumet 1990:134).

Certainly the single most devastating event resulting from European/Native American contact was the introduction of foreign diseases to the latter. The epidemic of AD 1616-1619 decimated the Ninnimissinouk populations by as much as 90 percent, especially in interior locations; groups residing on the offshore islands fared better (Salwen 1978:171). Subsequent to the epidemics, the weakened Wampanoag suffered persistent attacks by the Narragansett to the west. With the arrival of the colonists at Plymouth, the Wampanoag sachem Massasoit and his brother Quadenquina offered a formal friendship treaty, into which the colonists and Native Americans entered. Massasoit had hoped to form an alliance with the colonists, principally to help fend off the Narragansetts (Salwen 1978:171-172).

In any event, King Philip's War in AD 1675-1676 effectively wiped out large portions of the Wampanoag population. Groups living on Cape Cod and the offshore islands did not join Philip in his efforts and thus were able to maintain their villages there (Salwen 1978:172). Nevertheless, the Wampanoag and all other New England Native American societies never recovered from the decimation and disenfranchisement resulting from their loss of the war, and the post-war era witnessed the continual decline and marginalization of the Native American groups in New England. The Wampanoag Tribe of Gay Head (Martha's Vineyard, Massachusetts) is recognized by the Federal Government, as are the Mashantucket Peqout and Mohegan Tribes in Connecticut, and the Narragansett Tribe in Rhode Island.

2.3 KNOWN PRE-CONTACT SITES AND PRIOR ARCHEOLOGICAL WORK IN THE PROJECT VICINITY

A total of 33 Cultural Resource Management (CRM) reports are on file for the City of New Bedford and 13 for the Town of Fairhaven in the MHC's *Bibliography of Archaeological Survey & Mitigation Reports.* Three reports cover areas in both municipalities. Of these reports, only a few Fragola (1999), Kellogg and Klein (2001), Chadwick and Klein (2003) deal with surveys and archeological site discoveries within the intertidal zone of New Bedford Harbor (See below).

A review of the site files at the MHC indicates that no pre-Contact archeological sites have been recorded within 2 km of the Project area. However, numerous pre-Contact period sites are known to exist in the vicinity of the Acushnet River and New Bedford Harbor in New Bedford and Fairhaven. The nearest site is the River Avenue Site (19-BR-260), located about 2.1 km northeast of the Project area along the east side of the Acushnet River in Fairhaven. The Lawson Site (19-BR-378), located approximately 5 km north of the Project area is significant because it is one of the largest multi-component (Middle and Late Archaic, and Late Woodland periods) sites located on New Bedford Harbor (in Fairhaven) and because it is located in the intertidal zone (Fitts et al. 2000, Chadwick and Klein 2003).

2.4 POTENTIAL FOR PRE-CONTACT SITES IN THE PROJECT VICINITY

Pre-Contact archeological sites have been identified in a variety of settings, but are found most often in particular environmental contexts (Funk 1972; Root 1978; Thorbahn et al. 1980; McManamon 1984; Mulholland 1984; Thorbahn 1984; Nicholas 1990). In southern New England archeology, pre-Contact site location is typically linked to three variables: terrain, soils, and water -- in the formula "flat to low slope, well-drained sandy soil, near water." These variables, in turn, combine with other factors, which include the collection of special resources (e.g., lithic material for tools; clay; seasonal nuts, fruits, seeds, small fishes, and game,), the pursuit of special tasks, often seasonally determined (e.g., exploitation of fish runs), and the use of transportation routes (provided by bays and rivers). The combination of all these factors provides a framework within which the pre-Contact settlement of the project area, and indeed of most of southern New England generally, can be analyzed, and by which archeological site location can be predicted through archeological models (Casjens 1979, Dincauze 1974, Hoffman 1985, Kenyon and McDowell 1983, D. Ritchie 1983). A study of site locations and catchments conducted for the Concord River watershed (Casjens 1979) found that sites were located on floodplains, flat uplands, knolls, ridges and an island; gentle terrain with arable soil and variety in the form of wetlands in the surrounding catchments also seem to factor in site locations.

As a result of changes in sea level over time, prehistoric sites associated with the Paleoindian and Archaic periods could be present within the subtidal portions of the Project site. As demonstrated by the Lawson site, tidal or otherwise very-near-shore loci would be expected to have low potential for Woodland and Contact Period sites, owing to inundation from sea-level rise. Thus, Paleoindian and Archaic Period sites could theoretically occur anywhere, including inundated areas, while Woodland and Contact Period sites would be restricted to locations that are currently dry. (A limited number of Late Woodland diagnostic artifacts were recovered from the Lawson Site. These were most likely not *in situ*, but transported into the intertidal portion of the site by natural process such as erosion and sediment transport).

Because of its location along the Acushnet River, and absenting a geomorphological and hydrological regime history indicating prior sediment disturbance, and/or a history of other man-made disturbances (e.g. dredging activity), the subtidal portion of the Project site should be considered to have the potential to contain pre-Contact archeological sites.

2.5 INTERTIDAL AND SUBTIDAL PREHISTORIC ARCHEOLOGICAL SITES IN NEW ENGLAND

It is now well established that on the world's continental shelves can be found formerly terrestrial archeological sites that have been submerged through the various processes associated with sea-level rise (Masters and Flemming, 1982). These sites, while difficult and often expensive to locate, have immense potential for providing previously unknown data regarding past human behavior. Indeed, such sites could contain exceptionally well-preserved organic materials, in most cases would not have been mixed by centuries of historic plowing, and most importantly could potentially offer an older record of human coastal adaptation than is currently available from the existing database of mid to late Holocene coastal sites.

The following literature review is focused on known intertidal and subtidal prehistoric archaeological sites in New England, and is designed to emphasize the environmental and geologic settings in which they were identified and the circumstances that lead to their discovery. Additionally, the following review will include selected submerged and intertidal surveys for prehistoric sites where cultural materials were not recovered but sedimentological preservation, in the form of submerged and buried paleosols, was found to be quite high. The reader is directed to Bell (2009) for a thorough bibliography, as well as an excellent treatment of legal and ethical issues pertaining to submerged cultural resources. Additionally, Merwin et al. (2003) provide a systematic, detailed review of submerged Native American sites in southern New England.

2.5.1 Submerged and Intertidal Prehistoric Sites in Maine

Despite its lengthy coastline, the state of Maine boasts few submerged and intertidal prehistoric sites. The majority of submerged sites were initially discovered by fishermen when artifacts were found in drag nets. Crock et al. (1993) report on large rhyolite bifaces recovered by scallop draggers in Blue Hill Bay from approximately 40 to 50 meters below present sea level. Artifacts recovered by scallop draggers in Bass Harbor (Price and Spiess, 2007) indicate the possibility of another submerged site, and subsequent paleogeographic reconstruction (Kelley et al., 2010) of the location revealed a submerged paleolake setting. The Lazy Gut Island Site (Belknap, 1995) was also discovered by fishermen, when in 1982 prehistoric artifacts were dredged from approximately 10 meters of water east of Deer Isle. Subsequent SCUBA reconnaissance recovered debitage but did not uncover evidence of primary archeological contexts. Belknap (1997) conducted a geophysics and coring survey aimed at paleogeographic reconstruction of the location, and the conclusion reached was that the site has been completely reworked by marine transgression and that minimal, if any, primary context remains for cultural materials.

In the Damariscotta River, Leach (Leach and Belknap, 2004; Leach 2007) conducted a geophysical and coring investigation of relict mid-Holocene oyster beds for submerged prehistoric potential, and subsequently identified a buried, submerged paleosol at -12.67 m and 6300 yBP. While no cultural materials were recovered, the paleosol is an excellent example of sedimentologic preservation potential in sheltered estuarine settings.

2.5.2 Submerged and Intertidal Prehistoric Sites in New Hampshire

The Seabrook Marsh site (Robinson, 1985) is an exceptionally well-preserved prehistoric site that is buried under salt marsh peat and fully submerged during high tide. Site discovery occurred subsequent to the excavation of a mosquito ditch across the salt marsh, in which prehistoric artifacts were identified.

The site contains a wealth of perishable and non-perishable cultural materials, as well as human interments.

2.5.3 Submerged and Intertidal Prehistoric Sites in Massachusetts

A handful of intertidal and submerged prehistoric sites have been identified in Massachusetts. Johnson and Raup (1947) reported on the Grassy Island Site, a subtidal and intertidal prehistoric site in the Taunton River, Massachusetts. Cultural Resource Management surveys along the eastern shore of the upper Acushnet River (Fitts et al., 200; Chadwick and Klein, 2003) recovered prehistoric artifacts within the intertidal zone. Chadwick and Klein (2003) conducted an exhaustive intertidal coring survey in the upper Acushnet River Estuary, North of New Bedford, and identified prehistoric sites below marsh and marine sediments. The Boylston Street Fish Weir (Johnson, 1942), a large, well-preserved late Archaic fishing site, was discovered below historic fill during subway tunnel construction in Boston.

At the Atlantic Ledges site (Dincauze, 1972), prehistoric artifacts were found buried below peats and gravels near Hull, Massachusetts. Volmar (2003, Cited in Merwin, 2003) identified a submerged early Woodland site at Turner's Falls comprising an eroding stratigraphic section that revealed charcoal lenses and fire-cracked rock. In a similar vein, mammoth teeth were dredged up offshore of eastern Massachusetts (Oldale et al., 1987), hinting at the possibility of intact primary contexts.

A Phase II Cultural Resource Management project for the Salem Port Expansion in Salem, Massachusetts identified a submerged, buried paleosol in a vibracore and upon further analysis discovered two chert micro-flakes, charcoal, and botanical remains (Lynch et al., 2010; Lynch, 2010). This project is an excellent example of phase II methods for evaluating submerged prehistoric contexts.

Numerous Cultural Resource Management projects in Massachusetts have recovered provocative evidence for enhanced sedimentologic preservation in submarine settings, though no cultural materials were recovered. In Nantucket Sound, Robinson et al. (2004) conducted a reconnaissance survey comprising geophysics and coring within the area of potential effect of the Cape Wind facility and associated transmission cable corridor. An intact paleosol, wetlands, and pond environments were identified in the vibracores, all adjacent to a bathymetric low point. The Nantucket Sound survey was undertaken after an assessment of marine archaeological sensitivity (Robinson, et al., 2003). A similar survey in Great Harbor by Robinson (2008) comprised a geophysical survey to prospect for potential buried and submerged paleosols, though none were identified.

2.5.4 Submerged and Intertidal Prehistoric Sites in Rhode Island

Lynch (2001; Cited in Merwin, 2003) has documented prehistoric artifacts recovered by fishermen in Narragansett Bay. Operating though an organization called the Submerged Cultural Inventory of Rhode Island (Merwin, 2003), information is being amassed on potential intertidal and submerged prehistoric sites through beachcomber and fisherman informants.

2.5.5 Submerged and Intertidal Prehistoric Sites in Connecticut

Of all the New England states, Connecticut boasts the largest number of reported intertidal and subtidal archaeological sites. The dredging of boat basins seems to be the most common mechanism for discovery of such sites. Powell (1965) reported on the discovery of submerged portions of a large shell midden during dredging of boat basin at Spruce Swamp. A similar situation occurred at Pilots Point (Glynn, 1953; McWeeney, 1986), where prehistoric artifacts were discovered during the dredging of a yacht basin.

Numerous intertidal sites, and those buried under salt marsh peat, have been identified. The Archaic Midden Site (McWeeney, 1986), discovered by the Public Survey Team, is an intertidal prehistoric site in the Connecticut River. At Grannis Island, Sargent (1953; McWeeney, 1986) discovered a prehistoric site, the majority of which was covered by salt marsh and mostly submerged at high tide. At Seaside Indian Village (Coffin, 1963; McWeeney, 1986) late prehistoric artifacts were discovered below highest high marsh peat after hurricane erosion.

Bourn (1972) gives a detailed personal account of visiting numerous locations where prehistoric artifacts were found in submerged and intertidal contexts. He also describes the artifact assemblages recovered from each location. The "Submerged Site at the North Cove" (Bourn, 1972: 5-8) is a prehistoric site with terrestrial and underwater components discovered during dredging operations for yacht basin. The "Submerged Site at the Ferry Road" (Bourn, 1972: 8-9) was discovered when prehistoric artifacts were found during canal excavation across a salt marsh. These artifacts were found in a peat and gravel mix at the base of the trench, below about 3 to 4 feet of peat. Bourn also reports on three sites he referred to as "Tidal Beach Sites at Giant's Neck" (Bourn, 1972: 9-11). The sites are located at Bather's Beach, at the mouth of the Pataguansett River, and at the north end of Huntley Island. In all three locations artifacts ranged in elevation from low to high tide and while the majority of artifacts were water worn, some appeared to have been recently eroded from intact deposits. Bourn speculated that the artifacts had eroded out from below a recently exposed peat deposit.

At the Hammonassett Beach Site (Glynn, 1953; 1969; 1977; Harper et al., 2008) prehistoric cultural materials were dredged from east of Pilot's Point in Westbrook, Connecticut. Eleven feet of peat were dredged and a further eight feet of sand and gravel were removed. Human remains and quartz artifacts were recovered from the dredge, and many artifacts were found on the beach after dredge spoils were dumped in the marsh and on the beach. Additionally, a submerged shell midden may have been dredged up in about 16 feet of water from approximately 900 feet off shore.

2.6 HISTORIC CONTEXT[1]

The land that comprises the city of New Bedford, as well as Acushnet, Fairhaven, Dartmouth, and Westport, was purchased from Massasoit, Grand Sachem of the Wampanoag and his son, Wamsutta in 1652 by 36 European settlers. The tract was named Dartmouth and was incorporated in 1654. The town's early settlement was sparse and consisted of scattered farmsteads and garrisons. During King Philip's War (1675-1676), the Indians overran the settlement and burnt most of the homes (Ricketson 1858:34). After the war, the settlers returned and rebuilt. Following a pattern common throughout Southeastern New England after the war, the settlers chose to establish a village at the head of the Acushnet River rather than disperse into scattered farmsteads. Throughout the first half of the eighteenth century, the Village of Acushnet remained the region's center; however, members of the Russell family began purchasing land along the Acushnet River and the overlooking heights within the present city of New Bedford. In 1765, Nantucket whaling merchant Joseph Rotch purchased ten acres of land from Joseph Russell II and moved his business to New Bedford (Leary 1999). Rotch brought experience, capital and technological innovation, and he and his sons began to develop the future New Bedford as a whaling port (Leary 1999). The Town of New Bedford developed rapidly and by 1771 321 dwellings, 119 shops and warehouses stood in New Bedford and Fairhaven (Vanasse Hangen Brustlin, Inc. 1996:16).

[1] Historic context information is taken from *Cultural Resources Background Reconnaissance Study and Archeological Sensitivity Assessment, South Terminal Marine Infrastructure Park (Upland Portions), City of New Bedford, Bristol County, Massachusetts* (Kotlensky and Klein 2010).

On September 5th, 1778, British troops occupied New Bedford. During their brief stay, they burnt eleven dwellings, twenty shops, a ropewalk, and 34 vessels anchored in the harbor (Ricketson 1858:75; 289). After the end of the Revolutionary War, a number of Nantucket merchants relocated to New Bedford and promptly developed a complex network of finance, shipbuilding, ship supply, and marketing (Georgianna and Aaronson 1993:12). In recognition of the growth of the village established by the Russell family, Bedford Village was designated as the town of New Bedford in 1787 (Leary 1999).

During the decades prior to the Civil War, New Bedford became the leading whaling port in the world (Georgianna and Aaronson 1993:12). By 1857, the city was home to 329 whaling outfits and ships, 10,000 men were engaged in whaling, and $12,000,000 in local capital was invested in these enterprises (Burgy 1932:34).

Because of the prominence of whaling, New Bedford had few other industries in the early nineteenth century. In 1815, a rope walk was located along the Acushnet riverfront in the south part of the city, and a furnace was located on the riverfront near the foot of Madison Street. The northern waterfront was lightly developed with several piers extending into the river. J. Congdon's 1834 map of New Bedford shows a grist mill in the north and west-central portions of the city, while two salt works were in operation in the south peninsula area. Several small cotton factories had been established in the city, the earliest dating from 1811 (Burgy 1932:34).

By the second half of the nineteenth century, the American whaling industry faced severe trouble. During the Civil War, a number of New Bedford whaling vessels were sold to form a major portion of the "Stone fleet," sunk off the harbors of Charleston and Savannah to enforce a naval blockade (Hicks 1907:41). In 1871, the entire Arctic whaling fleet, including 32 ships from New Bedford, was lost when ice floes returned earlier than normal. The total monetary loss to New Bedford was over $1 million (Georgianna and Aaronson 1993: 13; Hicks 1907:41). In 1876, the ice took 12 additional ships from New Bedford's fleet (Georgianna and Aaronson 1993:13). Similar losses occurred in 1888 and 1897.

Improving technology greatly reduced the demand for whale oil. Kerosene largely replaced whale oil for lighting. With the discovery of petroleum in Pennsylvania in 1859, an economical substitute for whale oil lubricant became available (Clayton and Whitley 1975:24). The whaling industry continued in New Bedford until the early twentieth century but became a progressively less important part of the city's economy. The last whaling voyage from the city was made in 1925 by the schooner *John R. Manta* (Leary 1999).

Even during the heyday of whaling, farsighted New Bedford businessmen saw the advantages of enlarging the economic base of the city. Cotton mills had proved profitable in other parts of New England. By 1833, thirteen cotton mills were in operation in nearby Fall River (ODHS 1975:204). U.S. cotton production doubled between 1840 and 1860. By the start of the Civil War, 600 cotton mills were in operation throughout New England (Georgianna and Aaronson 1993:19).

One New Bedford businessman, Samuel Rodman, Jr., a major investor in the Pocasset Mill in Fall River, sought to bring the cotton manufacturing industry to New Bedford by organizing the New Bedford Steam Company in 1846. This attempt was unsuccessful (ODHS 1975:204).

Despite this failure, some New Bedford capitalists saw potential for the cotton milling industry in the city. The city's damp climate minimized static electricity and maximized the fragile cotton fiber's elasticity and break strength (Dunwell 1978:112). The Acushnet River allowed relatively inexpensive shipping of coal and cotton. Sufficient manpower was available, as was investment capital.

The first New Bedford successful cotton mill owners studied the milling business before setting up their own factories. Their initial problem was to decide what goods to produce. Calculations were made to determine which type of goods would produce the maximum profit. The conclusion was that fine sheeting could be made a cost of 12 cents per yard and sold for 14 cents. They decided to concentrate on this product and to produce it by the mule spinning method (Ware 1931:107-108).

From the early nineteenth century until the 1930s, a succession of proprietors undertook two significant manufacturing enterprises within what is now the vicinity of the Project Area. James H. Howland and George Hussey began operating a factory for making candles from whale oil sometime prior to 1836 in the vicinity of the Project Area (Office of Public Archaeology 1988: 26). In 1871, a joint-stock company established the Potomska Mills, a textile manufacturing enterprise that they expanded to include two mills by 1877 on the same site (Sayer 1889: 154; Ellis 1892). The footprint of the former Potomska Mills most of the upland portions of the Project Area (Kotlensky and Klein 2010).

A review of 19th and 20th century historic cartography covering the Project Area was conducted as part of the archeological sensitivity assessment for the upland portions of the Project Area (Kotlensky and Klein 2010). No wharves, piers, or other features were identifying as extending into the intertidal portions of the Project Area.

2.7 KNOWN HISTORIC ARCHEOLOGICAL SITES IN THE PROJECT VICINITY

A review of the site files at the MHC identified four historic archeological sites that have been recorded within 2 km of the Project Area. The Potamska Mills Site (NBE-HA-8) is located in the upland portion of the Project Area. It was originally identified on the basis of documentary research only. Subsequent analysis indicated that any potentially significant archeological remains associated with site have been destroyed (Klein and Kotlensky 2010). The Acushnet Mill and Worker Housing Site (NBE-HA-09), the Palmer Island Lighthouse Site (NBE-HA-07), and the Nathan and Polly Johnson House Site (NBE-HA-12) are also located within 2 km. of the Project Area. None of these three sites is in close proximity to the intertidal portions of the Project Area.

2.8 POTENTIAL FOR HISTORIC ARCHEOLOGICAL SITES IN SUBTIDAL PORTIONS OF THE PROJECT AREA

Documentary research, including a review of historic cartography, has not indicated the presence of any historic period structures within the intertidal or sub-tidal portions of the project area. However, this does not mean that features such as small piers, wharves and bulkheads never exited within the area. In addition, depending upon the hydrologic regime, there is always the potential for the existence of buried vessels and small boats. At least one potential shipwreck site was identified during other investigations undertaken for the project in the sub-tidal portion of the project area (Dolan Research, 2010). The purpose of the current investigation, however, is focused exclusively on the potential for submerged Native American sites and will not address in detail any potential for shipwreck or other historic sites or field procedures for evaluating their presence.

A total of 33 Cultural Resource Management (CRM) reports are on file for the City of New Bedford and 13 for the Town of Fairhaven in the MHC's *Bibliography of Archaeological Survey & Mitigation Reports.* Three reports cover areas in both municipalities. Of these reports only a few, Fragola (1999), Kellogg and Klein (2001), Chadwick and Klein (2003) deal with surveys and archeological site discoveries within the intertidal zone of New Bedford Harbor.

3.0 METHODS

3.1 GEOPHYSICAL METHODS

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The Applied Acoustic Engineering (AAE) catamaran-mounted, surface-towed boomer seismic reflection system (CAT200) was used to image the shallow subsurface in high detail. The CAT200 system consist of: 1) the source is a boomer plate capable of emitting short pulse of acoustic energy with peak frequency response between 500 and 2000 Hz with a power of up to 200 J/shot at firing rates of 250 ms or slower and results in vertical resolution of the subsurface of approximately 15 cm, depending on frequency; 2) the receiver is a 20-element hydrophone that is acoustically tuned to the frequency response of the CAT200 boomer plate; 3) the topside equipment consisting of a laptop for system control, data logging and real-time visualization which is accomplished using Chesapeake Technologies Sonar.WIZ.SBP and a CSP150 signal generator.

The CAT200 system was deployed from a small (21 ft) coastal research vessel for use in shallow water (Plate 1). The boomer catamaran was towed from the starboard side of the vessel, approximately 6 m aft of the transom (Plate 2). The hydrophone was deployed from a 3 m boom on the port side of the vessel. The first hydrophone of the array was positioned approximately abeam of the boomer catamaran for optimal towing geometry. This facilitated capture of the entire acoustical spectrum by all hydrophones and prevented the hydrophone array from crossing into the vessel's wake. During data acquisition, vessel speeds were maintained between 2.5 and 3.0 kn.

The firing rate of the CAT200 system was set at 250 ms (4 Hz) with a record length of 250 ms and a power of 100 J/shot. With a vessel speed of 2.5 kn, our seismic shot points were spaced approximately 32 cm apart and with a vessel speed of 3.0 kn our seismic shot points were spaced approximately 38 cm apart.

Field data were logged digitally to the local hard drive of the acquisition laptop in industry-standard *.seg format. Each survey line was recorded as a separate file. Turns and transit lines were logged as separate files.

Post processing of the field data was accomplished using IXSEA Delph Seismic. The raw data were band pass filtered with a low pass of 2500 Hz and a high pass of 1000 Hz. The section of the higher frequencies of the peak spectrum of the CAT200 system ensured the greatest resolution of the subsurface and minimized acoustic noise associated with the engine of the survey vessel. A time varying gain was also applied to the raw data with a signal increase of 5 dB over a window of 7.5 ms that was initiated at the sediment water interface. The gain served to enhance data lower in the record and account for signal attenuation and loss during reflection and travel.

Overall, the data quality was excellent. The sheltered waters of New Bedford Harbor provided ideal conditions for the shallow seismic reflection surveying. There was a minimal amount of vessel traffic that crossed the survey paths. One major concern was the ability to maintain straight survey lines. The survey grid was spatially coincidental with a small vessel mooring field. The major of vessels were 20-35 foot sailing ships. Surveys lines were altered during data acquisition to avoid moored vessels. This resulted in

Plate 1. View of Apex Companies, LLC Research Vessel Utilized for Seismic Reflection Profiling Survey.

Plate 2. View of Boomer Catamaran and Hydrophone Towing Geometry.

overlapping lines and an inconsistent spacing, especially in the southern portion of the survey grid. A second major concern was the ability to survey to the bulkhead and the beach that defined the western margin of the survey grid. In the areas where there was a bulkhead, the captain attempted to get as close to the bulkhead before initiating a turn and thus breaking the line. At best, we were able to approach within 15 m of the bulkhead due to the length of the survey vessel and layback of the seismic system. In the case of the beach areas, our closest approach was limited by bathymetry. For the sake of vessel safety, turns were initiated when water depth approached 1.0 m.

In an attempt to acquire data in those areas where coverage was limited by mooring fields and bulkheads, additional survey lines were added. Five additional lines, orientated shore parallel were acquired.

3.2 VIBRACORING FIELD METHODS

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The coring vessel *Xepa III*, equipped with a Gravity Environmental high frequency C3500, was used for the field work completed in New Bedford Harbor September 22 – September 24, 2010 with a combined team from Apex Companies, LLC and John Milner Associates, Inc. (JMA). The Xepa *III* is a pontoon-boat with a mounted A-frame sampling platform is an incredibly stable yet highly versatile, portable, self-propelled sampling platform (Plate 3). It is capable of collecting samples in water depths that range from 1.5-feet to 100-feet and ideal for sediment characterization and environmental testing. The vibratory unit is compact, yet rugged, and is also highly portable.

The complete Xepa *III* system was mobbed for the work completed; the equipment included with 100' of cable (to connect the vibracore to the topside controller), the topside controller, buoyancy hardware and two 4-inch diameter core catcher/nose cone units, 10’ and 15’ sections of Drawn Over Mandrel (DOM) coring pipe. Xepa *III* is powered by a 70-hp outboard engine, and navigation control is maintained using a state-of-the-art differential global positioning system (DGPS) coupled with *Hypack Max* heads-up, steer-to navigation software for precise location of sampling locations. A three-point anchoring method was used to hold the pontoon boat in place, utilizing wind and currents to drift into position while the anchor lines tightened. Position during coring was maintained within approximately two feet.

The Gravity Environmental vibracore is a high frequency (3600 vpm), mid amplitude unit with an impact force of 3500 ft/lbs. It uses a Rossfelder P3 motor, and uses a Variable Frequency Drive (VFD) with a built-in phase converter to convert single phase power to three-phase power. This unit is ideal for silts, muds, and fine sands. The unit has 100' feet of in-water cable, a topside digital variable speed controller (0 to 60 hz) which can either be used with 220 or 115 VAC. For our purpose we used a Honda 2000i generator and a 3500 Watt Generator that is quite capable of carrying the load of the topside controller.

At each location after logging the position we attached a 4” diameter steel barrel, either the 10-foot or 15-feet DOM corer, on the end of the vibracore head. Through the open tip of the barrel a rigid polycarbonate liner was placed that fit within the inner diameter of the core barrel. We then attached the nose cone/core-catcher to the end of the barrel. Holes are pre-drilled into the bottom of the core barrel which allowed us to pop-rivet the core nose to the barrel and hold it in place. The nose cone then behaves the same way that a nose cone on a split-spoon sampler for a mud-rotary drill rig works; it is essentially a one-way valve that allows sediment to pass through but not to slip out when removed from the seafloor. On the top of the vibracore, we attached a lifting wire which we then connected to the winch on the deck

Plate 3. View of Apex Companies, LLC Pontoon Boat XEPA III and Vibracoring A-Frame.

of the Xepa *III*. The power was then connected and the vibracore was lowered straight down into the seafloor (Plate 4).

When in contact with the bottom, we used the topside controller to actuate the vibracore. The controller sends power down to the vibrating elements in the head, which vibrate between 3000 and 3600 times per minute. The weight of the vibracore and the vibrating action help to drive the core barrel into the bottom sediments as we lower the vibracore slowly with the winch. Once we had taken a full sample, or met with refusal, we retracted the vibracore by taking it to power on the winch. When the vibracore unit was on deck, we sheared the rivets from the nose cone and removed it. Removal of the nose cone allowed us to pull the polycarbonate liner from the barrel; to insure this process there is a ball-type seal in the chassis where we attach the core barrel to the vibracore housing that acts as a vacuum sample retainer to keep the sediment from sliding out the bottom. The samples were then measured, cut into appropriate lengths, and labeled with core number, top and bottom orientation, section number, and depth for each section. A plastic cap was fitted over each end of the polycarbonate liner sections and sealed with a liberal application of electricians tape. At this point another navigational position was taken to ensure accuracy.

3.3 VIBRACORE LABORATORY METHODS

3.3.1 Core Splitting

The sealed, rigid polycarbonate sleeves containing extracted vibracore samples were transported to JMA's West Chester, Pennsylvania office for processing and interpretation. The splitting process began by scribing a line across two sides of the sleeve with an indelible marker, taking into consideration the labels on opposite sides of the core so as to produce two perfect, labeled halves of the core. The core sections were split with a portable circular saw, and then a knife was inserted through one side of the saw cut, and slowly pulled toward the other side. The core sections were then laid flat, side by side, while the next core section was prepared for splitting. After splitting the cores were immediately processed to avoid oxidation of the sediments, though some oxidation was unavoidable.

3.3.2 Core Description

All vibracore sections were photographed in color with a 12 megapixel digital SLR camera. Close-up photographs were taken of particularly important and diagnostic stratigraphy. The stratigraphy was recorded on a standard core log developed by Leach during previous vibracore analyses, and included Munsell color, sediment texture, approximate concentration of coarse clasts and shell fragments, faunal and floral content, stratigraphic thickness and boundaries, and an interpretation of the environment of deposition for all major strata. Descriptive data were entered into digital versions of the core logs, and were placed beside a color, scaled photograph. All vibracore core logs can be found in Appendix I of this report.

3.3.3 Vibracore Processing and Sampling

One half of each of the split vibracore sections was left untouched, and was bagged in an acid-free, heavy plastic sleeve for archival purposes. The University of Massachusetts, Boston Campus, has agreed to archive the cores (Gontz, Personal Communication, September 2010). The remaining half of each section was investigated more completely for biological, geologic, and archaeological contents.

Plate 4. View of Vibracore Extraction in Progress.

For cores that were interpreted as containing purely marine sediment, the working half of the core was picked through for coarse clasts, marco-organic contents, marine organisms, and other components to aid in identification of microenvironments.

For cores that were identified as containing formerly terrestrial, yet truncated by a marine unconformity, upland soil profiles, samples were collected from the working half of the core relative to stratigraphic units in .2 to .4 ft. sections depending on the thickness of strata. These samples were then water screened through two stacked sieves, with 0.25 inch (6.35 mm) mesh above, and 0.0469 inch (1.18mm) mesh below. The samples were then dried, bagged according to sieve size, and labeled with detailed provenience information. Finally, each sample was closely examined under magnification for microflakes, other cultural materials, microbotanical contents, and charcoal.

For cores that were identified as containing a relatively intact paleosol, comprising a nearly intact stratigraphic sequence (i.e. O/A/B/ horizons) of soil horizons, samples were collected from stratigraphic units in sections of variable thickness depending on the thickness of strata. When possible, numerous subsamples were collected from strata for better vertical resolution for potential cultural material context. These samples were then weighed, recorded, and subjected to a standard flotation method involving a chesse-cloth bag for retention of a floating light fraction, and a 1mm mesh screen for capturing the remaining heavy fraction of the sediment. The samples were then dried, light and heavy fractions bagged separately, and labeled with detailed provenience information. Finally, each sample was closely examined under magnification for microflakes, other cultural materials, microbotanical contents, and charcoal.

Processing of samples for radiocarbon dating involved a detailed analysis of stratigraphic context, and involved careful selection of material to be submitted for dating. Care was taken that the sample did not come into contact with skin, clothing, or other potential contaminant. Samples were bagged in a thick, archival-quality sealable bag and labeled with detailed provenience information. The samples were then carefully packed and prepared for shipment, then sent via FedEx to Beta Analytic for radiocarbon analysis.

Sediment samples from analyzed vibracores, including flotation-derived organic materials, are currently housed at JMA's West Chester, Pennsylvania Office in archival quality sealed bags with detailed provenience information, and are kept in an archival quality box with relevant project documents.

4.0 RESULTS

4.1 SEISMIC REFLECTION PROFILING DATABASE

JMA personnel met with Allen Gontz at his office at the University of Massachusetts, Boston Campus on September 16, 2010 to review seismic reflection profiles. Gontz provided a computer workstation and appropriate software for viewing and analyzing the seismic data in a georectified, post-processed state. The seismic data were of high quality, sufficient to resolve stratification in Holocene marine sediments and to differentiate an acoustic basement of glacial outwash and till. A total of 69 seismic lines were collected on September 13, 2010 within the Project Area. Of the total, 64 seismic lines were collected perpendicular to the existing bulkhead and the general trend of the shoreline, while 5 seismic lines were collected parallel to the existing bulkhead and shoreline to tie the perpendicular lines together. Every attempt was made to conform to the scoped line spacing, though the scatter of buoys, moorings, and anchored sailboats made tight line spacing and perfectly straight lines difficult to accomplish. Despite obstructions, excellent coverage was achieved within and slightly beyond the project area (Figure 4).

The interpretation of acoustic stratigraphy was based on Leach's experience in analyzing seismic reflection profiles for submerged prehistoric archeological potential in glaciated settings (Leach, 2007; Leach 2008; Leach and Belknap, 2006). Acoustic reflectors were interpreted based on reflection intensity and geometry, and the character of internal reflectors (Shipp, 1989; Shipp et al., 1989; Hannum, 1997). Descriptions of reflectors follow a wealth of prior inner-shelf research in New England (i.e., Belknap et al., 1986, 1987, 1994; Shipp, 1989; Shipp et al., 1989; Davies, 1992; Kelley et al., 1999; Hannum, 1997).

In the northern portion of the Project Area, the majority of the area of potential effect was previously dredged, as can be clearly seen in the bathymetric data provided by Apex Companies, LLC (Figure 4). Within the limits of the previously dredged channel, and directly adjacent to the bulkhead where fishing vessels are moored, the seismic data show a deep dredge cut that steeply rises from the deepest section to the modern seafloor (Seismic Line 14-1349, Figure 5). The seismic data reveal a veneer of Holocene marine sediments perched above the dredge cut over a seemingly coarse-grained sediment that is likely coarse glacial outwash or till.

In the central portion of the Project Area, south of the previously dredged channel, the seismic data reveal a thick sequence of Holocene marine sediments over apparently fine-grained glacial outwash, which is in turn underlain by coarse material, likely coarse glacial outwash or till (Seismic Line 39-1230, Figure 6; Figure 7a). Seismic lines within the subtidal portion of the bulkhead extension reveal a shallowly buried ridge of glacial sediment that is capped by a thin layer of Holocene marine sediment (Figure 7B; Figure 7C). In the southern portion of the Project Area in the vicinity of the proposed turning basin, a few of the seismic profiles were interpreted as containing the potential for submerged, intact upland landforms as evidenced by acoustic reflectors between the interpreted Holocene marine sediments and acoustic basement comprising glacial outwash and till (Seismic Line 60-1114; Figure 8). The seismic data in this area also indicate the presence of a potential paleochannel. Just north of Seismic Line 60-1114 the stratigraphy rapidly changes to reveal no acoustic reflectors consistent with buried landscapes (Seismic Line 59-1120; Figure 9).

Initial analysis and interpretation of the seismic data indicated that the northern and central portions of the Project Area exhibited low submerged prehistoric potential. However, the seismic data from the southern portion of the Project Area revealed a higher potential for sites in the form of anomalous acoustic reflectors between Holocene marine and Pleistocene glacial sediments (Seismic Line 60-1114; Figure 8).

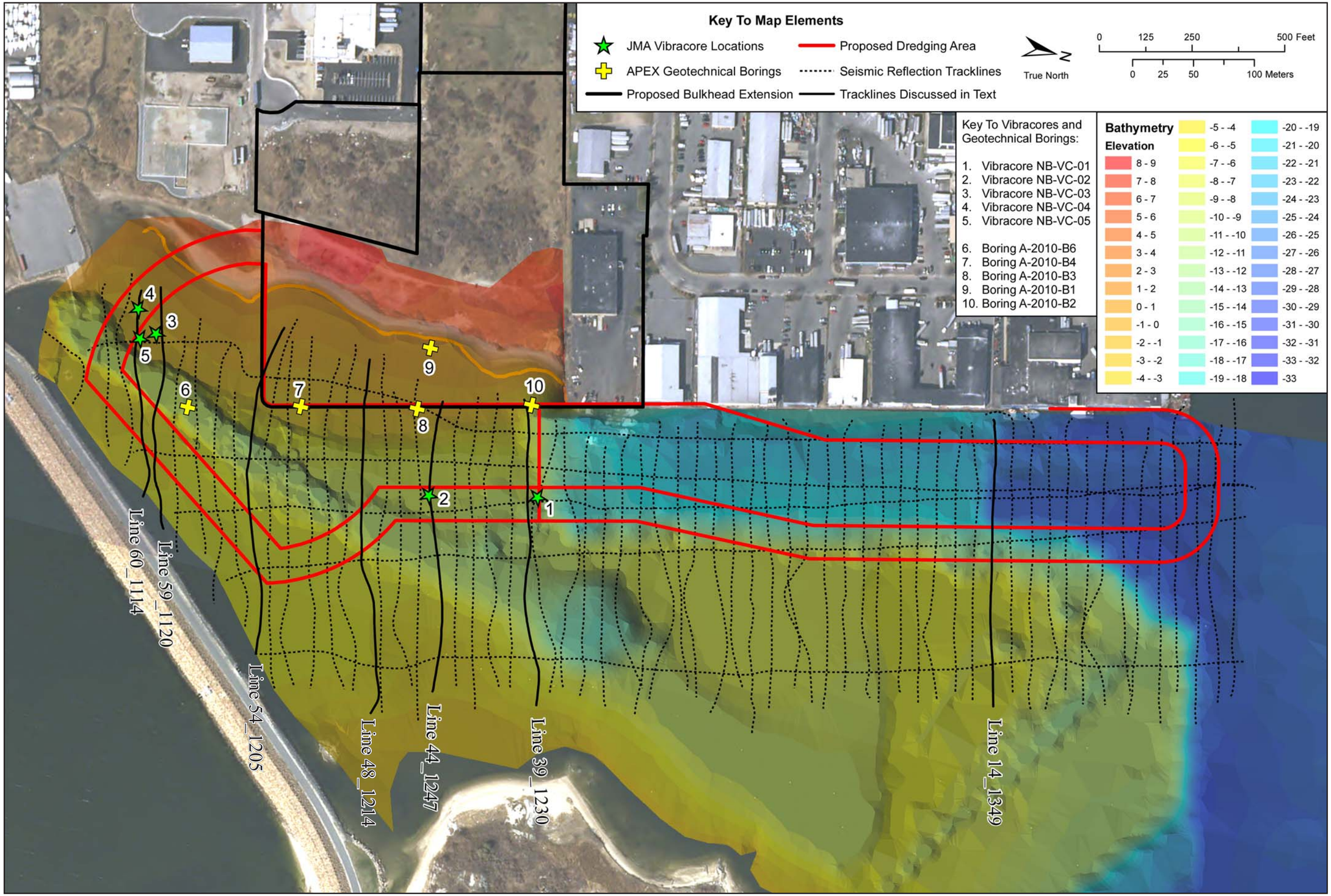

Figure 4. Map of South Terminal Marine Infrastructure Park Project Areas, depicting locations of JMA's Vibracore Sampling Locations, APEX Companies, LLC Geotechnical Boring Locations Cited in Text, and Seismic Reflection Profile Tracklines. Bathymetric Data Provided by Apex Companies, LLC.

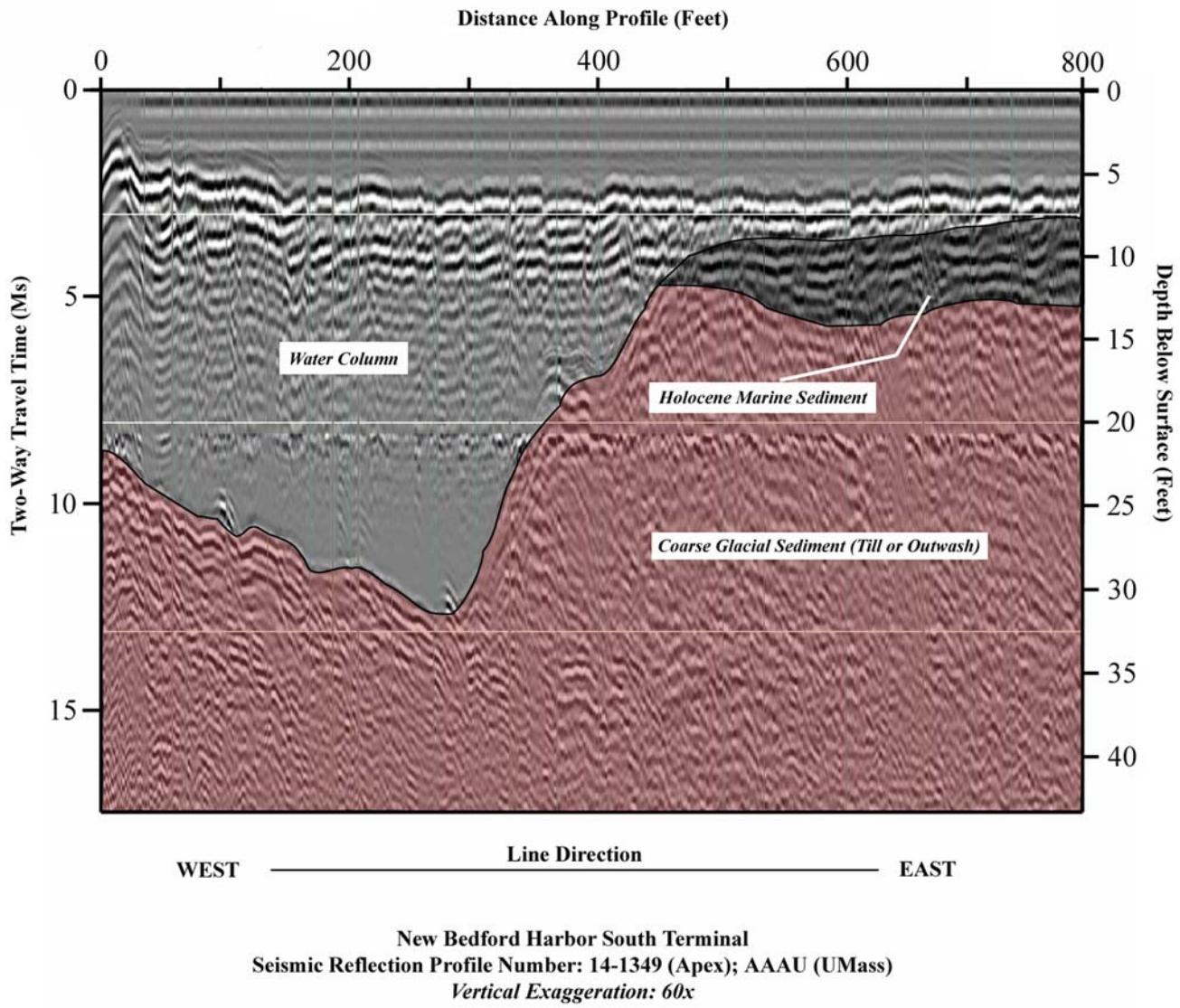

Figure 5. Raw Seismic Reflection Profile Line 14-1349 (Apex), AAAU (UMass), overlain with an Interpretation of Acoustic Stratigraphy.

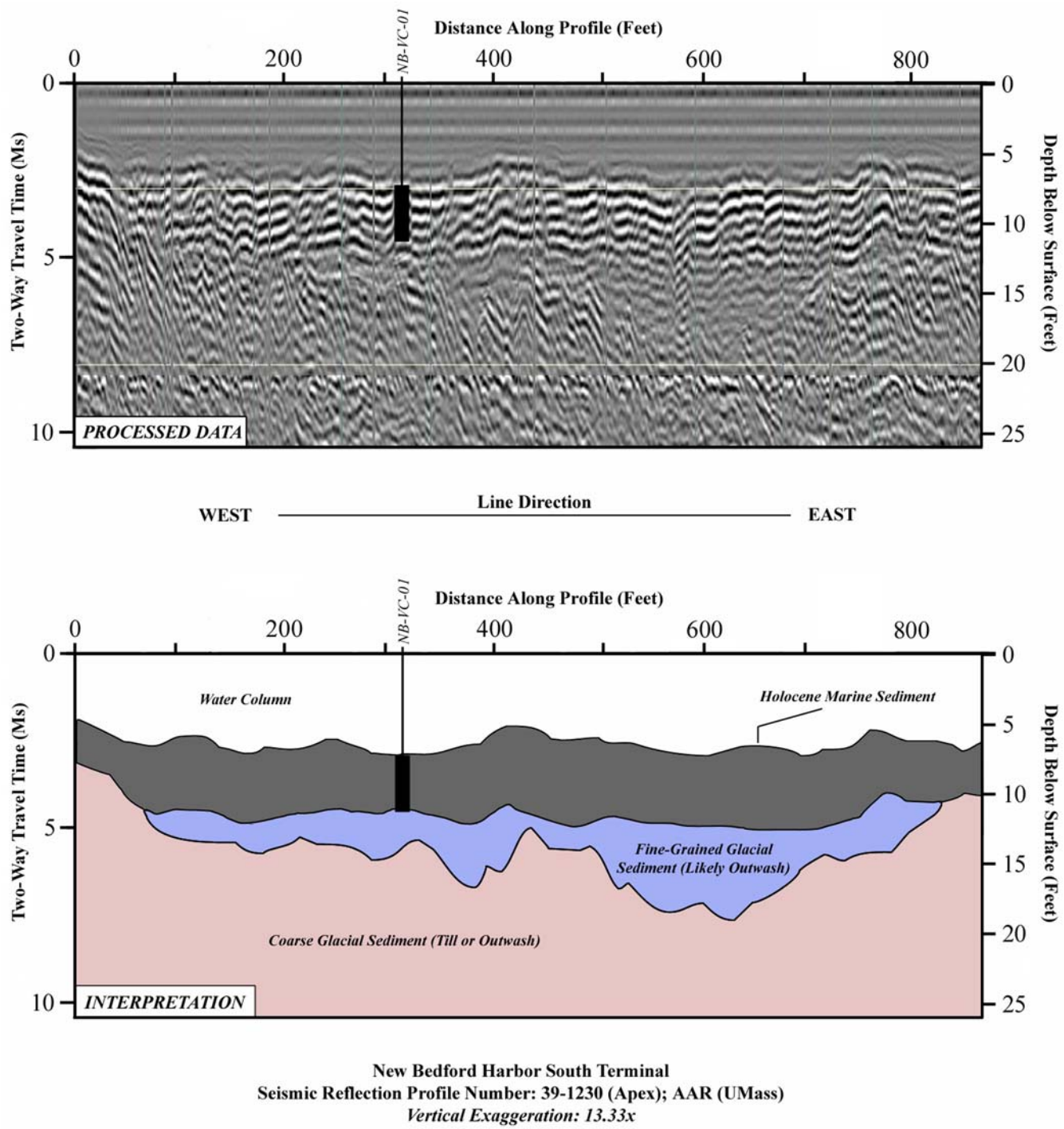

Figure 6. Raw and Interpreted Seismic Reflection Profile Line 39-1230 (Apex), AAR (UMass), and Location of Vibracore NB-VC-01.

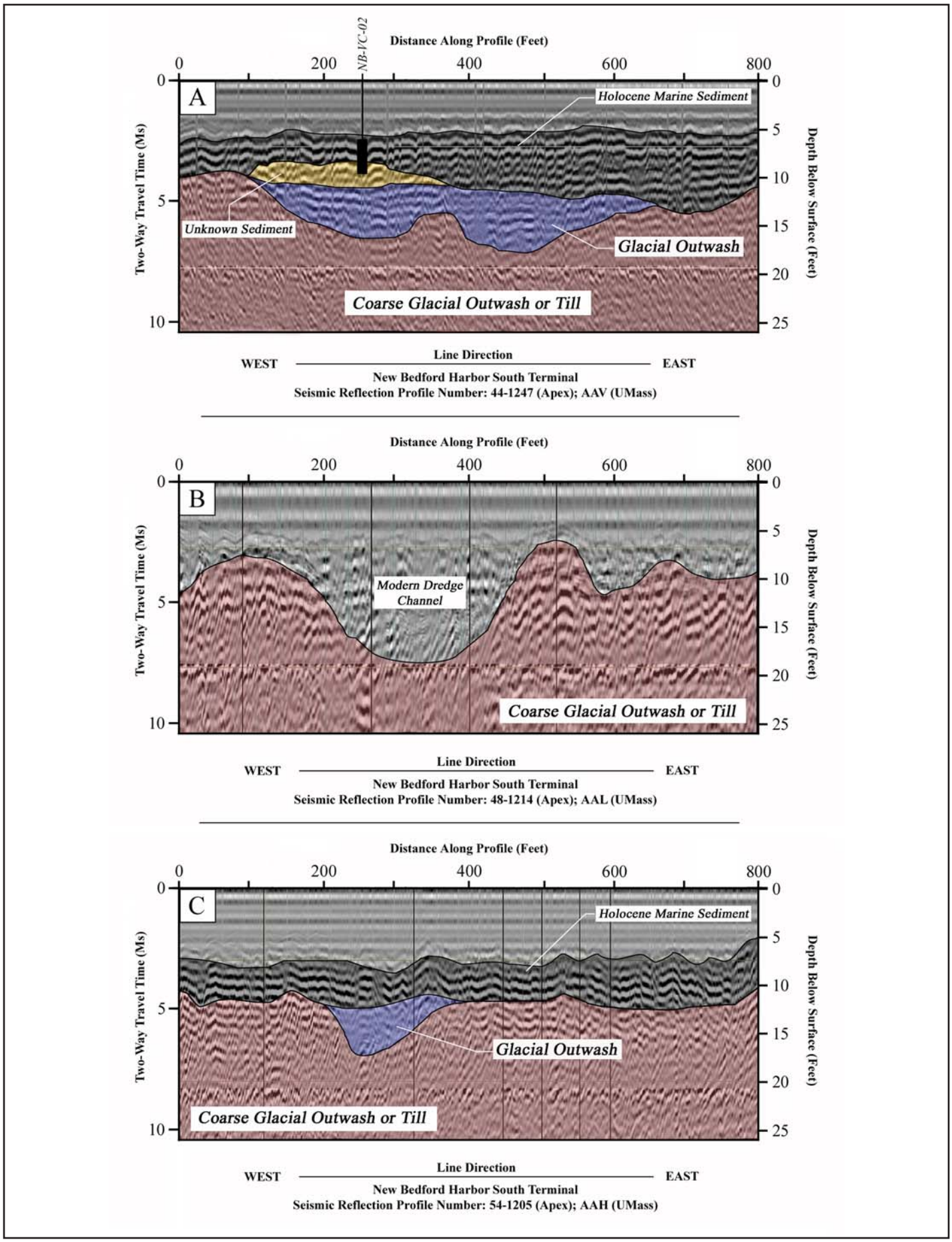

Figure 7. Seismic Reflection Profiles Overlain with an Interpretation of Acoustic Stratigraphy. A) Raw Seismic Reflection Profile Line 44-1247 (Apex), AAV (UMass), and the Location of Vibracore NB-VC-02; B) Seismic Reflection Profile Line 48-1214 (Apex), AAL (UMass); C) Seismic Reflection Profile Line 54-1205 (Apex), AAH (UMass).

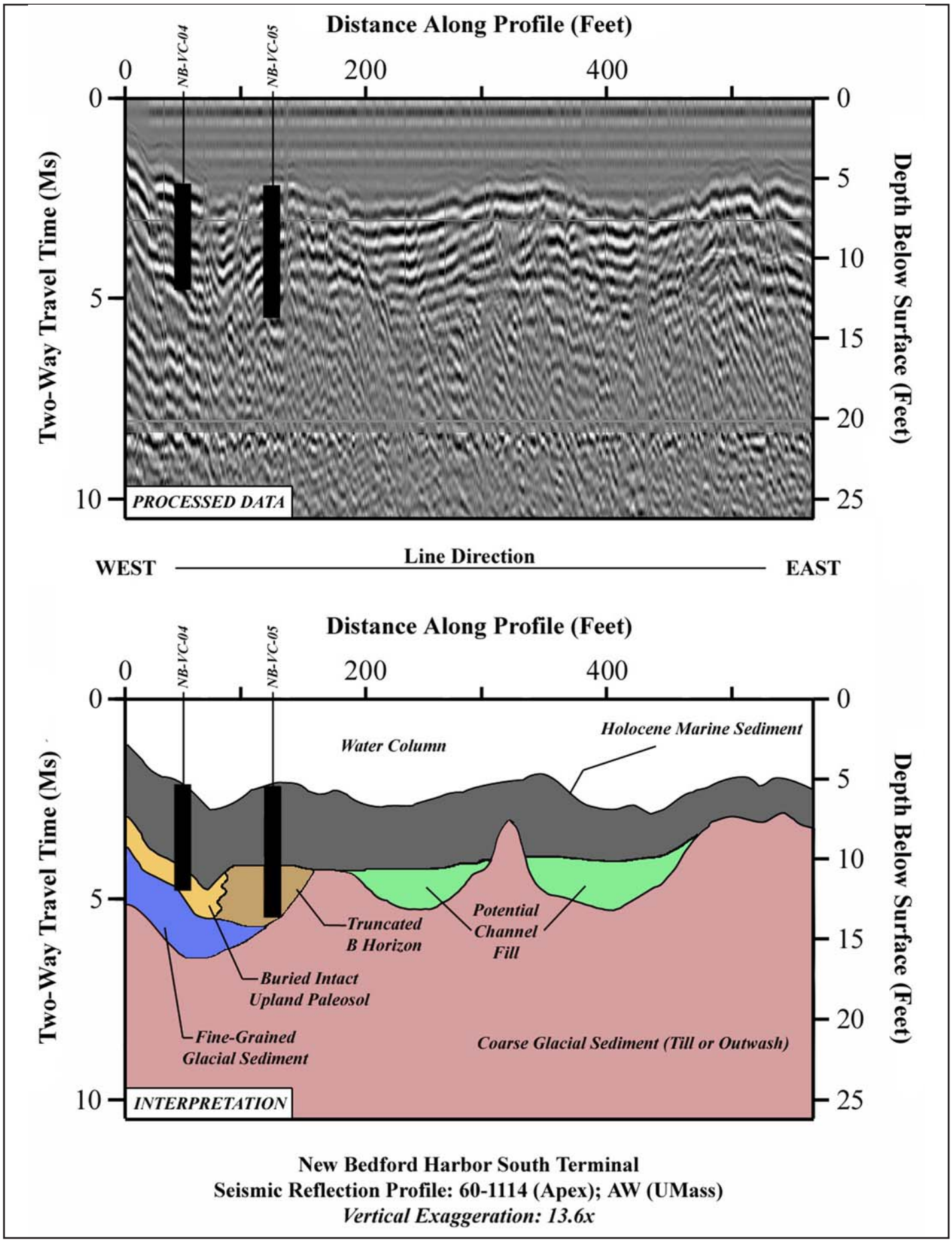

Figure 8. Raw and Interpreted Seismic Reflection Profile Line 60-1114 (Apex), AW (UMass), and Location of Vibracores NB-VC-04 and NB-VC-05.

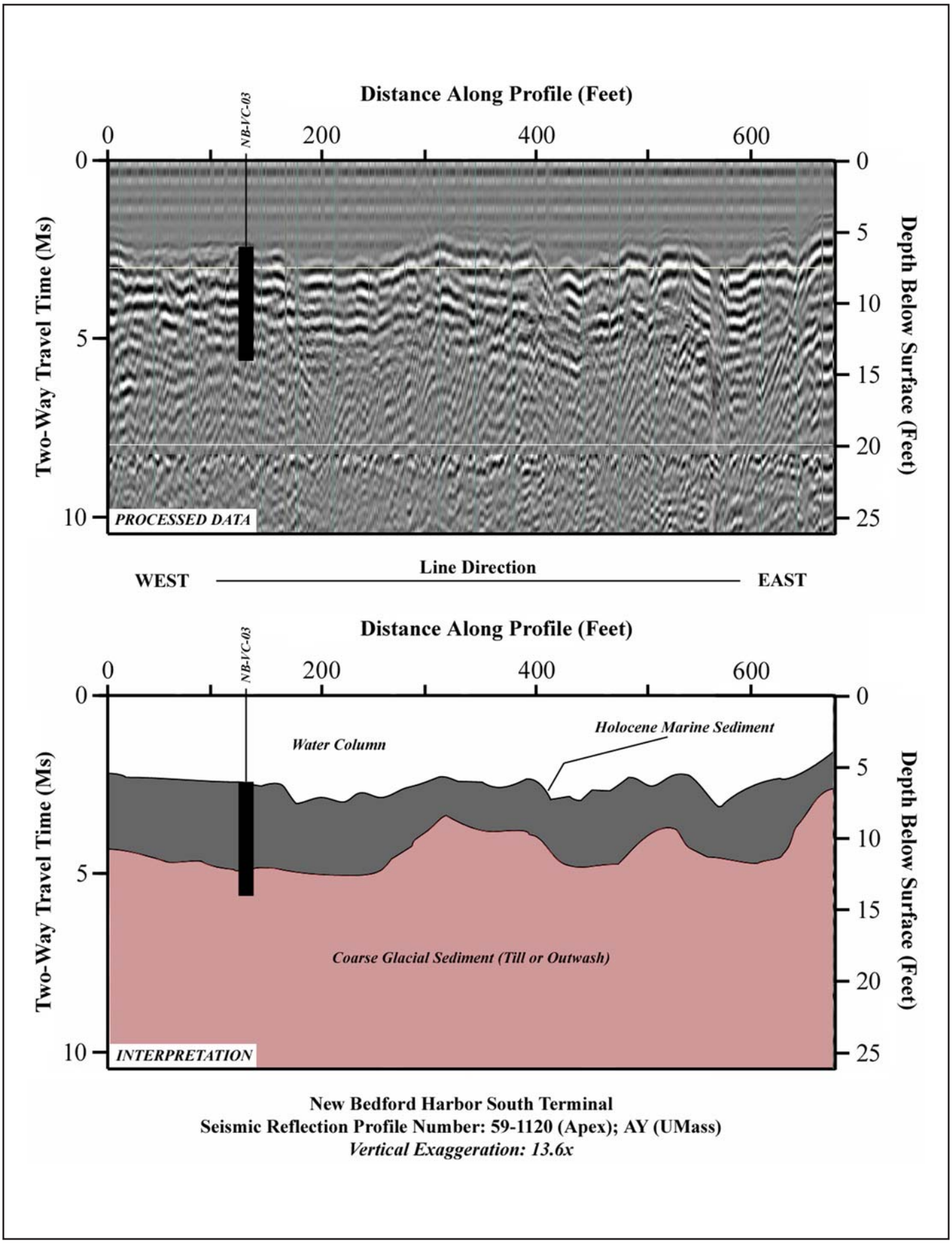

Figure 9. Raw and Interpreted Seismic Reflection Profile Line 59-1120 (Apex), AY (UMass), and Location of Vibracore NB-VC-02.

4.2 VIBRACORING DATABASE (SEE APPENDIX I FOR DETAILED VIBRACORING LOGS)

Analysis of the seismic reflection database of 69 individual lines resulted in selection of five vibracore targets to "ground-truth" the seismic profiles in an effort to fine-tune interpretations of acoustic stratigraphy and to assess the potential for submerged prehistoric sites and preserved upland paleosols with archeological potential. Seismic stratigraphy from the northern portion of the Project Area was quite clear and easily interpreted as comprising a deep dredge channel flanked by Holocene marine sediments draped over glacial deposits, and as such no vibracores were deemed necessary in this area. Two vibracore targets were selected in the central portion of the project area to ground-truth geologic strata and aid in refining the acoustic stratigraphy. The remaining three vibracore targets were located in the south and southwestern portions of the proposed turning basin and were selected to ground-truth acoustic reflectors with archeological and preserved upland landscape potential. JMA and Apex Companies, LLC personnel began extraction of the five vibracores on September 22, 2010, and completed the fieldwork on September 24, 2010.

4.2.1 Vibracore NB-VC-01

Vibracore NB-VC-01 was extracted 260 feet east (94 degrees from true north) off the existing bulkhead's southeastern corner, 30 feet east of the bottom slope limit of the proposed dredge channel extension (Figure 4). The location of the vibracore was selected to ground-truth acoustic reflectors approximately 315 feet from the start of Seismic Line 39-1230 (Figure 6). A total of 3.8 feet of continuous sediment was extracted. The core stratigraphy comprised 3.1 feet of gleyed silty sands overlying 0.7 feet of gray coarse sand. The upper 3.1 feet of the core stratigraphy are interpreted as Holocene marine sediments, supported by shell fragments and growth position bivalves. The lower 0.7 feet of the core stratigraphy are interpreted as glacial outwash, though the deposit could represent coarse intertidal or beach sediments. Core refusal was most likely due to coarse clasts below 0.7 feet, such as cobbles or more likely a shallow till deposit. A second coring attempt at the same location, intended to achieve greater subsurface penetration, met with almost immediate refusal and less than one foot of penetration.

Correlation of Vibracore NB-VC-01 with Seismic Line 39-1230 revealed that the stratified, topmost acoustic unit comprised Holocene marine sediments. The core sampled only a small portion of the sediment below the marine units, though it is clear based on the seismic data that the stratum below is not as well stratified but is relatively fine-grained in nature. The acoustic basement contains numerous hyperbolic reflectors, indicative of points source objects such as cobbles and boulders, and is likely either till or shallowly buried bedrock.

Visual inspection of the core revealed no cultural materials or evidence of submerged upland landscapes.

4.2.2 Vibracore NB-VC-02

Vibracore NB-VC-02 was extracted 445 feet southeast (132 degrees from true north) of the existing bulkhead's southeastern corner, 23 feet east of the bottom slope limit of the proposed dredge channel extension (Figure 4). The location of the vibracore was selected to ground-truth acoustic reflectors approximately 260 feet from the start of Seismic Line 44-1247 (Figure 7a). A total of 3.3 feet of continuous sediment was extracted. The core stratigraphy comprised 1.9 feet of gleyed silts and silty sands, overlying 0.1 feet of silty sand capping 1.3 feet of oxidized, dark reddish brown medium to coarse sand. The oxidized sands in the bottom 1.3 feet of the core were interrupted by numerous gray coarse

sand lenses exhibiting no oxidation. The upper 1.9 feet of the core stratigraphy are interpreted as Holocene marine sediments, supported by prevalent marine bivalve shell fragments. The lower 1.4 feet of the core stratigraphy are more difficult to interpret. The oxidized nature of the sediments would indicate former subaerial weathering, yet the sediment contains layers of non-oxidized sediment of potentially marine origin. Recent research on storm sewage runoff in New Bedford Harbor suggests that the oxidized sand at the base of the core may be a direct result of bacterial and organic oxidation processes related to sewage runoff (Voyer et al., 2000). The source of core refusal is unknown, given the unidentifiable nature of the sediment in the bottom half of the core.

Correlation of Vibracore NB-VC-02 with Seismic Line 44-1247 revealed that the stratified, topmost acoustic unit comprised Holocene marine sediments. The core sampled a sediment type of unknown origin below the marine units, which appears as a weakly stratified acoustic unit in the seismic data. The acoustic basement appears to contain numerous hyperbolic reflectors, indicative of points source objects such as cobbles and boulders, and is likely till.

Visual inspection of the core revealed no cultural materials or evidence of submerged upland landscapes.

4.2.3 Vibracore NB-VC-03

Vibracore NB-VC-03 was extracted 285 feet northeast (34 degrees from true north) from the north corner of the Gifford Street boat launch parking lot, approximately 43 feet northeast of the bottom slope limit of the southern end of the proposed turning basin (Figure 4). The location of the vibracore was selected to ground-truth the stratified internal reflectors in the acoustic units below the Holocene marine sediment. The core was extracted approximately 130 feet from the western end of Seismic Line 59-1120 (Figure 9). A total of 8 feet of continuous sediment was extracted. The core stratigraphy comprised 2.5 feet of very dark greenish grey silts, overlying 3.5 feet of silty sands which in turn unconformably overlay 2.0 feet of dark gray, coarse, gravelly and pebbly sand. The lower two feet of the core contained a high concentration of sub-angular to rounded medium to large pebbles, and it is surprising that the vibracore was able to penetrate this deposit. The top 6.0 feet of the core are interpreted as Holocene marine sediments, an interpretation supported by growth position and fragmented marine bivalves, while the lower two feet are interpreted as coarse beach deposits or glacial outwash. Core refusal was likely on large pebbles or cobbles.

The core was extracted close to the modern shoreline in approximately 2.3 feet of water, suggesting that this location must have been subaerially exposed within the last few thousand years at a lower sea-level stand. However, the bottom 2.0 feet of the core exhibited no oxidation, implying that the deposit was either not recently subaerially weathered or represents the lower, unweathered strata of a severely truncated soil profile. The latter scenario is the most likely, since the deposit is very coarse in nature and non-oxidized.

Correlation of Vibracore NB-VC-03 with Seismic Line 59-1120 revealed that the stratified, topmost acoustic unit comprised Holocene marine sediments. The stratigraphic boundary at the silt/ silty sand interface is clearly visible as a high amplitude reflector, while the gravels and pebbles at bottom of the core correspond with what appears to be a relatively poorly stratified acoustic unit with chaotic internal reflectors. The acoustic basement appears to be comprised of shallowly buried, coarse glacial sediments.

Visual inspection of the core revealed no cultural materials or evidence of submerged upland landscapes. However, JMA felt it prudent to sieve the bottom two feet of sediment. Stratigraphic sediment samples from Vibracore NB-VC-03 were screened through two nested sieves, which resulted in

separation of samples into 0.25 inch (6.35 mm) and 0.0469 inch (1.18 mm) fractions. The results of the sieving analysis are summarized in Table 2.

The analysis of sieved samples from Vibracore NB-VC-03 did not result in the identification of cultural materials. Each sieved sample is archived at JMA's West Chester, Pennsylvania office, along with relevant documents.

Table 2. Results of Sieving Analysis of Vibracore NB-VC-03

Sample Depth Below Top of Core (ft)	*Interpreted Stratigraphic Context*	*Comments*	*0.25" (6.35 mm) Sieved Weight*	*0.0469" (1.18 mm) Sieved Weight*	*Visual Inspection*	*Cultural Materials*
5.0 - 5.4	Marine Sediment	------	142	124.9	yes	no
5.4 - 5.8	Marine Sediment	------	166	118.2	yes	no
6.0 - 6.4	Coarse Beach/Outwash	High Energy Setting	237.6	63.2	yes	no
6.4 - 6.8	Coarse Beach/Outwash	High Energy Setting	218.5	97.4	yes	no
6.8 - 7.2	Coarse Beach/Outwash	High Energy Setting	336.9	82.2	yes	no
7.2 - 7.4	Coarse Beach/Outwash	High Energy Setting	98.9	48.6	yes	no
7.4 - 7.7	Coarse Beach/Outwash	High Energy Setting	155	92.5	yes	no
7.7 - 8.0	Coarse Beach/Outwash	High Energy Setting	162.5	97.5	yes	no

4.2.4 Vibracore NB-VC-04

Vibracore NB-VC-04 was extracted 200 feet northeast (31 degrees from true north) from the north corner of the Gifford Street boat launch parking lot, approximately 55 feet northeast of the top slope limit of the southern end of the proposed turning basin (Figure 4). The location of the vibracore was selected to ground-truth anomalous acoustic reflectors between the Holocene marine and Pleistocene glacial sediment, which in previous studies have been an indicator of a buried, submerged paleosol (Leach, 2007). Additionally, the target location appeared to be situated adjacent to a possible filled paleochannel of unknown age. The core was extracted approximately 50 feet from the start of Seismic Line 60-1114 (Figure 8).

A total of 5.9 feet of continuous sediment was extracted. The core stratigraphy comprised 2.6 feet of greenish black silts overlying 1.7 feet of very dark greenish gray silty sands, which in turn overlay 1.6 feet of a very well preserved upland paleosol. The paleosol comprises a very dark gray, very fine sandy silt, organic-rich O/A horizon between 4.3 to 4.5 feet, with an abrupt transition into a dark grayish brown, silty sand B horizon between 4.5 and 5.1 feet, which in turn appears to transition into a gray, slightly silty B/C horizon between 5.1 feet and the bottom of the core at 5.9 feet. The upper 4.3 feet of the core stratigraphy are interpreted as Holocene marine sediments that seem to have only slightly truncated the upper portion of the paleosol O/A horizon. The parent material for the paleosol is not immediately apparent, though judging by the fine-grained nature of the sediment the paleosol is likely weathered into relatively fine glacial outwash. The cause of core refusal is unknown.

A radiocarbon sample was collected from the O/A horizon of the paleosol between 4.3 and 4.5 feet from the top of the core (NB-VC-04-RC1), tidally corrected to 7 feet (2.13m) below MLW and 11 feet (3.35m) below MHW. The sample was submitted to Beta Analytic as a bulk sediment sample for radiocarbon dating, as JMA deemed it prudent not to destroy the majority of the O/A horizon trying to isolate a charcoal or plant material sample. Beta Analytic identified plant material in the bulk sediment sample and contacted JMA regarding the best method for proceeding with the analysis. Beta Analytic suggested that

the plant material would provide the most accurate radiocarbon date if the material was interpreted as being *in situ*. JMA concluded that the plant material was *in situ*, and instructed Beta Analytic to proceed with the radiocarbon analysis. The plant material was radiocarbon dated by Beta Analytic to 2680 +/- 40 BP (Beta-285531). The two sigma calibration range was Cal BC 900 to 790 (Cal BP 2850 to 2740). See Appendix III for detailed results of the radiocarbon analysis. Compared with the sea-level curve for southeastern Massachusetts (Uchupi et al., 1996), a maximum depth of 11 feet (3.35m) below high water at 2680 +/- 40 BP matches quite well. These data imply that sea level was at least 11 feet (3.35m) below its current level at 2680 +/- 40 BP.

Correlation of Vibracore NB-VC-04 with Seismic Line 60-1114 revealed that the stratified, topmost acoustic unit comprised Holocene marine sediments. The paleosol seems to correspond with a thick, high amplitude reflector capped by marine sediment and overlying an acoustic unit with minimal stratification. The acoustic basement, which was not reached by the core, appears to be consistent with coarse glacial deposits, i.e. till.

Visual inspection of the core revealed no cultural materials, though strong evidence of a buried and submerged, intact paleosol was present. Stratigraphic sediment samples from Vibracore NB-VC-04 were subjected to floatation sorting, which resulted in separation of samples into light (floated organics) and heavy fractions (> 1.0mm). The results of the flotation analysis are summarized in Table 3.

The analysis of floatation samples from Vibracore NB-VC-04 did not result in the identification of cultural materials. A sizable piece of charcoal, numerous seeds, and other plant remains were recovered, though an intensive paleobotanical analysis was not plausible in the light of time and budgetary constraints. Both the light and heavy fractions from each sample are archived at JMA's West Chester, Pennsylvania office, along with relevant documents.

Table 3. Results of Floatation Analysis of Vibracore NB-VC-04

Sample Depth Below Top of Core (ft)	*Interpreted Stratigraphic Context*	*Initial Sample Weight (grams)*	*Flotation Light Fraction Weight*	*Flotation Heavy Fraction Weight*	*Visual Inspection*	*Cultural Materials*
4.0 - 4.35	Marine Sediment	571.1	0.1	111	yes	no
4.35 - 4.6	Interpreted Paleosol O/A Hzn	343.1	0.1	62	yes	no
4.6 - 4.9	Interpreted Paleosol B Hzn	612	0.1	148.8	yes	no
4.9 - 5.3	Interpreted Paleosol B Hzn	714.8	0.1	192.1	yes	no
5.3 - 5.7	Interpreted Paleosol B/C Hzn	675.2	0.1	139.5	yes	no
5.7 - 6.0	Interpreted Paleosol B/C Hzn	------	0.1	88.5	yes	no

4.2.5 Vibracore NB-VC-05

Vibracore NB-VC-05 was extracted 264 feet northeast (43 degrees from true north) from the north corner of the Gifford Street boat launch parking lot, approximately 14 feet northeast of the bottom slope limit of the southern end of the proposed turning basin (Figure 4). The location of the vibracore was selected to ground-truth anomalous acoustic reflectors between the Holocene marine and Pleistocene glacial sediment, which in previous studies have been an indicator of a buried, submerged paleosol (Leach, 2007). Additionally, the target location appeared to be situated adjacent to a possible filled paleochannel of unknown age. The core was extracted approximately 120 feet from the start of Seismic Line 60-1114 (Figure 8).

A total of 8.0 feet of continuous sediment was extracted. The core stratigraphy comprised 2.6 feet of black silts overlying 2.7 feet of black to very dark greenish gray silty sands, which in turn overlay 2.7 feet of a buried, submerged and clearly truncated B horizon. The truncated B horizon comprises a dark brown, gravelly silty sand between 5.3 and 8.0 feet. The upper 5.3 feet of the core stratigraphy are interpreted as Holocene marine sediments that that overlie a transgressive marine unconformity serving to truncate the upper portion of the B horizon. *Mercenaria* valves 0.2 feet above the top of the B horizon sediment support this interpretation. The parent material for the B horizon is not immediately apparent, though judging by the somewhat coarse-grained nature of the sediment the B horizon is likely weathered into glacial outwash. The cause of core refusal is unknown.

Correlation of Vibracore NB-VC-04 with Seismic Line 60-1114 revealed that the stratified, topmost acoustic unit comprised a thick sequence of Holocene marine sediments. The truncated B horizon seems to correspond with a series of three stacked, mdium amplitude reflectors capped by marine sediment and overlying a chaotic acoustic unit. The acoustic basement, which was nearly reached by the core, appears to be consistent with coarse glacial deposits, i.e. till or outwash.

Visual inspection of the core revealed no cultural materials, though strong evidence of a buried, submerged and clearly truncated B horizon was present. Stratigraphic sediment samples from Vibracore NB-VC-05 were screened through two nested sieves, which resulted in separation of samples into 0.25 inch (6.35 mm) and 0.0469 inch (1.18 mm) fractions. The results of the sieving analysis are summarized in Table 4.

The analysis of sieved samples from Vibracore NB-VC-05 did not result in the identification of cultural materials. Each sieved sample is archived at JMA's West Chester, Pennsylvania office, along with relevant documents.

Table 4. Results of Sieving Analysis of Vibracore NB-VC-05

Sample Depth Below Top of Core (ft)	*Interpreted Stratigraphic Context*	*Comments*	*0.25" (6.35 mm) Sieved Weight*	*0.0469" (1.18 mm) Sieved Weight*	*Visual Inspection*	*Cultural Materials*
4.9 - 5.3	Marine Sediment	------	48.5	41.3	yes	no
5.3 - 5.6	Truncated Interpreted B Hzn	Likely Former Upland Sed	101.4	70.9	yes	no
5.6 - 6.0	Truncated Interpreted B Hzn	Likely Former Upland Sed	93.2	118.5	yes	no
6.0 - 6.3	Truncated Interpreted B Hzn	Likely Former Upland Sed	43.5	81.3	yes	no
6.3 - 6.6	Truncated Interpreted B Hzn	Likely Former Upland Sed	27.6	91.6	yes	no
6.6 - 6.9	Truncated Interpreted B Hzn	Likely Former Upland Sed	37.5	66.1	yes	no
6.9 - 7.2	Truncated Interpreted B Hzn	Likely Former Upland Sed	28.3	56.1	yes	no
7.2 - 7.6	Truncated Interpreted B/C Hzn	Likely Former Upland Sed	32.2	78.5	yes	no
7.6 - 8.0	Truncated Interpreted B/C Hzn	Likely Former Upland Sed	43.2	100.9	yes	no

4.3 DRAFT GEOTECHNICAL BORING LOG DATABASE (SEE APPENDIX II FOR DETAILED BORING LOGS)

Apex Companies, LLC provided to JMA five draft boring logs from geotechnical borings extracted within the South Terminal Marine Infrastructure Park Project Area. The locations of the geotechnical borings are depicted on Figure 4. As the geotechnical boring logs were presented to JMA as ***draft*** documents, they do not constitute a legally-binding, absolute assessment of the subsurface sediment and rock properties in the Project Area. Furthermore, the interpretation of the draft geotechnical boring logs by JMA does not constitute a legally-binding, absolute assessment of subsurface sediment and rock properties. JMA personnel are not trained in geotechnical engineering and cannot be held responsible for misinterpretation of geotechnical field results. The interpretation of the field results are merely utilized as an additional dataset for JMA's review to aid in the assessment of submerged prehistoric archeological site potential in locations not directly surveyed by JMA.

4.3.1 Draft Geotechnical Boring Log for Boring A-2010-B1

Boring A-2010-B1 revealed a rather shallow Holocene stratigraphic sequence comprising approximately 4 feet of Holocene marine sediment over till. The close proximity of this boring to the modern intertidal zone suggests that either a thin soil profile was initially developed on top of the shallowly buried till, and has since been eroded away, or that a significant amount of shoreface incision has occurred in this area, sufficient to remove accumulated Holocene weathered soils. The latter scenario is the most logical interpretation given the shallow burial of the till and the lack of oxidation. However, the bathymetric data supplied by Apex Companies and the water depth given for the boring location do not match. The boring log indicates that the core was extracted at a depth of -23.15 feet below the mudline, while the stated location of the core would place it in roughly one foot of water. The data for Geotechnical Boring A-2010-B1 are considered inaccurate for the purposes of the current assessment of submerged prehistoric site potential.

4.3.2 Draft Geotechnical Boring Log for Boring A-2010-B2

Boring A-2010-B2 revealed a thick sequence (16 feet) of marine sands near the existing bulkhead. The depth of the deposits, coupled with their relatively fine texture, could indicate fine to coarse grained filling of paleotopography such as a paleochannel. The sediment does not significantly change until a depth between 16 and 18 feet below surface, at which it becomes mottled. This boring suggests low archeological potential for this portion of the Project Area.

4.3.3 Draft Geotechnical Boring Log for Boring A-2010-B3

Boring A-2010-B3 revealed approximately 5 to 10 feet of Holocene marine and intertidal sediments over till. The sediment contained gravel of sufficient size to become lodged in the coring bit. The sediment between 5 to 10 feet could be weathered till, but is most likely an intertidal sand sheet unconformably overlying the coarser material.

4.3.4 Draft Geotechnical Boring Log for Boring A-2010-B4

Boring A-2010-B4 revealed up to 15 feet of marine sediment. This area appears to have deep sedimentation (22 feet) though the majority is marine in origin. Mottling and brown-colored sediment occur at 16 feet below surface. This boring likely represents another area of paleochannel filling. The boring may have been extracted from a channel sequence, which would explain the deep sediments,

stratification, and presence of some larger clasts. These sediments do not seem fine enough for a quiet floodplain setting, and are probably more indicative of a position close a channel. This boring suggests low archeological potential for this portion of the Project Area.

4.3.5 Draft Geotechnical Boring Log for Boring A-2010-B6

Boring A-2010-B6 revealed 10 feet of sandy marine sediments. Location of boring places it close to observed potential paleochannel in seismic data. The deep sedimentation would imply a filled depression of some kind. The boring log is incomplete after a recorded depth of 10 feet.

4.4 ASSESSMENT OF SUBMERGED PREHISTORIC ARCHEOLOGICAL SITE POTENTIAL

The geophysical, vibracoring, and geotechnical boring data represent a robust dataset for assessing the potential for submerged prehistoric archeological sites within the South Terminal Marine Infrastructure Park Project Area. Vibracores and geotechnical borings served to ground-truth the acoustic stratigraphy and allowed greater interpretive confidence for specific reflectors. In concert, the three datasets reveal that the majority of the South Terminal Marine Infrastructure Park exhibits low potential for submerged prehistoric archeological sites. In the northern portion of the Project Area an existing dredge channel was previously excavated to at least 20 feet, while the sediment above the dredge cut is composed of shallowly buried glacial sediment capped by Holocene marine sediment. In the central portion of the Project Area the seismic data, vibracores, and geotechnical borings indicate that the stratigraphy comprises shallowly buried glacial sediment overlain by marine sediment. Within the subtidal portion of the proposed bulkhead extension the seismic data reveal a ridge of shallowly buried glacial sediment capped by marine sediment. Based on these data, the northern and central portions of the subtidal Project Area have low potential for submerged prehistoric archeological resources.

The southern portion of the Project Area, near the south-southwestern end of the turning basin, contains an area with an intact upland paleosol, with truncated portions extending slightly to the east. While it is nonsensical to assert that all submerged, intact landscapes must contain an archeological site, submerged upland landscapes do have *higher* potential than other submarine environments simply because they represent a formerly available living surface. In some southern New England surveys, i.e. Lynch et al. (2010), cultural materials have been recovered from buried, submerged paleosols on the Massachusetts continental shelf. In the current Project Area cultural materials were not identified within the paleosol in Vibracore NB-VC-04 and the truncated B horizon in Vibracore NB-VC-05, despite thorough analysis of sieved and floated samples. JMA recognizes, however, that the area around the paleosol does in fact have moderate potential for containing cultural materials.

It is JMA's conclusion that the portion of the southern end of the proposed turning basin depicted in Figure 10 has moderate potential for submerged prehistoric sites. Should this area be impacted as planned, it is JMA's recommendation that a suitably trained archeologist be on board the dredging vessel to monitor ground-disturbing activities in the area designated on Figure 10. If possible, the sediments should be closely examined for color and texture characteristics consistent with a paleosol. Additionally, sediments exhibiting the characteristics of a paleosol should be screened to assess whether cultural materials are present. Should cultural materials be recovered from dredged sediments, the MHC and MBUAR should be contacted immediately to provide guidance on how best to proceed.

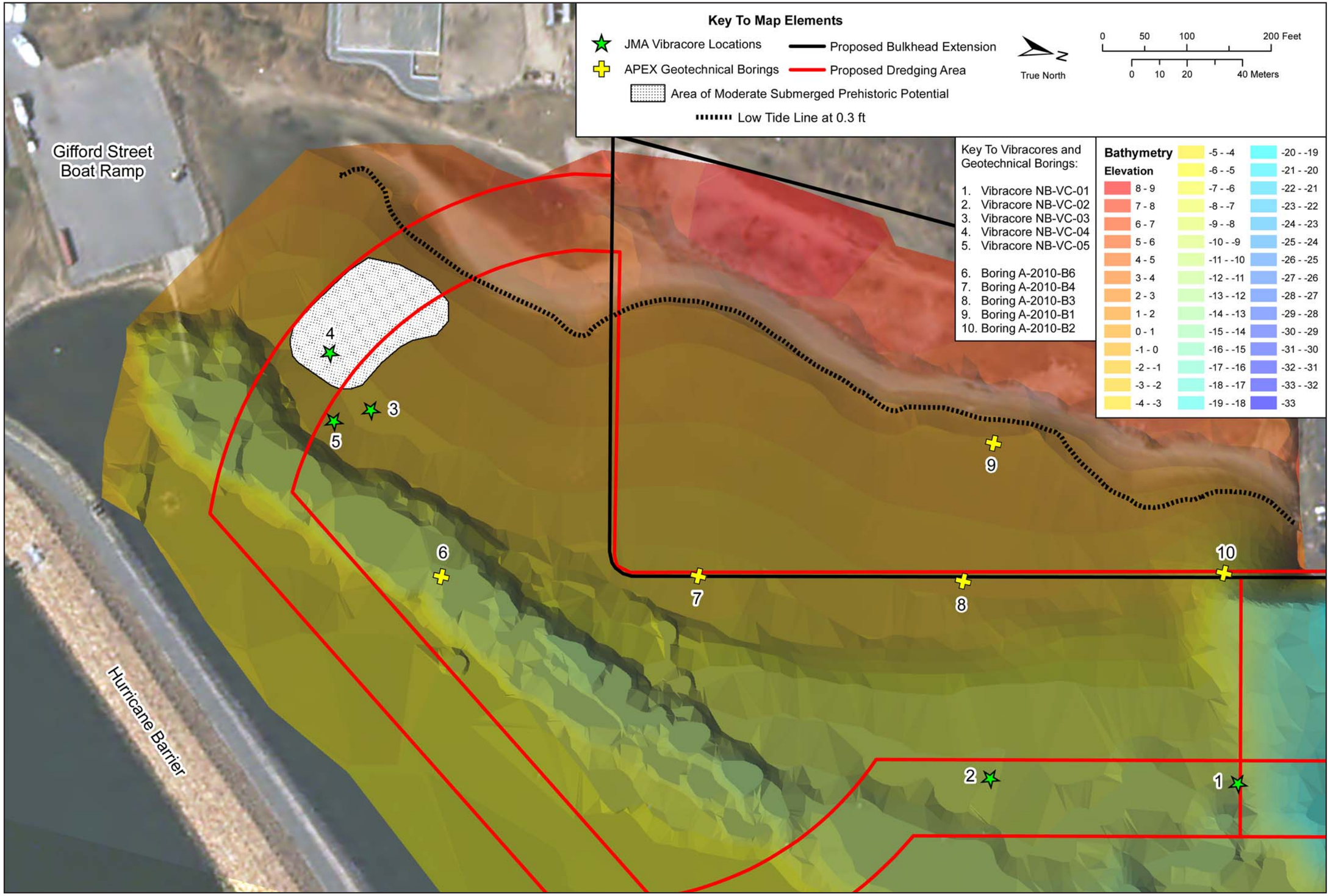

Figure 10. Map of South Terminal Marine Infrastructure Park Project Areas, Depicting Vibracore and Geotechnical Boring Locations, and the Subtidal Area Identified as Exhibiting Moderate Archeological Potential.

5.0 CONCLUSIONS AND RECOMMENDATIONS

JMA conducted a marine archeological investigation, comprising seismic reflection profiling and vibracoring, to assess the potential for submerged prehistoric archeological sites potentially affected by the proposed subtidal portions of the South Terminal Marine Infrastructure Park Project in New Bedford, Massachusetts. A total of 69 individual seismic profiles, collected on September 16, 2010 by Dr. Allen Gontz with assistance from JMA and Apex Companies, LLC personnel, were analyzed on September 18, 2010 and five vibracores targets were selected. JMA and Apex Companies, LLC personnel began extraction of the five vibracores on September 22, 2010, and completed the fieldwork on September 24, 2010. An analysis of seismic reflection profiles, vibracores, and geotechnical borings revealed that the northern and central portions of the subtidal Project Area have low potential for submerged prehistoric archeological resources. The southern portion of the subtidal Project Area, in the vicinity of the proposed turning basin, has slightly higher potential for submerged prehistoric cultural resources. Vibracore analysis and interpretation of sediments resulted in the identification of an intact, buried and submerged paleosol dating to 2680 +/- 40 BP in Vibracore NB-VC-04, and a truncated B horizon in Vibracore NB-VC-05. The paleosol is located in the south/southwestern portion of the proposed turning basin. Resultant sieving, floatation, and detailed analysis of resulting sorted sediments under magnification did not identify prehistoric cultural materials. In sum, no prehistoric cultural materials were identified in any of the five vibracores. However, the paleosol is well preserved, and represents a paleolandscape that would have been available for human use at a lower stand of sea-level. As such, it is JMA's opinion that the paleosol has moderate archeological potential.

It is JMA's conclusion that the portion of the southern end of the proposed turning basin depicted in Figure 10 has moderate potential for submerged prehistoric sites. Should this area be impacted as planned, it is JMA's recommendation that a suitably trained archeologist be on board the dredging vessel to monitor ground-disturbing activities in the area designated on Figure 10. If possible, the sediments should be closely examined for color and texture characteristics consistent with a paleosol. Additionally, sediments exhibiting the characteristics of a paleosol should be screened to assess whether cultural materials are present. Should cultural materials be recovered from dredged sediments, the MHC and MBUAR should be contacted immediately to provide guidance on how best to proceed.

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Appendix I:

Vibracoring Log Sheets

CORE # : NB-VC-01 **DATE COLLECTED:** 9-22-10 **PERSONNEL:** Leach, Bruno, Ray, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 10-01-10

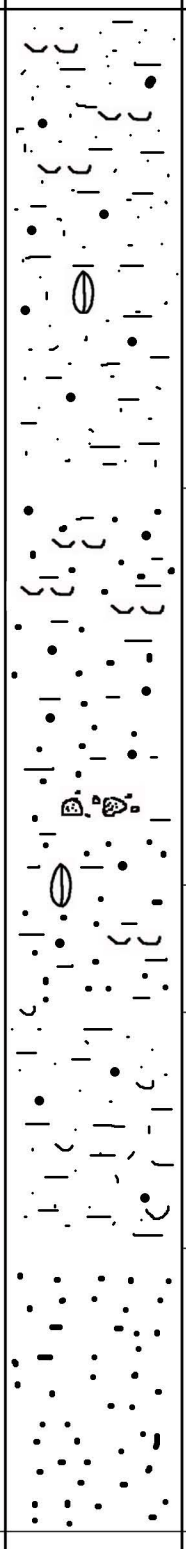
East: 816514.05 **North:** 2688538.27

Projection: MA State Plane Mainland UTM Feet

TIME: 2:10 PM **TIDE:** -0.2 ft

H20 Dpth: 8.25 ft **LENGTH** 3.8 ft

PNTR: 4.1 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
0 ft			Silty Medium to Fine Sand ~30 % Shell Fragments Few Small Pebbles Growth Pos. *Mya Arenaria* at 0.7 ft	Gley 1 2.5/N (Black)		Marine Sediment
1.0 ft			Silty Coarse to Medium Sand ~ 5 - 10 % Shell Fragments Some Whole Valves Few Small Pebbles Large Pebble at 2.0 ft *Mercenaria* Valve at 2.1 ft	Gley 1 3/10Y (Very Dark Greenish Gray)		
2.0 ft			Silty Coarse to Medium Sand > 5% Shell Fragments Few Small Pebbles	Gley 1 3/10Y (Very Dark Greenish Gray)		
			Silty Medium to Fine Sand < 5% Shell Fragments Few Small Pebbles	Gley 1 3/10Y (Very Dark Greenish Gray)		
3.0 ft			Coarse Sand	10YR 5/1 (Gray)		Coarse Intertidal/ Beach Sediment or Glacial Outwash
4.0 ft	******* CORE REFUSAL --- NOT RECOVERED *******					

CORE # : NB-VC-02 **DATE COLLECTED:** 9-23-10 **PERSONNEL:** Leach, Bruno, Ray, Metzger

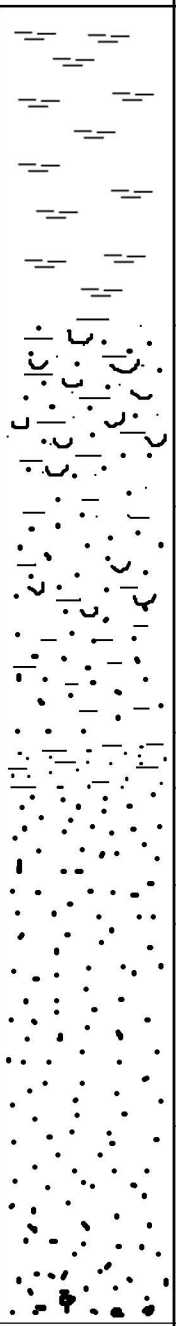
LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 10-01-10

East: 816583.12 **North:** 2688252.9
Projection: MA State Plane Mainland UTM Feet
TIME: 3:15 PM **TIDE:** 1 ft
H20 Dpth: 8.5 ft **LENGTH** 3.35 ft
PNTR: 5.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
0 ft			Silts and Clays	Gley 1 2.5/N (Black)		Marine Sediments
1.0 ft			Silty Coarse to Medium Sand ~30% Shell Fragments (Oyster, Clam, Scallop) Some Whole Valves Some Lg Granule and Small Pebble Gravel	Gley 1 2.5/N (Black)		
			Silty Coarse to Medium Sand < 5% Shell Fragments	Gley 1 3/N (Very Dark Grey)		
2.0 ft			Silty Medium to Fine Sand	7.5 YR 2.5/2		UNKNOWN SEDIMENT ORIGIN POSSIBLE STORM SEWAGE RUNOFF
			Coarse to Medium Sand	7.5YR 2.5/3 with Pockets of 7.5YR 4/1		
			Coarse Sand	7.5YR 3/1		
			Coarse Sand	10R 2.5/2 with Pockets of 7.5YR 3/2		
3.0 ft			Coarse Sand Small Pebbles at Bottom of Core	10R 2.5/2 (Very Dusky Red)		
			******* CORE REFUSAL -- NOT RECOVERED *******			
4.0 ft						

CORE # : NB-VC-03 **DATE COLLECTED:** 9-24-10 **PERSONNEL:** Leach, Bruno, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-30-10

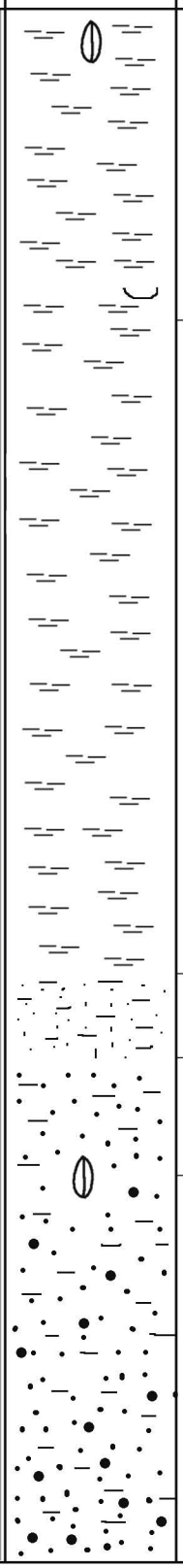
East: 816348.91 **North:** 2687431.38

Projection: MA State Plane Mainland UTM Feet

TIME: 10:30 AM **TIDE:** 1.9 ft

H20 Dpth: 2.3 ft **LENGTH** 8.0 ft

PNTR: 8.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
0 ft			Silts and Clays Growth Position *Mercenaria* at 0.1 ft	Gley 1 3/10Y (Very Dark Greenish Grey)		Marine Sediments
1.0 ft			Silts and Clays	Gley 1 3/N (Very Dark Grey)		
2.0 ft						
			Silty Fine Sand Organic-Rich	Gley 1 2.5/N (Black)		
			Silty Coarse to Medium Sand	Gley 1 3/10Y (Very Dark Greenish Grey)		
3.0 ft			Silty Coarse Sand Gravel Content Increases With Depth Growth Pos. *Mya arenaria* at 3.0 ft	Gley 1 3/10Y (Very Dark Greenish Grey)		
4.0 ft						

CORE # : NB-VC-03 **DATE COLLECTED:** 9-24-10 **PERSONNEL:** Leach, Bruno, Metzger

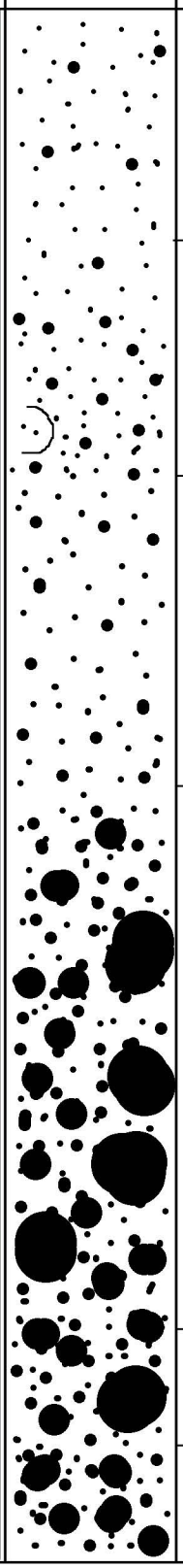
LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-30-10

East: 816348.91 **North:** 2687431.38
Projection: MA State Plane Mainland UTM Feet
TIME: 10:30 AM **TIDE:** 1.9 ft
H20 Dpth: 2.3 ft **LENGTH** 8.0 ft
PNTR: 8.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
4.0 ft			Silty Coarse Sand Gravel Content Increases with Depth	Gley 1 3/10Y (Very Dark Greenish Gray)		Marine Sediment Likely Reworked Glacial Sediments
5.0 ft			Major Increase in Gravel Content Large *Mercenaria* Valve at 5.1 ft			
6.0 ft			Silty Very Coarse Sand with Small Pebble Gravel Gravels Sub-angular to Rounded	2.5Y 4/1 (Dark Gray)		
7.0 ft			Silty Very Coarse Sand with ~30 - 40% Granule and Med. Pebble Gravel Sub-angular to Rounded Gravels Few Large Pebbles	2.5Y 4/2 (Dark Grayish Brown)		Coarse Beach Sediment Or Coarse Glacial Outwash
			Pebbly Coarse Sand Sub-angular to Rounded Pebbles	2.5Y 3/2 (Vry Drk Grayish Brown)		
8.0 ft			Compact Pebbly Silty Coarse Sand Sub-angular to Rounded Gravels	Gley 1 5/10Y (Greenish Gray)		

******* CORE REFUSAL -- NOT RECOVERED *******

CORE # : NB-VC-04 **DATE COLLECTED:** 9-23-10 **PERSONNEL:** Leach, Bruno, Ray, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-29-10

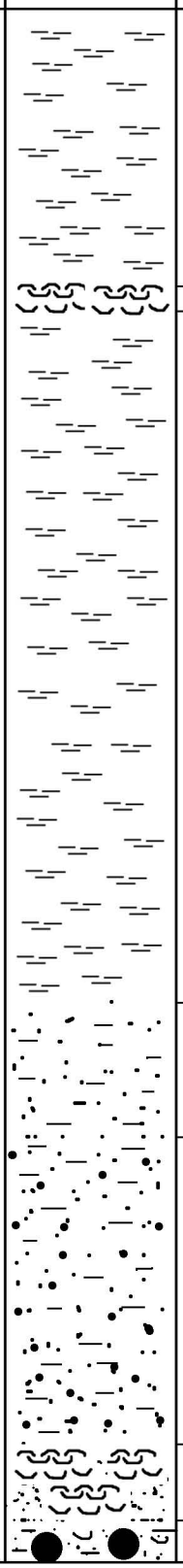
East: 816296 **North:** 2687367.11

Projection: MA State Plane Mainland UTM Feet

TIME: 10:30 AM **TIDE:** 2.2 ft

H20 Dpth: 4.6 ft **LENGTH** 5.9 ft

PNTR: 7.0 ft **COMPACT:**



DEPTH	DESCRIPTION (Txtr, Sed. Type; Flora/Fauna)	COLOR	VOL % ORG	INTERPRETATION
0 ft				
	Silts and Clays	Gley 1 2.5/10Y (Greenish Black)		Marine Sediments
	Dense Concentration of Shell Fragments	Gley 1 2.5/10Y		
1.0 ft				
	Silts and Clays	Gley 1 2.5/10Y (Greenish Black)		
2.0 ft				
	Silty Medium Sand	Gley 1 2.5/N (Black)		
3.0 ft				
	Stiff Silty Medium Sand with Very Coarse Sand < 5% Shell Fragments < 5% Small Pebble Gravel	Gley 1 3/10Y (Very Dark Greenish Gray)		
	Dense Concentration of Shell Fragments (Oyster, Clam, Scallop)	Gley 1 3/10Y		
4.0 ft	Stiff Silty Medium Sand	Gley 1 3/10Y		

CORE # : NB-VC-04 **DATE COLLECTED:** 9-23-10 **PERSONNEL:** Leach, Bruno, Ray, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-29-10

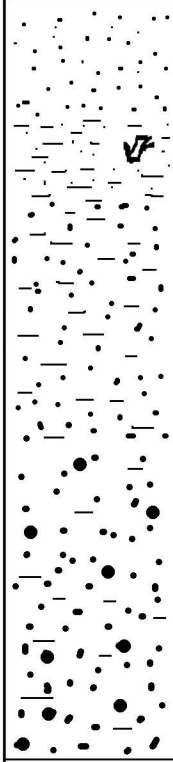
East: 816296 **North:** 2687367.11

Projection: MA State Plane Mainland UTM Feet

TIME: 10:30 AM **TIDE:** 2.2 ft

H20 Dpth: 4.6 ft **LENGTH** 5.9 ft

PNTR: 7.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
4.0 ft			Stiff Silty Medium Sand With Very Coarse Sand Two Small Pebbles at 4.0 ft	Gley 1 3/10Y (Very Drk Greenish Gray)		Marine Sediments
			Very Fine Sandy Silt, Organic-Rich Bulk Sediment Radiocarbon Sample Taken Between 4.3 and 4.5 ft	10YR 3/1 (Very Dark Gray)		Buried Upland Paleosol; Interpreted Soil Horizons: O/A
5.0 ft			Silty Medium to Coarse Sand With Small Pebble and Granule Gravel	10YR 4/2 (Dark Grayish Brown)		B
			Slightly Silty Coarse Sand With Granule and Small Pebble Gravel	10YR 5/1 (Gray)		B/C
			Slightly Silty Coarse Sand With Granule and Small Pebble Gravel	10YR 6/1 (Gray)		
6.0 ft		******* CORE REFUSAL -- NOT RECOVERED *******				
7.0 ft						
8.0 ft						

CORE # : NB-VC-05 **DATE COLLECTED:** 9-24-10 **PERSONNEL:** Leach, Bruno, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-28-10

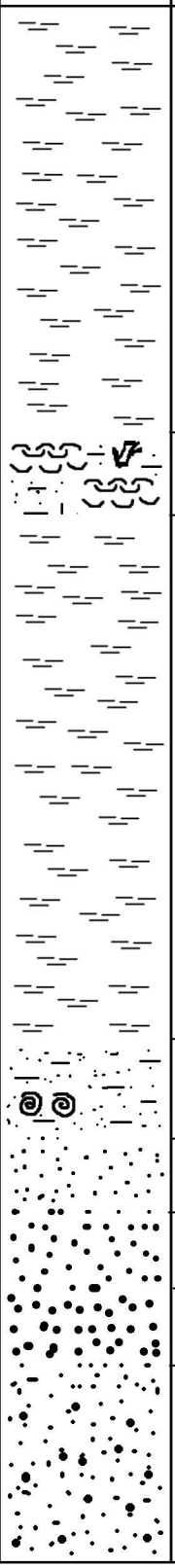
East: 816372.84 **North:** 2687392.15

Projection: MA State Plane Mainland UTM Feet

TIME: 4:40 PM **TIDE:** 0.75 ft

H20 Dpth: 2.82 ft **LENGTH** 8.0 ft

PNTR: 8.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
0 ft	Not Recovered From Core Barrel		Silts and Clays with Trace Fine Sand	Gley 1 2.5/N (Black)		Marine Sediments
1.0 ft			Fine Sandy Silt Shell Fragments and Wood	Gley 1 2.5/N		
2.0 ft			Silts and Clays with Trace Fine Sand	Gley 1 2.5/N (Black)		
			Silty Fine Sand Few Small Marine Gastropods	Gley 1 2.5/N (Black)		
3.0 ft			Silty Medium to Fine Sand	Gley 1 2.5/N		
			Silty Coarse to Medium Sand	Gley 1 3/10Y		
			Very Coarse Sand with Trace Silt Small Pebble Gravel	Gley 1 3/10Y		
4.0 ft			Silty Medium Sand with Small Pebble Gravel and Coarse Sand	Gley 1 3/10Y (Very Dark Greenish Gray)		

CORE # : NB-VC-05 **DATE COLLECTED:** 9-24-10 **PERSONNEL:** Leach, Bruno, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 9-28-10

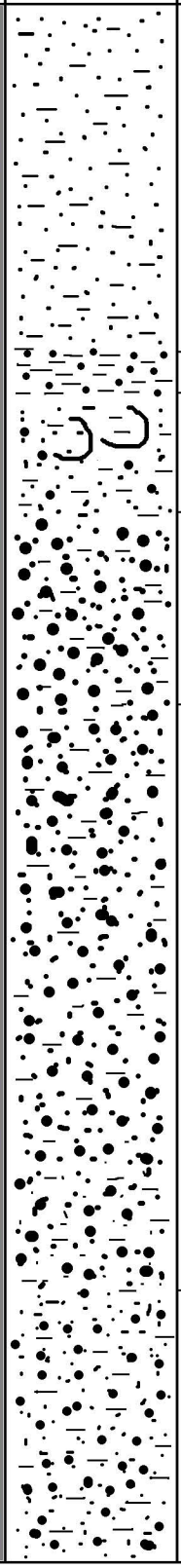
East: 816372.84 **North:** 2687392.15

Projection: MA State Plane Mainland UTM Feet

TIME: 4:40 PM **TIDE:** 0.75 ft

H20 Dpth: 2.82 ft **LENGTH** 8.0 ft

PNTR: 8.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
4.0 ft			Silty Medium Sand with Small Pebble Gravel and Coarse Sand Few Medium Pebbles and Shell Fragments	Gley 1 3/10Y (Very Dark Greenish Gray)		Marine Sediments
5.0 ft			Coarse to Medium Sandy Silt			
			Silty Medium Sand with Small Pebble Gravel Large *Mercenaria* Shells	10YR 4/1 (Dark Gray)		
			Silty Coarse to Medium Sand ~ 30% Small Pebble Gravel	10YR 4/1 with Pockets of 7.5YR 3/2		
6.0 ft			Gravelly Silty Coarse to Medium Sand Stiff, Apparently Weathered	10YR 3/3 (Dark Brown)		Truncated (Upper Horizons Eroded) Former Upland Surface Likely B Horizon
7.0 ft						
			Gravelly Silty Medium Sand with some Coarse Sand ~ 30% Gravel	2.5Y 4/2 (Dark Grayish Brown)		
8.0 ft						

Appendix II:

Draft Technical Boring Logs

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/14/2010
Time: 8:00 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816198.2
Location	South Terminal Expansion		Y: 2688154.5
Elevation at mudline:	-23.15'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.15'	Boring No: A-2010-B1
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 6"	11,2,11,13	Dark Grey, fine to coarse SAND, some Silt, some fine to coarse Gravel.
4		24" 5"	19,33,39,18	Grey SILT and fine to coarse SAND, some fine to coarse Gravel - TILL
6		9" 4"	15, 100/3"	Grey SILT some fine to coarse Sand, some fine to coarse Gravel - Drove casing to refusal, and cleaned hole for coring run, drilled from 27.9 to 28.5
8	50%	5' 4.6'	7,6,6,10,14	28.5 - 33.5 Highly fractured Granitic Gneiss
10	97%	5' 4.85	6,6,6,9,11	33.5-38.5 Fractured Granitic Gneiss
12				
14				
16				
18				
20				
22				
24				
26				
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, so drill time is not a good indicator of rock competency.

Refusal: Split Spoon refusal at -27.9'

Elevation of Bedrock: -28.5'

NOT A LEGAL DOCUMENT
DRAFT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/15/2010
Time: 11:30 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816277.4
Location	South Terminal Expansion		Y: 2688458.0
Elevation at mudline:	-6.3'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.40'	Boring No: A-2010-B2
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 15"	1,1,1,1	Black to dark grey, Organic SILT, some fine Sand, little shell hash, becomes grey in nose of spoon
4		24" 15"	2,5,10,14	Dark Grey fine SAND, some organic Silt grades to fine SAND some Inorganic Silt, trace fine to coarse Gravel
6		24" 21"	12,14,14,19	4.0-4.5 Grey fine SAND some Fine to Coarse Gravel, trace coarse Sand 4.5-5.7 Grey fine SAND grading to Inorganic SILT and fine SAND 5.7-6.0 Grey Coarse SAND and fine to coarse GRAVEL
8		24" 15"	9,17,16,20	Grey, medium to coarse SAND, little fine to coarse Gravel
10		24" 14"	5,15,15,12	Grey, medium to coarse SAND, little fine to coarse Gravel, grades to fine to medium SAND
12		24" 21"	3,4,10,12	10 - 11 Grey, fine SAND, trace Silt, grades to fine to medium SAND. 11-12 Grey, fine to coarse SAND, trace fine Gravel, grading to coarse SAND
14		24" 21"	6,7,9,12	Grey, fine to medium SAND, little fine to coarse Gravel
16		24" 12.5"	14,16,24,24	Grey fine to coarse SAND, some Silt, some fine to coarse Gravel, mottle at 15.0 to 15.4 red/orange tan.
18		24" 11"	8,10,3,3	Grey and Tan mottled, fine to coarse SAND, some Silt, some fine to coarse Gravel, grades to fine to medium SAND and SILT in nose of spoon
20		21" 16"	23,32,34, 100/3"	Grey and tan mottled, fine to coarse SAND, and SILT, some fine to coarse Gravel.
22				Drilled with button tooth roller bit through cobbles, drove casing to refusal and began core run at -29.9 MLLW
24			6,8,8,10, 5min/6"	29.9-34.4 Fractured Granitic Gneiss, core barrel jammed at 4.5'
26			7,8,10,10, 10	34.4-39.4 Fractured Granitic Gneiss
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: 29.9'

NOT A LEGAL DOCUMENT
DRAFT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/16/2010
Time: 11:20 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816365.6
Location	South Terminal Expansion		Y: 2688161.5
Elevation at mudline:	-1.1'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 39.40'	Boring No: A-2010-B3
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
1		24" 18"	7,5,5,4	Dark Grey, very fine to fine SAND, little organic Silt, trace shell hash, one juvenile clam.
5		24" 5"	10,13,20,17	Grey, fine to coarse SAND, trace Silt, charp color change to Tan, fine to medium SAND, little Silt. Gravel caught in nose of spoon
10		24" 6"	16,19,20,23	4" of Grey, fine to coarse GRAVEL and fine to medium SAND, trace Silt. 2" of Grey tan, SILT, some fine to coarse SAND, some fine to coarse Gravel. TILL
15		24" 4"	17,18,14,14	Grey, SILT and fine SAND, some fine to coarse Gravel, little medium to coarse Sand, Gravel stuck in top of sample.
20		6" 6"	80,60,40,61	Tan, fine SAND, some Silt, some fine to coarse Gravel, trace medium to coarse Sand, Gravel stuck in top of sample
				Drilled with button toothed roller bit to obstruction, cleaned, drove casing, flushed hole and began coring at -25.7' MLLW
	10%	5' 3.3'	5,6,19	25.7 - 30.7 Highly fractured Granitic GNEISS, with pegmatic intrusions.
	33%	5' 4.6'		30.7 - 35.7 Highly fractured Granitic GNIESS with pegmatic intrusions.

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency, drill times were not recorded after the first 3 feet of penetration, due to frequent starts and stops of coring process as barrel jammed and was cleared.

Elevation of Bedrock: 25.7'

DRAFT DOCUMENT
NOT LEGAL

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/20/2010
Time: 8:05 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816439.9
Location	South Terminal Expansion		Y: 2687856.3
Elevation at mudline:	-2.5'	Datum: MLLW	
Casing Type: Steel		Boring Depth: 43.75'	Boring No: A-2010-B4
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GCD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 24"	W.O.H., W.O.H.,	Black, Organic SILT, little shell hash, little fine to medium Sand.
4				
6		24" 3.5"	1,1,1,1	Dark Grey to Black, fine to medium SAND and SILT, little shell hash.
8		24" 13"	13,6,8,9	Grey, fine to medium SAND, some Silt, little fine to coarse Gravel
10		24" 12"	9,17,20,20	Grey, fine GRAVEL, some coarse Sand, little coarse Gravel. Coarse gravel stuck in nose of spoon.
12		24" 11"	10,8,10,12	Grey, fine SAND, some Silt, some fine to coarse Gravel, trace medium to coarse Sand.
14		24" 8"	8,14,16,11	Grey, fine SAND, some fine to coarse Gravel, trace Silt.
16		24" 9"	49,9,8,13	Grey, SILT some fine Sand little fine to coarse Gravel, little medium to coarse Sand. Mottled interval approx 0.25 to 0.5' becomes Brown, then back to Grey
18		24" 10"	24,20,18,16	SILT, some fine to coarse Sand, some fine to coarse Gravel, Color changes 0.0-0.25' Grey, 0.25-0.55' light Grey,0.55-0.80' Brown
20		21" 10"	13,12,21,14	Tan SILT and GRAVEL, some fine to coarse Sand
22		20" 10"	17,10,15, 100/2"	Tan, SILT, some fine to coarse Gravel, some fine to coarse Sand. 3" of Grey completely weathered Granitic Gneiss in nose of spoon.
24	0%	48" 23"	10,12.19	25.2-29.2' Exploded greenish Grey Granitic Gneiss (12" in pieces none longer than 3") Potassium Feldspar rich Pegmatic intrusion (11" in pieces none longer than 3"), core barrel jammed at 1.5, water return stopped intermittently through core run, drilling paused each time
26	35%	36" 25"	6,6,14	29.2-32.2' Interface of Pegmatite and Granitic Gneiss (2"), highly fractured grey Granitic Gneiss (23")
28		60"		Core Incomplete - recovery needs review.

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: 25.2'

DRAFT NOT A LEGAL DOCUMENT

Apex environmental, inc.

DRAFT BORING LOG

Date: 9/23/2010
Time: 9:30 AM

Project:	Phase IV Dredging	Project No: 6690.005	X: 816518.5
Location	South Terminal Expansion		Y: 2687561.6
Elevation at mudline:	-9.4	Datum: MLLW	
Casing Type: Steel		Boring Depth: -31.6'	Boring No: A-2010-B6
Casing Diameter:	4"	Drill Rig: CME 45	
Drill Co:	NH Boring	Method: Drill and Wash	Sheet: 1 of 1
Driller:	Todd Pentacost	Log By: GAD	

Depth below mudline (ft)	RQD	Penetration/ Recovery	Blows per 6" / Drill Min. per Foot	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
2		24" 6"	WOR,WOR, WOR,WOR	0-1' Black, organic SILT 1'-2' Olive Grey, medium to coarse SAND, some fine sand, trace Silt
4				
6		24" 12"	20,22,41,30	Greenish Grey, medium to coarse SAND, some fine Gravel
8				
10		24" 12"	12,16,22,15	Greenish Grey, medium to coarse SAND, some fine Gravel.
12				
14		60" 56"	7,7,6,5,7	Core information incomplete needs review
16		60'	8,12,6,7,6	Core information incomplete needs review
18				
20				
22				
24				
26				
28				

Comments: Core run was completed at less revolutions per minute than recommended by core barrel manufacturer, drill time is not a good indicator of rock competency.

Elevation of Bedrock: -21.6

NOT A LEGAL DOCUMENT
DRAFT

Appendix III:

Radiocarbon Results

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Peter A. Leach — Report Date: 10/11/2010

John Milner Associates, Inc. — Material Received: 10/1/2010

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 285531	2680 +/- 40 BP	-26.5 o/oo	2660 +/- 40 BP

SAMPLE : NB-VC-04-RC1
ANALYSIS : AMS-PRIORITY delivery
MATERIAL/PRETREATMENT : (plant material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 900 to 790 (Cal BP 2850 to 2740)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

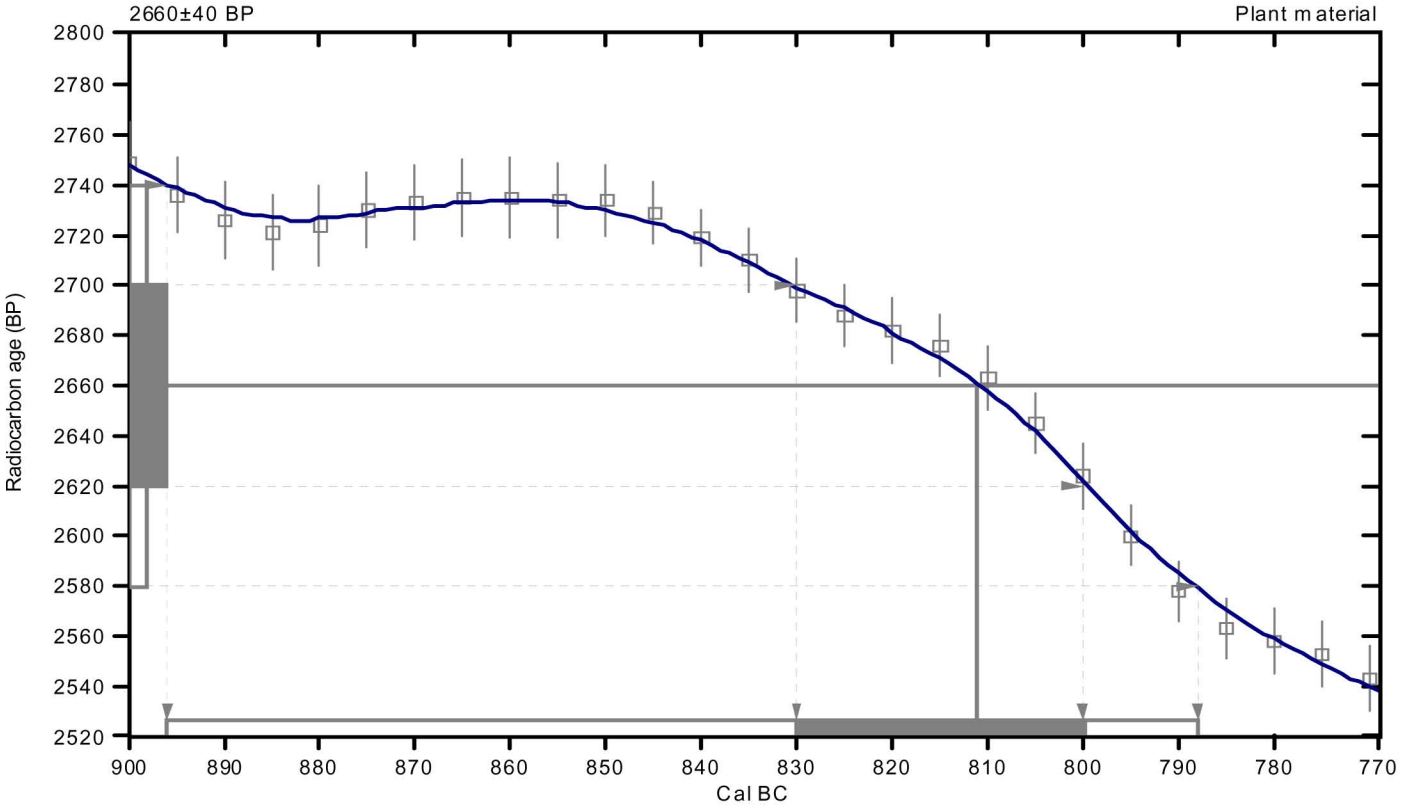
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.5:lab. mult=1)

Laboratory number:	**Beta-285531**
Conventional radiocarbon age:	**2660±40 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 900 to 790 (Cal BP 2850 to 2740)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal BC 810 (Cal BP 2760)
1 Sigma calibrated result: (68% probability)	Cal BC 830 to 800 (Cal BP 2780 to 2750)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

Appendix IV:

Permits and Letters from MBUAR and MHC

August 31, 2010

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Joel I. Klein
William Chadwick
Principal Investigators
John Milner Associates, Inc.
1 Croton Point Avenue, Suite B
Croton-on-Hudson, NY 10520-3028

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA.
MHC #RC.48892.

Dear Mr. Klein & Mr. Chadwick:

Staff of the Massachusetts Historical Commission, office of the State Historic Preservation Officer and the State Archaeologist, have reviewed the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project. Your proposals indicate that you will coordinate and take into account findings by Dolan Research Inc. to avoid duplication of effort and to provide an adequate identification and evaluation effort for the project area of potential effect.

The background research and cultural historical context, and the proposed methodology for the investigation were generally well researched and well developed. However, the methods proposed for the investigation should be revised in consideration of recent, relevant findings in New England for similar investigations. MHC staff are able to direct you to previous, relevant research findings in MHC's archaeological report archive.

The core strata should be photographed in color. Samples should be taken of formerly terrestrial surfaces from one side of split cores. The samples of terrestrial surfaces should be floated to recover heavy and light organic fractions, and analyzed to interpret the findings. Radiocarbon dating of organic material from a sample of the cores should be proposed to date terrestrial surfaces that may be associated with cultural activity.

It is also conventional to curate core samples. Because of the number of core samples proposed, JMA may propose to have only intact cores with significant findings curated. The Woods Hole Science Center Core Lab is a regionally appropriate curation facility.

Please prepare a letter addendum to the research designs and methodologies that take into account these comments, offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

xc:
Lois K. Adams, US Environmental Protection Agency
New Bedford Harbor Development Commission
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
George Green, Jr., Mashpee Wampanoag Tribe
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
Jennifer T. Nersesian, NPS New Bedford Whaling NHP
Derek J. Santos, New Bedford Historical Commission
Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Martin G. Dudek, JMA, Inc.

JMA architects archeologists planners

JOHN MILNER ASSOCIATES, INC.

Restoration & Rehabilitation • Preservation Planning • Archeological & Historical Research • Cultural Landscapes • Materials Conservation

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Sarah Jane Ruch

VIA ELECTRONIC MAIL

September 8, 2010

Mr. Victor Mastone, Director
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114-2199

RE: MBUAR ARCHEOLOGICAL SURVEY PERMIT NO. 10-005
AMENDED RESEARCH DESIGN AND METHOLOGY
SUBTIDAL PORTIONS OF THE SOUTH TERMINAL MARINE INFRASTRUCTURE PROJECT
NEW BEDFORD, MASSACHUSETTS
MHC #RC.48892

Dear Mr. Mastone:

This letter constitutes JMA's request to amend the existing Research Design and Methodology component of our previously submitted and approved permit application for work in the sub-tidal portions of the South Terminal Marine Infrastructure Project (the Project) in New Bedford. These changes have been requested by the Massachusetts Historical Commission (MHC) as a result of their review of our permit application. It is my understanding that the requested modifications have been requested to insure that the work and subsequent analyses undertaken by JMA under out MBUAR permit will meet the needs of the MHC when they carry out their review of the Project under Section 106 of the National Historic Preservation Act.

In accordance with MHC's request of August 31, 2010 (attached) JMA intends to modify our previously submitted research design and methodology as follows:

After recovery and transport to a suitable work area, marine sediment cores (Vibracores) recovered as part of the survey effort will be split. One side of each core will be retained for subsequent curation. Both sides of each core strata will be photographed in color. Samples (from the non-curated half of each core) will be taken from strata believed by JMA's geoarcheologist to be from previously terrestrial surfaces. These samples will be subject to flotation analyses at a JMA laboratory utilizing a SMAP-type flotation device. Both light and heavy fractions recovered through flotation will be analyzed. Special attention will be given to possible presence of micro-flakes suggesting the presence of a pre-Contact archeological resource. If organic material is identified in any core strata possibly associated with a former terrestrial surface samples for radiocarbon dating will be collected. Any such samples will be submitted to a qualified laboratory (e.g Beta Analytic) for dating.

One Croton Point Avenue, Suite B, Croton-on-Hudson, New York 10520-3028 • 914-271-0897 / fax 914-271-0898

West Chester, PA Philadelphia, PA Alexandria, VA Charlottesville, VA Croton-on-Hudson, NY Louisville, KY Littleton, MA
www.JohnMilnerAssociates.com

JMA will provide for temporary curation of intact cores with significant findings until such time as a permanent curation facility can be located. JMA will work with both MBUAR and MHC to locate an acceptable permanent curation facility (e.g. the Woods Hole Science Center Core Lab.

A copy of this request is being sent to the MHC and the Mashpee Wampanoag and Wampanoag Tribe of Gayhead (Aquinnah). If you have any questions or require clarification or additional information please contact me.

Sincerely,

JMA

Joel I. Klein, Ph.D., RPA
Associate Director, Cultural Resources

Cc: E. Bell (MHC)
J. Borkland (Apex)
P. Leach (JMA – West Chester)
W. Chadwick (JMA – West Chester)
L. Cox (Dolan Research)

August 31, 2010

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Joel I. Klein
William Chadwick
Principal Investigators
John Milner Associates, Inc.
1 Croton Point Avenue, Suite B
Croton-on-Hudson, NY 10520-3028

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA.
MHC #RC.48892.

Dear Mr. Klein & Mr. Chadwick:

Staff of the Massachusetts Historical Commission, office of the State Historic Preservation Officer and the State Archaeologist, have reviewed the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project. Your proposals indicate that you will coordinate and take into account findings by Dolan Research Inc. to avoid duplication of effort and to provide an adequate identification and evaluation effort for the project area of potential effect.

The background research and cultural historical context, and the proposed methodology for the investigation were generally well researched and well developed. However, the methods proposed for the investigation should be revised in consideration of recent, relevant findings in New England for similar investigations. MHC staff are able to direct you to previous, relevant research findings in MHC's archaeological report archive.

The core strata should be photographed in color. Samples should be taken of formerly terrestrial surfaces from one side of split cores. The samples of terrestrial surfaces should be floated to recover heavy and light organic fractions, and analyzed to interpret the findings. Radiocarbon dating of organic material from a sample of the cores should be proposed to date terrestrial surfaces that may be associated with cultural activity.

It is also conventional to curate core samples. Because of the number of core samples proposed, JMA may propose to have only intact cores with significant findings curated. The Woods Hole Science Center Core Lab is a regionally appropriate curation facility.

Please prepare a letter addendum to the research designs and methodologies that take into account these comments, offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
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xc:
Lois K. Adams, US Environmental Protection Agency
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Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
Jennifer T. Nersesian, NPS New Bedford Whaling NHP
Derek J. Santos, New Bedford Historical Commission
Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Martin G. Dudek, JMA, Inc.

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

September 9, 2010

Lois K. Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
US Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. MHC #RC.48892.

Dear Ms. Adams:

Staff of the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer and the State Archaeologist, have reviewed additional information submitted to the MHC for the research designs and methodologies for archaeological investigations in the intertidal and subtidal portions of the project referenced above.

Staff of the MHC reviewed the "Revised Supplemental Permit Application Information and Research Design and Methodology (RDM) for an Archeological Intensive (Locational) Archaeological Survey of the Sub-Tidal Portions of the South Terminal Marine Infrastructure Park, New Bedford, Massachusetts," prepared by Dolan Research Inc. and received by the MHC on September 7, 2010.

In MHC's opinion, the research design and methodology for the investigation proposed by Dolan Research Inc. in the subtidal portions of the project area is adequate.

Staff of the MHC reviewed the letter addendum prepared by John Milner Associates Inc., and received on September 8, 2010, prepared in response to MHC's comments of August 31, 2010, amending the proposed research design and methodology for archaeological investigations in the intertidal and subtidal portions of the project, received on August 20, 2010.

In MHC's opinion, the research design and methodology for the investigation proposed by John Milner Associates Inc. is adequate. The Massachusetts State Archaeologist has also issued a field investigation permit (950 CMR 70) to John Milner Associates, Inc. for the intertidal portion of the archaeological survey area.

MHC looks forward to review and comment on the results of these archaeological investigations.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), MGL c. 9, ss. 26-27C (950 CMR 70), and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Fed. Reg. 190(1983)). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc: see attached

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
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xc:
New Bedford Harbor Development Commission
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
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Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Joel I. Klein, John Milner Associates, Inc.
William Chadwick, John Milner Associates, Inc.
Martin G. Dudek, John Milner Associates, Inc.

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

August 12, 2010

Dr. Joel I. Klein, Associate Director
Cultural Resources Department
John Milner Associates, Inc.
1 Croton Point Avenue
Croton-on-Hudson, NY 10520

RE: Special Use Permit 10-005, Subtidal Area of the South Terminal Marine Infrastructure Park, New Bedford

Dear Dr. Klein:

This letter confirms the acceptance and provisional approval of John Milner Associates, Inc's Special Use Permit application by the Massachusetts Board of Underwater Archaeological Resources. This permit (10-005) is for the marine archaeological and associated remote sensing survey for the subtidal area of the proposed the South Terminal Marine Industrial Infrastructure Project area in New Bedford as detailed on the chart accompanying the application. The permit is effective upon issuance for the duration of one year, but a formal approval of this permit will be considered by the Board at its next regularly scheduled meeting where a quorum is present. This meeting is scheduled for 30 September 2010.

This permit is herein granted dependent upon John Milner Associates, Inc's compliance with the Board's Regulations (312 CMR 2.00) and the research design and methodology included in the permit application. For projects subject to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), permittees are directed to consult with and provide their proposed research design and methodology to the State Historic Preservation Office/Massachusetts Historical Commission and the lead federal agency in accordance with 36 CFR 800.4, prior to conducting the field investigation.

This permit does not relieve the permittee or any other person of the necessity of complying with all other federal, state and local statutes, regulations, by-laws and ordinances.

If you should have any questions or need further assistance, do not hesitate to contact the Board at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

Cc: Brona Simon, MHC
Kate Atwood, ACOE (via email)
Robert Boeri, MCZM (via email)
David Janik, MCZM (via email)
Mary Bruno, Apex Companies LLC (via email)

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The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

September 30, 2010

Dr. Joel I. Klein, Associate Director
Cultural Resources Department
John Milner Associates, Inc.
1 Croton Point Avenue
Croton-on-Hudson, NY 10520

RE: Special Use Permit 10-005, Subtidal Area of the South Terminal Marine Infrastructure Park, New Bedford

Dear Dr. Klein:

This letter confirms the vote taken by the Massachusetts Board of Underwater Archaeological Resources on 30 September 2010 to issue a Special Use Permit 10-005 to John Milner Associates, for the marine archaeological and associated remote sensing survey for the subtidal area of the proposed the South Terminal Marine Industrial Infrastructure Project area in New Bedford as detailed on the chart accompanying the application. The duration of this permit is one year from the date of issuance with its expiration date as 30 September 2011.

This permit is herein granted dependent upon John Milner Associates, Inc's compliance with the Board's Regulations (312 CMR 2.00) and the research design and methodology included in the permit application. For projects subject to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), permittees are directed to consult with and provide their proposed research design and methodology to the State Historic Preservation Office/Massachusetts Historical Commission and the lead federal agency in accordance with 36 CFR 800.4, prior to conducting the field investigation. This permit does not relieve the permittee or any other person of the necessity of complying with all other federal, state and local statutes, regulations, by-laws and ordinances.

If you should have any questions or need further assistance, do not hesitate to contact the Board at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

Cc: Brona Simon, MHC
Kate Atwood, ACOE (via email)
Mary Bruno, Apex Companies LLC (via email)

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit Number 3214 Date of Issue September 9, 2010
Expiration Date September 9, 2011

John Milner Associates, Inc. - Croton-on-Hudson, NY is hereby authorized to conduct an archaeological field investigation pursuant to Section 27C of Chapter 9 of General Laws and according to the regulations outlined in 950 CMR 70.00.

State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford

Project Location

Brona Simon

Brona Simon, State Archaeologist
Massachusetts Historical Commission

220 Morrissey Boulevard, Boston, Massachusetts 02125
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PHASE I & IB UNDERWATER ARCHAEOLOGICAL INVESTIGATIONS
SOUTH TERMINAL MARINE INFRASTRUCTURE PARK,
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR

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SUBMITTED TO

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ABSTRACT

Dolan Research, Inc. (DR) conducted an intensive (locational) marine archaeological reconnaissance survey of the sub-tidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Massachusetts. The purpose of the survey was to identify any previously recorded historic period archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant historic period archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the sub-tidal portions of the Project area.

The remote sensing survey was completed under MBUAR Permit No. 10-004 issued on June 7, 2010 in accordance with MBUAR regulations at 312 CMR 2.00. Additional IB level investigations were also completed under a revision of the aforementioned permit.

Analysis of the remote sensing data identified 29 magnetic and/or acoustic targets in the project area. However, only one remote sensing target, a combined Magnetic/Acoustic target M4/S5, was considered to be a significant target. M4/S5 was located close to the center of the project area. Characteristics of the magnetic and acoustic signatures of the target were suggestive of a submerged cultural resource and additional Phase IB-level archaeological investigations were recommended.

No additional investigations are recommended at the other remote sensing target locations.

Follow-up Phase IB investigations confirmed the source of the remote sensing target M4/S5 was a wooden hull vessel, likely a sailing ship that dates to the early 20th century/late 19th century. Only the bottom of the hull remains; divers recorded an approximately 89 foot by 30 foot intact section of hull. While the site appears to have been impacted by dredging activities and is highly damaged and deteriorating, in an abundance of caution additional Phase II-level investigations are recommended to determine the historical significance, if any, of the vessel.

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1.0 INTRODUCTION

Dolan Research, Inc. (DR) conducted an intensive (locational) marine archaeological reconnaissance survey of the sub-tidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Massachusetts. The survey was carried out on behalf of Apex Companies, LLC, engineering consultant to the New Bedford Harbor Development Commission. The purpose of the survey was to identify any previously recorded historic period archeological or historic sites that are in the Project Area, and assess if any previously unrecorded and potentially significant historic period archeological or historic sites, which could be affected by Project construction and/or operation, are likely to exist within the sub-tidal portions of the Project area.

These investigations were conducted in accordance with the instructions and intents of various applicable Federal and State legislation and guidelines governing the evaluation of project impacts on archaeological resources, notably: Section 5 of the Abandoned Shipwreck Act of 1987; Section 106 of the National Historic Preservation Act; 23 CFR 771, as amended October 30, 1980; the amended Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800 (October 1, 1986), and Massachusetts General Laws Chapter 9, Sections 26-27c, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71); and MEPA (301 CMR 11).

1.1 DESCRIPTION OF PROJECT AREA

The project area is located adjacent to the New Bedford, MA. waterfront, on the upstream (north) side of the seawall that protects New Bedford Harbor. The area is part of the proposed South Terminal Marine Infrastructure Park. The survey area described below includes those portions of the Project Area that are underwater (from the low tide line and deeper) and will be affected by the construction of the proposed bulkhead extension and the dredging (see Figure 1). The area requiring underwater archaeological investigation encompasses approximately 30 acres, and measures approximately 3000 feet long (north to south) by 400 to 650 feet wide (west-east).

Water depth varies across the project site from MLLW to approximately -30 feet (feet MLLW). Starting at the northern end of the project site, in the federal maneuvering area and moving to the south, the water becomes progressively shallower. The maneuvering area has approximately 30 feet of water at MLLW. The dredged channel beside (to the east) of South terminal had been dredged in the past to -20 feet at MLLW. Just to the south of the existing south terminal the dredged channel ends and the water quickly shallows to approximately -8 feet MLLW, and then shallows very gradually as one moves toward the beach.

1.2 PROJECT DESCRIPTION

In conjunction with the construction of the proposed South Terminal Marine Infrastructure Park in New Bedford Harbor, dredging and construction activities have the potential to impact

submerged pre-contact cultural resources. A remote sensing survey, comprising high-resolution seismic reflection profiling (subbottom profiling),were conducted across the area stretching from South Terminal to Gifford Street Boat Ramp in New Bedford, Massachusetts. These areas may be subjected to dredging improvements and possible location of a new pier. The purpose of the remote sensing investigation is twofold: to determine the presence or absence of potentially significant submerged pre-contact cultural resources; and secondly to assess likely project impacts and make recommendations as to the need for further submerged cultural resources studies.

The remote sensing survey was completed under MBUAR Permit No. 10-004 issued on June 7, 2010 in accordance with MBUAR regulations at 312 CMR 2.00. Additional IB level investigations were also completed under a revision of the aforementioned permit.

2.0 HISTORIC PERIOD MARITIME CONTEXT

2.1 METHODS

Prior to conducting fieldwork investigations, documentary background research was undertaken to develop a generalized historic maritime context of the New Bedford Harbor for evaluation of potential historic submerged sites (Section 3, above). Much of the historical research was initially collected and submitted for a very similar study completed in 2001 (Cox 2001).

In addition to inspecting primary and secondary historical data, background research efforts included a records check for known archeological sites and NRHP properties in the Project Area and the New Bedford vicinity, and a review of Massachusetts state underwater archeological site files and technical reports.

While the emphasis of background research focused on maritime activity in the New Bedford Harbor, a broad-based historic overview was essential for providing the proper framework for assessing the potential significance of submerged cultural resources. Historic maps, secondary and primary shipwreck lists, primary historical accounts, newspapers, and county and thematic histories helped to identify a set of expected resources in New Bedford Harbor. During the course of background research staff contacted local archaeologists, watermen, avocational historians, and interested laypersons who may possess knowledge of the harbor area. Project staff also visited local and county libraries and historical societies. Site-specific research, pertaining to individual vessels was reviewed at Peabody Essex Museum, Salem, Massachusetts; New Bedford Whaling Museum, New Bedford, Massachusetts; and Independence Seaport Museum, Philadelphia, Pennsylvania. At each repository, computer indexes were inspected for references to specific ship-types, and maritime activity in and around New Bedford. In addition, sources were checked for data concerning potential shipwreck sites in New Bedford. Primary and secondary sources for shipwreck sites were also accessed during the collection of background data.

Information gathered during the background research was used to generate the maritime historic context for the Project vicinity. Background research helped to identify the types of resources that may have been deposited in the New Bedford Harbor vicinity, and to determine the nature and extent of subsequent activities that may have removed or disturbed such resources.

2.2 NEW BEDFORD HARBOR AND VICINITY

Europeans first documented the Acushnet River and vicinity in 1602 when Englishman Bartholomew Gosnold, aboard the bark *Concord* sailed into the region after sailing from Falmouth, England (Baker 1980). However, the first permanent European settlement in the study area did not start until 1652 when settlers from Plymouth bought the land presently encompassing Dartmouth, New Bedford, Fairhaven and Westport. New Bedford was part of Dartmouth until the old township was divided in 1787. Fairhaven and New Bedford remained as one township until 1812 (Ricketson 1858). New Bedford’s spacious and naturally deep harbor became an ideal location for the development of the fisheries industry. Whaling soon became the primary industry in New Bedford and Fairhaven. The first whalers in the colonies left from Nantucket and New Bedford as early as 1690.

The country's whaling fleet initially centered on Nantucket Island, began to consolidate on the mainland at and around New Bedford after the Revolutionary War. In 1765, there were only two or three small vessels employed in the whale fishery at New Bedford. In that year, Joseph Russell operated the sloops *Nancy*, *Polly*, *Greyhound*, and *Hannah* (all between 40 and 60 tons) in the local whaling industry. Other boats built and operated by Mr. Russell include; *Joseph & Judith*, *Patience*, *No Duty on Tea*, *Russell*, and *Rebecca*. Russell was instrumental in founding the town of New Bedford to serve as homeport for his growing fleet of whaling vessels. As the principle landowner, Russell had designed the town from the start to be a whaling center. In sub-dividing and selling off his tract, Russell provided sites for shipwrights, boat builders, blacksmiths, coopers and other artisans essential to the fishery industry. (Kugler 1980). Other notable early vessels launched at New Bedford include the merchant vessel *Dartmouth*. She was owned by Francis Roth and later became one of the vessels involved in the Boston Tea Party demonstration in Boston Harbor (Ricketson 1858).

Another prominent family associated with the formation of New Bedford was the Rotch family. Joseph Rotch and his sons, initially of Nantucket, moved to New Bedford in 1767. They soon became the leading whaling merchants in the colonies. In 1768, Rotch also built New Bedford's first candleworks (Kugler 1980).

By 1775, almost 50 boats were involved with the expanding whaling industry. However, the British destroyed the eighteenth century whaling industry in Massachusetts during the Revolutionary War. Almost the entire whaling fleet of New Bedford was wiped out during the Revolution: only four or five ships remained out of 200 sail before the war; the rest were lost, buried or captured (Morisson 1921).

New Bedford was active during the Revolutionary War. Early in the war, New Bedford and Fairhaven inhabitants constructed a fort on the east side of the Acushnet River at Nobscot. Many privateers were fitted out of Boston and Providence, and many of the prize vessels they captured were sent to New Bedford. Once the British discovered the town was stored with prize goods of every description, Sir Henry Clinton dispatched an expedition under the command of General Gray. On September 5, 1778, a British fleet that consisted of 32 vessels, the largest of which was a 40-gun ship, entered Clark's Cove and formed a bridge of boats to the shore. Approximately 4,000 or 5,000 British soldiers and sailors landed at New Bedford to destroy the vessels in the harbor. Local resident, Mr. Gilbert Russell listed 34 ships that the British destroyed: seven ships, one barque, one snow, eight brigs, seven schooners, and 10 sloops (Russell, cited in Ricketson 1858).

After the war, the whaling industry slowly revived. It took several years after the peace before any vessels were fitted out in New Bedford. In 1787, there was only one ship (180 tons) and 2 or 3 brigs in the business; but soon after this period the whaling industry revived (Ricketson 1858). In the last decade of the eighteenth century, both New Bedford and Fairhaven competed with Nantucket and began their rise to world prominence in the whale trade. In 1789, more than 100 whaling vessels operated out of Massachusetts, mostly from Nantucket and New Bedford. In the 1790s New England whalers headed into the Pacific Ocean for the first time. Related maritime industries sprung up in New Bedford, and particularly Fairhaven, in support of the whaling industry, including shipbuilding, ropewalks, and candle factories.

In addition to whaling, merchants also began to ship cargo out of New Bedford after the Revolutionary War. In 1802, some 20 square-rigged merchantmen were sailing from New Bedford. They were carrying cargoes from New York and the southern ports of Europe. Occasionally, voyages were made to the East and West Indies directly from New Bedford. By 1807, New Bedford's waterfront had seven commercial wharves, between 90 and 100 ships and brigs, containing each on an average 250 tons, and between 20 and 30 small vessels: Twelve of the ships were whalers. By that year, three ropewalks were established in New Bedford and one in Fairhaven. Water depth in the harbor was reported between 18 and 24 feet (Ricketson 1858).

During the War of 1812, the Navy Department provided four Jeffersonian gunboats for defense in Massachusetts; two at Newburyport and two at New Bedford. However, they proved useless. The two New Bedford boats remained hidden in the Acushnet River and did not even attack the *Nimrod* when she stranded on Great Ledge offshore New Bedford. Quaker ship owners who made fortunes by neutral trading before 1812, perceived the future of commerce trading from New Bedford was limited and refitted most of their vessels' as whalers. Typically, local ship owners converted their merchant ships that had outlived their usefulness in the trade service into whalers, a ship type that required capacity rather than speed as its main attribute (Morison 1921).

In 1796, a company was created to construct the first bridge across the Acushnet River to connect New Bedford with Fairhaven and Oxford. The bridge was 4,000 feet long including abutments and the two islands it crossed over. The initial bridge was swept away in March, 1807 and was rebuilt later that year. In September, 1815, the second bridge was also washed away. A third bridge was built over the Acushnet River in 1819 and was still being used as of 1858. It was reported that the bridge significantly contributed to the shoaling up of the harbor (Ricketson 1858). Despite the presence of a bridge, ferries connecting Fairhaven and New Bedford remained active for more than 100 years. The last of these ferries, the Fairhaven, a small side-wheel steamer was launched into service on February, 24, 1896. Typically, she made 19 daily roundtrips across the Acushnet River (Whitman 1994).

New Bedford was made a city in 1847. Whaling was the primary industry and remained so for most of the nineteenth century. In 1838 there were 170 whaling vessels in New Bedford. By 1857, New Bedford's whaling fleet surpassed all other Massachusetts ports combined with 329 whalers, with a tonnage of 111,364 (Sayer, 1889). Fairhaven provided most of the support services required by the whaling industry. With oil refineries, coopers shops, tool works and the other industries subsidiary to whaling, New Bedford Harbor became a center of industry. It became the fifth largest port for shipping in the country. Whaling and the manufacture of whaling products became the leading industry in Massachusetts after shoes and cotton and provided commerce with an important export medium (Morison, 1921). However, by 1888, whaling had declined dramatically. Only 74 whalers worked out of New Bedford in that year, with a tonnage of 18,911 (Sayer 1889).

New Bedford was an urban center and was served by several steamboat lines during the nineteenth and twentieth centuries. Steamboat service from New Bedford to Nantucket dates to 1829, when Jacob Barker's steamer *Marco Bozzaris* made three trips a week. The New Bedford and Martha's Vineyard Steamboat Company was formed in 1846. In that year, the steamer *Naushon* made three trips a week

between Edgartown and New Bedford, with a stop at Woods Hole (Foster & Weiglin 1989). Steamboat service between New Bedford and New York began in 1853. The New Bedford and New York Steamship Company occupied a long, narrow roofed over wharf that could accommodate the large steamers operating in Long Island Sound (Whitman, 1994). Their boats connected with the Boston, Clinton & Fitchburg Railroad. In 1879 the Old Colony Steamboat Line took over the New Bedford-New York line (Foster & Weiglin 1989). A second steamboat line, New Bedford, Martha's Vineyard and Nantucket Steamboat Company started service between New Bedford and the two islands in 1854. Assets from this company passed thorough several mergers and were acquired by the New England Steamship Company in 1945. Ships from the Fall River Steam Ship Line also served New Bedford.

Over fishing, a cheaper source of oil, and the Civil War, (Confederate Commerce Raiders captured and destroyed a vast number of New Bedford whalers on the high seas) combined to reduce the role of the whale industry and related maritime commerce. More than 50 whaling vessels were captured by rebel cruisers, 28 of which sailed out of New Bedford. All but a few of the whalers were burned. In June 1865, Confederate Cruiser *Shenandoah* alone captured 25 whalers in Behring strait. Many other whalers were bought by the government during the Civil War. Forty New Bedford whalers purchased by the United States formed the major portion of the two famous stone fleets which in 1861 were sunk off the harbors of Charleston and Savannah to impede blockade runners and privateers (Sayer 1889). Numerous whalers were also lost in Arctic ice. In September 1871, 33 whaling ships (22 from New Bedford) were crushed by ice in the Arctic Ocean. Arctic mishaps in 1876 and 1888, claimed 17 more whaling ships. Ultimately, the future of whaling as a source of oil was sealed once Colonel Drake discovered oil in the ground in northwestern Pennsylvania in 1859.

By the end of the nineteenth century, whaling had given way to textile mills as the leading industry in the New Bedford economy. Cotton mills, ushered in with the advent of the Industrial Revolution, began to replace the fish-processing and candle-making plants on the New Bedford waterfront. And with the decline of whaling, the shipyards and associated maritime industries were slowly abandoned. It was not until the after the First World War when the introduction of diesel powered fishing boats allowed vessels to economically reach the rich offshore fishing banks that New Bedford once again became a prominent fishing port.

2.3 SHIPWRECKS IN THE NEW BEDFORD VICINITY

A wide variety of shipwrecks may exist in New Bedford's Harbor. Historic records indicate that maritime activity in the region's waterways dates to the first decade of the seventeenth century. The first documented shipwreck losses in the region are associated with Revolutionary War activity in September 1778. In the nineteenth century, New Bedford became the principal whaling port in the country and was home for hundreds of square-rigged whalers. Although whaling was phased out as an industry by the end of the nineteenth century, New Bedford has remained a preeminent commercial fishing port throughout the twentieth century. Shipwrecks undoubtedly occurred in and around New Bedford Harbor during each phase of the port's historical development. However, it is highly unlikely that any intact wrecks remain within the navigable portions of the harbor, since they would have been removed long ago as a hazard to navigation. Nonetheless, a list of shipwrecks and derelict vessels provides insights into the expected vessel types that might be found in and around New Bedford.

A number of sources were accessed during the compilation of wrecked vessels in New Bedford's Harbor. The lists have been divided according to the sources. In all, more than 65 different vessels are documented as wrecked in or around New Bedford Harbor.

Table 1 is a shipwreck list maintained at the Massachusetts Board of Underwater Archaeological Resources (MBUAR). It was provided by Mr. Victor Mastone, MBUAR Director. The vast majority of the sites included in the list were derived from data gathered by Mr. Brad Luther, local expert on New Bedford Harbor, and Mr. John Fish, an underwater researcher.

Additional shipwrecks lists have also been compiled. Local New Bedford resident, Mr. Gilbert Russell listed by name and type of 30 vessels that were destroyed by the British expedition on September 5, 1778 (Ricketson 1858:75) (Table 2). Shipwrecks listed for the New Bedford/Fairhaven vicinity in Encyclopedia of American Shipwrecks (Berman 1972) are included in Table 3:

Other documented wrecks in the vicinity include the *Capt. Lavoeiro*, 75-foot long New Bedford fishing vessel sank at the State Pier on December 26, 1984, after it struck a barge outside the harbor and returned to the pier where it sank. However, salvagers used a crane and divers to raise it three days later (Quinn 1988).

2.4 REMOVAL OF DERELICT VESSELS

In 1989, a project was conducted to identify and remove derelict vessels from around the harbor. Parson, Brinckerhoff, Quade, & Douglas, Inc., (Parsons) organized the project that removed 13 derelict boats from New Bedford Harbor, in the municipalities of Fairhaven and New Bedford (Parsons 1989). Seven of those vessels were located in Fairhaven and six were in New Bedford.

One of the derelict vessels, the 85-foot long *Evelina Goulart*, in Fairhaven, was raised on May 25, 1989. She was towed to the Essex Shipbuilding Museum where it was to be restored, near where it was launched in 1927, as one of the last sail-driven fishing schooners.
Other derelict vessels that were removed in 1989 include:

1. a 30-foot wood hull boat (Fairhaven),
2. three construction barges, approximately 60-feet x 20-feet (Fairhaven),
3. a 40-foot fiberglass (Fairhaven),
4. a 20-foot wood vessel (Fairhaven),
5. a barge, approximately 150-feet x 32-feet (New Bedford),
6. a fishing vessel, *Alydar*, approximately 92-feet x 26-feet (New Bedford),
7. a fishing trawler, *Plymouth*, approximately 100-feet x 28 feet (New Bedford),
8. two barges, each approximately 150-feet x 32-feet (New Bedford),
9. a Navy Launch, approximately 150-feet x 32-feet (outside of Hurricane Barrier, New Bedford).

In 2001/2002, 16 derelict and abandoned vessels at the Melville Ship Yard in New Bedford were removed and destroyed as part of the ongoing Superfund Clean-Up of New Bedford Harbor. An archaeological

project documented each of the derelict vessels and evaluated their significance in terms of National register of Historic Places eligibility criteria (Cox 2001a). The report concluded that none of the vessels satisfied NRHP eligibility criteria.

2.5 POTENTIAL FOR HISTORIC PERIOD ARCHEOLOGICAL SITES

Historic sources confirm a sustained level of maritime activity in New Bedford Harbor since the middle of the eighteenth century. Dozens of vessels were documented as having been stranded, foundered, burned, capsized and destroyed in the New Bedford vicinity. Secondary sources have listed numerous wrecks in the project vicinity. Many of these vessels, including a number of Revolutionary War wrecks, were lost in the section of the harbor between the Route 6 Bridge and the Hurricane Wall. However, large portions of the harbor have been dredged during navigational improvements and many potential submerged sites were likely removed long ago as hazards to navigation. Since New Bedford is still a very busy commercial port, it is unlikely that potentially significant submerged cultural resources have been deposited within New Bedford Harbor and have remained undetected and unknown. Local residents and watermen familiar with the harbor were unaware of any potential wreck sites within the harbor. Nonetheless, the harbor potentially contains cultural material from each phase of the port's extensive maritime history.

2.6 PREVIOUS UNDERWATER ARCHAEOLOGICAL INVESTIGATIONS

MBUAR files contained information on four previous underwater archeological surveys in the project vicinity. Robert Cembrola served as the Principal Investigator for the Marine Archaeological Report that was completed for the New Bedford Phase II Facilities Plan (Cembrola 1989). Potential submerged cultural resources were identified within a three-mile vicinity of two candidate outfall diffuser sites and within 0.5 miles on either side of the proposed outfall pipeline alignment that extended from the southern tip of New Bedford out 3.5 miles into Buzzards Bay. Two known wrecks sites, the *Margeret Kehoe*, a 62-ton fishing boat sank near Church Rock in 1963, and the *Yankee*, a 6,225 ton, 391-foot steam ship ran aground and sank on Great Ledge on September 23, 1908, were identified in Buzzards Bay, near the mouth of the Acushnet River. The wrecks were outside the area affected by the outfall pipeline and no additional fieldwork was conducted.

J, Lee Cox, Jr., served as the Principal Investigator for the other three local underwater archaeology projects. Two of the projects were completed in conjunction with the New Bedford Harbor Superfund Project in the towns of New Bedford, Fairhaven and Acushnet. The primary project was a magnetic and acoustic remote sensing investigation to determine the presence or absence of submerged cultural resources potentially eligible for the National Register of Historic Places that might be affected by dredging to remove contaminated sediments (Cox 2001). Analysis of remote sensing data identified sixty magnetic and/or acoustic targets. The vast majority of the targets appear to be related to isolated, single source objects, modern debris, or shoreline-related objects. Two of the remote sensing targets are suggestive of submerged cultural resources. However, divers confirmed that modern debris was the target source at both locations.

In conjunction with Superfund Project, archaeologists also documented the derelict vessels at the Melville Shipyard, New Bedford (Cox 2001a). Sixteen vessels were documented and evaluated according to NRHP criteria. The report concluded that none of the vessels satisfied NRHP criteria.

A remote sensing investigation was conducted by Apex Environmental for the New Bedford State Pier Dredge Project. Mr. Cox served as the Principal Investigator for the project. The report concluded that several miscellaneous objects were present on the river bottom within the 800'-long by 150'-wide project area, along the New Bedford waterfront. However, all of the objects were scattered pieces of debris that were not suggestive of historically significant submerged cultural resources (Cox 2001b).

3.0 FIELDWORK INVESTIGATIONS

3.1 METHODS

Remote sensing (geophysical) investigations were conducted from June 7 through June 8, 2010 under MBUAR Permit No. 10-004. The marine surveys were conducted from a survey vessel outfitted with Side Scan Sonar, A Sub Bottom Profiler and a Magnetometer. Shipboard systems were integrated with a Differential Global Positioning System (DGPS) so that the geophysical data collected from the instruments could be tagged with precise position information at regular intervals.

The survey operations were conducted with a team from Apex onboard the survey vessel with qualified shipboard geophysicist to oversee and coordinate the collection of the marine geophysical data. Geophysical data was collected with both instrument systems (Side Scan Sonar, and Magnetometer) not running concurrently. Daily equipment calibrations, and functional checks, were conducted daily with all field personal prior to starting field surveys. Operations were continuous during the day, except for minor periods of occasional equipment malfunction or loss of DGPS satellite coverage. Over the 2-day survey period approximately 15 nautical miles of data was collected in the areas of interest. Water depths over the survey areas ranged from 2 feet to approximately 25 feet.

3.1.1 Survey Equipment and Data Collection Methods

Survey Vessel. The survey vessel was the Xepa2, a 21-foot fiberglass workboat. This vessel was equipped with a large pilothouse for protection of the instrumentation and electronics from the elements, a manual winch and davit for ease of deployment of equipment into the water, on-board power, and could accommodate two to three on-board scientists and boat captain required for the work. The survey vessel was outfitted with equipment capable of producing accurate and detailed images of the harbor bottom and shallow sub-bottom. Side Scan Sonar was utilized to produce picture-like acoustic images of the harbor bottom in order to map bottom features and objects. A magnetometer was used to produce magnetic field maps of the harbor areas to detect metallic objects on the harbor bottom or in the shallow harbor sub-bottom. All geophysical instruments were integrated with a DGPS for accurate location referencing information. The following provides a summary of the equipment used to complete the task.

Side Scan Sonar. The Side Scan Sonar system used included an Edgetech dual frequency Side Scan Sonar tow-fish matched with an Edgetech Digital Control Interface (DCI). The Side Scan tow fish was towed off a stern davit in the Channel Inner Area to allow flying depths of approximately 8 feet. The DCI board was connected to a computerized Side Scan Sonar data acquisition and processing system for shipboard data collection and processing. Chesapeake Technologies SonarWiz software was used for digital data recording from the tow fish and integrated the data with navigation inputs for real-time viewing of the Side Scan image in pseudo-map format. The data was stored digitally for future post-processing and interpretation using Chesapeake's Technologies SonarWeb. The data was recorded and displayed as digital location-corrected pseudo-maps of the acoustic response of the harbor bottom.

Sub Bottom Sonar. The Sub Bottom system used included an EdgeTech SubBottom SB-424 4-24 kHz with 3100 topside unit. The Sub Bottom tow fish was towed off a stern davit in the Channel Inner Area to allow flying depths of approximately 6 feet. Chesapeake Technologies SonarWizz software was used for digital data recording from the tow fish and integrated the data with navigation inputs for real-time viewing of the images. The data was stored digitally for future post-processing and interpretation using Chesapeake's Technologies SonarWeb.

Magnetometer. Magnetic data were collected with a Geometrics G-882 cesium-vapor Marine Magnetometer system consisting of a high-sensitivity in-water marine magnetic sensor coupled to a digital data processing computer system running Geometrics MagSea processing software. The MagSea software was utilized to calibrate the system and to record and display the raw digital magnetic data. The G-882 system was designed for shallow water applications (<150 feet) and is easily deployed from small survey vessels. The magnetic sensor was deployed from the stern of the survey vessel far enough behind the vessel (50 feet) to be beyond the effects of the magnetic field generated by the boat's engines and electronics. In shallow water the depth of the sensor was controlled by attaching the cable leader to a floatation device such that the swim depth of the sensor remained constant, approximately one to two feet below the water surface. This allowed for the survey to be conducted in both shallow and deep-water conditions without the risk of hitting the bottom of the harbor with the sensor. The system was set up to output the raw digital magnetic signature values to a computer screen for on-board real-time initial interpretation and to the project positioning system computer (running HYPACK software) for permanent data storage and later post-processing and interpretation. The HYPACK system logged the raw magnetic data, time stamping each reading and tagging it with DGPS navigation positions obtained from the survey positioning system. Readings were collected at a rate of once per second. The sensor tow fish "layback" was entered into the HYPACK system and the correct position of the sensor was calculated and logged.

Positioning System. Horizontal positioning and navigation for the project was accomplished using a Trimble Ag DGPS. The DGPS consisted of a satellite beacon and radio transmitter mounted on the roof of the vessel and the Trimble Ag processing system mounted shipboard. Satellite positioning data was logged at a rate of once per second, and differential corrections were obtained from the nearest Coast Guard Beacon and processed with the data in real-time for sub-meter position accuracy. The DGPS generated a constant stream of corrected position information which was output to all ship board systems, including the Side Scan System, the Magnetics system, and the HYPACK navigation system. The HYPACK software was utilized to store the time-tagged position data in both latitude-longitude format and in the project datum (US State Plane – NAD83, Zone - Massachusetts Mainland 2001, NGVD-29, US survey feet). The HYPACK system also provided real-time vessel position status on a helmsman's display for the running of track-lines. An outline of the harbor superimposed with the proposed data collection lines (track-lines) were entered into the HYPACK system at the start of the field program. These proposed track-lines were then retrieved onto the helmsman's display as the survey was in progress. The position of the vessel, as determined by the DGPS system, was superimposed in real-time onto the track-line layout, so that the vessel Captain could "steer-to" navigate to stay on course and run straight and accurate data collection lines.

Study Area Definition and Spacing. Marine geophysical data for this survey were collected from one

area in New Bedford Harbor which is was the interest to the project: South Terminal and areas to the south. Prior to mobilization, a review of all available information was conducted. This review indicated that the appropriate track-line spacing for the survey was 50-feet for the collection of magnetic data and 50-feet for side scan data (due to swath data collection). The survey direction was primarily north to south, along the length of the harbor.

3.1.2 Data Processing and Analysis

Initial data processing and interpretation was carried out as the survey was in progress to ensure that good quality data was being collected and that data quality objectives were being met. The initial shipboard data processing and interpretation varied between the instruments:

- Side Scan Sonar data were processed using the SonarWeb software into pseudo-map images along the data path. The initially processed data appeared as geo-referenced strip images of the harbor bottom displayed on a computer screen. The Side Scan operator would monitor the data collection at all times to ensure that the image was as clear as possible, and to make initial interpretations of the data in real-time. Targets (features of the bottom appearing as anomalous from the rest of the data) were "captured" digitally by the operator using the computerized target capture feature, and were cataloged and stored for later post-processing and enhancement. The Side Scan data was also stored digitally for later post-processing and more intensive interpretation.

- Magnetic data were initially processed in the field by the Edgetech MagSea system. Uncorrected magnetic data was then displayed on a computer screen in cross-sectional form so that the magnetometer operator could make observations concerning the data stream as it appeared on the screen. The magnetometer operator noted and cataloged any significant raw magnetic anomalies (deviations of the magnetic signal from background) identified as the survey was in progress. The magnetic data was also stored digitally for later post-processing and more intensive interpretation.

The initial interpretations of the data made in the field were utilized by the field team to continually assess the data collected and make minor modifications to the field program in order to ensure the highest possible data quality. Both the initial field interpretations and the raw field data were brought into the office for further post-processing and interpretation.

Analysis of remote sensing signatures identified during the survey was based on several criteria. Magnetometer data were contour plotted and each anomaly was analyzed according to: magnetic intensity (total distortion of the magnetic background measured in gammas); pulse duration (detectable signature duration); signature characteristics (negative monopolar, positive monopolar, dipolar, or multi-component); and spatial extent (total area of disturbance). Acoustic targets were analyzed according to their spatial extent (total area of disturbance), signature characteristics (shape, relief above the bottom, strength of return and contrast with the background) and environmental context. Sub-bottom signatures were analyzed according to their strength of return, spatial extent, environmental context, shape, and location in bottom sediment.

3.2 REMOTE SENSING SURVEY RESULTS

Examination of the magnetic, acoustic, and seismic remote sensing records confirms the presence of 14 magnetic targets and 15 sonar contacts (Figures 2-5). Sub-bottom data were of no use to this cultural resource investigation due to the lack of penetration though the sub-bottom layers in New Bedford harbor (Figure 6). Tables 4 and 5, below, contain complete listings of the magnetic and sonar targets sets. Magnetics across much of the area were affected by background disturbances generated by moored fishing boats, recreation boat moorings, and natural rock outcroppings. Sonar records indicate the presence of numerous large natural rock outcroppings, rocks, pilings, shoreline debris along the bulkheads, tires, wire rope (linear) debris, and a pipeline. All but one of the remote sensing targets appears to be associated with shoreline-related and other debris, natural rock outcroppings, or utility crossings rather than submerged cultural resources. Only one of these 29 targets, M4/S5, is considered suggestive of a submerged cultural resource.

The potentially significant target (M4/S5) had both a magnetic component and was identified above the bottom surface on the sonar data. Magnetic contouring revealed a target with a 29 gamma, multi-component signature that extended for more than 100 feet. Corresponding sonar data at the location confirmed the presence of a shipwreck-like structure that extended for approximately 85 feet and was partially buried in the bottom surface. One end of the structure is at least partially visible above the bottom surface. Sonar records also indicate a collection of debris along the perimeter of the site (Figures 7 & 8).

Additional Phase IB investigations were recommended to identify the nature of the material(s) responsible for generating the remote sensing anomalies at Target M4/S5 and to determine if any additional studies will be required to evaluate its significance in terms of National Register of Historic Places eligibility criteria as set forth at 36 CFR 60.4. Additional investigation was to include collection of additional remote sensing data and diving on the target.

Additional remote sensing data collected confirms that target M4/S5 is centered at (MA State Plane, NAD 83, feet):

E 816,404
N 2,688,482

No further underwater archaeological investigations are recommended at the other remote sensing target locations.

3.3 SUPPLEMENTAL PHASE IB INVESTIGATIONS OF TARGET M4/S5

The goal of the Phase IB investigation was to determine if the source of the remote sensing anomaly at target M4/S5 is a cultural resource, and if it is, if it fails to possess the minimum required characteristics for potentially meeting National Register eligibility criteria. These minimal conditions include various types of integrity and, in some cases, age. No additional underwater work would be the recommended if the target is not a cultural resource or if it demonstrably fails to meet minimum NRHP eligibility criteria.

Prior to diving activities, more detailed, high frequency (600 kHz) sonar data were gathered at the site to determine the overall extent of the target source. After identifying the limits and center of the target source, diving activities were conducted to identify the target source.

On 10 September 2010 archaeological divers from DR conducted the Phase IB investigation at Target M4/S5. The divers identified the very bottom section of a wooden hull vessel (approximately five-10% of the hull remains intact). One end of the site (likely the aft end) is completely missing. A large windlass (15 feet long) and chain are lying across the south (bow) end of the site. It appears that the site has been impacted by dredging activities in the past. The south end of the wreck is located in about six feet of water (low tide).

Keelson, frames, ceiling and exterior planks were noted across the site. Eighty-nine feet of the keelson were recorded but one end is clearly missing. Generally, the site is 30 feet wide (where planking is attached), however, two surviving frames extend another 10' on the west side of the wreck - suggesting that the site may have been 40' wide. Besides the windlass no evidence of machinery was found at the site. Various pieces of debris, including a car's engine block, are lying across the top of the wreck. A site plan sketch was generated (Figure 9).

Framing patterns, fasteners and the assemblage of the keelson indicate that the vessel likely dates to the late 19th or early 20th century. Although the vessel is highly deteriorated and may lack the integrity needed to make it of historical significance, in an abundance of caution we recommend additional Phase II level underwater archaeological investigations to fully document the site and evaluate it historical significance.

4.0 CONCLUSIONS & RECOMMENDATIONS

4.1 CONCLUSIONS

Historic sources confirm a sustained level of maritime activity in New Bedford harbor since the middle of the eighteenth century. Dozens of vessels were documented as having been stranded, foundered, burned, capsized and destroyed in the New Bedford vicinity. Secondary sources have listed numerous wrecks in the project vicinity. However, large portions of the harbor have been dredged during navigational improvements and many potential submerged sites were likely removed long ago as hazards to navigation. Since New Bedford is still a very busy commercial port, it is unlikely that potentially significant submerged cultural resources have been deposited within New Bedford harbor and have remained undetected and unknown. The harbor potentially contains cultural material from each phase of the port's extensive maritime history.

In an effort to identify submerged cultural resources that may be impacted by dredging in the Acushnet River, a comprehensive Phase I remote sensing survey was conducted across the South Terminal project area:. Magnetic, seismic, and acoustic remote sensing records were processed and correlated to determine the presence of targets that possessed signature characteristics suggestive of submerged cultural resources. Although analysis of the remote sensing data identified 29 magnetic and/or acoustic targets in the project area, only one remote sensing target, a combined Magnetic/Acoustic target M4/S5, was considered to a be significant target. M4/S5 was located close to the center of the project area. Characteristics of the magnetic and acoustic signatures of the target were suggestive of a submerged cultural resource and additional Phase IB-level archaeological investigations were recommended.

No additional investigations are recommended at the other remote sensing target locations.

Phase IB investigations confirmed the source of remote sensing target M4/S5 was a wooden hull vessel, likely a sailing ship. Framing patterns, fasteners and the assemblage of the keelson indicate that the vessel likely dates to the late 19th or early 20th century. Only the bottom of the hull remains intact. It is estimated that less than 10 percent of the hull remains intact. Divers briefly recorded the approximately 89 foot by 30 foot section of intact hull that has survived. Historical data suggests that the site may represent the remains of the schooner *Thomas H. Lawrence*, lost in New Bedford Harbor on September 21, 1938. While the wreck site appears to have been impacted by dredging activities and is deteriorating.

4.2 RECOMMENDATIONS

Additional Phase II-level investigations at the wreck site associated with target M4/S5 is recommended. Phase II work would combine both archaeological recording of the wreck site and site-specific historical research. A program of standard underwater archaeological site procedures would be used to record the intact structural features in both two- and three dimensions. In addition to the hull features, the remains of the large windlass would be recorded. Underwater video and digital photography would be used to further document the wreck site. It is anticipated that much of this work can be accomplished without the need to mechanically remove bottom sediments from the site.

In conjunction with the fieldwork, site specific historical research would be focused on the identified ship type. Additional historical data would provide a context for understanding the value and significance of the submerged resource. Initial historical evidence indicates that the wreck site may be the *Thomas H. Lawrence*, a schooner that was built in Boston in 1891 and lost in New Bedford Harbor in 1938. Additional archaeological data may support or refute this conclusion.

Once fieldwork results have confirmed the likely type of vessel, additional primary and secondary source information would be collected on that specific ship-type. Historic data would help define what role that ship type played in the development of New Bedford Harbor during the 19th and 20th centuries. Harbor and port records, ship construction records, merchant marine files, and shipping records would be accessed at both local and national repositories. Pertinent site specific research may be found at; Peabody Essex Museum, Salem, Massachusetts, New Bedford Whaling Museum, New Bedford, Massachusetts, South Street Seaport, New York and Independence Seaport Museum, Philadelphia. At each repository, computer indexes would be inspected for references to specific ship-type found at M4/S5. In addition, all sources would be accessed for data concerning potential shipwreck sites in New Bedford.

All of the gathered field data and historic research documenting the wreck's integrity, qualities, associations, and characteristics, would be used to confirm or refute National Register eligibility requirements. A key to evaluating the significance of the site is determining ship wreck site integrity, which is defined in Secretary of the Interior's *Historic Vessel Preservation Standards*, as "the authenticity of a vessels historic identity, as evidenced by the survival of characteristics such as plan, hull form, rigging, use of materials and/or craftsmanship, which existed during the vessel's historic period."

Additional Phase II investigations are recommended to fully evaluate the wreck's historical and archaeological significance, or to establish its lack of significance. These investigations would be designed to collect more detailed information on the integrity, condition, boundaries and size, structural components, function and context of the wreck site. Field data documenting the wreck's integrity, qualities, associations, and characteristics, should be used to confirm or refute National Register eligibility requirements. No excavations at the wreck site will be undertaken as part of the Phase II investigation. Exposure of presently buried elements of the wreck are unlikely to yield important data beyond that that can be collected from examination of already exposed elements, and/or through the additional documentary research which is proposed. In addition the sediments at the wreck location are contaminated with concentrations of PCBs (7 mg/kg) at levels above what is currently allowable for disposal in lined or unlined landfills within the Commonwealth of Massachusetts (2 mg/kg). Even minimal disturbance of those sediments would result in their undesirable suspension in the water column, and this should be avoided if at all possible.

Prior to any Phase II investigation a supplemental research design methodology will be submitted to the MBUAR for review and approval, and to the MHC to insure that the scope of proposed work will be adequate for their use in evaluating the effect of the Project as part of their National Historic Preservation Act Section 106 responsibilities.

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TABLES

TABLE 1. Massachusetts Board of Underwater Archaeology Shipwreck List for New Bedford Harbor And Vicinity

Vessel Name	Date	Type	Location
Wasp	6/12/1903	Barge	New Bedford
Thomas H. Lawrence	9/21/1938	Schooner	West of Palmer's Island, New Bedford Harbor
H.M.S. Nimrod	1815		Mass.
Unidentified	1/7/1844	Schooner	Near New Bedford
Rival	10/14/1844	Brig	Ashore at New Bedford
Caravan	11/6/1847	Schooner	Off New Bedford
Chopaquoit	1947	Ketch	Off West Beach, Westport
Aloha	3/13/1870	Bark	New Bedford
A. Francis Edwards	5/26/1892	Schooner	New Bedford
Freeman	9/15/1898	Schooner	New Bedford
Rattler	10/13/1915	Oil	New Bedford
Sally W. Ponder	10/9/1916	Schooner	New Bedford
Lorna	11/1/23	Gas	New Bedford
Mogadore	9/11/1930	Gas	New Bedford
Althea Louke	12/4/1932		New Bedford
Eurybia	8/9/1935	Gas	New Bedford
Winifred	9/21/1938	Oil	New Bedford
Alma Bell	9/14/1944	Oil	New Bedford
Marion Dorothy	9/14/1944	Oil	New Bedford
Alice May	1950		New Bedford
Debbie II	8/1/54	Gas	New Bedford
Rose Mary Mello	8/31/1954	Oil	New Bedford
Phillip R.	11/15/1954	Barge	New Bedford
Onward	3/17/1956	Oil	New Bedford
Mariner	1956	Yacht	Fairhaven, 1 mile east of West Island
Francis Edward	5/1892		Fairhaven

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Table 2. Gilbert Russell list by name and type of 30 vessels that were destroyed in New Bedford Harbor by a British expedition on September 5, 1778 (Ricketson 1858: 75).

Leopard, Ship
Spaniard, Ship
Caesar, Ship
Nanny, Barque
Rosin, Brig
Sally, Fishing Brig
Simeon, Snow
Sally, Continental Brig
Adventure, Schooner
Loyalty, Continental Schooner
Nelly, Sloop
Fly Fish, Sloop
Captain Lawrence, Sloop
Defiance, Schooner
Captain Jenny, Schooner
No Duty on Tea, Brig
Sally, Schooner
Bowers, Sloop
Sally (12 guns), Sloop
Ritchie, Brig
Dove, Brig
Holland, Brig
Joseph R, Sloop
Bociron, Sloop
Pilot Fish, Sloop
The Other Side, Schooner
Sally, Brig
Retaliation, Sloop
J. Brown's, Sloop
Eastward, Schooner

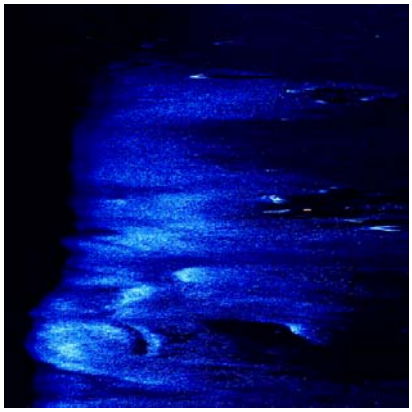
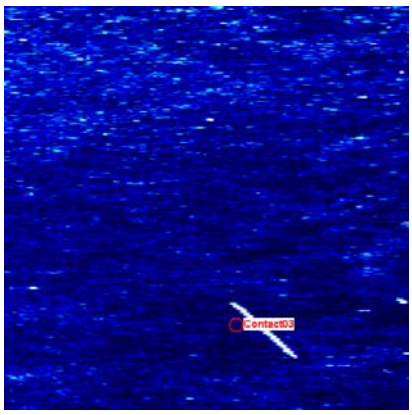
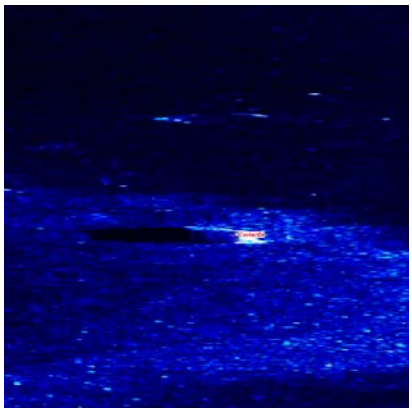
Table 3. Shipwrecks listed for the New Bedford/Fairhaven vicinity in Encyclopedia of American Shipwrecks (Berman, 1972).

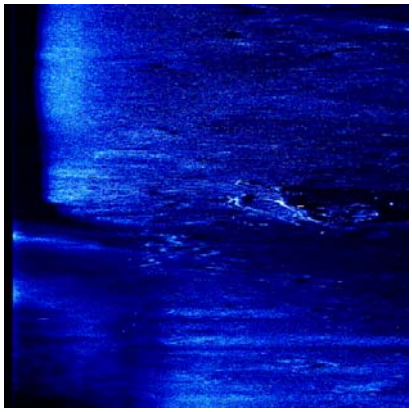
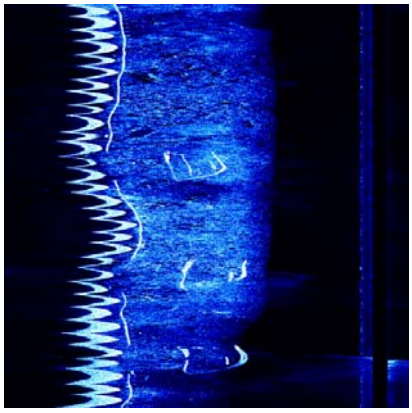
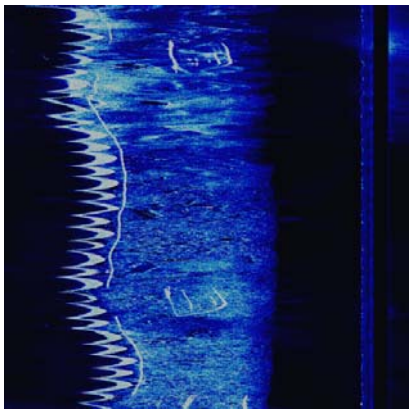
Name	**Date**	**Comments**
Lizzie W. Hannum	4/10/1895	A two-masted schooner, wrecked at Great Ledge, Buzzards Bay
Marjorie Parker	8/31/1954	An oil screw vessel, 76 tons, built in 1923, foundered at Fairhaven
Olive M. Williams	9/1/1954	An oil screw fishing boat, 50 tons, built in 1928, sank in a storm at Fairhaven
Sally W. Ponder	10/9/1916	Schooner, 107 tons, built in 1855, foundered at New Bedford
Sankaty	6/30/1924	A steam screw, 677 tons, built in 1911, burned at New Bedford
Wm A. Grozier	7/1/1913	A schooner, 116 tons, built in 1865, foundered off New Bedford

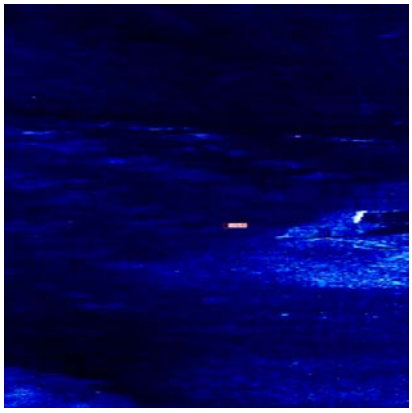
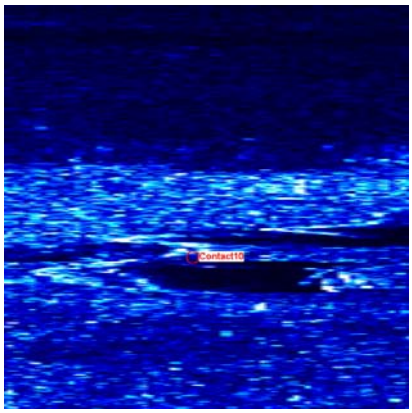
Table 4. Magnetic Targets

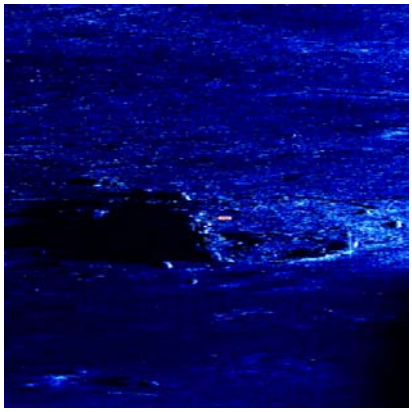
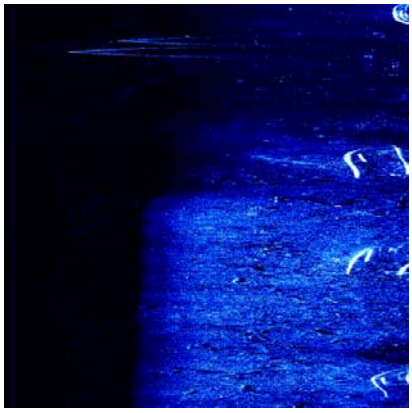
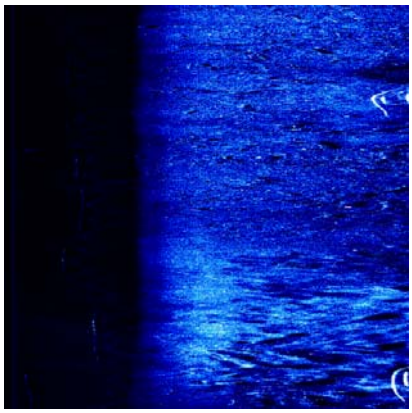
Magnetic ID	Survey Area	X Easting	Y Northing	Anomaly Characteristic	Anomaly Size (nT)	Comments	Side Scan Target ID
M-1	South Terminal Extension	816170	2690058	positive monopole	6	Single line anomaly possibly associated the large anomaly to the west - multiple vessels	-
M-2	South Terminal Extension	816502	2688918	positive monopole	26	Anamoly possibly related to M-3, seen across multiple lines - related to large granite drop stone	-
M-3	South Terminal Extension	816237	2688763	positive monopole	29	Multiple line anomaly possibly associated the large anomaly to the west - Coefferdam	
M-4	South Terminal Extension	816404	2688482	dipole	-29	Anomaly possibly related to Contact-5	Contact 5
M-5	South Terminal Extension	816398	2688228	dipole	-12	Single line anomaly possibly associated rocks or tires	-
M-6	South Terminal Extension	816658	2687834	dipole	-28.5	Multiple line anomaly possibly associated mooring field and sailboats	-
M-7	South Terminal Extension	816383	2689657	dipole	-22.5	Single line anomaly with small mag signature at the edge of drege footprint	-
M-8	South Terminal Extension	816402	2689497	dipole	-21.5	Single line possible anchor shaped anomaly with small mag signature	Contact 15
M-9	South Terminal Extension	816508	2689171	dipole	-28.5	Single line anomaly	-
M-10	South Terminal Extension	816517	2688296	dipole	-28.5	Single line anomaly possibly associated with M-2	-
M-11	South Terminal Extension	816289	2688233	dipole	-28.5	Multiple line anomaly associated with underlying debris/piling or pipe	Contact 3
M-12	South Terminal Extension	816333	2687945	positive monopole	12	Linear anomaly with small mag signature possible buried pipeline.	-
M-13	South Terminal Extension	816316	2688050	dipole	26.5	Multiple line anomaly possibly associated with buried materials	-
M-14	South Terminal Extension	816382	2687799	dipole	-28.5	Single line anomaly	-

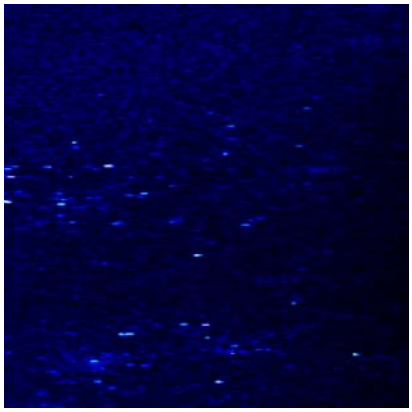
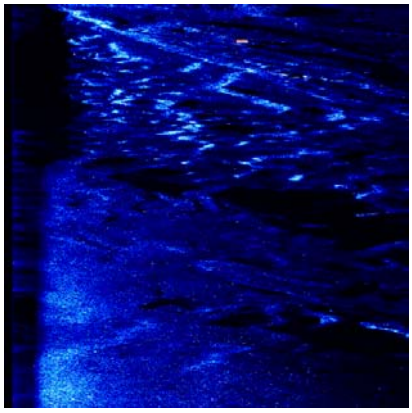
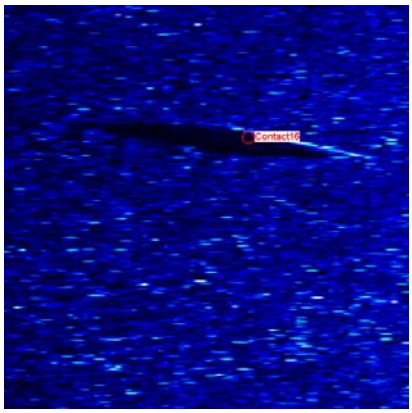
Table 5. Sonar Targets

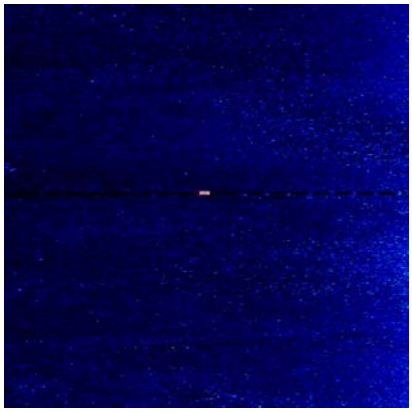
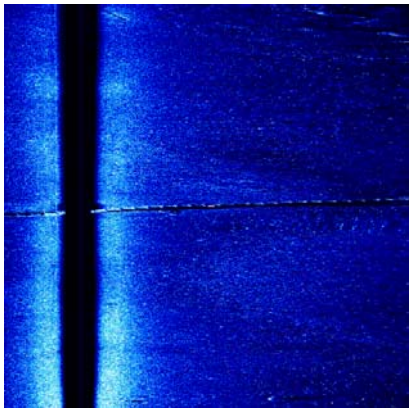
Target Image	Target Info	User Entered Info
	**Contact02** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816529.4, (Y) 2688424.8 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\20100524185732.jsf • Ping Number: 17 • Range to Target: 3,241,523.27 Meters • Fish Height: 25.01 Meters • Heading: 171.97936590 • Event Number: 0 • Line Name: 20100524185732	**Dimensions** Classification 1: large rocks Classification 2: CONF 1 Area: New Bedford Description: large area of drop stones
	**Contact03** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816305.7, (Y) 2688198.1 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\20100524185732.jsf • Ping Number: 17 • Range to Target: 1,782,608.01 Meters • Fish Height: 25.01 Meters • Heading: 167.56786126 • Event Number: 0 • Line Name: 20100524185732	**Dimensions** Target Length: 6.71 Meters Target Shadow: 0.00 Meters Target Width: 0.75 Meters Classification 1: piling Classification 2: Area: New Bedford: Description: piling
	**Contact04** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816060.3, (Y) 2689687.8 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.001.jsf • Ping Number: 17 • Range to Target: 3,754,811.32 Meters • Fish Height: 25.01 Meters • Heading: 168.93192893 • Event Number: 0 • Line Name: NewBedford.001	**Dimensions** Target Height = 1.41 Meters Target Length: 4.32 Meters Target Shadow: 2.33 Meters Target Width:3.00 Meters Classification 1: large rocks Classification 2: CONF 1 Area: New Bedford Description: large area of drop stones

Target Image	Target Info	User Entered Info
	**Contact05** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816405.2, (Y) 2688497.7 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.006.jsf • Ping Number: 17 • Range to Target: 3,322,277.99 Meters • Fish Height: 25.01 Meters • Heading: 346.35429167 • Event Number: 0 • Line Name: NewBedford.006	**Dimensions** Target Height = 3.50 Meters Target Length: 29.35 Meters Target Shadow: 0.00 Meters Target Width: 11.1 Meters Classification 1: Wreck Classification 2: CONF 1 Area: New Bedford Description: See contact 11, same wreck
	**Contact06** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816002.9, (Y) 2689678.8 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.006.jsf • Ping Number: 17 • Range to Target: 1,980,886.68 Meters • Fish Height: 25.01 Meters • Heading: 344.03426187 • Event Number: 0 • Line Name: NewBedford.006	**Dimensions** Classification 1: debris Classification 2: CONF 1 Area: New Bedford Description: Debris along pier area.
	**Contact07** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816101.5, (Y) 2689333.7 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.006.jsf • Ping Number: 17 • Range to Target: 1,989,847.14 Meters • Fish Height: 25.01 Meters • Heading: 347.43651147 • Event Number: 0 • Line Name: NewBedford.006	**Dimensions** Classification 1: debris Classification 2: CONF 1 Area: New Bedford Description: Debris along pier area.

Target Image	Target Info	User Entered Info
	Contact08 • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816500.2, (Y) 2688915 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.006.jsf • Ping Number: 17 • Range to Target: 2,872,337.99 Meters • Fish Height: 25.01 Meters • Heading: 346.13313992 • Event Number: 0 • Line Name: NewBedford.006	**Dimensions** Target Height = 2.63 Meters Target Length: 3.72 Meters Target Shadow:3.23 Meters Target Width: 2.43 Meters Mag Anomaly: Classification 1: large rocks Classification 2: Area: New Bedford Description: Large granite drop stone.
	**Contact09** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816293.2, (Y) 2688873.7 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.001.jsf • Ping Number: 17 • Range to Target: 1,710,797.97 Meters • Fish Height: 25.01 Meters • Heading: 167.60621632 • Event Number: 0 • Line Name: NewBedford.001	**Dimensions** Classification 1: large rocks Classification 2: CONF 1 Area: New Bedford Description: area of drop stones
	**Contact10** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816526.5, (Y) 2688255.0 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.001.jsf • Ping Number: 17 • Range to Target: 3,997,858.72 Meters • Fish Height: 25.01 Meters • Heading: 167.44788017 • Event Number: 0 • Line Name: NewBedford.001	**Dimensions** Classification 1: large rocks Classification 2: CONF 1 Area: New Bedford Description: area of drop stones

Target Image	Target Info	User Entered Info
	**Contact11** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816404.1, (Y) 2688438.3 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.004.jsf • Ping Number: 17 • Range to Target: 2,061,793.46 Meters • Fish Height: 25.01 Meters • Heading: 349.29732962 • Event Number: 0 • Line Name: NewBedford.004	**Dimensions** Classification 1: wreck Classification 2: CONF 1 Area: New Bedford Block: Description: See contact 6, same wreck
	**Contact12** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816030.5, (Y) 2689739.1 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.005.jsf • Ping Number: 17 • Range to Target: 3,745,735.58 Meters • Fish Height: 25.01 Meters • Heading: 160.90703579 • Event Number: 0 • Line Name: NewBedford.005	**Dimensions** Classification 1: debris Classification 2: CONF 1 Area: New Bedford Description: pilings, tires and rocks included in debris field
	**Contact13** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816323.2, (Y) 816323.2 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.005.jsf • Ping Number: 17 • Range to Target: 3,862,637.58 Meters • Fish Height: 25.01 Meters • Heading: 167.00601693 • Event Number: 0 • Line Name: NewBedford.005	**Dimensions** Classification 1: debris Description: pilings, tires and rocks included in debris field

Target Image	Target Info	User Entered Info
	**Contact14** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816323.5, (Y) 2690116.2 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.007.jsf • Ping Number: 17 • Range to Target: 4,304,202.13 Meters • Fish Height: 25.01 Meters • Heading: 348.96055028 • Event Number: 0 • Line Name: NewBedford.007	**Dimensions** Classification 1: large rocks Classification 2: CONF 1 Area: New Bedford Description: area of drop stones
	**Contact15** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816399.7, (Y) 2689501.3 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.009.jsf • Ping Number: 17 • Range to Target: 2,619,837.31 Meters • Fish Height: 25.01 Meters • Heading: 349.03441609 • Event Number: 0 • Line Name: NewBedford.009	**Dimensions** Classification 2: Area: New Bedford Block: Description: Unknown object or shadow appears to be linear debris similar to wire rope
	**Contact16** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816365.9, (Y) 2689523.3 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.009.jsf • Ping Number: 17 • Range to Target: 1,278,470.11 Meters • Fish Height: 25.01 Meters • Heading: 350.01004534 • Event Number: 0 • Line Name: NewBedford.009	**Dimensions** Target Height = 4.74 Meters Target Length:2.62 Meters Target Shadow: 299,350.62 Meters Target Width: 2.22 Meters Mag Anomaly: Avoidance Area: Classification 1: piling Classification 2: Area: New Bedford Description: piling

Target Image	Target Info	User Entered Info
	**Contact17** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816357.1, (Y) 2687691.6 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.011.jsf • Ping Number: 17 • Range to Target: 2,448,818.06 Meters • Fish Height: 25.01 Meters • Heading: 347.36936568 • Event Number: 0 • Line Name: NewBedford.011	**Dimensions** Classification 1: pipeline Classification 2: CONF 1 Area: New Bedford Description: Same pipe as in contact 18
	**Contact18** • Sonar Time at Target: Unavailable • Click Position (Projected Coordinates) (X) 816255.5,(Y) 2687671.7 • Map Proj: State Plane NAD83, MA-2001 • Acoustic Source File: E:\NewBedford2010\NewBedford.012.jsf • Ping Number: 17 • Range to Target: 1,530,510.93 Meters • Fish Height: 25.01 Meters • Heading: 338.30047941 • Event Number: 0 • Line Name: NewBedford.012	**Dimensions** Classification 1: pipeline Classification 2: CONF 1 Area: New Bedford Description: Same pipe as in contact 17

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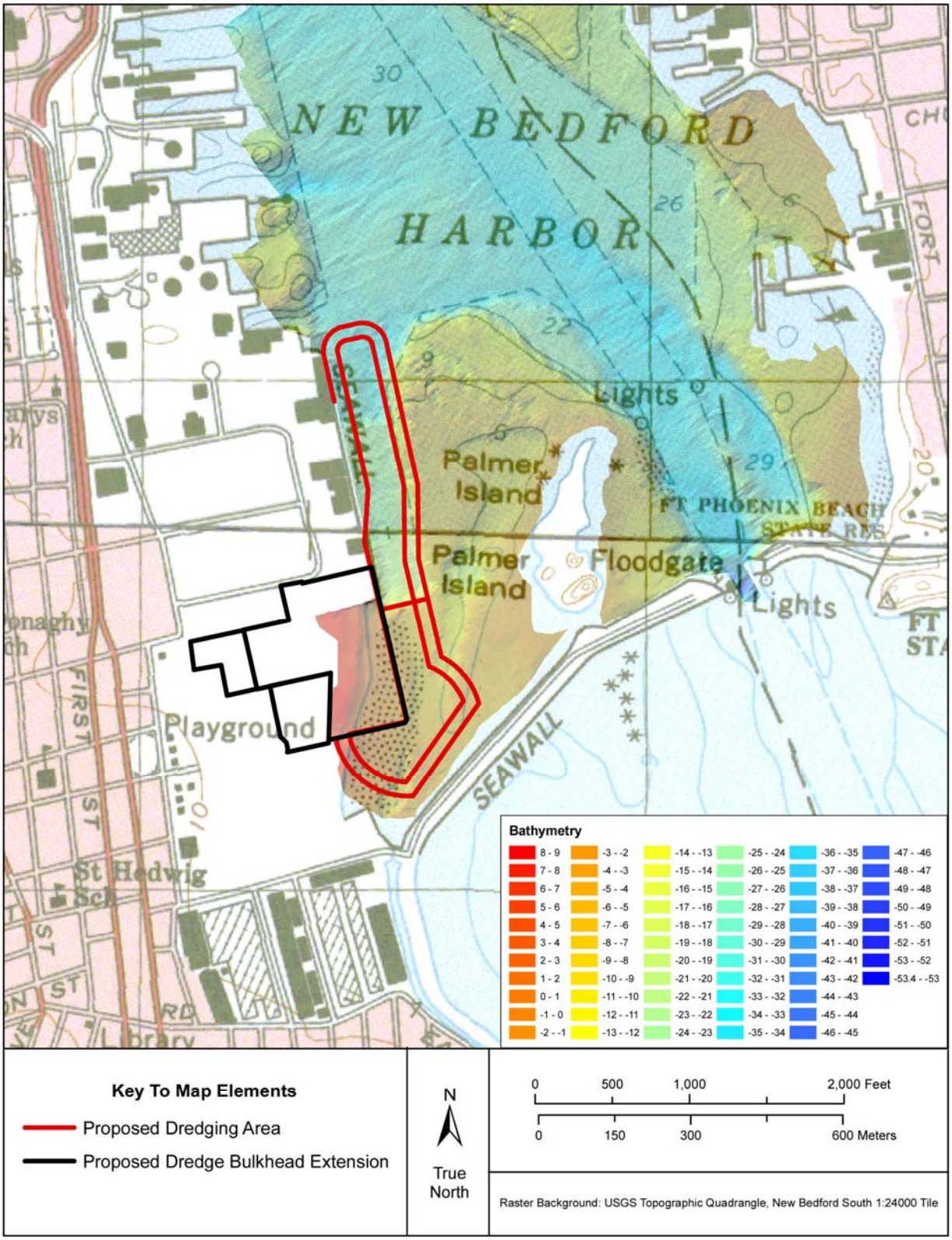

Figure 1: Map of project area for proposed bulkhead extension and dredging area, New Bedford Harbor, Massachusetts.

Figure 2: Magnetic and Acoustic Remote Sensing Target Locations.

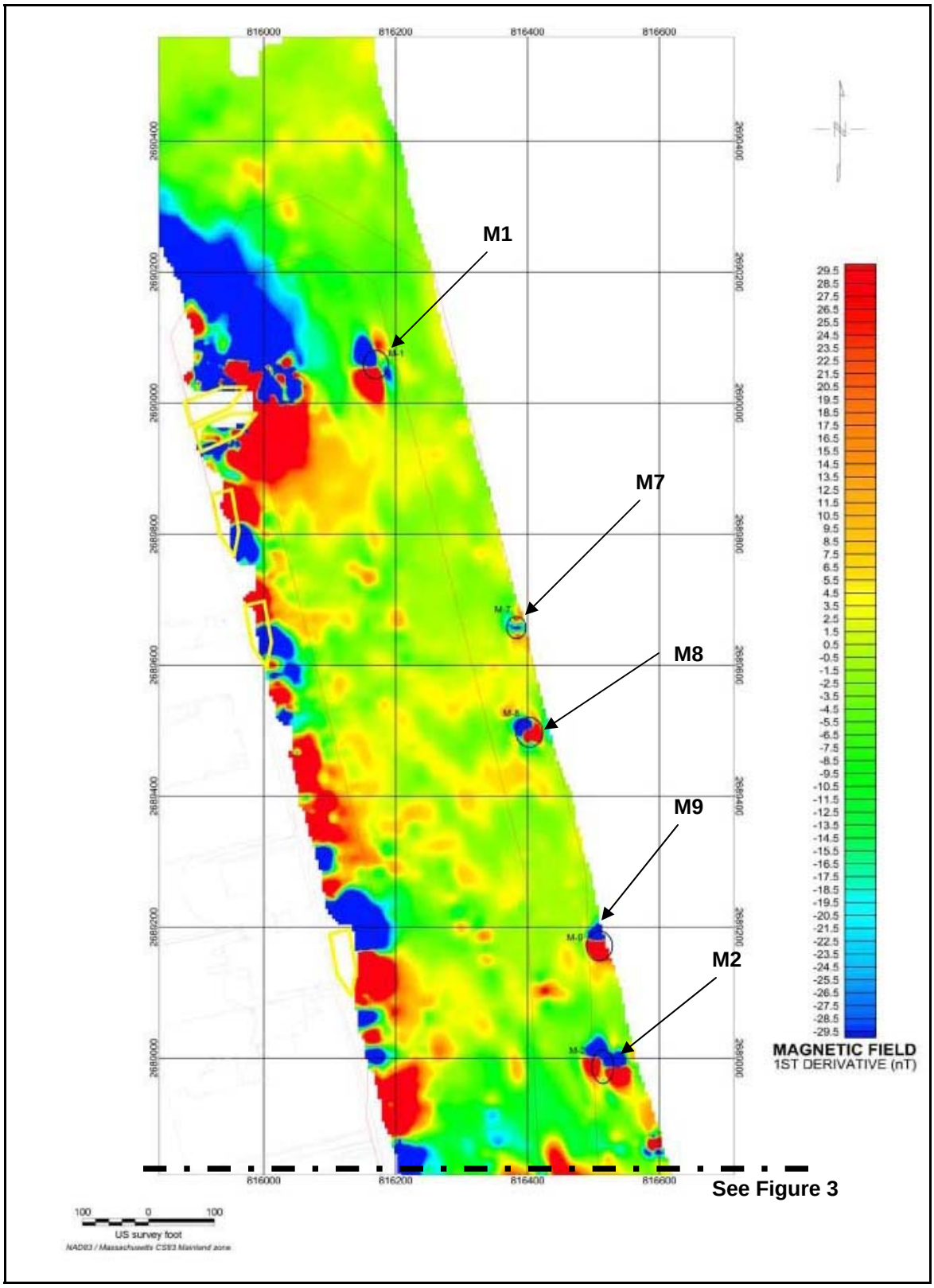

Figure 3: Magnetic Contour & Target Map – North Half of Project Area

Note: Magnetic data reduced to pole

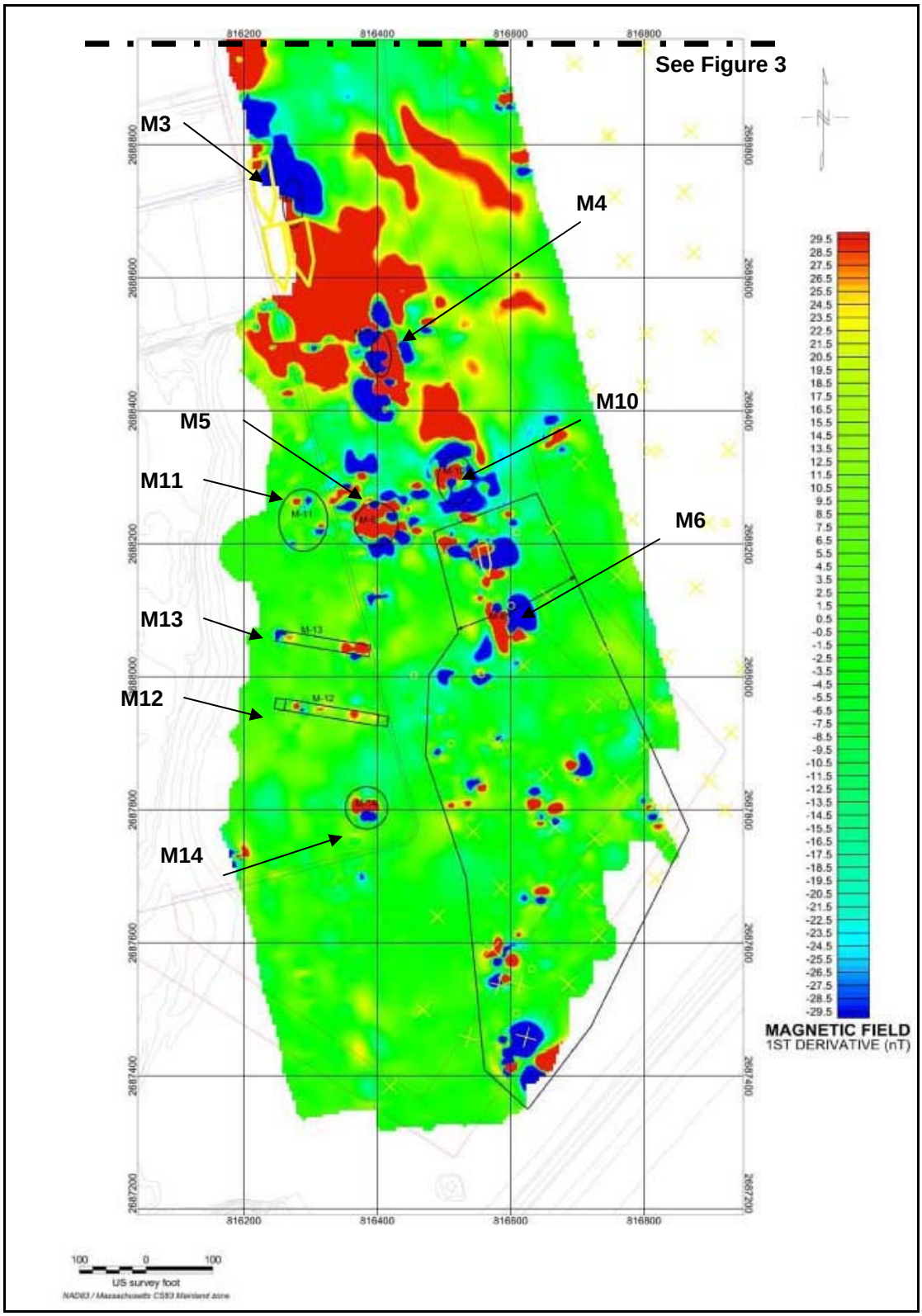

Figure 4: Magnetic Contour & Target Map – South Half of Project Area

Note: Magnetic data reduced to pole

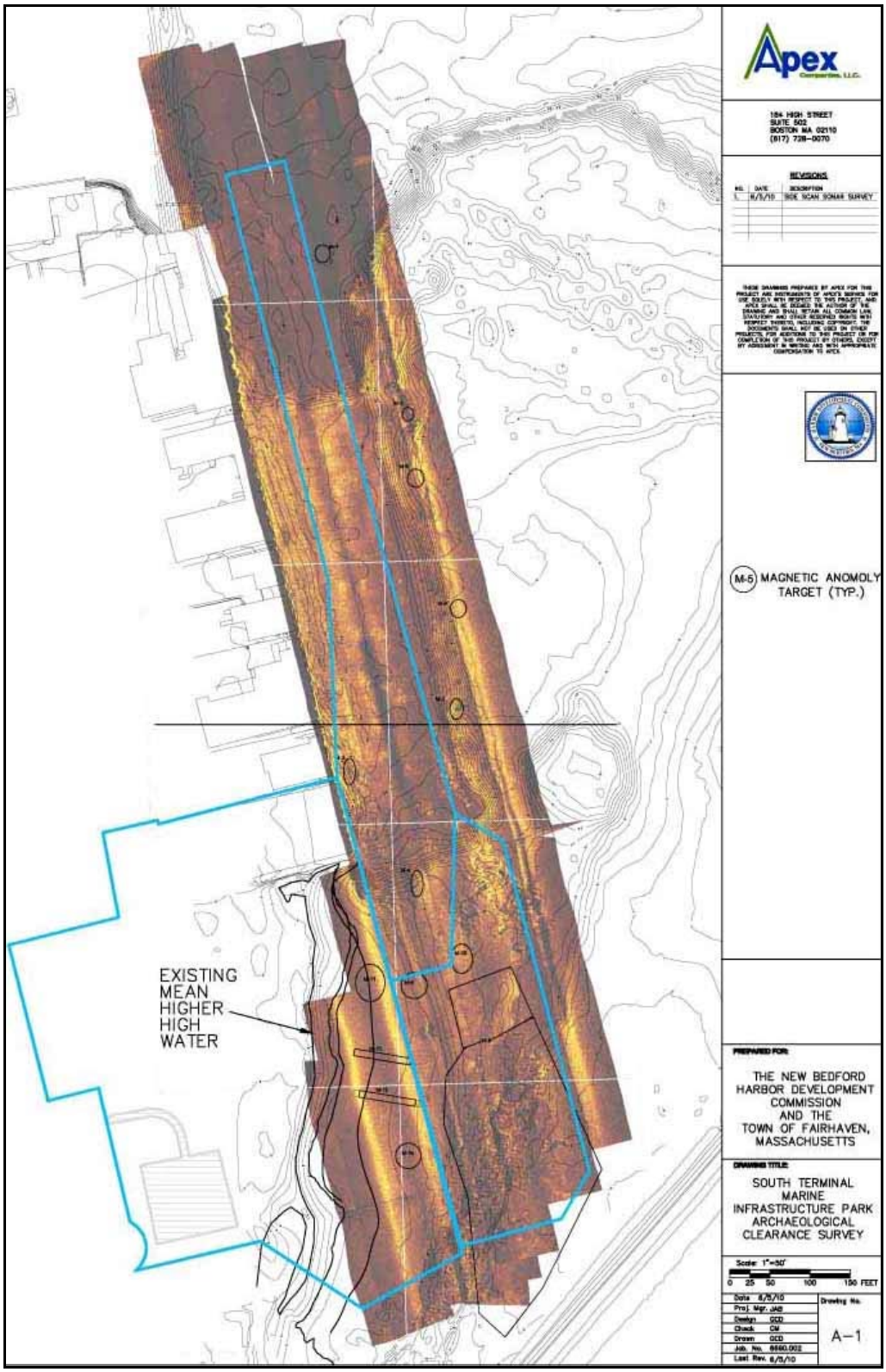

Figure 5. Sonar Mosaic

Note: Magnetic targets are circled

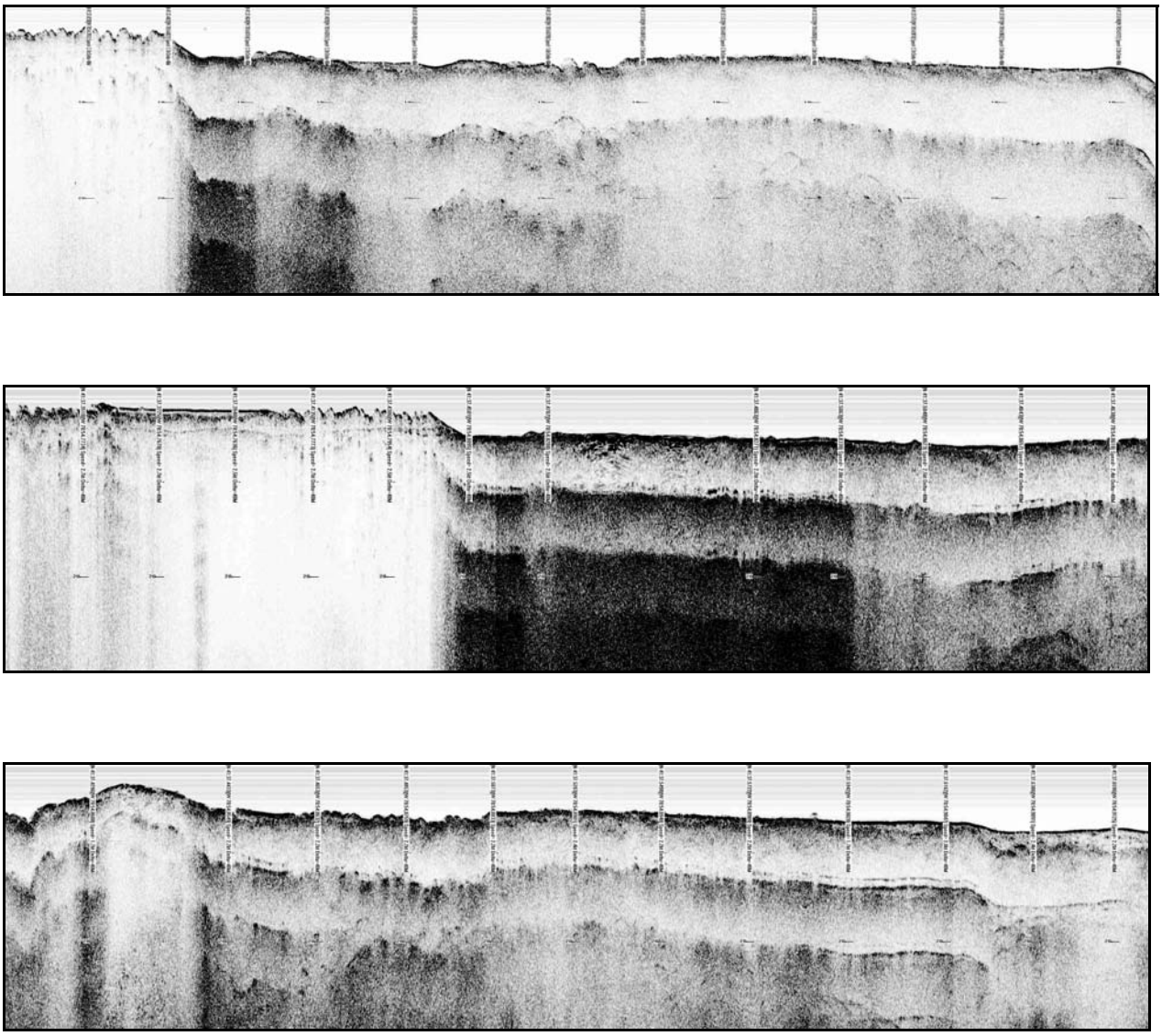

Figure 6. Examples of Sub Bottom Data Collected in New Bedford Project Area

Note: Little or no sub-bottom penetration was acheived

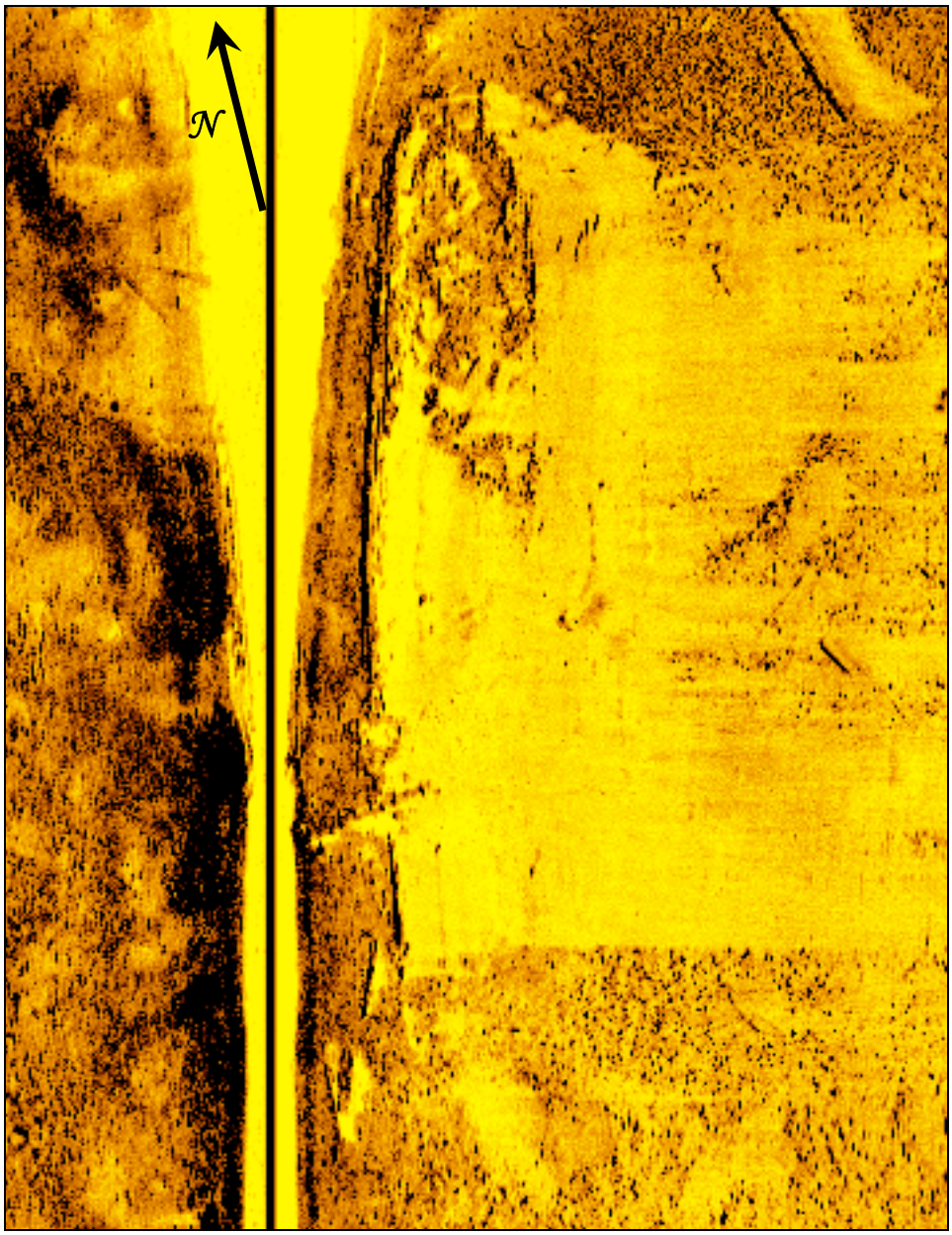

Figure 7. Sonar Image of Target M4/S5.

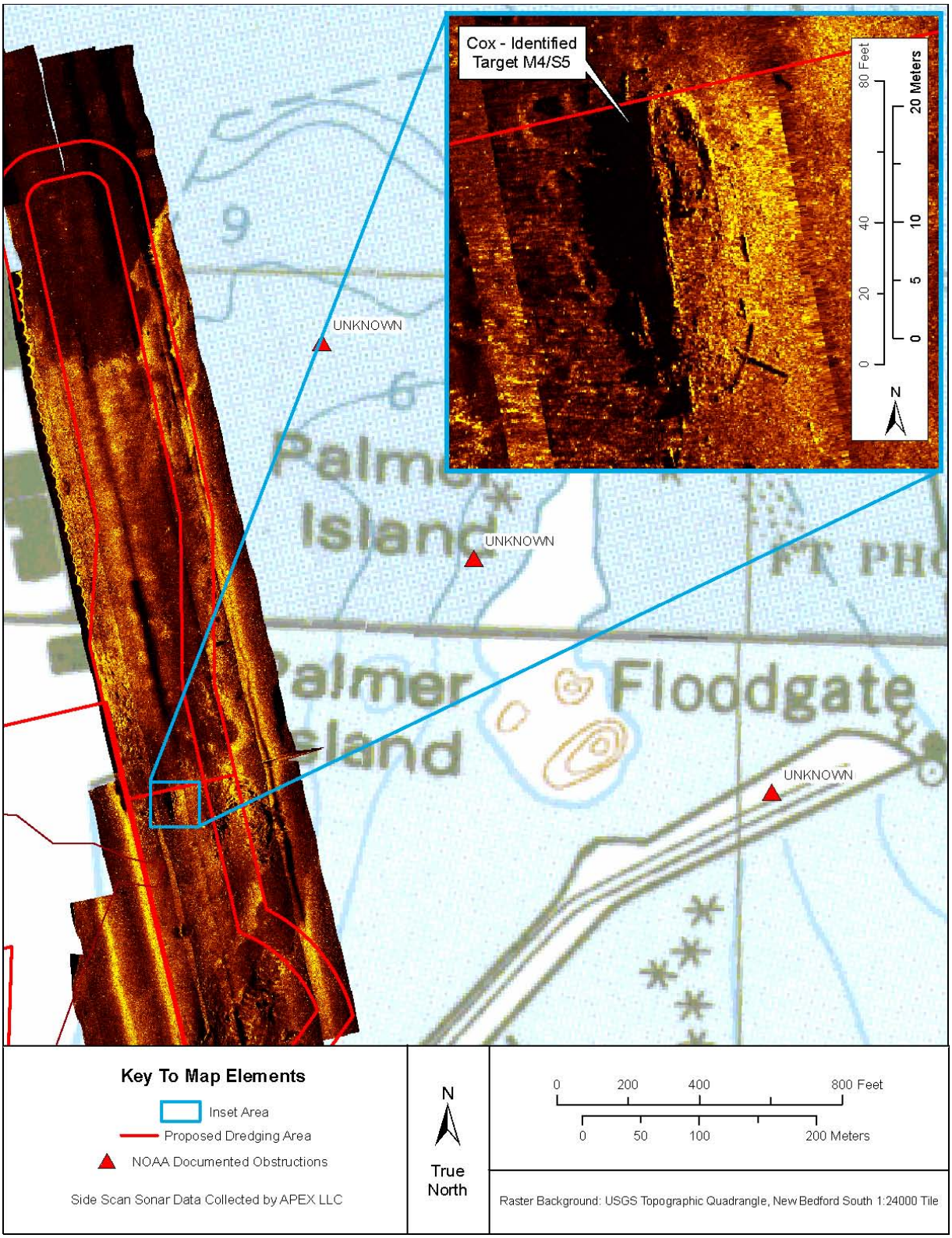

Figure 8. Location of Target M4/S5 in Relation to the Proposed Dredging

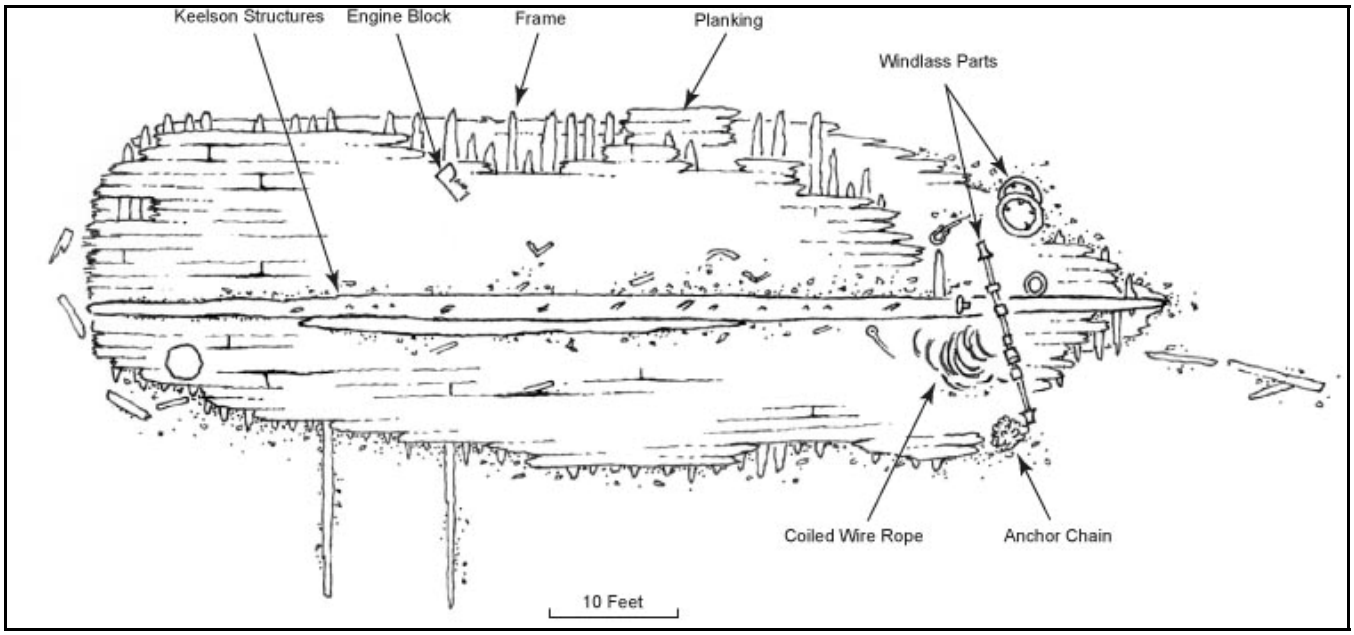

Figure 9. Site Map Sketch of Target M4/S5

PHASE II INVESTIGATION OF TARGET M4/S5

PROPOSED SOUTH TERMINAL MARINE INFRASTRUCTURE PARK
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR

APEX COMPANIES, LLC
184 HIGH STREET
BOSTON, MASSACHUSETTS 02110

SUBMITTED TO

BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
251 CAUSEWAY STREET, SUITE 800
BOSTON, MA 02114-2199

BY

J. LEE COX, JR.

DOLAN RESEARCH, INC.
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1 CROTON POINT AVENUE
CROTON-ON-HUDSON, NEW YORK 10520

JANUARY 2011

PHASE II INVESTIGATION OF TARGET M4/S5

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CROTON-ON-HUDSON, NY 10520

JANUARY 2011

MANAGEMENT SUMMARY

Dolan Research (DR) in association with John Milner Associates, Inc. (JMA) conducted a Phase II archeological investigation of underwater remote sensing Target M4/S5, a shipwreck, located within the sub-tidal portions of the Area of Potential effect (APE) associated with the proposed construction of the South Terminal Marine Infrastructure Park in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Industries, LLC, engineering consultant to the New Bedford Harbor Development Commission. Work was carried out in accordance with a Research Design Methodology (RDM) previously approved by both the Massachusetts Board of Underwater Archaeology (MBUAR) and the Massachusetts Historical Commission (MHC) under MBUAR Permit No. 10-004.

The Phase II investigation included two principal components: additional underwater archeological investigation to collect more information about the Target M4/S5, and documentary research to assist in confirming the identity the wreck. The wreck has been confirmed as the *Thomas H. Lawrence*, a three-masted schooner constructed in Boston in 1891, retrofitted in 1939 and abandoned in New Bedford Harbor in 1940. The abandoned vessel burned and sank in 1941 at the foot of Potamska Street in New Bedford. Data collected from the underwater investigation and through historical research was used to evaluate the significance of the wreck in terms of the National Register of Historic Places eligibility criteria (36 CFR 60.4).

The archeological research potential of the *Thomas H. Lawrence* wreck site is very limited. In addition to the vessel having burned prior to sinking, the site's integrity has been seriously diminished by dredging activities and the effects of ice and storms in New Bedford harbor. The existence of numerous extant three-masted schooners, in addition to several better preserved three-masted schooner wreck sites, further diminishes any archaeological research potential of the *Thomas H. Lawrence* wreck site. It is highly unlikely that additional investigation of the wreck would yield important historic information. In her deteriorated condition she cannot be considered a good representative of her vessel type.

No evidence was found suggesting the *Thomas H. Lawrence* was associated with a significant event. However, she *is* associated with the history of the New England -Middle Atlantic bulk cargo coastal trade. She was representative of the type of vessel involved in that trade and can be considered to be "associated with events that have made a significant contribution to the broad patterns of our history" (NRHP eligibility Criterion A). However, while the *Thomas H. Lawrence* wreck site might have been significant under Criterion A, in the opinion of the researchers, the significant loss of a variety of necessary aspects of integrity has negated her potential NRHP eligibility.

The historic research presented in this report is believed to be comprehensive and it is highly unlikely that any further investigation will locate additional significant information. No further investigation of the *Thomas H. Lawrence* is recommended.

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1.0 INTRODUCTION

This document is a report of the results of a Phase II archeological investigation of underwater remote sensing Target M4/S5 located within the sub-tidal portions of the Area of Potential effect (APE) associated with the proposed construction of the South Terminal Marine Infrastructure Park in the City of New Bedford, Bristol County, Massachusetts. The investigation was conducted on behalf of Apex Industries, LLC, engineering consultant to the New Bedford Harbor Development Commission. The work described here is being carried out in accordance with a Research Design Methodology (RDM) previously approved by both the Massachusetts Board of Underwater Archaeology (MBUAR) and the Massachusetts Historical Commission (MHC) under MBUAR Permit No. 10-004.

In addition to the survey of the subtidal portions of the Project Area, archeological surveys of the upland and intertidal portions of the Project Area (Klein and Kotlensky 2010; Leach et al. 2010) have also been completed. The Phase I marine archaeological reconnaissance survey (Cox 2010) (from the low tide line and deeper) identified a single remote sensing target (M4/S5, identified as a shipwreck) meriting further investigation within the area that will be affected by Project-related dredging and the construction of a bulkhead extension (Figure 1).

The Phase II investigation included two principal components: additional underwater archeological investigation to collect more information about the Target M4/S5, and documentary research to assist in confirming the identity the wreck and evaluating it significance, if any, in terms of National Register of Historic Places eligibility criteria (36 CFR 60.4).

All work was carried out in compliance with relevant portions of state regulations, as outlined in Massachusetts General Laws Chapter 9, Sections 26-27c, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71); and MEPA (301 CMR 11).

2.0 RESEARCH DESIGN METHODOLOGY

The overall goals of the Phase II site examination of Target M4/S5 in New Bedford Harbor, as stated in the RDM approved by both MBUAR and MHC (Cox 2010a), are:

1) to further document the shipwreck site, including data on the site's physical context, conditions, boundaries, the site's integrity, size, and age, and;

2) record sufficient information on the site to support a recommendation regarding the eligibility of the site in accordance with Section Two of the *National Register Bulletin 20: Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places* (Delgado 1992) (especially during the late nineteenth and early twentieth centuries).

During the Phase I investigation local informants had indicated that they believed the wreck associated with Target M4/S5 was that of the schooner *Thomas H. Lawrence*. This was partially consistent with information collected as part of Phase I background research which noted that, according to the MBUAR shipwreck list for New Bedford, the wreck of the *Thomas H. Lawrence* (September 21, 1938) was located "west of Palmer's Island." According to informants the wreck was an abandoned vessel that had burned on July, 4, 1941. This was inconsistent with the date of loss noted in MBUAR records and raised the possibility that the wreck associated Target M4/S5 might not be the *Thomas H. Lawrence*. Determining the identity of the wreck was, therefore, a first order priority.

2.1 RESEARCH QUESTIONS

The RDM proposed the following research questions to address the shipwreck associated with Target M4/S5 and to guide the direction and emphasis of background and documentary research.

1) Is the wreck associated with Target M4/S5 the schooner *Thomas H. Lawrence*?

2) How does the shipwreck fit within the overall distribution of documented shipwrecks within Massachusetts waters? Is it a common or rare type of resource?

3) What role did the vessel play in the history of maritime commerce, and was that role important?

4) Is the vessel associated with significant maritime technology or technological change?

2.2 BACKGROUND RESEARCH

Background and archival research was conducted to obtain information to supplement the results of the underwater archeological investigation and to aid in the development of an appropriate historic context for evaluating the significance of the wreck. Information of special interest included documentation confirming the identity of the wreck associated with Target M4/S5, and once the identity of the vessel was known attempting to locate any extant drawings or plans of the vessel, such as lines, profiles, deck plans, sail plans, and scantlings; historic photographs, lithographs, and drawings of the vessel, including views of the vessel

under construction; and documentation concerning the history of the vessel while it was in service.

Archives, data sources, and staff at the following institutions were consulted:

- The Massachusetts Board of Underwater Archaeology
- the Boston Public Library;
- the Massachusetts Institute of Technology Museum's Special Collections,
- the Massachusetts State Library;
- the Massachusetts State Archives;
- the New Bedford Whaling Museum;
- the Peabody Essex Museum, Salem;
- the New Bedford Public Library
- the Penobscot Marine Museum, Searsport, Maine;
- the Centerville Historical Museum;
- Mystic Seaport;
- the Maine Maritime Museum
- the Maine Maritime Academy, Castine, Maine

Shipindex. Org was consulted and identified 12 citations in 5 resources specifically mentioning the *Thomas H. Lawrence*. All of these were reviewed.

The American Schooner Association was contacted and asked to provide any information they might have pertaining to the Thomas H. Lawrence. On November 11, 2010, the ASA published the information request on their website blog http://wwwamschooner.org. As of January 5, 2011 no responses had been received.

3.0 RESULTS OF UNDERWATER ARCHEOLOGICAL INVESTIGATIONS

Phase II underwater archaeological fieldwork activities associated with the project were successfully completed during the week of 25 October, 2010. The goal of fieldwork was to collect information which could assist in evaluating the wreck's historical and archaeological significance, if any, including more detailed information on the integrity, condition, boundaries and size, structural components, function and context of the wreck site. A five person crew (four from Dolan Research, one from Apex) carried out the work. Diving operations were conducted from a 25-foot fiberglass workboat. Both SCUBA and surface-supplies air systems were used to investigate the wreck site.

Prior to conducting Phase II fieldwork activities, a Boat and Dive Safety Plan was prepared specifically for this project. All diving and boating operations were conducted according to safety guidelines outlined in plan. Diving activities were be carried out in accordance with Dolan Research, Inc. regulations developed to adhere strictly to OSHA, U.S. Navy, and U.S. Army Corps of Engineers standards for diving operations and under the direct supervision of a diving safety officer. All diving personnel were certified by a nationally recognized training organization and have specific training and experience in both SCUBA and surface supplied systems. The dive safety plan outlined all dive and safety procedures and included a list of regional and national emergency facilities to be contacted in the event of a diving or marine accident. Divers used both standard SCUBA and surface supplied equipment and wet or dry diving suits during any all site investigations.

Due to the contaminated nature of bottom sediments in New Bedford harbor, no excavations were conducted during the Phase II work. Initially, a level centerline was established next to the most prominent hull feature – the keelson assemblage (Photograph 1). From this centerline archaeologists successfully recorded the major surviving structural components of the hull, which included; the top of the keelson assemblage, ceiling planking at the aft end of the site, and exterior planking and frames along the starboard side (Photograph 2). Frame patterns were also recorded on the port side at the bow (south) end of the site.

While no dredging was done, four transects across the starboard side of the hull and one across the port side of the hull were cleared by hand to facilitate recording hull data. Clearing the transects by hand was cumbersome due to the presence of shells, marine growth, consolidated and un-consolidated bottom sediments, and a variety of discarded debris (Photograph 3). Profiles measuring widths and elevations were documented at the five transects across the hull. These measurements allowed archaeologists to generate both Plan/Profile and Perspective views of the wreck site (Figures 2-6). Video tape was gathered to assist the mapping of the site. Still picture images of diagnostic features were captured from the video tape and will be included in the final report. Finally, geographical coordinates were recorded for either end of the keelson.

The bow end (south) of the wreck site is tapered. However, the stern end is completely missing making it impossible to record the actual length of the hull. The width of the ship can be estimated since the surviving frames in the middle section of the site have survived to just below the turn of the bilge level. The keelson and planks at the aft end of the site are broken off in a fairly straight line suggesting the damage occurred mechanically. Much of the starboard side of the hull has broken from the hull and is resting on a slope that appears to be from dredging.

The wreck is located on a gently sloping bottom, 135 feet east-south-east from the southern corner of the existing South Terminal bulkhead (Figure 7). Water depth at the wreck site ranged from four feet to 10 feet (mean low water). At its highest level, timbers from the top of the keelson extend more than

2.5 feet above the sloping bottom. While wood timbers were exposed at several locations (primarily along the keelson), generally the entire site was covered with a stratum consisting of consolidated and unconsolidated mud, marine growth, shells, and general debris. Probing across the site confirmed that this layer over the hull was between 0.5 feet to 2.5 feet thick. The north end of the site has been dredged and the articulated portion of the hull stops at this location. The wreck is oriented roughly parallel with the shoreline, with the bow facing south toward the Hurricane Wall.

Coordinates for the two ends of the site are expressed in the Massachusetts state plane coordinate system (NAD83, feet):

North End	**E** 816,392	**N** 2,688,515
South End	**E** 816,404	**N** 2,688,423

Overall, the intact portion of the hull components was measured at 86.5 feet long by 29 feet wide. The frames sets measured 7 inches by 10 inches. The ceiling planks measured 3 inches thick by one foot across. The hull planking measured 4 inches thick. There are two layers of ceiling planking (Photograph 4). Some of the planks have ¾-inch bores for fasteners. Iron fasteners were found lying in the hull, along with some straps of iron. The keelson components are fastened together with wood trunnels (treenails) horizontally and large iron fasteners vertically. Along the length of wreck the surviving portion of the keelson assemblage varies. It appears to be mostly intact near the forward end of the site, just aft of the windlass (Photograph 5). At this location the keelson assemblage was comprised of nine sets of timbers, generally, 10 to 12-inches sided by 10-inches molded, that were stacked in three levels, three across. The trunnels and iron fasteners found on the keelson are approximately one inch in diameter. No mast steps or a potential centerboard well were exposed or identified at the wreck site.

A variety of different wooden treenail and iron fasteners were used to attach frames, planks and the keelson assemblage. A collapsed windlass was located near the bow end along with some anchor chain. The spindle of the windlass is 15 feet long and has a shaft three inches in diameter. Beyond the windlass, no significant machinery from the wreck site was identified on the bottom surface; there was no visible evidence of a donkey engine, pumps, winches, ground tackle, or a centerboard well. The vessel was clearly stripped of every salvageable piece of equipment when she was abandoned. Assorted modern debris was noted across the site: including a car engine block near the stern, a couple of batteries wedged in the area of the windlass, and a lot of wire rope coiled up in the bow.

In summary, the articulated portion of the wreck's hull was recorded to 86.5 feet long by 29 feet wide. Historical records indicate that the *Thomas H. Lawrence* was 137 feet long and 33 feet wide indicating that a significant portion of the hull (at least 51 feet of her length) is missing. Archaeological evidence recorded at the site suggests that the stern end of the vessel has been destroyed. The surviving hull is lying relatively flat on the bottom with a slight list to starboard. There were no surviving hull components from anywhere on the vessel except well below the waterline level. As noted in the RDM (Cox 2010a) approved by both the MBUAR and MHC, mechanical exaction was precluded because of the presence of contaminated sediments. Archaeologists cleared several (five) trenches by hand across the top of the site and used these sections of the hull to record the general construction techniques (Photograph 6).

4.0 THE *THOMAS H. LAWRENCE*

4.1 Confirming the Identity of Target M4/S5

As noted, the first step in the Phase II investigation was determining the identity of the wreck associated with Target M4/M5. Local informants had informed representatives of Apex Companies that the wreck was that of the schooner Thomas H. Lawrence. They also reported that the vessel, which had been abandoned for some time, had burned on July 4, 1941. This was inconsistent with the September 21, 1938 date of loss listed in MBUAR records. The results of the Phase 1 underwater examinations of the wreck (Cox 2010b) indicated that while the remains were consistent with a vessel of the same general size and type as the *Thomas H. Lawrence*, no evidence that could confirm the vessel's identity was observed.

Sgt. Jill Simmons of the New Bedford Police Marine Unit was the individual who originally identified the wreck to Apex representatives at being that *Thomas H. Lawrence*. Sgt. Simmons, in turn, identified Mr. Robert Lanagan as the source of her information. JMA personnel interviewed both Sgt. Simmons and Mr. Lanagan in New Bedford on November 8, 2010. Mr. Lanagan reported that he did not recall the wreck prior to its burning, but he recalled playing on its remains as a small child. Mr. Lanagan stated that the wreck was that of an abandoned vessel that had burned on July 4, 1941, and that it was "common knowledge" that the wreck was that of the *Thomas H. Lawrence*.

Microfilm copies of the New Bedford *Morning Mercury* and the New Bedford *Standard-Times* for the period from January1938 through July 1941 were examined at the New Bedford Public Library. Three mentions of the *Thomas H. Lawrence* were found. The June 11, 1940 issue of *The Standard-Times* reported that the ship, with only the first mate still aboard, had been abandoned in New Bedford Harbor and attempts to identify an owner were unsuccessful. The September 3, 1940 issue reported that the *Thomas H. Lawrence* "lay high aground at the foot of Potamska Street, blown there during the storm yesterday morning." An accompanying photo is captioned "Schooner Thomas H. Lawrence aground at the foot of Potamska Street" (Figure 7). This location corresponds exactly with the location of the wreck associated with Target M4/S5 (Figure 8).

4.2 The Builder (Robert Crosbie & Son)

In December 1890 the *Boston Journal* reported that Robert Crosbie & Son were constructing "a duplicate of the Francis Goodnow" (Anon.1890a) [see below]. The new schooner will be ready for sea in March" (Anon 1890a:1). The "new schooner" referred to is almost certainly the *Thomas H. Lawrence*.

Robert Crosbie appears to have been a member of a politically prominent Newfoundland family. Reeves (1994) in a study of Newfoundland politics during that period notes that People's Party candidate John Crosbie " possibly owed something to the example of his uncle, Robert Crosbie, who had built a large shipbuilding firm in East Boston and become one of its 'best known citizens' (Reeves 1994:59; Anon. 1896, cited in Reeve 1994). The prominence accorded to Robert Crosbie may be overstated. East Boston was an important shipbuilding center during the first half of the nineteenth century, but after the Civil War the wooden shipbuilding industry collapsed. After the turn of the century "docks that once hosted a proud shipbuilding industry were now railroad docks, encumbered by freight haulers, coal yards, and ship repair facilities . . ."(Anon. n.d.:4).

Only a few scattered references to vessels constructed by Crosbie & Sons, in addition to the *Thomas H. Lawrence* were located:

1878 – "The yacht *Thistle*, which attracted much attention in our harbor last season by-reason of her beauty and her remarkable speed, is advertised for sale by her owner and builder, Mr. Robert Crosbie, Harbor View" (Anon. 1878). A report of her purchase in 1883 by William Ziegler from E.C. Palmer of Boston describes her as "55 feet long, 47 feet on the water line, 17 feet 7 inches beam, 5 feet 2 inches deep" (Anon. 1883). (This vessel should not be confused with the America's Cup racer of the same name, constructed in Scotland in 1887).

1883 – "Crosbie & Son launched from their yard at Harbor View this noon the three-masted Schooner *W.E. & W.L. Tuck*" (Anon. 1883). She is described as "a four-hundred-ton beauty built for running as a coaster" (Nickerson and Nickerson 2008:139).

1883 – Schooner *A.B. Sherman*, tern, 167.7 x 34.9 x 15.3 ft., built December 1883 by R. Crosbie & Son, East Boston, cpt and owner A.B. Phillsbury, Baltimore (Walczyk n.d.)(ASA 1900:201).

1887 – "The bids for the construction of the new East Boston ferry boat have been awarded . . . Robert Crosbie & Son, for hull to be finished in eighty days . . . $18,800 . . . The specifications of the hull call for a length of 148 feet long, width of hull 83 feet, breadth of guard extreme 57 feet, depth of hold amidships 12 feet 6 inches" (Anon. 1887:8).

1890 – "schooner *Francis Goodnow* . . . has just been completed at the shipyard of Robert Crosbie & Son, Harbor View, East Boston . . . She is owned by Edwin P. Boggs, Capt. Coleman, her commander, and others, and cost $35,000" (Anon 1890:1). The *Francis Goodnow* was lost off Cape Elizabeth, Maine, in an April 1923 storm (Anon. 1923:1).

No mentions were found of any vessels constructed by Crosbie & Son after the construction of the *Thomas H. Lawrence*. While the *Thomas H. Lawrence* was under construction a Boston newspaper noted that Crosbie & Son "have done an extensive business in repairing vessels" (1890a). This may have been the business' mainstay rather than the construction of new vessels.

4.3 Vessel Description

The *Thomas H. Lawrence* was a three-masted schooner (tern) built at the Robert Crosbie & Son boatyard in East Boston in 1891 for $30,000. She was named after a Falmouth-based shareholder in the ship (Anonymous 2005). The first reference to the *Thomas H. Lawrence* in the *Record of American and Foreign Shipping* appears in the *Record*'s 1891 edition. She is identified as having been launched in April 1891 by R. Crosbie & Sons. Her launching was also reported in the April 8, 1891 issues of the *Boston Daily Globe*, the *Boston Journal* and the *Boston Daily Advertiser*. The *Globe* noted that "The vessel presented a fine appearance, being fully rigged and having all her sails bent. She was gaily decorated with flags, and carried a large company of interested passengers" (Anon 1891:1).

According to the the *Record of American and Foreign Shipping* she was a 356 ton vessel, measured 137 feet in length, 33.3 feet in breadth, and had a depth of 11 feet (ASA 1891:886). Later editions (ASA 1898:835; 1899:954; 1900:942) give the same dimensions but list her at 323 tons with a "draft" of 374. According to the *35th Annual List of Merchant Vessels of the United States* she had a registered gross tonnage of 374, a net tonnage of 322, a length of 134.7 feet, a beam of 33.3 feet, a depth of 11.0 feet, and a crew of 6 (DOC 1903:54). Subsequent editions (DOC 1918; 1920) of that publication contain the same

description. No explanation for the discrepancy in reported length is known.

No detailed description of the *Thomas H. Lawrence* beyond her basic dimensions was found. However, a detailed description of her sister ship the *Francis Goodnow* was published at the time of the latter's launching. The dimensions of the *Francis Goodnow* differ slightly from those of the *Thomas H, Lawrence*. However, given that both ships were built within months of one another, by the same shipyard, for the same owner, it is likely that the description also closely describes the *Thomas H. Lawrence*:

> She is built of white oak, yellow Southampton pine and hackmatack, excepting the decks and houses, which are white pine. She is squarely fastened throughout with refined iron, with Edison's patent iron pumps, Robinson's patent steering apparatus, powerful winches, the best ground tackle, two life boats and all the other equipments of a first-class vessel. She is built with a centerboard and is almost flat, and her model is designed to sail fast and carry a large cargo in comparison to her register.
>
> Outside she is painted black and inside pearl color, with the cabins grained in a variety of shades. She has a forecastle 20 feet long, under which is a patent iron windlass, worked by engine brakes on the forecastle. The house for the crew is 14x15 feet, and 6 feet 6 inches high, arranged for comfort and safety. There is a poop deck, the height of the main rail 40 feet, with its outline protected by a rail on turned stanchions. In it is a house and underneath are two cabins fitted with staterooms, the whole finely finished and neatly furnished. The bulwarks are two feet six inches high, and she can carry a deck load of lumber if required, and still have ample room for working ship. She can carry any cargo (Anon 1890b:1).

Several photos of the Thomas H. Lawrence were located in the collections of the Penobscot Marine Museum in Searsport, Maine (Photographs 7-18).

At least one painting of the *Thomas H. Lawrence* exists. It is a c.1892 oil on canvas painted by William Pierce Stubbs (1842-1909)(Plate 1).

No ships plans for the *Thomas H. Lawrence* were located and it is possible they never existed. Construction of a wooden vessel in the late nineteenth century, particularly at a small yard like Crosbie & Son, would not necessarily have required formal plans. A copy of the rigging plan for the *Thomas H. Lawrence* after her 1939 refit was located in collections of at the Peabody Essex Museum.

4.4 Operational History

The *Thomas H. Lawrence* was christened on April 8, 1891, by Augusta Kelley, the daughter of Captain Hiram R. Kelley of Centerville, Massachusetts. Kelley served at the vessel's master from the time of her launching until at least 1899[1]. Her original owner is reported to be Edwin P. Boggs.[2]

[1] Kelley was born in 1848. He was buried in Barnstable, Massachusetts in 1921 (Bunnell 1995:259).

A reconstruction of the operational history of the *Thomas H. Lawrence* was compiled through a review of shipping notices published in various east coast newspapers. The *Philadelphia Inquirer* in particular contains numerous mentions of the comings and goings of the *Thomas H. Lawrence* between 1891--the year of her launch--and 1921 (Table 1). Other newspapers, including the *Boston Globe, the* Portland *Daily Eastern Argus,* and various New York newspapers, also contain scattered mentions of the *Thomas H. Lawrence* during this period (Table 2). Three other references to the *Thomas H. Lawrence* during his period were found outside the shipping news sections:

- On February, 11, 1895, the New York Times, in an article discussing the overdue vessel *La Gascogne*, noted that "The statement from Provincetown today that the schooner Thomas H. Lawrence had sighted a disabled steamer ten miles east of Thatcher's Island, is thought to be incorrect."[3]

- On January 1, 1899 the *Boston Globe* reported that Capt. C.S. Nickerson, commander of the schooner "*Florence I. Lockwood* which is undergoing repairs at Brooklyn, will take command of the sch. *Thomas H. Lawrence* which is now loading coal at Guttenburg, NJ for this port. The regular caoomader of the Lawrence has returned to his Cape Cod home, sick with the grip."

- The January 1914 issue of *The Sailor's Magazine* reported that during December 1913, loan library No. 9703 was on the schooner *Adelia T. Carleton*, bound for Boston, after being "on the schooner Thomas H. Lawrence, bound for Salem, Mass., Capt. Rowe, with eight men in the crew" (Anon. 1914:31).

The Stature of Liberty-Ellis Island Foundation maintains a computer data base of passengers and ships entering the Port Of New York. Several mentions of the *Thomas H. Lawrence* were found in the records of ship manifests generated at the City Island inspection station (Table 3). These manifests provide detailed information about the composition of the *Thomas H. Lawrence*'s crew.[4]

Ports visited by the *Thomas H. Lawrence* during this period included, in addition to Philadelphia, New York and Boston, which appear frequently in shipping notices and other records include numerous ports in New England and the Middle Atlantic regions. Of the 31 ports identified as destinations or points of origin 13 are in Maine, and 7 are in Massachusetts. Identified cargos include stone (most probably granite from Maine quarries), paving blocks, ice, and coal (principally from Philadelphia for delivery to New England ports).

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[2] Boggs appears to have been a relatively wealthy Bostonian with a variety of business interests. In 1899 he is listed as the owner of the 65-foot yacht *Nashawena*, home port Boston , built in 1889 (DOC 1899). A 1908 directory identifies him as the vice president of the Bay State Fuel Company of Cambridge (Woodaman 1908:367). In February 1911 Francis Goodnow Boggs "took over the retail [lumber] yard of Joseph Goodnow and Company and the management of four coasting schooners [carried] under the name E.P. Boggs Company"(Anon 1912:33).

[3] This appears to be the only New York Times reference to the *Thomas H. Lawrence*. It is not mentioned in shipping news reported in that paper, possibly because that news appears to have confined itself to reporting on steamship activity.

4 The August 18, 1918 manifest notes that Captain Rowe "shipped/engaged" in 1901 in Maine. However, the record for June 29, 1920 notes that he ""shipped/engaged" in 1904 in Boston. It is unclear whether either or both of these dates are incorrect. Hiram Kelley was master of the *Thomas H. Lawrence* until at least 1901. It is possible that Rowe assumed command in 1901. It is also possible that Row served as member of the crew (mate?) from 1901 until assuming command in 1904.

Ownership of the *Thomas H. Lawrence* passed from E.G. Boggs to his son Francis Goodnow Boggs sometime after the death of the former on August 12, 1910 (Eliot 1913:272). As of 1935 her owner is identified as G.B. Gordon of Rockland, Maine. Ownership then passed in 1939 to the Pioneer Transportation Company (Tod 1965:126)(Newspaper articles quoted below state that Pioneer Transportation had only chartered the *Thomas H. Lawrence*).

During the 1930's the *Thomas H. Lawrence* "was kept busy along the Atlantic coast from the West Indies to Canada . . ." (Tod 1965:126). Tod lists a few of her runs during this period as follows:

- 1932 – arrived Boston September 15th; 5 days from Belliveau Cove;
- 1934 – arrived Havana, Cuba, May 18th; 13 days from New York;
- 1934 – arrived Georgetown, S.C., June 6th; 6 days from Havana;
- 1934 – arrived Boston November 26th; 11 days from St. John;
- 1935 – arrived Boston April 24th; 5 days from St. Martin's;
- 1936 – arrived Boston February 26th; 6 days from St. Andrews; and
- 1938 – arrived New York August 30th; 23 days from St. John.

In December 1934 the *Brooklyn Daily Eagle* carried an extensive front-page story about "eighteen sailing vessels [that] earn their way around the world using Brooklyn as a port." The story contains several mentions of the *Thomas H. Lawrence*:

> At the moment this is written the three-masted schooner Thomas H. Lawrence, built in 1891, is discharging lumber and poles in Whale Creek, Greenpoint at the dock of Leary & Reid . . . The poles she is discharging now in Greenpoint came from above Reversible Falls, St. John, N.B. . . .Capt. Charles Trenholm, master of the Lawrence, is taking coal East on the return trip in all probability (Anon 1934:1).

In December 1938 the *Poughkeepsie Evening Star* published a front-page story about the *Thomas H. Lawrence*, "one of the twelve remaining commercial schooners on the Atlantic seaboard" when she docked "at Dalton's unloading 300,000 feet of lumber taken aboard at Machias, Maine. She came to Poughkeepsie from Providence, R.I." (Anon 1938:1). Her master is identified as Captain Winsor W. Torrey.

> "The boast has no propeller and no engines 'whatsoever' to help out when 'there's no wind.' There is a donkey engine aboard to help with hoisting lumber. . . . The boat has a four man crew, including Adam Grant, first mate, who's been with the boat nine years. . . In the winter the boat has to be 'sheathed,' which means that planks are fastened all around at the water line . . . . 'Sometimes you have to 'double sheath' [Torrey] said. 'They'll be doing that soon with this boat' . . . The man who provides the sails is Geirge Gordon of Boston

In 1939 the *Thomas H. Lawrence* received a complete refit at Rockland, Maine. (Tod 1965:126). She was photographed in August of 1939 while at Snow's Shipyard in Rockland (Photographs x—X).

> Much of her rigging was done over, in some places turnbuckles replacing deadeyes and lanyards, so that she was a mixture of ancient and modern. She was given new hatches, and much other new wood where it was badly needed. Her bottom was caulked before

> painting. When she was ready for sea, she looked like a new vessel although an eight inch hog spoilt the sweep of her sheer.
>
> Her owners planned to enter her into the Cape Verde trade between New Bedford and the Islands with passengers and cargo[5]. Passenger fares were to have been $60 one way, $100 round trip. Sailing empty from Rockland to load at New Bedford, the old schooner slid down the shoreline in late August. As she approached Massachusetts, a heavy northeast gale came in from the Atlantic, driving her down a leeward shore. As the water rapidly shoaled off Plum Island, Captain Antonio Perry let go the anchor, hoping that it would hold him off the beach, but when the chain snapped, the tern was left to drift helplessly before the blasts, completely out of control. A second anchor proved useless, just dragging over the bottom. After bouncing over three sand bars, the Lawrence finally flung herself on Crane's Beach, Ipswich, where it seemed that she would be a total loss. At low water she was almost dry; at high water she was still too far ashore to pull clear.
>
> Hope of saving the tern had just about gone when a lighter with sandsucker equipment dug a channel to her, enabling the Coast Guard to tow her back into deep water. The next seven months were spent at Chelsea, Boston, where she was given a refit. Her rudder which had been smashed in the grounding, was mended; her seams were again caulked" (Tod 1965:126-7).

Photograph 18 shows the Thomas H. Lawrence aground at Crane's Beach. A 1939 newspaper account provides some additional information:

> Idle for many weeks while damaged received from going ashore on Ipswich in September was being repaired, the three-mastred schooner Thomas H. Lawrence is being fitted for a possible trip to the Cape Verde Islands. The craft is moored in the Reserved Channel near the Army Base, South Boston. The 48-year-old vessel is expected to ply between New Bedford and the islands off the west coast of Africa where a packet fleet once did a thriving business. Capt. Jose J. Pereira [sic] of New Bedford is skipper (Anon 1939:15).

On April 23, 1940 the *Thomas H. Lawrence* departed Boston bound for Jacksonville to "load general cargo for the Islands. A few days later she put into New Bedford as she was leaking" (Tod 1965:127). On June 11 New Bedford newspapers carried a front-page story and photo (Figure 7) about the *Thomas H. Lawrence*:

> Today her crew of eight, her captain, and even her owners, appeared to have forsaken the lofty-sparred old coasting vessel, and the mate alone remained aboard the craft anchored in New Bedford Harbor. . . . Yesterday Captain Jose J. Pereira of this city, master of the Lawrence, turned in his papers to Deputy Collector of Customs Edward J. Fitzgerald, signifying in maritime terms that he was quitting the vessel and relinquishing all responsibility. . . .

[5] The Cape Verde packet trade has a special relevance to the history of New Bedford (Almeida 1978; Halter 1993). However, a comprehensive inventory of voyages between New Bedford and the Cape Verde islands, from 1860 to 1920, compiled from reports in the New Bedford *Evening Standard* and *Morning Mercury*, makes no mention of the *Thomas H. Lawrence*. Subsequent events suggest she never travelled to the Cape Verde Islands. At least one three-masted schooner, the *Lucy Evelyn*, was still travelling between New Bedford and the Cape Verde Islands as late as 1948 (Almeida 2978:36-37).

> The Lawrence dragged her anchor some 30 feet, the customs official said today, and he ordered Captain Perriera to move the vessel out of the channel before he departed yesterday and to give her more scope. Mr. Fitzgerald quoted the Lawrence's skipper as saying that the three-master also was ""leaking badly". . . .
>
> Customs House officials added action already had started in the attempt to locate someone responsible for the vessel. The Lawrence is listed as being chartered by the Pioneer Transportation Company of Boston, they said . . .
>
> The schooner, loaded with a good-sized mixed cargo, including sugar, oil and kerosene, all of which was consigned to the Cape Verde Islands . . .[is believed to be insured ?] . . . by Lloyds, although names of the policy holders have not yet been discovered. The lone mate said he did not know who owned the vessel, while it was reported by Captain Perreira that he understood that arrangements had been made to berth the vessel at the Greene and Wood Wharf. Officials of the Greene and Wood Pier said no such arrangements had been made (Anon 1940a:1).

On September 3, 1940, four months after her arrival in New Bedford the *Thomas H. Lawrence* "lay high aground at the foot of Potamska Street, blown there during the storm yesterday morning . . . resting comparatively level in shallow water approximately 100 feet from shore . . . The stranded and apparently abandoned schooner, empty of cargo and for months without a caretaker, was apparently doomed to burn to the waterline (Anon 1940b:1).

The article goes on to not that the cargo aboard in June had been "trans-shipped to the islands aboard the Capitana, that her owners were still unknown".

"By the middle of 1943, [the *Thomas H. Lawrence*] had been completely stripped, her masts were gone overboard and her hull was beginning to disintegrate" (Anon. 1945:294). "Before the war was over she had been pretty well broken up and by 1947 only parts of her ribs and keel showed above low water" (Tod 1965:127).

5.0 HISTORIC CONTEXT

5.1 Schooners and their Role in American Maritime Commerce

The information in this section presents the historic context within which the significance of the *Thomas H. Lawrence* is evaluated.

5.1.1 The Schooner as a Vessel Type

Once a common sight in North American ports, the schooner served as a principal coastwise shipping vessel of American, Canadian, and British merchant traders through the nineteenth and early twentieth centuries. Schooners are defined as sailing vessels with triangular sails aligned to the keel of the vessel, often called "fore-and-aft" rigging. Fore-and-aft rigging contrasts with the more conventional "square rigging" arrangement with square-shaped sails set perpendicular to the keel of a vessel and was more common to larger, ocean-going period merchant vessels such as clippers that gained speed by greater sail area. Nineteenth century shipbuilders typically built schooners with two or more masts, with hulls typically ranging from 200 to 1,000 tons or greater in size. Although many were built for transoceanic travel, most North American schooner owners participated in coastwise trading, profiting in interstate commerce, including trade with and among the Canadian maritime provinces. In its later history, the size of a schooner relative to larger sailing vessels and steamships, together with rigging that could be handled by a crew of less than ten, attracted owners who profited in shipping cheap bulk cargoes (Greenhill 1980:75). Late-nineteenth century owners were keen to take advantage of a schooner's low cost of operation by shipping bulk products as their prices peaked from season to season between regions. For instance, schooner owners in the 1880s could see a good return on their investment by shipping coal from Norfolk and Philadelphia to ports in Maine during the late fall and early winter, then returning with timber from those ports.

Most maritime historians credit Dutch shipbuilders with the development of the first true schooners in the sixteenth and seventeenth centuries (MacGregor 1997:13). By the early eighteenth century, many of these vessels were participating in trade with several North Atlantic ports, in Britain, and North America in particular. Early seventeenth century colonial American shipbuilders began adopting the designs of these Dutch vessels because they possessed several advantages relative to other vessel types in common use at that time, such as brigs, ketches, and sloops. In doing so, they may have even coined the term "schooner" itself, in Gloucester, Massachusetts in 1713 but with Scottish origins in the word "scon" or "scoon," meaning to skip or glide over the surface of water (MacGregor 1997:17). Regardless of etymology, the influence of American shipbuilders in the development of the schooner is attested in the common construction and adoption of schooners in New England and Middle Atlantic ports by 1750. Most of these vessels were two-masted and rated less than 150 tons. Their rapid emergence largely resulted from the several advantages offered by the schooner design over other existing watercraft. Principally, the comparative ease by which crews could handle a schooner's rigging and smaller sails encouraged ship owners to invest in schooners in order to lower costs in operation and upkeep. By comparison, square-rigged vessels required larger crews that had go aloft into the ships rigging to manage the sails. North American schooners were also designed for speed and maneuverability in shallow bays and estuaries, allowing them to reduce sailing times and access the many natural ports along the eastern seaboard and gulf coast that had not undergone extensive dredging. The advantages inherent in schooners were not limited to commercial needs. The British Royal Navy took an interest in the design of the schooner and purchased a number of them from New England shipbuilders prior to the 1770s, while the

early American navy incorporated several for operations during the War for Independence and after (MacGregor 1997:19).

Two-masted schooners made their peak appearance in American coastal and Great Lakes ports by the 1860s. After the Civil War, ship builders began building larger schooners, with three masts, frequently called "tern schooners," 'tern' meaning three-of-a-kind (MacGregor 1997:73). Through the first half of the nineteenth century, schooner owners profited in shipping diverse freight between ports. Although by the late nineteenth century steam-powered vessels were beginning to capture much of the shipping once carried by schooners, many schooner owners adapted by focusing on shipping bulk cargoes, such as coal and timber, and trading in smaller ports that were less favorable for deeper draft vessels. In addition to focusing on bulk cargoes, schooner builders also began incorporating novel materials and power, like steel, in the hull and rigging construction of schooners, and steam donkey engines that lessened their cost of operation and upkeep. Such improvements also extended the commercial lifetimes of many vessels. Despite such measures, less than ten schooners remained in commercial service in American ports by World War II. A depressed national economy through the 1930s, coupled with increased competition from newer less-costly internal combustion-powered merchant vessels and overland trucking, contributed to the final demise of the schooner as a merchant vessel. Several wooden and steel schooners remain in use in the present but serve primarily in educational and recreational capacities.

Also noteworthy in the history of the schooner is the schooner barge. As schooners were becoming less profitable at the close of the nineteenth century, many owners maintained the profitability of their schooners by converting their vessels into dedicated schooner barges. A relatively straight forward process, owners would have the masts and rigging removed from a schooner or pared down in size, creating a vessel mostly dependent on a tug boat or other powered-vessel to tow it by a line (Morris 1984:4). Unlike the longer streamlined hulls of square-rigged oceangoing vessels, the large-capacity hulls of most schooners were well-suited for barge service since they were constructed for coastwise and Great Lakes navigation. Frequently, barge owners would keep shorter masts and rigging intact on a schooner barge to provide some auxiliary power to further reduce fuel costs for a tug boat (Morris 1984:6). Often, tug boats would haul up to six schooner barges at once in a formation called a "tow." Such an arrangement led to significant cost savings because each barge did not need to be as fully manned as it would if it were operated as a fully-rigged schooner. Tows of schooner barges were particularly well adapted for shipping coal, timber, and ice for companies who owned several barges. For instance, the Lehigh Coal and Navigation Company of Philadelphia and the Knickerbocker Ice Company of New York owned sizable fleets of schooner barges to transport their commodities from port to port (Morris 1984). By the early twentieth century, the use of converted schooners had proven profitable enough for some shipbuilders to specialize in constructing schooner hauls for exclusive use as barges. Such specialization began a trend in vessel construction that that led to an altogether separate vessel form. By the 1920s, barge owners and responsive builders were beginning to construct flat-bottomed steel-hauled barges for tows that required fewer dedicated personnel to maintain them, leading to the multiuse barge as it is known in the present. The trend towards the use of schooner barge tows significantly contributed to the demise of the fully-rigged schooner as a common merchant vessel in American waters.

5.1.2 Schooners in Merchant Service

In 1817, the U.S. Congress passed the Navigation Act, a law that effectively restricted coastwise trade between American ports to American owned vessels (Parker 1948:14). The legislation protected domestic shipping interests and created a reliable source of profit for ship owners who participated in

waterborne interstate shipping. By the 1820s, the New England and Middle Atlantic states stood to profit the most from this legislation, since they hosted well-established shipyards, eager investors, and an experienced corps of merchant ship masters and seamen. This legislation remained in effect throughout the nineteenth century, curtailing any foreign competition in ownership and shipping for interstate commerce during that period. Such political action provided a key condition for American ship owners to maintain steady profits, but still allowed wide latitude of competition between owners themselves since the overall obstacles for entry into shipping were fairly low. At the same time, the American economy throughout the nineteenth century experienced sustained growth that largely depended upon raw material extraction and bulk shipment. Together with a need to transport finished goods, ship owners stood to profit with the opening of an increasing number of timber tracts and mines throughout the coastal and near inland regions of the nation from the 1850s onwards.

Given such an encouraging political and economic landscape, a reinforcing dynamism took form between ship builders and investors as they sought to profit by rapidly absorbing the most successful improvements as they emerged. Such advances came in the form of small incremental improvements in design, size, and management and culminated in the appearance of fleets of schooners that incorporated the most advantageous construction and elements (MacGregor 1997). The constant contact between shipwrights and those who manned schooners themselves certainly played a strong role in the maturation of the schooner's form. Overall, shipbuilders were able to accomplish such profitable uniformity because of the relatively free-flow of knowledge between shipbuilders themselves, the skilled shipwrights they employed, and ship masters and seamen. Many of these participants might fulfill multiple roles in this dynamic, by building and owning schooners for instance, further reinforcing the success of particular schooner designs. By the mid-nineteenth century, ship builders had established optimal designs and materials in the construction of schooners; so that whether they included two, three, four, or more masts, schooners tended to be fairly similar in design after the 1860s. However, ship builders and those who bought their ships, were also keen to understand the necessity of building with an eye to where a schooner would sail. Subtle variations in the design of North American schooners tended to stem from ship builders adapting to the conditions that they confronted in different coastal regions. For instance, a schooner built for the west coast tended to have a hull with a deeper cutting keel taking advantage of deeper Pacific coastal bays compared with the relatively flat bottomed schooners of the east coast that had to operate in much more shallow silted bays and ports (MacGregor 1997:71-72).

Although steam-powered vessels continued to capture an increasing share of coastwise shipping through 1900, schooners remained profitable, especially in the earliest decades of steam. Since they relied on wind for power and needed only small crews, schooners and other sailing vessels retained a cost advantage over steam into the mid-nineteenth century. The relative slow speed, checkered dependability, and seemingly frequent deadly boiler explosions associated with steam-powered vessels before the 1860s encouraged many owners to maintain their investments in schooners as a way to profit on shipping. This was particularly true as the capacity of schooners increased from 200 tons to 400 tons and more on the eve of the Civil War, allowing them to compete with the capacities of many steam-powered ships. Through the 1860s, the owners of steam-powered vessels tended to focus on passenger, mail, and small freight transport, leaving bulk cargo shipping an attractive option for many schooner owners. The landward growth of steam power along the east coast, in the form of mills, gas works, and other coal-dependent industries in port cities, however, provided sustained profit potential for schooners in the coastwise trade. The growth of cities themselves bolstered the demand for finished lumber products produced in places like Maine, Georgia, the Great Lakes, and the Pacific Northwest. Ports in many of these places, such as Calais, Maine, were situated up tidal coastal rivers that had not undergone any substantial navigation improvements. Until such improvements were made, deeper draft oceangoing

steam-powered vessels had more difficulty accessing these ports, leaving them profitable places for schooners to visit. Internal transportation had greatly improved during the first half of the nineteenth century, with many turnpikes, canals, and railroads laid out radiating away from urban cores into the western interior of the country. Yet most early canals and railroads did not provide transportation *between* coastal cities. As a result, schooners were important for shipping between cities situated along the coast, acting as the waterborne "tractor trailers" of the early to mid-nineteenth century.

5.1.3 Historical Context: Longevity of the Schooner in North American Shipping

As steam-powered vessels grew in size, power, and range after the Civil War, their owners also diversified what they carried, and began to profit in shipping the mixed freight cargoes once dominated by schooners and other coastwise sailing vessels. With such increased competition, some schooner owners operated their vessels as long as they remained profitable, but withdrew from ownership as profit margins diminished. On the other hand, many schooner owners continued to profit by focusing more on the trade in large bulk cargoes, particularly coal, timber, stone, and ice (Greenhill 1980: 75). These cargoes formed a reinforcing "triangular trade," with owners making the utmost effort to have their schooners laden with profitable cargo every time they left port. As maritime historians have noted, schooner owners were making the majority of their profits in shipping coal from terminal ports such as Philadelphia, Baltimore, Newport News, and Norfolk to other ports at a distance from coal-producing regions by 1900 (Parker 1948; Greenhill 1980: 75). Before 1900, the coal shipping business itself retained some internal specialization, with schooners leaving Philadelphia and New York laden with anthracite coal, and those leaving ports between Baltimore and Norfolk loaded with bituminous coal. After 1900, bituminous coal made up much of the coal that schooners transported and was probably sold to large dock-side quays that supplied steam-powered ships, along with any local coal-consuming industries. Once unloaded, the crew of a schooner would take on some form of bulk cargo to transport on the next voyage. Schooners often followed a seasonal pattern within a given coastal region. If they were delivering coal to ports in northern New England by late fall, namely Maine, then a schooner's crew would often take on a load of either unfinished timber or lumber to sell in any port to the south; after selling that cargo at ports in southern New England, schooners would often leave with their holds full of stone or ice to transport back to terminal coal ports, then repeat.

Although many schooner owners had adapted to competition from steam, their efforts could only protect them so much. Steam-powered vessels gained an increasingly greater share of shipping because they possessed distinct advantages over sail-only vessels. Newer steel-hulled steam-powered vessels, often built with a hybrid design, with some sail capability, but more frequently with steam-power alone, were increasing in size, speed, and dependability after the 1880s. Such vessels, although more costly to operate than schooners, could offset their high cost of construction and operation by shipping larger quantities of cargo. The advantages of steam over sail were particularly acute in Great Lakes shipping, as steam-powered vessels rapidly replaced schooners for shipping iron ore and timber. At the same time, steam-powered ships were proving capable of handling the challenge of the seasons and could operate through harsh coastal winter conditions. Yet despite the advantages of steam-power, a reduced schooner fleet retained enough advantages to remain profitable through the early twentieth century Greenhill 1980:74-76). Maritime historians tend to attribute the perseverance of the schooner into the 1930s as a result of the advantages that they held over other ships. However, put another way, their continued profitability was due to several favorable conditions and not necessarily related to the management of schooner owners and crews themselves.

Owners found another way to keep the schooner profitable by building them with greater capacity than earlier schooners. Larger wood hull schooners rigged with four or more masts were constructed during

the last quarter of the 19th century and employed as economical transport vessels until after the First World War. The four-masted rigs evolved from the three-masted schooner which was first introduced in the United States by the 1790s. After the conclusion of the Civil War there was an increased demand for schooners, prompting a dramatic increase of schooner construction activity. In conjunction with the increased numbers of schooners built, the average size of the schooners steadily progressed to the point where a three-masted rig was often not sufficient to handle such a large vessel. Thus, after some earlier experimentation, the first four-masted schooner was launched in 1880 (Morris 1975:1). Shortly thereafter, the hull lengths were increased and additional masts were added. Ten six-masted schooners and one seven-masted schooner (Thomas W. Lawson) were launched during this period (MacGregor 1997:153).

Between 1880 and 1921, 458 four-masted schooners were built in a fairly standardized fashion at shipyards along the East and Gulf coasts of the United States. A total of 521 four-masted schooners were owned and operated along the eastern portion of the United States. In addition to the American built schooners, there were foreign built ships, re-rigged vessels and vessels built in Canada and on the Great Lakes. All but seven of these ships were built with wooden hulls (Morris 1975:5). These larger schooners were designed to carry non-perishable bulk cargoes such as lumber, coal, iron ore, phosphates, and fertilizer. World War I created a strong demand for these commercial sailing vessels but shortly thereafter, the need for this vessel type waned. The last three four-masted schooners were launched in 1921 and the vessel type quickly became obsolete in the age of motorized ships.

Two specific categories of four-masted schooners evolved. Distinctions between the two categories were evidenced in the hull characteristics of the vessels; a deep hull and a shallow hull with a center board. The majority of the schooners were built with two decks, although occasionally the ‘tween deck was not planked, rather having only a set of exposed deck beams running athwartships. Many of the schooners were built with flush decks topsides (known as hurricane decks) that extended unbroken from stem to stern. Vessels with hurricane decks were typically protected with an open rail and stanchion outfit that ran the length of the vessel. A different arrangement on other vessels featured a short well deck aft of the fo’c’sle head extending to the main mast and followed by a quarter deck that was protected by a rail (Morris, 1975: 3-5).

The schooner rig was essentially a simple, efficient system and a 200 foot ship could be effectively operated by a crew of less than ten men. Schooners had a fore, main, mizzen and spanker (on four-masted ships) masts that were made up of two sections. The lower masts carried a large fore and aft mainsail supported by a gaff and a boom; the top masts were rigged with gaff topsails. This type of rig presented the captain of the ship with only a few trim options in the advent of bad weather. The gaff top sails and most of the head sails could be removed but the next measure was to reef the formidable mainsails on the lower masts. Although crew members employed a donkey engine to manage the three (or four) main sails, the process of reefing in rough weather was an arduous task (Greenhill 1980:74). The steam donkey engine typically located on the starboard side of the forward house, was used to hoist sails, to raise and lower anchors, to work the cargo booms and to power the ships’ pumps (Morris, 1975:74). Accommodations for the captain and crew were basic. The captain and officers typically lived in several cabins located in the after house, while the crew slept in the forward, portside of the foc’s’le house.

As steam-power grew more profitable through 1900, ownership expanded and consolidated in response to fluctuating economic conditions. In consolidating and focusing on dependable sources of revenue,

steamship line owners left niche opportunities open for smaller operators, including the large fleet of schooners remaining in operation in the years before World War I. Although the schooners remaining by 1900 would comprise the bulk of the schooner fleet in service over the next two decades, some shipyards, particularly in Maine and the Pacific Northwest, continued to build a limited number of schooners, indicating that new vessels remained in demand. Since they continued to have a low overall cost of operation, schooners stood to gain from sudden increased demands in shipping, as happened during the wartime years of World War I. Still, schooner owners could profit from short-term and more local demands, such as supplying lumber for the boom in construction in Florida during the 1920s or participating in passenger trade with the Cape Verde islands during this same period (MacGregor 1997:72). Although coal and newer internal combustion-powered vessels were clearly dominating most shipping lines by the 1920s, schooners could also find profit by operating out of marginal ports, especially in the Caribbean, where petroleum fuel supplies were not delivered on a regular basis or were simply non-existent.

Despite such advantages, commercial schooner construction in North America had come to a close by the early 1920s. Emerging fleets of oil-fired and internal-combustion-powered ships were decreasing the need for experienced steam engine- trained licensed engineers, leading to a decrease in labor costs. Coastal depots for petroleum fuel were becoming more common and accessible, while the operational range of many of these newer ships was increasing, allowing them to make less frequent refueling stops. At the same time, the steadily decreasing use of coal undercut a one-time reliable source of profit for schooner owners. Expansion of intercity rail lines and improvements in road construction allowed rail and truck traffic to haul more freight, further undercutting the profitability of coastwise transport. Expansion of rail lines and improved roads also contributed to the lessening importance of smaller ports, allowing shippers and receivers in larger ports to consolidate waterborne shipment in a given region. Port consolidation was further enabled by harbor and river navigation improvements that allowed deeper draft vessels to access ports that at one time were exclusive to shallow-bottomed schooners, particularly along the east coast. Although the wind used to propel schooners remained free, their overall small-size compared with newer vessels left them at a disadvantage, especially given the growing abundance and low cost of oil, diesel, and gasoline for powering ships. The diminishing schooner fleets also led to a drop-off in skilled crews who could handle them, along with a scarcity of shipwrights familiar with their upkeep. Schooners had all but ceased significant operation in American ports by 1940, while the post-war surplus of large, new cargo ships all but denied a revival of the schooner for commercial service.

5.2 Extant Schooners and Schooner Wrecks

5.2.1 Extant Schooners

Historic schooners exist in ports all across the United States. Many are listed on the National Register of Historic Places (NRHP). Some of these have also been designated National Historic Landmarks. One of the schooners listed on the NRHP is the *Ernestina*, homeported in New Bedford. The *Ernestina* is a two-masted fishing schooner built at the James and Tarr Yard in Essex, Massachusetts, and launched February 1, 1894 as the *Effie M. Morrissey*. She has sailed on through the last century to become one of six remaining Essex-built schooners. She is the last ship to bring immigrants to this country under sail from the Cape Verde Islands. *Ernestina* was given to the people of the United States by the people of the Cape Verde Islands in 1982 (SEMA n.d.).

In addition to the *Ernestina*, there are at least 34 other historic schooners listed on the NRHP (Table 4). Three of these are three-masted schooners also listed on the International Register of Historic Ships

(Brouwer 1985). The three are the *C.A. Thayer* (1895; 156 ft x 36 ft., 391 net tons); the *Wawona* (1897; 156 ft x 36 ft, 413 net tons); and the *Victory Chimes* (1900, 126.5 ft x 23.8 feet, 178 net tons). The last is presently operating out of Rockland , Maine; is in excellent condition, and has had her interior adapted for carrying passengers. She is significant for her "association with the maritime history of the Mid-Atlantic region" and "as a well preserved, representative and unique example" of her type (Dean 1997).

5.2.2 Schooner Wrecks

Numerous schooner shipwreck sites in the United States were identified during background research. A majority of these sites are located along the east coast and in the Great Lakes. Many of these are listed on the NRHP, or thought to be eligible for listing. At least four are located in Massachusetts waters (see Section 5.3, below).

Schooner wrecks appear to be extremely common, accounting for a significant percentage of all historic wreck sites. For example, the Wisconsin State Archaeology and Maritime Preservation Program has identified over 300 known, probable and suspected schooner shipwrecks, in addition to wrecks listed on the NRHP (Meverden and Thomsen 2008). Shomette (1982) lists more than 400 schooner wrecks for the Chesapeake Bay area. The Maine Historic Preservation Commission archeological site inventory lists 17 schooner wrecks in a single township—Jonesport.

Three NRHP-listed 3-masted schooners are located in the Thunder Bay National Marine Sanctuary, Lake Huron, Michigan. These vessels are the *American Union* (1862), built in Cleveland and wrecked in Lake Huron near Thompson's Harbor; the *Lucinda Van Valkenburg* (1862), built in Tonawanda, New York and wrecked in Lake Huron, three miles north of Thunder Bay Island.; and the *Cornelia B. Windiate* (1874), built at Manitowoc, Wisconsin and wrecked in 1875 while hauling wheat across Lake Huron. The C*ornelia B. Windiate* remains in deep water in pristine condition with masts still attached and life boats still on deck.

A partial listing of schooner wrecks listed on the NRHP is included in Appendix A. This listing includes the wrecks of numerous three-masted schooners

5.3 The **Thomas H. Lawrence** *in the Context of Other Massachusetts Shipwrecks*

Robinson (2008) has completed a statistical analysis of documented shipwrecks within Massachusetts waters. As part of that analysis, he examined patterns within the documentary record associated with the temporal and geographical distributions of shipwrecks along the Massachusetts coast, the types of vessels that were lost (differentiated by hull type, hull material, hull size, and vessel age), the types of routes the vessels were travelling at the time of their loss, the cargoes that were being carried, and the causes of loss. This information helps to place the *Thomas H. Lawrence* within the larger context of all previously documented Massachusetts shipwrecks to assess whether it is a common or rare type of resource relative to the entire known universe of shipwrecks within the Commonwealth. Based on MBUAR records, of the more than 2000 vessel casualties associated with documented shipwrecks, approximately 65% are schooners (Figure 9). Of the 85 shipwrecks for which cause of loss is known, 14 are classified as abandoned, and 22 as burned (Figure 10).

A study of Boston Harbor shipwrecks lists 121 vessels of 11 different types. Of these, 60 are identified as schooners (Sullivan 1990). However, neither Robinson nor Sullivan distinguish between types of schooners. The smaller two-masted variety, which is principally associated with fishing, likely

represents the largest subcategory. The largest schooners, the four- and five-masted vessels, were built in much smaller numbers. The number of three-masted schooners, like the *Thomas H. Lawrence,* lies somewhere in between. Of the 60 schooners identified by Sullivan, at least 9 can be identified as having been terns.

There are three schooners in the Stellwagon Bank National Marine Sanctuary in Massachusetts that are listed on the NRHP. The *Frank A. Palmer* (4-masted), the *Louise B. Crary* (5-masted), and the *Paul Palmer* (5-masted). The *Frank A. Palmer* and *Louise B. Crary* collided and wrecked together forming one archaeological site. Investigations of the site revealed the vessels' hulls to be nearly intact with rigging splayed across the deck from the toppled masts. They were nominated to the NRHP under criteria A, C, and D (see Section 5.4, fn 6, below). The wrecks sites were considered unique and significant. No other coal schooner archaeological site located New England provides the the same opportunity to study two vessels with such extensive preservation. How the schooners sank, and the condition of the wreck site, provide a unique archaeological opportunity to compare two similar, but slightly different vessels, engaged in the same trade. The schooners exemplify a critical transportation network that supplied New England's energy needs and their involvement in the coal trade connects them to Americans throughout the East Coast (Anon 2006).

On November 23, 2010 the remains of the three-masted schooner *Montclair,* which broke apart in 1927 were exposed on Nauset Beach, Cape Cod. The wreck had been exposed at least once before in 1968 (Williams 2010; Quinn 1973).

5.4 The Significance of the Thomas H. Lawrence

The potential significance of the Thomas H. Lawrence was evaluated within the framework of the criteria for eligibility for the National Register of Historic Places (NRHP) as set forth at 36 CFR 60.4.[6] Special reference was given to *National Register Bulletin 20, Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places* (Delgado 1992) for guidance on applying the National Register eligibility criteria.

National Register Bulletin 20 restates the criteria at 36 CFR 60.4 for application to historic vessels as a series of questions.

- Is the vessel "the sole, best or good representative of a specific vessel type"?

  The *Thomas H. Lawrence* was certainly a "typical" turn of the twentieth century North American three-masted schooner. However, both wrecks and a number of intact restored three-masted schooners of similar age and size to that of the *Thomas H. Lawrence* are extant. The wreck of the *Thomas H.*

[6] 36 CFR 60.4 states "The quality of significance in American history, architecture, archeology, engineering, and culture is resent in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(b) that are associated with the lives of persons significant in our past; or
(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(d) that have yielded, or may be likely to yield, information important in prehistory or history.

Lawrence, especially given its current condition, cannot, therefore be considered the sole or best extant representative of the three-masted schooner type.

- Is the vessel "associated with a significant designer or builder"?

  No mention of a specific designer of the *Thomas H. Lawrence* was found. It is likely that she was designed by her builder, Robert Crosbie & Son, does not appear to have been a major or prominent shipbuilder. Her original owner, E.G. Boggs, who may have had some input into her design, while a locally prominent businessman, does not appear to have been a historically significant individual.

- Was the vessel "involved in important maritime trade, naval recreational, government, or commercial activities"?

  The turn of the twentieth century New England-Middle Atlantic bulk cargo trade was certainly an important aspect of maritime commerce. The *Thomas H. Lawrence*'s documented operational history is completely consistent with the history of the vessel type as described in the historic context presented in Section 5.1, and she can therefore be considered to have been "involved in important maritime trade."

A prerequisite for National Register eligibility is integrity. To satisfy the National Register criteria a property must possess integrity of design, setting feeling and association.

Integrity of location has been defined to mean that a vessel is located in a port or other location with which the vessel historically had some association, such as a port of construction or a port of call. While the *Thomas H. Lawrence* had a long association with the state of Massachusetts and various ports in New England, her primary affiliation with New Bedford came at the end of her career when she was being refitted to work in the Cape Verde trade route.

Thomas H. Lawrence likely maintained much of her integrity of design. Although much of her rigging was done over during her 1939 refit (in some places turnbuckles replacing deadeyes and lanyards, so that she was a mixture of ancient and modern), she never had an auxiliary power plant installed.

Integrity of setting is not relevant to the *Thomas H. Lawrence*. The wreck site remains submerged in the water.

To retain integrity of materials the physical elements that were combined in the vessel's historic design and construction must have been maintained. The wreck site has deteriorated significantly and comprehensively since it was abandoned in the early 1940s. Only the very bottom of the hull remains intact and the entire aft end of the vessel is missing, likely the result of harbor dredging activities and the accumulation of ice floes in the harbor each winter.

Integrity of workmanship is maintained when materials are renewed in-kind. This aspect is not relevant since no evidence of workmanship was documented on the wreck site.

Integrity of feeling means the vessel evokes an historic sense of the past, typically due to the presence of significant physical characteristics that convey her historic qualities. The *Thomas H. Lawrence* has suffered significant structural deterioration and has lost most of her sense of feeling.

Integrity of association is not relevant since it typically refers to an historic vessel that is maintained in a waterfront setting rather than removed from the water.

Most NRHP-listed shipwreck sites derive their significance from NRHP Criterion D, as archeological sites that have or may yield information important in prehistory or history. Under Criterion D, a vessel is significant if the physical characteristics of the hull provide important information about the use, method of construction, and operation. The abundance of extant historic schooners and the documented schooner wrecks on the NRHP, such as the site of the *Cornelia B. Windiate*, in pristine condition with masts still attached and life boats still on deck, offer significantly more archaeological research potential on the development of the three-masted schooner ship type, than does the *Thomas H. Lawrence*. No debris field is associated with the *Thomas H. Lawrence* and it is known that her last cargo had been removed before she burned and sank.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The archeological research potential of the *Thomas H. Lawrence* wreck site is very limited. In addition to the vessel having burned prior to sinking, the site's integrity has been seriously diminished by dredging activities and the effects of ice and storms in New Bedford harbor. The existence of numerous extant three-masted schooners, in addition to several better preserved three-masted schooner wreck sites, further diminishes any archaeological research potential of the *Thomas H. Lawrence* wreck site. It is highly unlikely that additional investigation of the wreck would yield important historic information. In her present condition she cannot be considered a good representative of her vessel type.

Research has identified the builder, owners, and masters of the *Thomas H. Lawrence*. None of these individuals appear to have major historical significance. Her builder, Robert Crosbie & Son appears to have been a relatively small shipbuilding enterprise operating at the East Boston docks in the late nineteenth century, well after they heyday of wooden ship construction in Boston. Her original owner, E.G. Boggs was a locally prominent businessman, but no information could be found suggesting his association with important historic events, or associating him with historically significant accomplishments. No information, beyond that in public records, could be found concerning any of the *Thomas H. Lawrence*'s masters, including the two who were with her for the majority of her life.

No evidence was found suggesting the *Thomas H. Lawrence* was associated with a significant event. However, she *is* associated with the history of the New England -Middle Atlantic bulk cargo coastal trade. She was representative of the type of vessel involved in that trade and can be considered to be "associated with events that have made a significant contribution to the broad patterns of our history" (NRHP eligibility Criterion A).

The remains of the *Lawrence* are located in contaminated sediments and are not suitable for public interpretation. In addition, there is no practicable means of removing the vessel and placing it elsewhere; because of the existing damage and decay, the vessel would most likely be destroyed if an attempt was made to lift or move her. Any recovered individual vessel components would of necessity lose their associated context and would have no scientific or interpretive value.

In the opinion of the researchers, while the *Thomas H. Lawrence* wreck site might have been significant under National Register of Historic Places Criterion A. However, the significant loss of a variety of necessary aspects of integrity has compromised her NRHP eligibility. No further investigation of the *Thomas H. Lawrence* is recommended.

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TABLES

Table 1. *Philadelphia Inquirer* shipping news mentions of the *Thomas H. Lawrence*

Year	***Month/Day***	***Heading***	***Sub-Heading***	***Master***	***Note (Location*/Cargo/Agent)***
1891	June 6	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1891	July 7	At Bridgeton, N.J.		Kelley (sic)	Kennebec, Ice, J.L. Nicholson
1891	August 7	Arrived Yesterday		Kelly	Kennebec, Ice, J.L. Nicholson
1891	August 13	Cleared Yesterday		Kelly	Newburyport, J.L. Nicholson
1892	April 30	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1892	September 2	Cleared Yesterday		Kelly	Bridgeport, J.L. Nicholson
1894	July 15	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1894	October 20	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1895	April 5	Memoranda			for Philadelphia, cleared from Boston April 3
1895	June 30	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1896	June 9	Arrived Yesterday		Kelly	Green's Island, stone, J.L. Nicholson
1896	June 17	Cleared Yesterday		Kelly	Milton, J.L. Nicholson
1896	June 25	Memoranda			hence at Boston, 23d inst.
1897	April 14	Delaware Bay and River News	Reedy Island		passed . . . for Boston
1897	May 2				From Gardiner for Philadelphia, sailed from Vineyard Haven April 30
1897	May 9	Memoranda	New Castle		Passed down . . .for Lynn
1897	May 15	Memoranda			from Philadelphia, arrived at Lynn 13th inst.
1897	August 17			Kelly	Hingham, J.L. Nicholson
1897	November 2	Freights and Charters			Philadelphia to Hingham, with coal, at 90 cents
1897	November 3	Cleared Yesterday		Kelly	Hirgham (sic), J.L. Nicholson
1898	June 13	Cleared Saturday		Kelly	Plymouth, J.L. Nicholson
1899	June 6	Arrived Yesterday		Kelly	Long Cove, stone, J.L. Nicholson
1899	June 13	Cleared Yesterday		Kelly	North Plymouth, J.L. Nicholson
1899	June 21	Other Ports	Passed		HIGHLAND LIGHT, from Philadelphia for North Plymouth
1899	August 13	Other Ports	Cleared		SALEM . . . for Long Cove and Philadelphia
1899	September 8	Other Ports	Arrived		HYANNIS, Sept.6 . . . from Philadelphia
1899	September 26	Freights and Charters			Philadelphia to North Plymouth, 600 tons coal, $1.25
1901	January 5	Cleared Yesterday			Crowell, Bath via Wilmington, Del., J.L. Nicholson

Table 1. *Philadelphia Inquirer* shipping news mentions of the *Thomas H. Lawrence* (continued)

Year	***Month/Day***	***Heading***	***Sub-Heading***	***Master***	***Note (Location*/Cargo/Agent)***
1901	January 17	Delaware Bay and River News	Reedy Island		For Bath
1901	April 14	Other Ports	Cleared		PLYMOUTH, April 12 . . . for Long Cove and Philadelphia
1901	April28	Other Ports	Sailed		LONG COVE . . . for Philadelphia
1901	April 30	Anchored			BOSTON QUARANTINE, April 27 . . . from Clark's Island for Philadelphia
1901	June 20	Freights and Charters			Sullivan to Phladelphia, paving blocks, $1.00
1901	August 9	Delaware Bay and River News			Breakwater, Aug. 7, . . . sailed
1903	March 23	Freights and Charters			Philadelphia to Boston. Coal, $1.25 and bridge charges
1903	March 26	Cleared Yesterday		Coleman	Boston, J.L. Nicholson
1907	December 27	Cleared Yesterday		Rowe	Plymouth, J.L. Nicholson
1908	December 9	Freights and Charters			Philadelphia to Salem, 600 tons coal, 90c.
1909	September 24	Arrived Yesterday		Rowe	Long Cove, stone, J.L. Nicholson
1909	October 16	Other Ports	Arrived		Boston, Oct 15 . . . from Philadelphia
1910	March 7	Other Ports	Sailed		New York, March 4 . . .for Philadelphia
1910	March 28	Other Ports	Passed		City Island, March 25 . . . from Philadelphia for Boston
1911	October 2	Arrived		Rowe	Stonington, Me, stone, Haldt & Cummins
1911	October 2	Delaware Bay and River News	Reedy Island		Oct 1, passed, Stonington for Philadelphia
1911	October 4	Arrived Yesterday		Rowe	Long Cove, stone, Haldt & Cummins
1911	October 18	Other Ports	Arrived		Vineyard Haven, Oct 16 . . . from Philadelphia for Gloucester
1912	April 20	Other Ports	Arrived		Saunderstown, April 18 . . . from Philadelphia for Bangor
1913	March 15	Other Ports	Arrived		Portland, March 13 . . . from Long Cove for Philadelphia
1913	March 23	Other Ports	Arrived		Saunderstown, March 21 . . . from Long Cove for Philadelphia
1913	March 25	Arrived Yesterday		Rowe	Long Cove, stone, A D Cummins &Co.

Table 1. *Philadelphia Inquirer* shipping news mentions of the *Thomas H. Lawrence* (continued)

Year	***Month/Day***	***Heading***	***Sub-Heading***	***Master***	***Note (Location/Destination/Cargo/Agent)***
1913	April 15	Cleared Yesterday		Rowe	Boston via Wilmington, Del., A D Cummins &Co.
1914	January 16	Arrived Yesterday		Rowe	New York, paving blocks, A D Cummins &Co.
1914	August 20	Freights and Charters			Philadelphia to Boston, coal, 90c.
1914	September 3	Other Ports	Arrived		Boston, Sept. 2 . . . Philadelphia
1914	November 5	Freights and Charters			Philadelphia to Rockland, Me. Coal, basis 90c. prompt
1914	November 19	Other Ports	Passed		Philadelphia for Rockland, passed in Sandy Hook 9.20 AM Nov 18.
1915	November 1	Other Ports	Arrived		Eastport, Me, Oct. 29 . . . from Philadelphia for Calais and proceeded
1921	October 24	Other Ports			Bangor, Me. Oct 21—Sailed . . . New York

Table 2. Other mentions of the *Thomas H. Lawrence* in newspaper shipping news.

Year	***Month/Day***	***Newspaper***	***Heading***	***Subheading***		***Note***
1892	April 1	NY Evening Post	Arrived at this Port (yesterday)		Kelley	Baltimore for Boston
1902	February 18	Syracuse Evening Telegram; Albany Journal	Cape Cod Swept by Storm			"The large schooner Thomas H. Lawrence of Boston, which was harbored at Haynnis dragged her anchor and went ashore. She has a cargo of coal, but is in no serious danger. Her crew remained on board. She probably can be easily floated."
1902	December 20	Boston Daily Globe	More Coal Comes to this Port	Coal Situation in Boston today		From Perth Amboy with 296 tons anthracite for O.S. Godfery, Milton
1903	December 13	Boston Daily Globe	Sailed			Stonington, Me, and New York
1904	September 26	Boston Daily Globe	Arrived 9-25		Coleman	Clinton Point, L.I.
1906	March 3	Boston Daily Globe	Three Craft in Hard Luck			"from Newport News for Plymouth, was anchored off Wood End, Cape Cod all day yesterday. Herforesail had been blown away in the gale, but otherwise she appeared all right."
1906	August 5	Boston Daily Globe	Sailed			Newport News
1909	March 30	Boston Daily Globe	Arrived 3-29		Rowe	Vineyard Haven for Long Cove
1910	May 12	Boston Daily Globe	Sailed			"supposed eastern port"
1911	February 3	Boston Daily Globe	Shipping Delayed		Rowe	"from Frankfort, Me, for New York was driven into the lower harbor for shelter from the storm and anchored in President roads.

Table 2. Other mentions of the *Thomas H. Lawrence* in newspaper shipping news (continued)

Year	***Month/Day***	***Newspaper***	***Heading***	***Subheading***		***Note***
1911	October 4	Portland Daily Eastern Argus				Oct. 2, from Stonington, Me. for Philadelphia, went aground on the lower end of Marcus Hook bar, but was floated and anchored below Marcus Hook. Oct. 3. Arrived Philadelphia from Long Cove, Me.
1911	October 17	Portland Daily Eastern Argus				Oct. 16, arrived Vineyard Haven, Ma. from Philadelphia for Gloucester, Ma.
1911	October 23	Portland Daily Eastern Argus				Oct. 21, at Vineyard Haven; Oct. 22 sailed from Vineyard Haven, Ma. for Gloucester, Ma.
1911	October 26	Portland Daily Eastern Argus				Oct. 25, arrived Gloucester, Ma. from South Amboy, NJ
1912	January 25	Portland Daily Eastern Argus				Jan. 24, sailed from Rockland, Me. For New York
1912	January 29	Portland Daily Eastern Argus				Jan. 26, passed Vineyard Haven, Ma. for New York
1912	February 9	Portland Daily Eastern Argus				Feb. 7, arrived Port Reading from New York
1912	February 10	Boston Daily Globe	Fight Storm to Make Port			from New York
1912	February 16	Portland Daily Eastern Argus				Feb. 14, cleared Port Reading for Wiscosset
1912	March 27	Portland Daily Eastern Argus				Mar. 26, arrived New York from Stonington, Me. For Philadelphia
1912	April 9	Portland Daily Eastern Argus	Charters			Philadelphia to Bangor with coal

Table 2. Other mentions of the *Thomas H. Lawrence* in newspaper shipping news (continued)

Year	***Month/Day***	***Newspaper***	***Heading***	***Subheading***		***Note***
1912	April 30	Portland Daily Eastern Argus				Sailed for Vinal Haven, Me.
1913	July 23	Christian Science Monitor	Port of Boston	Arrived	Rowe	Easton's Neck
1915	March 29	NY Evening Post	Arrivals at this Port			South Amboy for Eastport
1920	June 1	The Sun and New York Herald	Passed City Island	Bound East		Port Reading for Bar Harbor, Me.
1922	July 15	NY Tribune	Sailed Yesterday			Norfolk
1922	October 24	NY Tribune	Arrived	Vineyard Haven, MA		Vinal Haven for New York

Table 3. Passenger/Crew Manifests of the *Thomas H. Lawrence* as Recorded at the City Island Inspection Station, Port of New York.

Date	***Port of Departure***	***Name***	***Position***	***Age***	***Ethnicity***
August 18, 1918	Walton, Nova Scotia	Rowe, Fred	Master	47	U.S.
		Elliott, Walter	Mate	19	U.S.
		Hansen, Antone	Seaman	25	Danish
		Chevallier, Albert	Seaman	38	French
		Hansen, Valdenai	Seaman	21	Danish
		Pedersen, Carl Emil	Seaman	25	Danish
August 18, 1919	Liverpool, Nova Scotia	Johnson, William J.	Mate	61	U.S.
		Piers, Raymond J.	Cook	26	Portugal
		Medina, John F.	Seaman	28	Portugal
		Knowls, Fred	Seaman (?)	26	U.S.B.*
		Laur, Willie	Seaman (?)	33	U.S.B.
		Rowe, Fred J.	Captain	48	U.S.B.
		Rowe, Brenin H.	Wife	44 Female	U.S.B.
October 16, 1919	Windsor, Nova Scotia	Rowe, Fred J.	Master	49	White
		Johnson, William J.	Mate	61	White, U.S.
		Pires, Raymond	Cook	26	Portugese
		Torrey, George N.	Seaman	31	?
		Frederickson, Harry	Seaman	51	Norway
		Thompson, Charles	Seaman	52	Sweeden
May 16, 1920	Windsor, Nova Scotia	Rowe, Fred J	Master	49	White, U.S.
		Peterson, John T.	Mate	59	Nat. U.S.**
		Day, George W.	Cook	70	White, U.S.
		Hicks, William	Seaman	17	White, Canada
		Lundt, Thoilt	Seaman	21	Norway
		Linchon, Clifford	Seaman	31	White, U.S.

*U.S.B. = U.S. born (?); **Nat. U.S. = Naturalized U.S. (?)

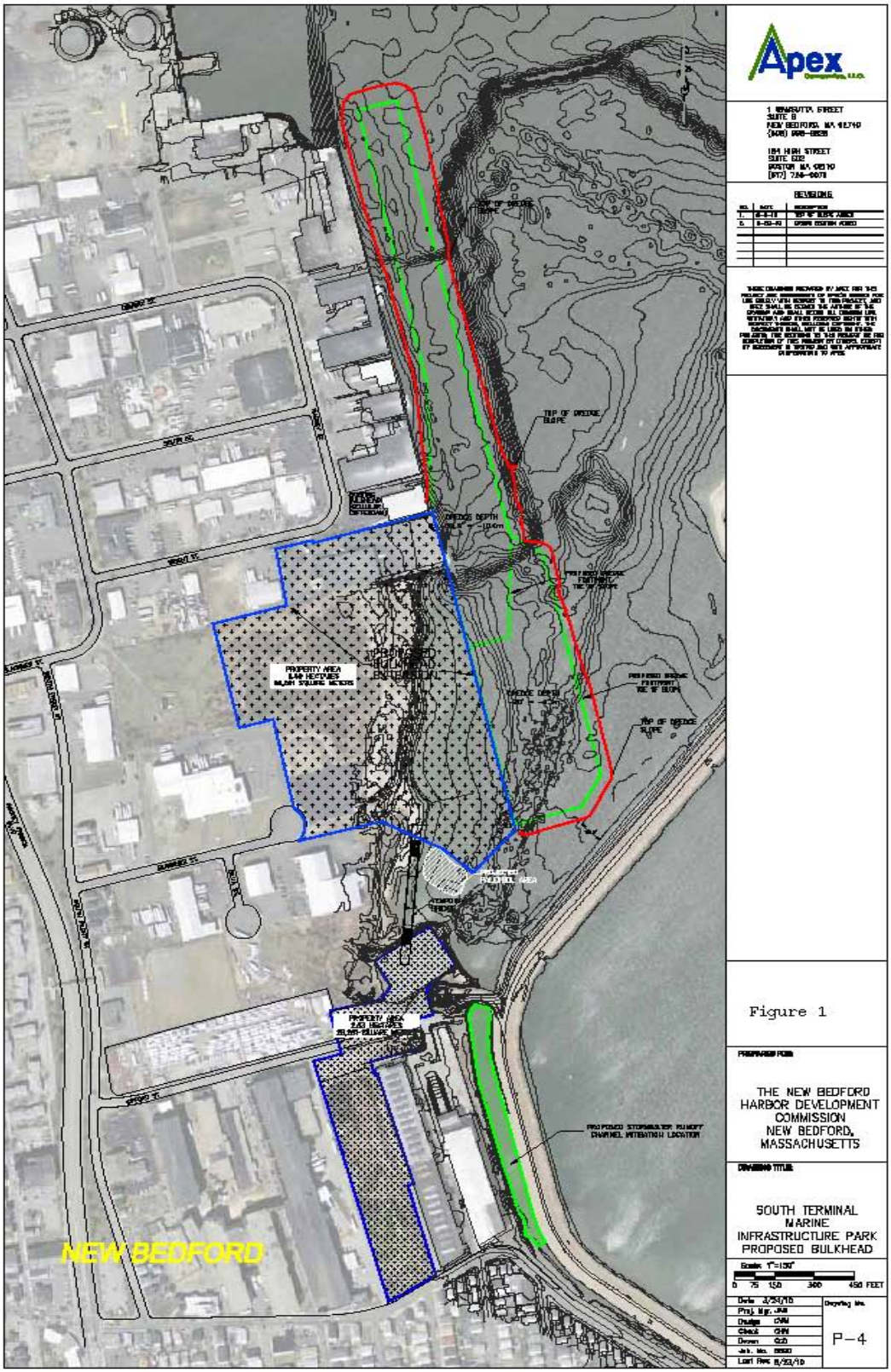
Table 3. Passenger/Crew Manifests of the *Thomas H. Lawrence* as Recorded at the City Island Inspection Station, Port of New York (cont'd).

Date	***Port of Departure***	***Name***	***Position***	***Age***	***Race/Nationality***
June 29, 1920	Windsor, Nova Scotia	Rowe, Fred J.	Master	50	American
		Peterson, John T	Mate	59	American
		Day, George W.	Cook	70	American
		Linchon, Clifford	Seaman	31	American
		Wilson, Albert	Seaman	57	American
		Alley, Joseph	Seaman	30	American
September 3, 1920	Windsor, Nova Scotia	Rowe, F.W.	Master	50	U.S.
		Peterson, John T.	Mate	59	U.S.
		Day, George W.	Cook	70	U.S.
		Williams, Harry	Seaman	48	Canada
		Johnson, Harry	Seaman	58	Finland
		Hum, Frank	Seaman	21	U.S.
October 28, 1920	Windsor, Nova Scotia	Rowe, F.J.	Master	50	American, U.S.
		Peterson, John T.	Mate	59	American, U.S.
		Day, George W.	Cook	70	American, U.S.
		Hahlotson, Charles	Seaman	47	Finland
		Nelson, Agusta	Seaman	25	Sweeden
		Flynn, Peter	Seaman	29	U.S.

Table 4. Schooners listed on the National Register of Historic Places.

Name	***Vessel Type***	***Location***
A. J. Meerwald	Delaware Bay Oyster Schooner	Bivalve, NJ
Adventure	Gloucester Type Fishing Schooner	Gloucester, MA
Adventuress	Gaff Topsail Schooner	Seattle, WA
Alma	Scow Schooner	San Francisco, CA
American	Schooner	Cape May, NJ (Resturant)
American Eagle	Aux. Schooner	Rockland, Me
Bowdoin	Schooner	Castine, ME
Brilliant	Schooner	Mystic, CT
C.A. Thayer	Lumber Schooner	San Francisco, CA
Ernestina	Schooner	New Bedford, MA
Governor Stone	Schooner	Apalachicola, FL
Isaac H. Evans	Oyster Schooner	Rockland, ME
J & E Riggin	Oyster Schooner	Rockland, ME
L.A. Dunton	Schooner	Mystic, CT
Lettie G. Howard	Schooner	New York, NY
Lewis R. French	Gaff-rigged Schooner	Camden, ME
Lotus	Gaff-rigged aux. Schooner Yacht	Sodus Point, NY
Martha	Schooner Yacht	Seattle, WA
Mercantile	Schooner	Camden, ME
Nathaniel Bowditch	Gaff-rigged Schooner Yacht	Rockland, ME
Pioneer	Schooner	New York, NY
Priscilla	Schooner	West Sayville, NY
Sherman Zwicker	Schooner	Booth Bay Harbor, ME
Star Pilot	Schooner	San Diego, CA
Stephen Tabor	Schooner	Rockport, ME
Sunderland	Gaff Schooner	Whidbey Island, WA
Surprise	Topsail Schooner	Camden, ME
Sylvania W. Beal	Schooner	Mystic, CT
Tabor Boy	Schooner	Marion, MA
Timberland	Gaff Schooner	Rockport, ME
Victory Chimes	Ram Schooner	Rockland, ME
Wawona	Schooner	Seattle, WA
Wendameen	Gaff Schooner Yacht	Rockland, ME
Zodiac	Schooner	Seattle

FIGURES


Apex
TOP OF DREDGE SLOPE
PROPERTY AREA
NEW BEDFORD
Figure 1
THE NEW BEDFORD HARBOR DEVELOPMENT COMMISSION NEW BEDFORD, MASSACHUSETTS
SOUTH TERMINAL MARINE INFRASTRUCTURE PARK PROPOSED BULKHEAD
0 75 150 300 450 FEET
P-4

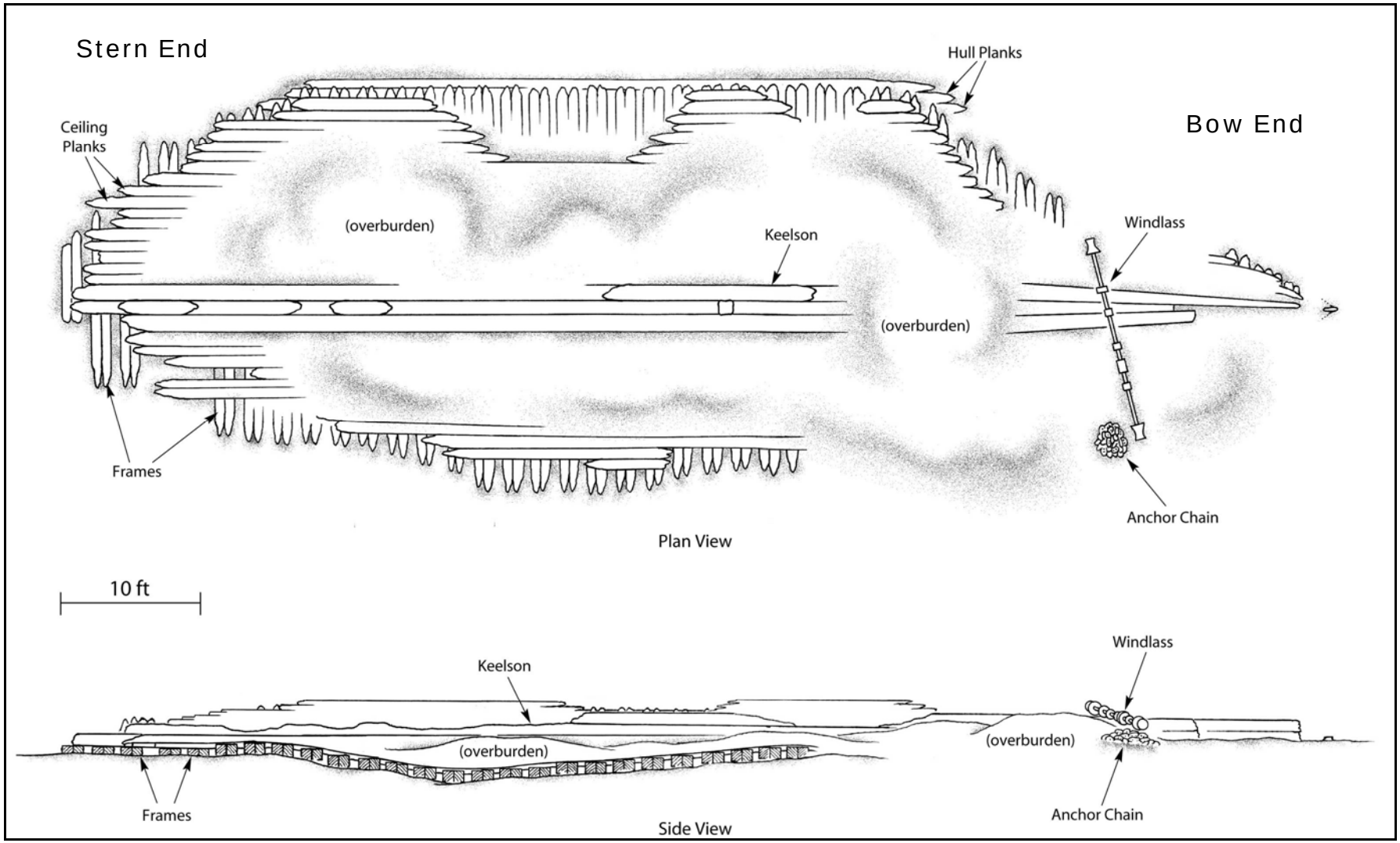


Figure 2. Plan and profile view of Wreck Site.

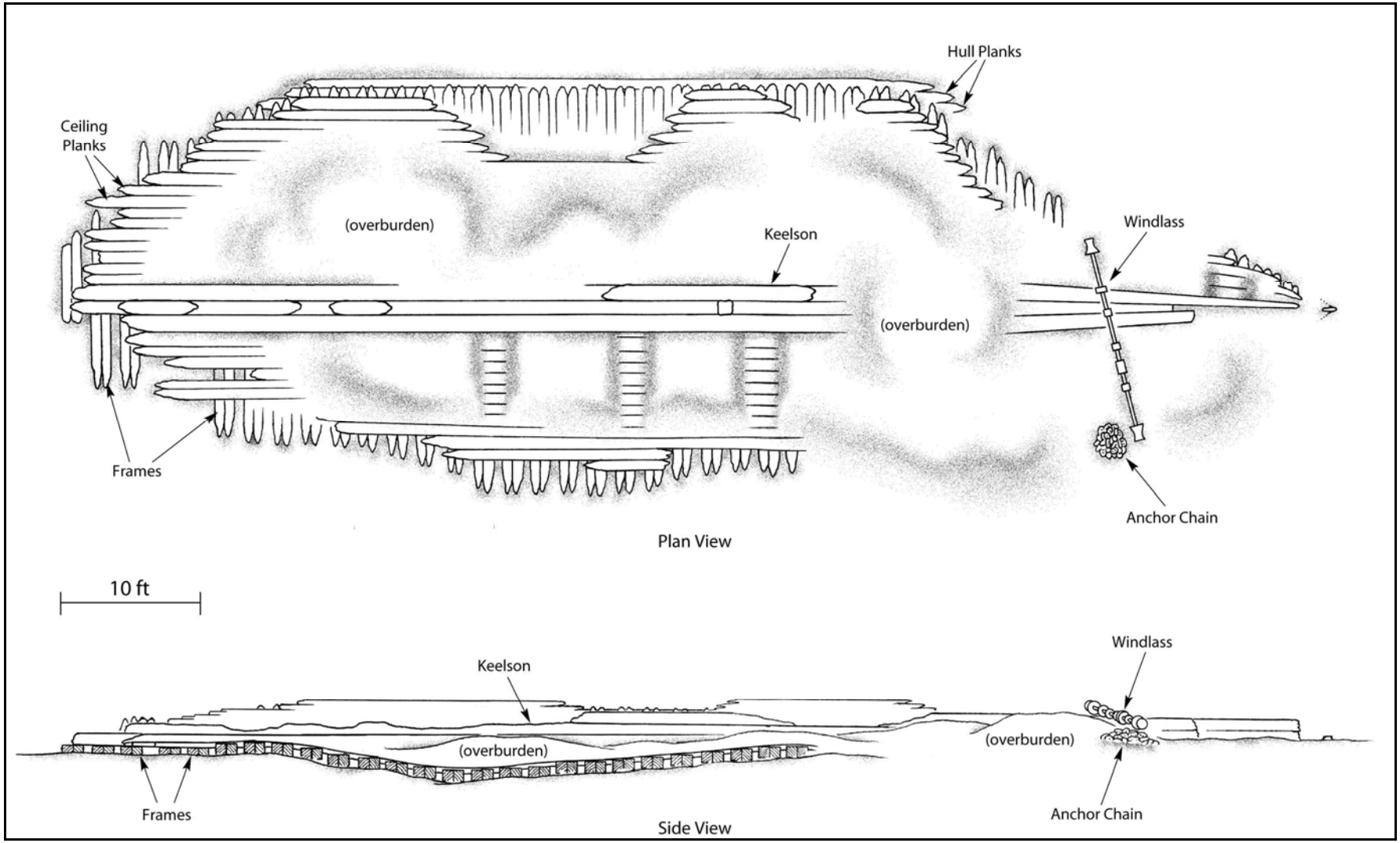


Figure 3. Plan and profile view of Wreck Site with trenches depicted.

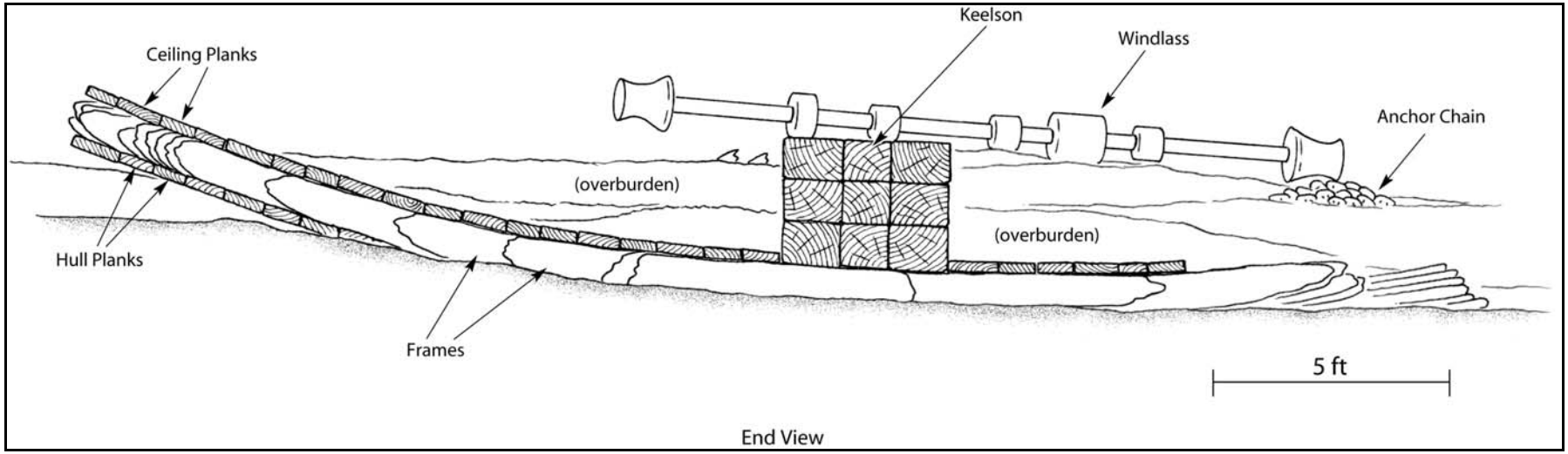


Figure 4. End view of Wreck Site looking forward toward bow.

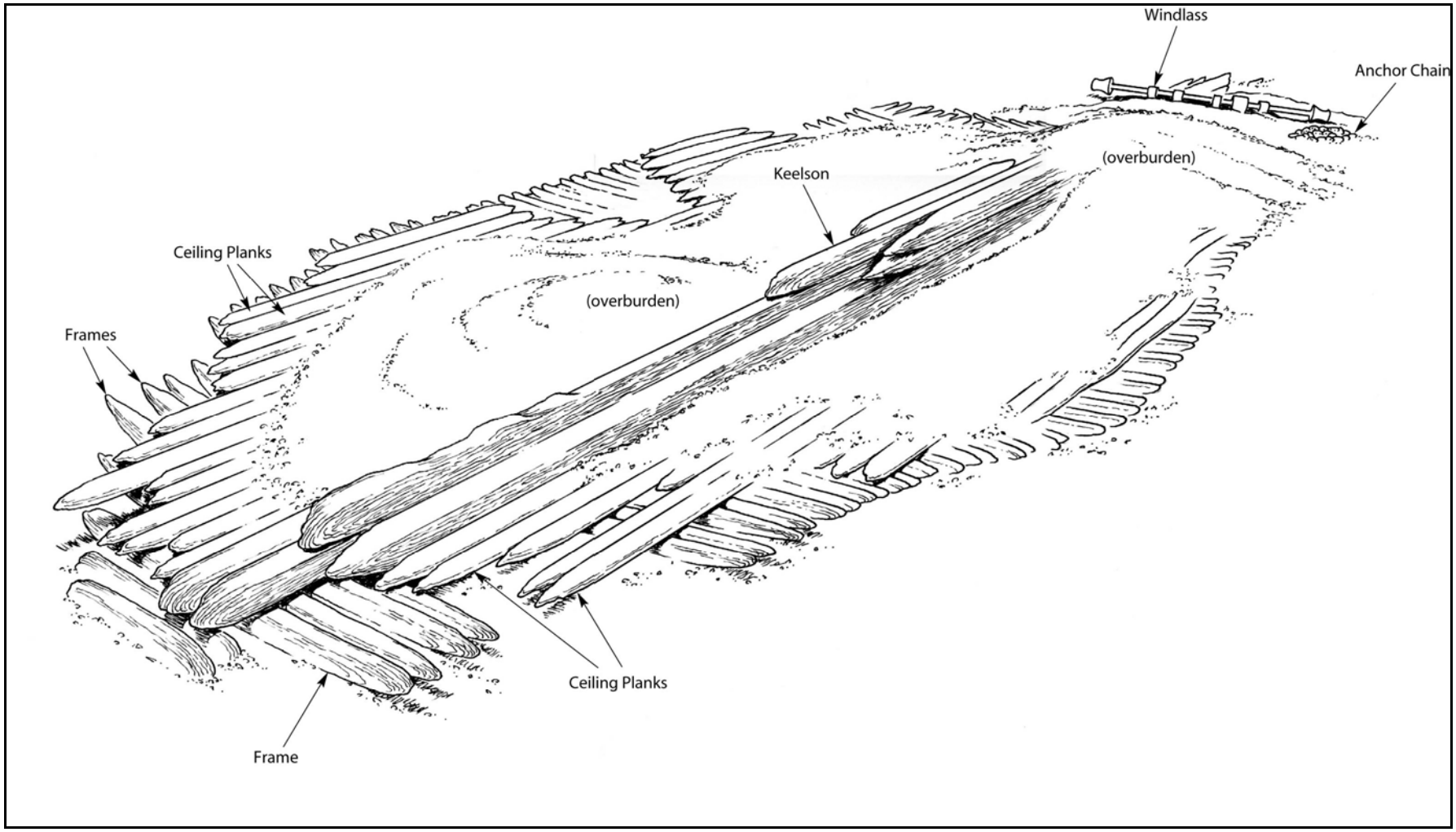

Windlass
Anchor Chain
(overburden)
Keelson
Ceiling Planks
(overburden)
Frames
Ceiling Planks
Frame

Figure 5. Prospective view of Wreck Site, view from starboard-side stern looking toward port-side bow (NW to SE).

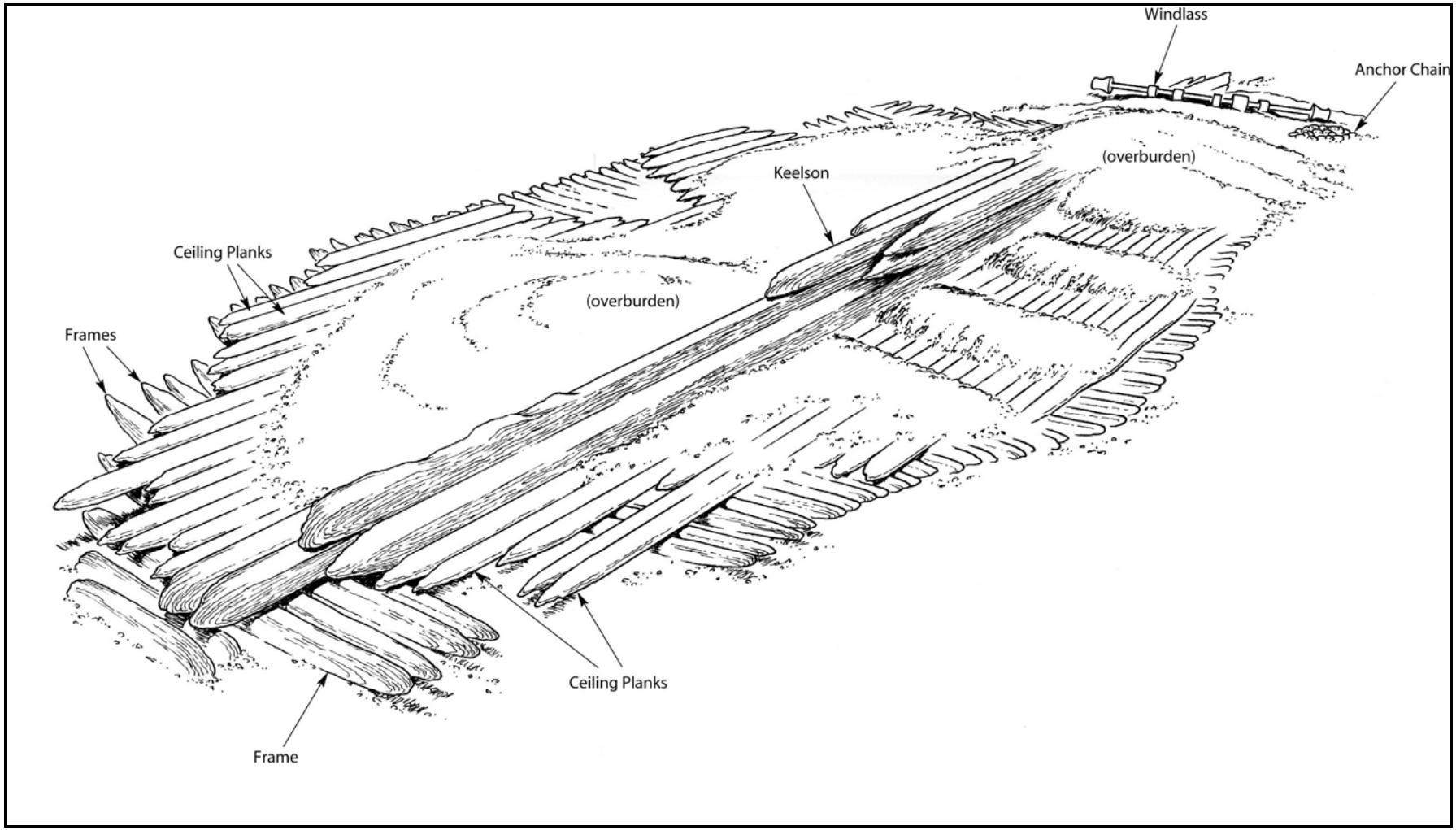
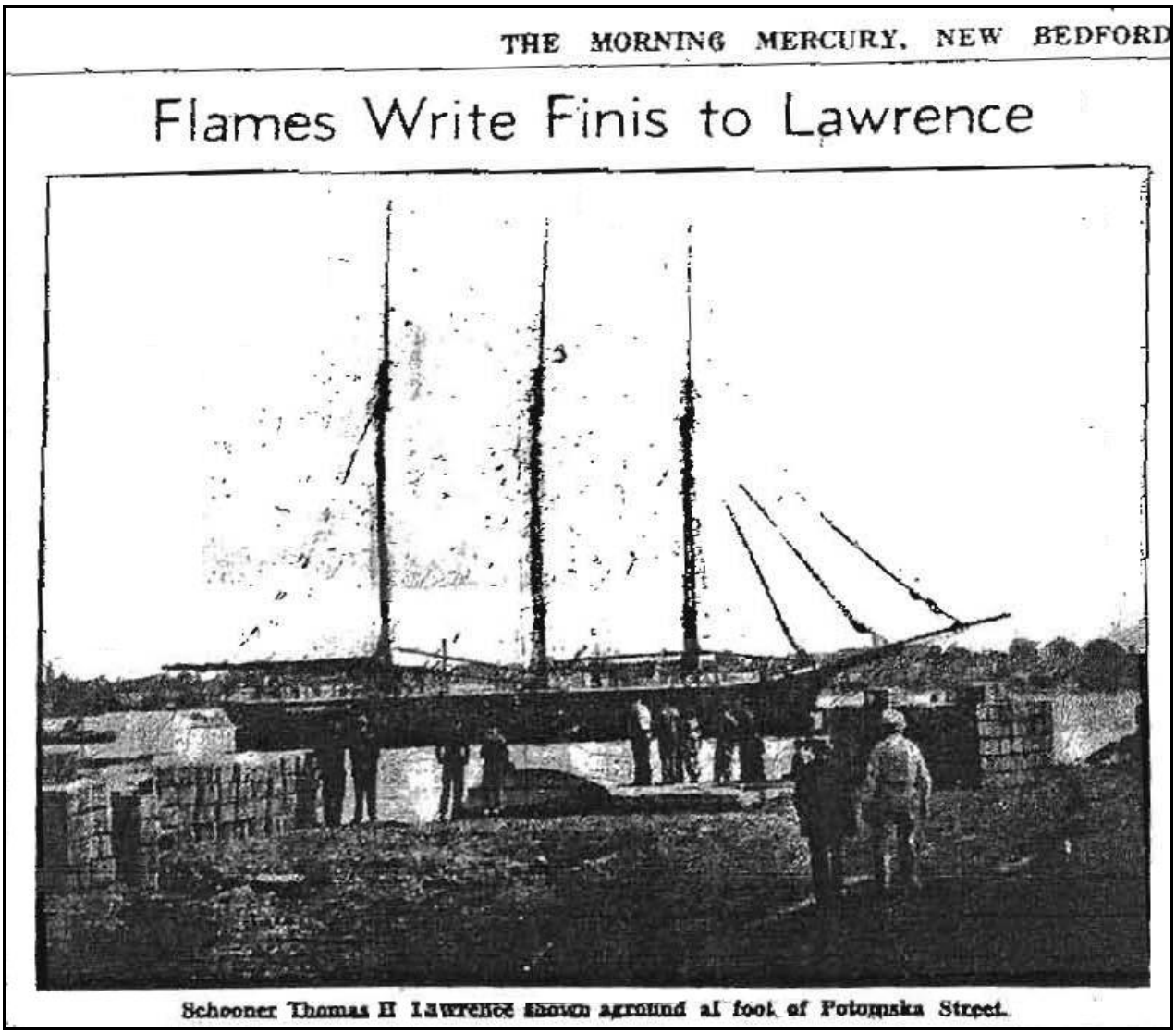


Figure 6. Prospective view of Wreck Site with trenches, view from starboard-side stern looking toward port-side bow.



THE MORNING MERCURY, NEW BEDFORD

Flames Write Finis to Lawrence

Schooner Thomas H Lawrence shown aground at foot of Potomska Street.

Figure 7. Photo published in the September 3, 1940 issue of the New Bedford *Standard Times*, and reprinted in the July, 1941 issue of the New Bedford *Morning Mercury*.

Figure 8. Location of Wreck Site in Relation to Existing Shorelines and Bulkheads.

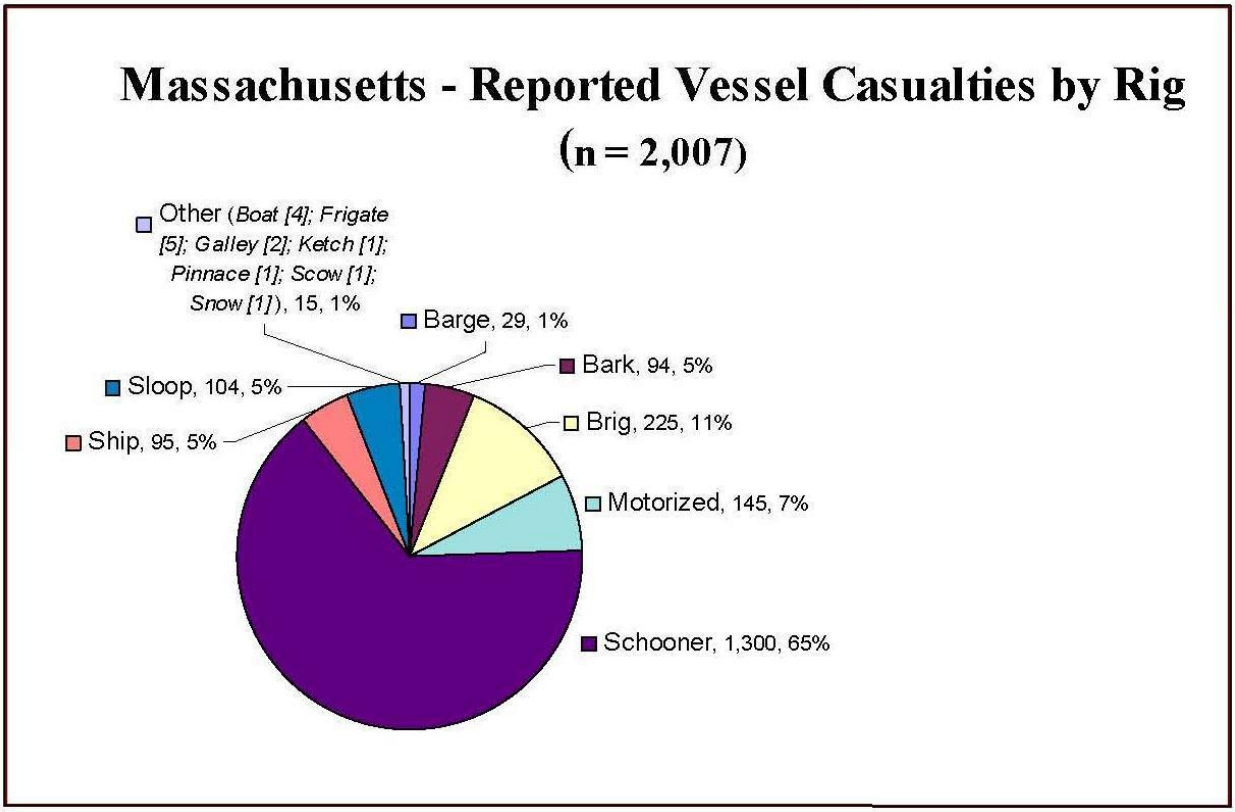


Figure 9. Reported vessel casualties by vessel type (i.e., rig) among documented shipwrecks throughout the coastal waters of Massachusetts based on MBUAR records (Robinson 2008).

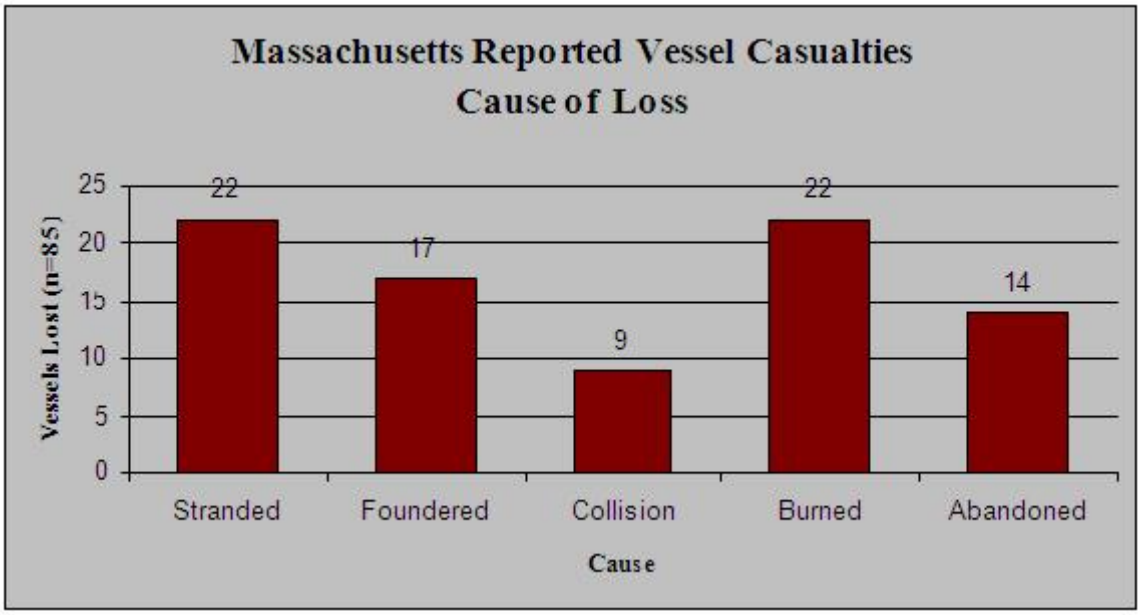
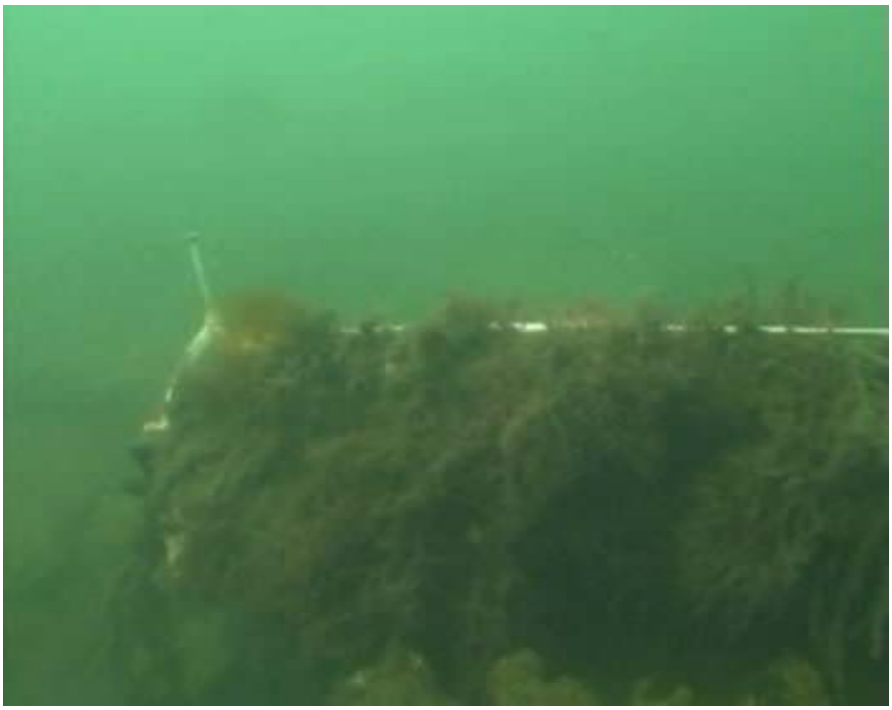


Figure 10. Causes of vessel loss among documented shipwrecks throughout the coastal waters of Massachusetts based on MBUAR records (Robinson 2008).

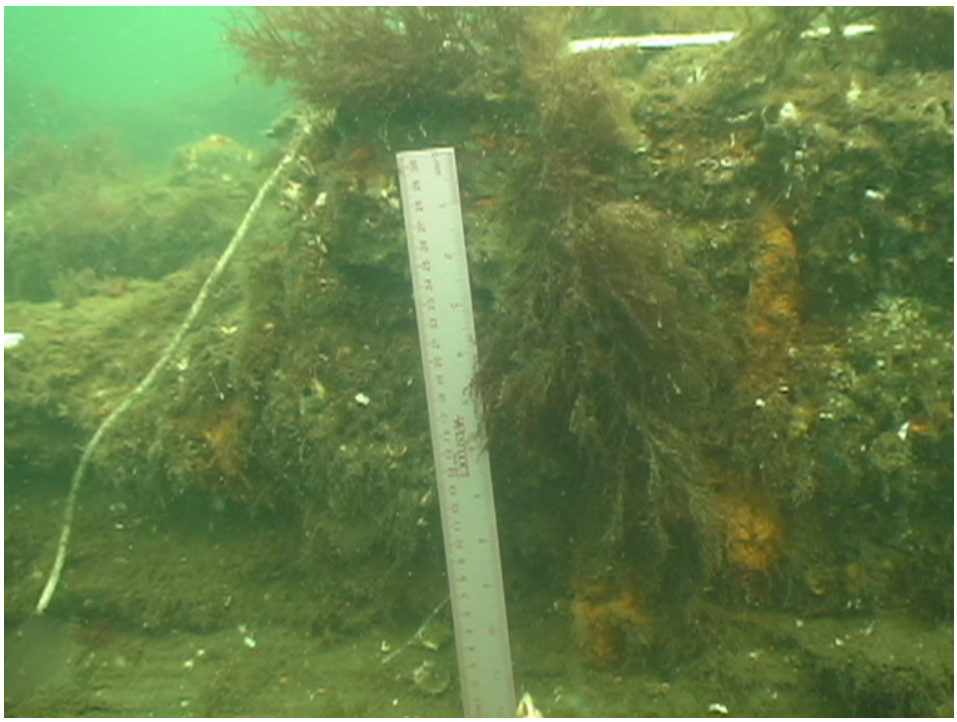
PLATES

Plate 1. The *Thomas H. Lawrence*, c. 1892. Stubbs, oil on canvass, Centerville Historical Museum.

PHOTOGRAPHS

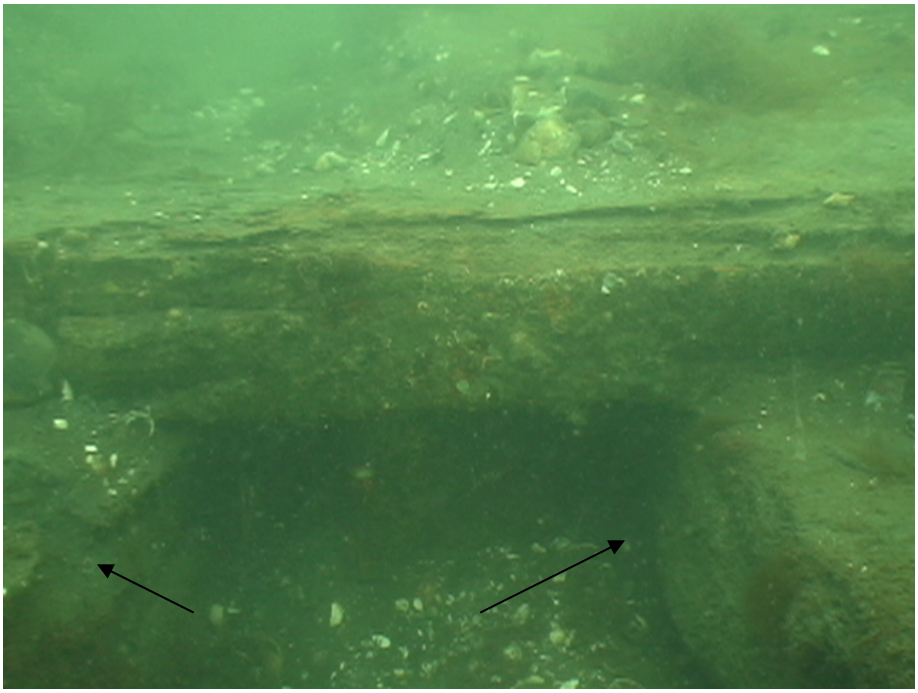


Photograph 1. Centerline placed onto the bow end of the keelson (Note: Typical marine growth found on keelson).

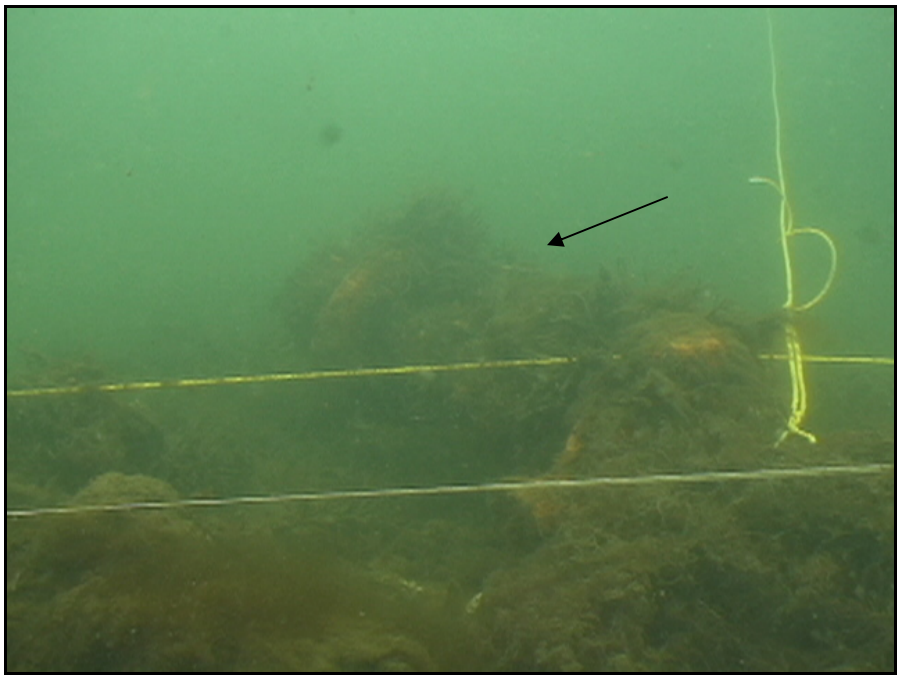


Photograph 2. End of starboard side frame (Note: Marine growth obscures much of the exposed timbers).

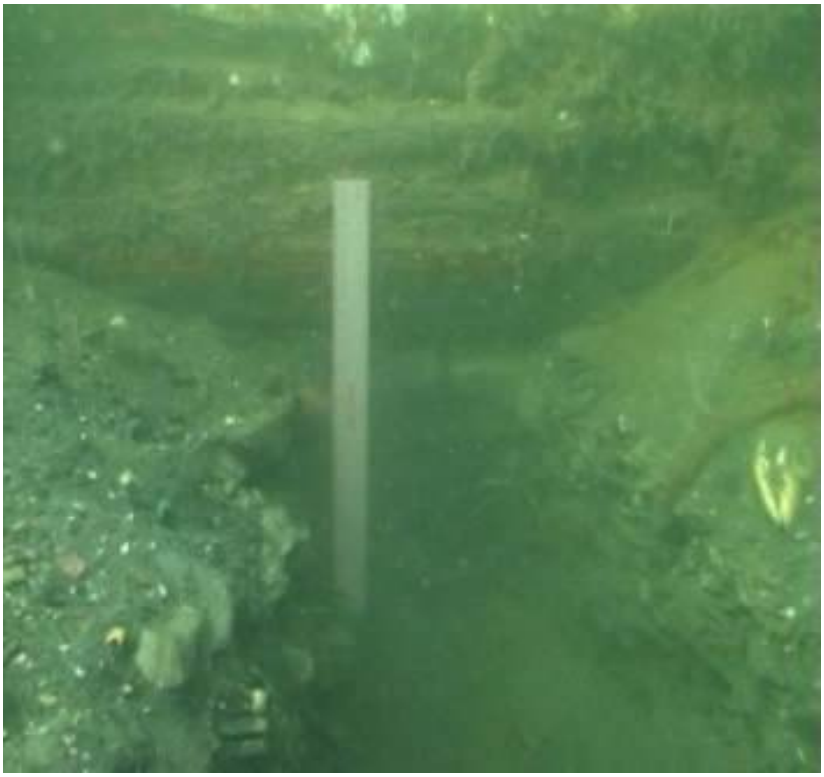
Photograph 3. Example of typical marine growth covering all exposed timbers at the site.



Photograph 4. Ceiling plank (white arrow) and two frames (black arrow) on starboard side.



Photograph 5. Windlass lying near the bow end of the wreck site.



Photograph 6. Trench cleared by hand on the port side near the bow end (Note: Side of keelson is visible).

Photograph 7. The *Thomas H. Lawrence* (Penobscot Marine Museum Collection).

Photograph 8. The *Thomas H. Lawrence* (Penobscot Marine Museum Collection). Caption on reverse reads " . . .at North Haven 1938. I took this photo from the porch of our house last summer. Town of N.H. in the background."

Photograph 9. The *Thomas H. Lawrence* (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 10. The *Thomas H. Lawrence* (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 11. The *Thomas H. Lawrence* (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 12. The *Thomas H. Lawrence* (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 13. The *Thomas H. Lawrence* (Penobscot Marine Museum Collection).

Photograph 13. The *Thomas H. Lawrence* (Penobscot Marine Museum Collection). Enlargement clearly shows her name on the port bow).

Photograph 14. The Thomas H. Lawrence (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 15. The Thomas H. Lawrence (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 16. (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 17. The *Thomas H. Lawrence*, most likely when she was undergoing a refit at Snow's Shipyard, Rockland, Maine, in August 1939 (Elmer Montgomery Collection, Penobscot Marine Museum).

Photograph 18. Schooner *Thomas H. Lawrence* stranded on Crane's Beach, Ipswich Massachusetts, 30 August 1939 (Elmer Montgomery Collection, Penobscot Marine Museum). Reproduced in Anon. 1945:Plate 20.

APPENDIX A

EXAMPLES OF SCHOONER WRECKS LISTED ON THE NRHP

- *Alvin Clark* (1846), schooner listed on NRHP in 1974; salvaged intact from Green Bay in 1969; site was not preserved properly and she deteriorated by 1994;

- *A.P. Nichols* (1861), 299-ton three-masted schooner Lake Michigan;

- *Bessie M. Dustin* (1918) schooner abandoned on the shoreline of Shooters Island in NY Harbor in 1936; listed on the NRHP prior to 1990;

- Bethune Blackwater Schooner site (19th century), wrecked near Milton Florida; added to NRHP in 1991;

- *Christina Nisson* (1871), 311-ton three-master schooner in Lake Michigan;

- *Cora F. Cressy* (1902) 5-masted schooner built in Bath, Maine. She was abandoned in 1938 as a breakwater near the shoreline Bremen, Maine. Listed on the NRHP prior to 1990;

- *Daniel Lyons* (1873), 318-ton three-masted schooner in Lake Michigan. Hull sides collapsed, butn her centerboard trunk remains upright and nearly all of her hull structure and rigging are extant;

- Dunkirk Schooner site, 2-masted schooner wrecked in Lake Erie off Dunkirk, NY; listed on NRHP in 2009;

- *Equator* (1888) 2-masted pygmy schooner; hull abandoned in Everett, WA in 1953; hull raised and now protected by a shed; listed on NRHP in 1972;

- *Fleetwing* (1867) 3-masted centerboard schooner, 194' long hauled bulk cargo on Great Lakes; wrecked in Lake Michigan near Liberty Grove, Michigan in 1888; listed on the NRHP in 2001;

- *Hesper* (1918) 4-masted schooner was laid up in 1936 adjacent to Water Street in Wiscasset, Maine; listed on the NRHP prior to 1990;

- *Hetty Taylor* (1874) 84-ton two-masted schooner. Mostly intact in 110 feet of water in mid-Lake Michigan;

- *Kate Kelly* (1867) 257-ton two-masted canaller in lower Lake Michigan;

- *Lucerne* (1873) 3-masted centerboard schooner, 194' long hauled bulk cargo on Great Lakes; wrecked in Lake Superior near Ashland, Wisconsin, while hauling iron-ore in 1886. Wreck remains in ideal condition; listed on the NRHP in 1991;

- *Lumberman* (1862) 3-masted, double-centerboard schooner was built in Blendon's Landing, Michigan; capsized on Lake Michigan near Oak Creek, Wisconsin in 1893. Wreck has survived remarkably intact and was listed on the NRHP in 2009;

- *Luther Little* (1917) 4-masted schooner was laid up in 1936 adjacent to Water Street in Wiscasset, Maine – next to Hesper; listed on the NRHP prior to 1990;

- *Madeira* (1900) iron hull schooner barge sank in Lake Superior off the Minnesota coast in 1905; listed on the NRHP in 2006;

- *Meridian* (1848) schooner built in Black River, Ohio sank in Sister Bay, Wisconsin in 1873; listed on the NHRP in 1996;

- *Moonlight (*1874) 3-masted schooner-barge lost in Lake Superior in1903 and re-located in 2005. The *Moonlight* lies in very deep water (240+ feet). The wreck is associated with a large debris field believed to be the ship's scattered cargo;

- *Noquebay* (1872) schooner barge wrecked in Lake Superior near La Point, Wisconsin; listed on the NHRP in 1992;

- *Northerner* (1850) 2-masted schooner 81' long built in Clayton, NY; wrecked near Port Washington, WI; listed on NRHP in 2010;

- *Pretoria* (1900) 338' schooner barge built in West Bay City, MI; sank in 1905; added to NRHP in 1994;

- *Rouse Simmons* (1868), 3-masted schooner, sank in Lake Michigan in 1912;

- *Samuel P. Ely* (1869) single-decked, three-masted schooner built at the J.P. Clark Shipyards near Detroit, Michigan and wrecked near Duluth, Minnesota. It was placed in the iron-ore trade as soon as it was fitted for sea. The *Ely* is historically significant for its associations with Two Harbors and Minnesota's iron-ore trade. The *Ely* is also significant because of its exceptional structural integrity. The remains of the *Ely* were listed on the NRHP in 1992;

- *St Peter* (1873) Great Lakes Schooner wrecked in Lake Ontario near Pultneyville, NY in 1898; listed on NRHP in 2004;

- *Tennie & Laura* (1876) 73' long scow schooner built in Manitowoc; wrecked in over 300 in Lake Michigan; added to NRHP in 1994;

- *U.S.S. Alligator* (1820) US Navy schooner wrecked off coast of Florida Keys in 1822; listed on NRHP in 1966;

- *U.S.S Hamilton & U.S.S Scourge* (1813) warships converted from merchant schooners prior to the War of 1812, sank during a storm on Lake Ontario in 1813;

- Vessel 59 hulk of unidentified wooden schooner abandoned next to the shoreline of Shooters Island in NY Harbor in 1936; listed on the NRHP prior to 1990;

- *Weymouth* (1860) schooner wreck located in Mays Landing, Atlantic County, NJ added to NRHP in 1985.

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

February 17, 2011

Chet Myers, Senior Engineer
Apex Companies, LLC
184 High Street, Suite 502
Boston, MA 02110

RE: Report on Phase II Marine Archaeological Investigation of Remote Sensing Target M14/S5, South Terminal Marine Infrastructure Park, New Bedford, MA
BUAR Special Use Permit 10-004

Dear Mr. Myers:

The staff of the Massachusetts Board of Underwater Archaeological Resources has completed its review of the technical report entitled, *Report on Phase II Marine Archaeological Investigation of Remote Sensing Target M14/S5, South Terminal Marine Infrastructure Park, New Bedford, MA* (dated January 2011). The report was prepared by Dolan Research, Inc. for Apex Companies, LLC, and received by the Board on January 31, 2011.

The Board is satisfied with the overall research design and methodology for the Phase II marine archaeological survey of this unanticipated historic shipwreck (Remote Sensing Target M14/S5). The resulting documentation and interpretation presented in the report provides a thorough description of this site. The Board concurs with the report's assessment and recommendations that no further investigation is warranted.

However, the area is generally archaeologically sensitive. Therefore as noted in the related archaeological studies for this project, there remains the need for the proponent to consider the possibility that heretofore-unknown submerged cultural resources may be encountered during the course of the project. The Board expects that the project's sponsor to either adopt the Board's *Policy Guidance for the Discovery of Unanticipated Archaeological Resources* (updated 9/28/06) or to develop its own unanticipated finds procedure that conforms to the Board's policy.

Finally, the Board takes this opportunity to extend its compliments to the technical services provider for preparing a thorough and well-written marine archaeological technical report. Given the quality of the technical report, the Board believes there is significant public benefit to be gained by sharing this study and its findings. Rather than suggest publication of this technical report or an adaptation, the Board suggests the project develop simpler poster presentation. Poster board type format would lend itself to ready information sharing and public engagement in the harbor communities. The Board would utilize such material in its public and professional programming efforts. It would be less costly and more useful than copies of the technical report or even a brochure.

Printed on Recycled Paper

The Board appreciates the opportunity to comment on this report. Should you have any questions regarding this review, please do not hesitate to contact me at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

/vtm

Cc: B. Simon, MHC
L. Adams, USEPA
K. Atwood, USACOE (via email attachment)
G. Davis, EOEEA (via email attachment)
R. Boeri, MCZM (via email attachment)
B. Washington, Wampanoag Tribe of Gay Head (Aquinnah) (via email attachment)
C. Green, Mashpee Wampanoag Tribe (via email attachment)
J. Nersesian, New Bedford Whaling National Historical Park
D. Santos, New Bedford Historical Commission
J. Botkland, Apex (via email attachment)
G. Harper, Apex (via email attachment)
K. Decas, NBHDC
M. Morrissey, NBEDC
J. L. Cox, Dolan Research (via email attachment)
J. Klein, John Milner and Associates (via email attachment)

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

February 17, 2011

Lois K. Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
US Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA.
MHC #RC.48896.

Dear Ms. Adams:

Staff of the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer have reviewed the results of the archaeological investigations for Target M4/S5, located in a subtidal portion of the project referenced above, reported in *Phase II Investigation of Target M4/S5, Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts,* prepared by Dolan Research Inc., and John Milner Associates, Inc., and received by the MHC on January 31, 2011.

The results of the investigations identified Target M4/S5 as the wreck of the *Thomas H. Lawrence,* a three-masted schooner constructed in 1891, and abandoned, which burned and sank in 1941. The MHC agrees with the report assessment, that the wreck lacks integrity, and thus it is MHC's opinion that the historic shipwreck does not meet the Criteria of Eligibility for listing in the National Register of Historic Places (36 CFR Part 60).

The report provides interesting historical information about the schooner and its marine technology, its role in the bulk cargo coastal trade, and the importance of New Bedford in the history of New England's 19th and 20th-century marine commerce. Project planners may wish to consider developing an interpretive exhibit within public areas of the terminal, using the information in this report, such as in a poster format suggested by the Massachusetts Board of Underwater Archaeological Resources.

Copies of this technical report may be provided to any interested parties and the public, including the New Bedford Public Library, the New Bedford Whaling Museum, and the New Bedford Whaling National Historical Park.

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(617) 727-8470 - Fax: (617) 727-5128
www.state.ma.us/sec/mhc

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800). Please contact Edward L. Bell at the MHC if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc:
New Bedford Harbor Development Commission
Karen Kirk Adams, USACOE-NED-Regulatory
Kathleen Atwood, USACOE-NED
David Johnston, DEP/SERO
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
George Green, Jr., Mashpee Wampanoag Tribe
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
Jennifer T. Nersesian, NPS New Bedford Whaling NHP
Derek J. Santos, New Bedford Historical Commission
Chet Meyers & Jay Borkland, Apex Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
Joel I. Klein, John Milner Associates, Inc.
William Chadwick, John Milner Associates, Inc.
Martin G. Dudek, John Milner Associates, Inc.

APPENDIX 43

Apex Companies, LLC
"Where Excellence Meets Value"

184 High Street, Suite 502
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and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

January 12, 2011

Ms. Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Re: Reply to Massachusetts Historical Commission (MHC) Letter Dated November 18, 2010, MHC #RC48896

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Subject Summary: Project Has Been Re-designed and Now Avoids Mapped Paleosol Areas.

Dear Ms. Simon:

Apex Companies, LLC is pleased to submit the following information in response to MHC's comments (dated November 18, 2010) regarding the identified paleosols in the inter-tidal and sub-tidal areas of the proposed Project, as investigated by John Milner and Associates and indicated above. Please note that in keeping with the comments of MHC and MBUAR, the project footprint has been re-evaluated and Re-designed such that it avoids the mapped Paleosol areas (see attached Figure). The attached Project drawing:

- Identifies the Project as Re-designed (Re-designed Project impact area – *please note that the Re-designed project impact area is still within the area that was investigated as part of the inter-tidal and sub-tidal cultural resources assessment);*
- Identifies the location of the inter-tidal and sub-tidal paleosols relative to the Re-designed Project impact area.

Identified Sub-Tidal Paleosol: The project has been Re-designed and the mapped Sub-Tidal Paleosol is no longer within the impact area of the Re-designed Project. As such, and in

accordance with a request made by MHC in its November 18, 2010 letter, that "project planners consider alternatives that would avoid and protect the landform, and present the results of the alternatives analysis to the consulting parties", the following actions will be taken to protect the land form from inadvertent impacts:

- The location of the paleosol will be identified on contract drawings and within the specifications issued to contractors as an "off-limits" area (without identifying it as an archaeological feature). The areas will be marked as off-limits (with only very minor exceptions for maneuvering small craft on the water surface if necessary). No spudding or other activity that may result in impact to the Harbor bottoms in this location will be allowed.
- Physical indicators will be installed at the water surface prior to the start of construction that will show the location of the paleosol, and will assist in keeping contractors, subcontractors, and delivery personnel from entering and inadvertently impacting the area.
- Pathways, established to specifically avoid the paleosol area, for use by heavy equipment, will be clearly identified on the Project Plans.
- Locations for material stock-piles and other components of construction will be identified in locations that safely avoid the location of the paleosol.
- Construction site supervisory staff will be trained in the location of the paleosol areas, will alert contractors to its presence on an as-needed basis, and will ensure that the Harbor bottom above the paleosol remains undisturbed.

Identified Inter -Tidal Paleosol: In its November 18, 2010 letter, MHC requested that "project planners should develop a plan to avoid and protect the landform from inadvertent impacts during the construction of the project and provide the plan to the consulting parties for comment." Based upon the Re-design of the project footprint (which avoids the sub-tidal paleosol), the mapped Inter-Tidal Paleosol will also be outside the impact area of the Re-designed Project. In addition, the following actions will be taken to protect the landform from inadvertent impacts:

- The location of the inter-tidal paleosol will be identified on contract drawings and within the specifications issued to contractors as an "off-limits" area (without identifying it as an archaeological feature). The areas will be marked as off-limits (with only very minor exceptions for foot traffic maneuvering through the area, if necessary).
- Physical indicators will be installed prior to the start of construction that will show the location of the paleosol onsite, and will assist in keeping contractors, subcontractors, and delivery personnel from entering and inadvertently impacting the area.
- Pathways, established to specifically avoid the paleosol area, for use by heavy equipment, will be clearly identified on the Project Plans.
- Locations for material stock-piles and other components of construction will be identified in locations that safely avoid the location of the paleosol.

- Construction site supervisory staff will be trained in the location of the paleosol area, will alert contractors to its presence on an as-needed basis, and will ensure that the paleosol area remains undisturbed.

Post-project reports will note that further review is required by MHC, MBUAR and the consulting parties identified below for any potential future impact within the area of either paleosol.

In the interest of accommodating the needs of this fast-track Project, we welcome the opportunity to discuss this Project with you directly if you so desire, and are available to meet with you at your earliest convenience. If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC.

Gregory F. Harper, MA, RPA
Cultural Resource Specialist

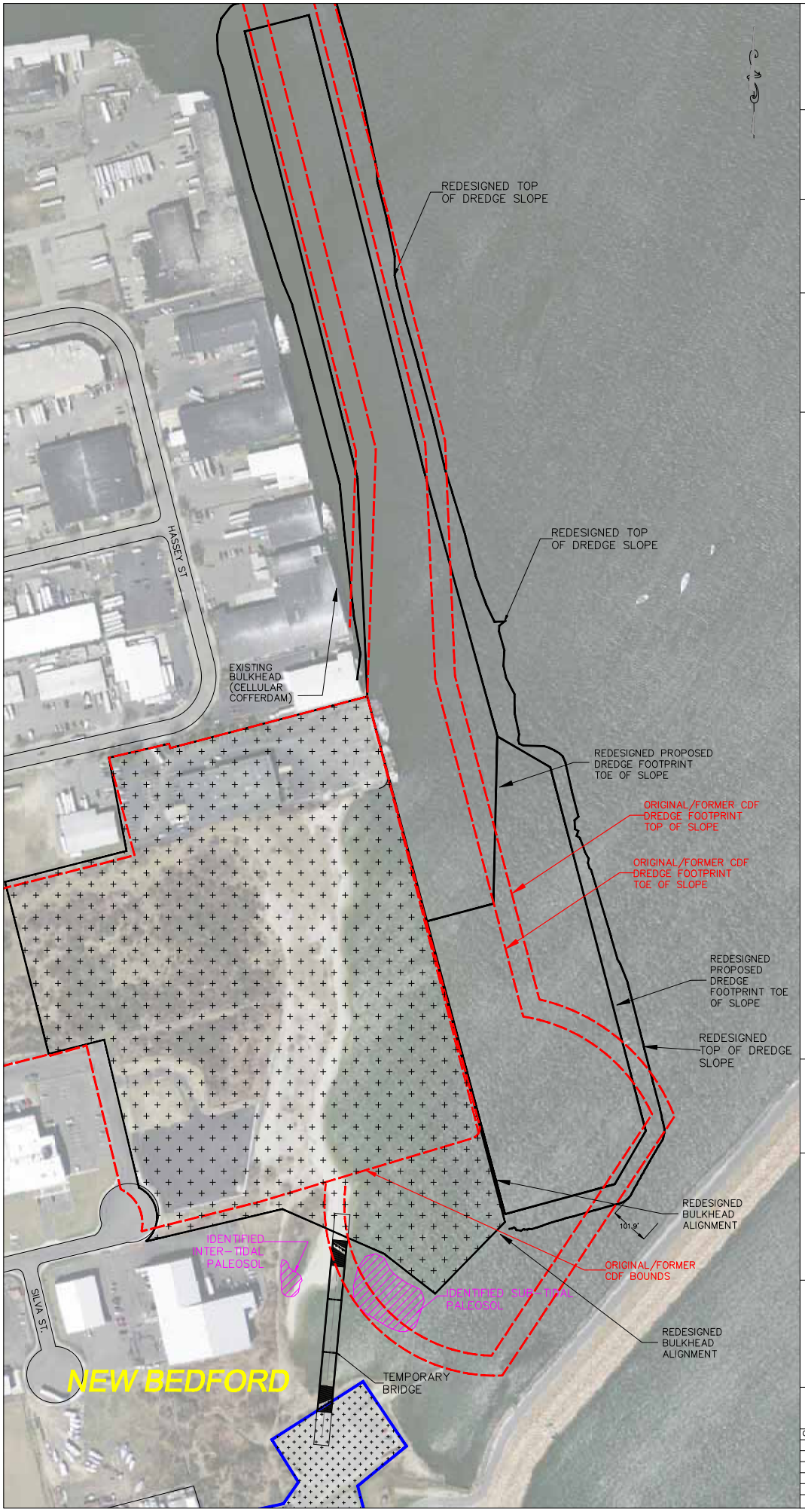
Chet Myers, Senior Engineer

Jay Borkland, Program Manager

Attachments: Project Map
MHC Letter dated November 18, 2010

cc: M. Morrissey (NBEDC)
K. Decas (NBHDC)
K. Kimmell (DEP)
Karen Kirk Adams, USACOE-NED Regulatory
Kathleen Atwood, USACOE-NED
V. T. Mastone, MBUAR
R. Boeri, Massachusetts Office of Coastal Zone Management
G. Greene, Jr. Mashpee Wampanoag Tribe
B. Washington, Wampanoag Tribe of Gayhead (Aquinnah)

J. Nersesian, NPS New Bedford Whaling NHP
D. Santos, New Bedford Historical Commission
J. Klein, John Milner and Associates, Inc.
J. Lee Cox, Jr., Dolan Research Inc.



Apex Companies, LLC.

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REVISIONS

NO.	DATE	DESCRIPTION
1.	9-2-10	TOP OF SLOPE ADDED
2.	9-20-10	CROSS SECTION ADDED
3.	12-12-10	PALEOSOLS ADDED
4.	12-28-10	CONCEPTUAL LAYOUT UPDATED
5.	1-12-11	REDESIGN ISSUED FOR REVIEW

THESE DRAWINGS PREPARED BY APEX FOR THIS PROJECT ARE INSTRUMENTS OF APEX'S SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT, AND APEX SHALL BE DEEMED THE AUTHOR OF THE DRAWING AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS WITH RESPECT THERETO, INCLUDING COPYRIGHT. THE DOCUMENTS SHALL NOT BE USED ON OTHER PROJECTS, FOR ADDITIONS TO THIS PROJECT OR FOR COMPLETION OF THIS PROJECT BY OTHERS, EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO APEX.

KEY:

- ORIGINAL/FORMER FACILITY LAYOUT AND DREDGE FOOTPRINT
- REDESIGNED PROJECT IMPACT AREA TO AVOID MAPPED PALEOSOLS
- MAPPED PALEOSOLS (JMA 2010)
- REDESIGNED FILL AREA BEHIND BULKHEAD

PREPARED FOR:

MASS. CEC,
MASS. EOEEA, AND
THE NEW BEDFORD
HARBOR DEVELOPMENT
COMMISSION
NEW BEDFORD,
MASSACHUSETTS

DRAWING TITLE:

SOUTH TERMINAL
MARINE PARK
REDESIGNED IMPACT
AREA OVERLAY THE
ORIGINAL PROJECT
IMPACT AREA

Scale: 1"=150'

0 75 150 300 450 FEET

ORG. Date 3/24/10	Drawing No.
Proj. Mgr. JAB	
Design CWM	
Check CHM	
Drawn GCD	P-4
Job. No. 6690	
Last Rev. 1/12/11	

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

November 18, 2010

Lois K. Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
US Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

RE: New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA: **MHC #RC.48896.**

Dear Ms. Adams:

Staff of the Massachusetts Historical Commission (MHC), office of the State Historic Preservation Officer have reviewed the results of the archaeological investigations for the subtidal and intertidal portions of the project, described in two reports, *Assessment of Prehistoric Archeological Site Potential: Subtidal Portions of the Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts*, and *Assessment of Archeological Site Potential: Intertidal Portions of the Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts*, prepared by John Milner Associates, Inc. (JMA), and received by the MHC on November 4, 2010.

Subtidal Zone: The investigations identified an area with intact paleosols in the southern portion of the survey area (see Figure 10). The single radiocarbon assay of 2660 ±40 BP, when calibrated, indicates that the age of the sample tested most likely dates between 2,740 and 2,850 years ago (900 to 790 BC). The JMA researchers interpret the results as indicating that the project area includes a well-preserved and intact ancient upland landform that was available for Native American land use and occupation. This is a significant discovery that provides information on the location and character of land available to resident Native Americans during the Early Woodland period prior to sea level rise and submergence in the Acushnet River and Buzzards Bay drainage basin. The Early Woodland Period in Southern New England is a research area of considerable interest. The limited investigations of a single vibracore were not designed to identify artifacts or cultural features, but if present, information about ancient Native American use of the location could provide important information.

MHC requests that project planners consider alternatives that would avoid and protect the landform, and present the results of the alternatives analysis to the consulting parties.

If redesigning the project to avoid impacting and to protect the landform is not feasible, then MHC requests that a research design and methodology be developed to conduct an archaeological site examination of the landform. The goal of the site examination is to determine if the landform contains significant historic resources, and to describe the historic, scientific, and cultural qualities and characteristics, including the locations, sizes, boundaries, data contents, and spatial arrangements of artifacts and features. The purposes of the archaeological site examination is to provide sufficient technical information to offer an opinion of National Register- eligibility (36 CFR Part 60), and to develop a program in consultation with the consulting parties that would sufficiently mitigate any adverse

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www.sec.state.ma.us/mhc

effects to historic properties. The proposed site examination research design and methodology should be provided to the interested consulting parties for their review and comment.

Intertidal Zone: The investigations identified one area with intact paleosols in the southern portion of the survey area, approximately 100 feet from the landform found in the subtidal zone (see Figure 4). A radiocarbon assay from this area may not accurately date the intact landform, because the location sampled at the edge of the landform is interpreted by JMA to have a redeposited layer. The layer from which the radiocarbon dating sample was taken is above a layer that included historical period material (iron slag). Additional radiocarbon dating of samples from other areas of the landform could accurately date it. The landform has a high potential to contain ancient period Native American artifacts and cultural features. The report indicates that the landform is not within an impact area for the project. Project planners should develop a plan to avoid and protect the landform from inadvertent impacts during the construction of the project, and provide the plan to the consulting parties for comment.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800). Please contact Edward L. Bell of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc:
New Bedford Harbor Development Commission
Karen Kirk Adams, USACOE-NED-Regulatory
Kathleen Atwood, USACOE-NED
Victor T. Mastone, Massachusetts Board of Underwater Archaeological Resources
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Chet Meyers, APEX Companies, LLC
J. Lee Cox, Jr., Dolan Research Inc.
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Facsimile 617-728-0080

January 12, 2011

Mr. Victor T. Mastone
Director
Commonwealth of Massachusetts
Board of Underwater Archaeological Resources
Executive Office of Energy and Environmental Affairs
251 Causeway Street, Suite 800
Boston, MA 021114-2136

Re: Reply to Massachusetts Board of Underwater Archaeological Resources (MBUAR) Letter Dated November 29 2010, Special Use Permit 10-005

Project: ***Archaeological Site Potential: Sub-tidal Portions of the Proposed South Terminal Marine Infrastructure Park, New Bedford, MA (Project)***

Subject Summary: Project Has Been Re-designed and Now Avoids Mapped Paleosol Areas.

Dear Mr. Mastone:

Apex Companies, LLC is pleased to submit the following information in response to MBUAR's comments (dated November 29, 2010) regarding the identified paleosols in the sub-tidal area of the proposed Project as investigated by John Milner and Associates, indicated above. Please note that in keeping with the comments of MHC and MBUAR, the footprint has been re-evaluated and Re-designed such that it avoids the mapped Paleosol areas (see attached Figure). The attached Project drawing:

- Identifies the Project as Re-designed (Re-designed Project impact area – *please note that the Re-designed project impact area is still within the area that was investigated as part of the inter-tidal and sub-tidal cultural resources assessment)*
- Identifies the location of the inter-tidal and sub-tidal paleosols relative to the Re-designed Project impact area.

In its November 29 letter, MBUAR had requested further archaeological testing of the sub-tidal paleosol under an expanded Phase IB or Phase II investigation if the project could not be Re-designed to avoid the sub-tidal paleosol. In response to MBUAR and MHC comments, as well as other design considerations, the project team has re-evaluated the design options for the project and the project has been Re-designed such that the mapped sub-tidal paleosol is no longer within the impact area of the Re-designed Project. In addition to the above-noted Re-design, the following actions will be taken to protect the landform from inadvertent impacts:

- The location of the paleosol will be identified on contract drawings and within the specifications issued to contractors as an "off-limits" area (without identifying it as an archaeological feature). The areas will be marked as off-limits (with only very minor exceptions for maneuvering small craft on the water surface or through the area if necessary). No spudding or other activity that may result in impact to the Harbor bottom in this location will be allowed.

- Physical indicators will be installed at the water surface prior to the start of construction that will show the location of the paleosol, and will assist in keeping contractors, subcontractors, and delivery personnel from entering and inadvertently impacting the area.

- Pathways to avoid the Paleosol area for use by heavy equipment will be clearly identified on the Project Plans.

- Locations for material stock-piles and other components of construction will be identified in locations that safely avoid the location of the paleosol.

- Construction site supervisory staff will be trained in the location of the paleosol areas, will alert contractors to its presence on an as-needed basis, and will ensure that the Harbor bottom above the Paleosol remains undisturbed.

Post-project reports will also note that further review is required by MBUAR, MHC, and the consulting parties identified below for any potential future impact within the area of the paleosol.

In the interest of accommodating the needs of this fast-track Project, we welcome the opportunity to discuss this Project with you directly if you so desire, and are available to meet with you at your earliest convenience. If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC.

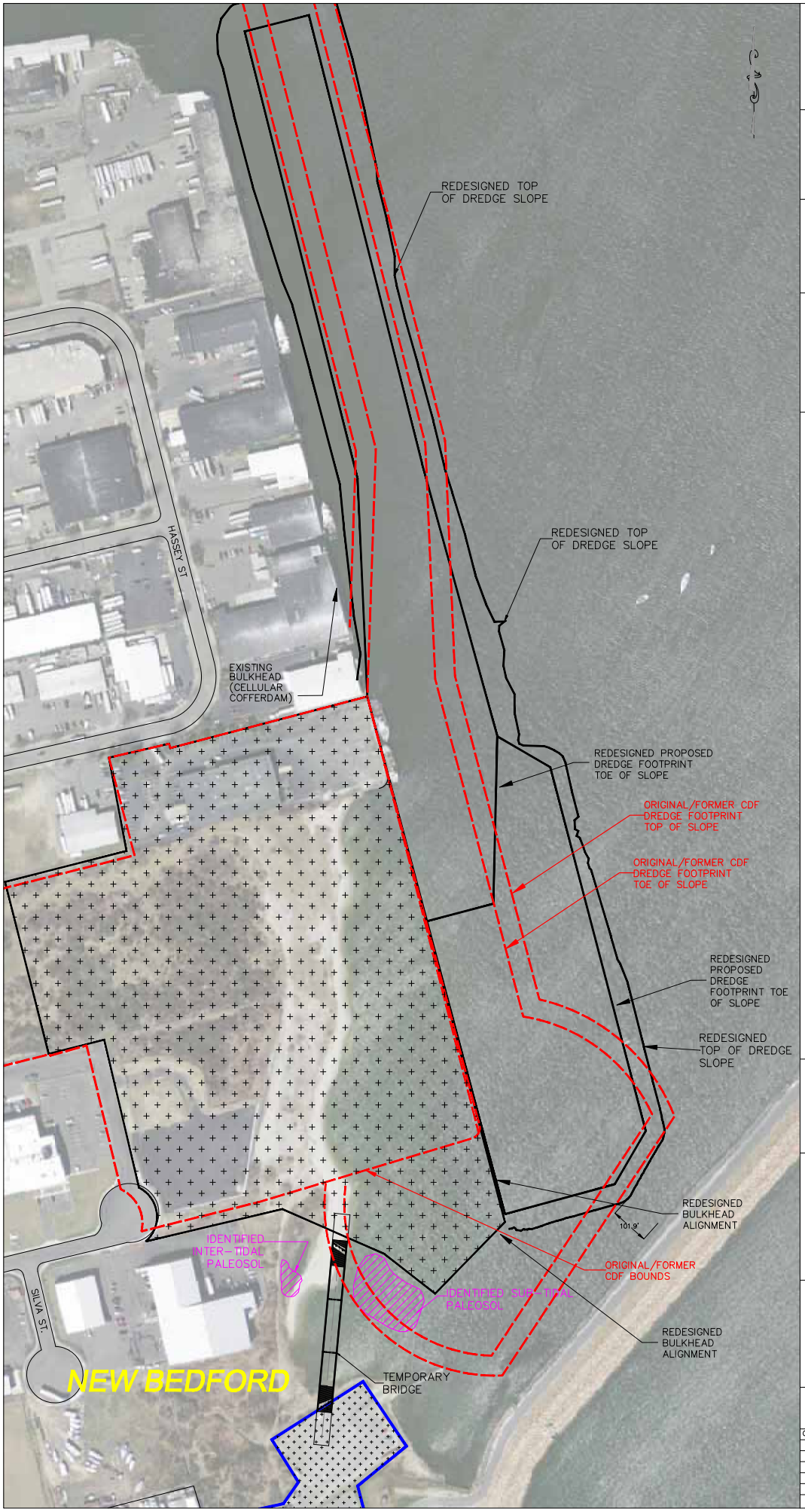
Gregory F. Harper, MA, RPA
Cultural Resource Specialist

Chet Myers, Senior Engineer

Jay Borkland, Program Manager

Attachments: Project Map
MBUAR Letter dated November 29, 2010

cc: B. Simon, MHC
K. Atwood, USACOE-NED
R. Boeri MCZM
G. Greene, Jr. Mashpee Wampanoag Tribe
B. Washington, Wampanoag Tribe of Gayhead (Aquinnah)



Apex Companies, LLC.

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(508) 996-9828

184 HIGH STREET
SUITE 502
BOSTON MA 02110
(617) 728-0070

REVISIONS

NO.	DATE	DESCRIPTION
1.	9-2-10	TOP OF SLOPE ADDED
2.	9-20-10	CROSS SECTION ADDED
3.	12-12-10	PALEOSOLS ADDED
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- REDESIGNED FILL AREA BEHIND BULKHEAD

PREPARED FOR:

MASS. CEC,
MASS. EOEEA, AND
THE NEW BEDFORD
HARBOR DEVELOPMENT
COMMISSION
NEW BEDFORD,
MASSACHUSETTS

DRAWING TITLE:

SOUTH TERMINAL
MARINE PARK
REDESIGNED IMPACT
AREA OVERLAY THE
ORIGINAL PROJECT
IMPACT AREA

Scale: 1"=150'

0 75 150 300 450 FEET

ORG. Date 3/24/10	Drawing No.
Proj. Mgr. JAB	
Design CWM	
Check CHM	
Drawn GCD	P-4
Job. No. 6690	
Last Rev. 1/12/11	

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1200 Fax (617) 626-1240 Web Site: www.mass.gov/czm/buar/index.htm

November 29, 2010

Joel I. Klein, PhD, RPA
Associate Director, Cultural Resources Department
John Milner Associates, Inc.
One Croton Point Avenue, Suite B
Croton-on-Hudson, NY 10520-3028

RE: Assessment of Prehistoric Archeological Site Potential: Subtidal Portions of the Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts
Special Use Permit 10-005

Dear Dr. Klein:

The staff of the Massachusetts Board of Underwater Archaeological Resources has completed its review of the technical report entitled *Assessment of Prehistoric Archeological Site Potential: Subtidal Portions of the Proposed South Terminal Marine Infrastructure Park, New Bedford, Massachusetts.* We offer the following comments.

The Board is satisfied with the overall research design and methodology for a marine archaeological investigation to assess the potential for the presence of submerged ancient Native American sites in the proposed subtidal project area. It concurs with the report's interpretation of both the seismic reflection profiling and vibra-coring samples. For much of the project area, these results suggest a low potential for yielding ancient Native American cultural resources. However, at Vibracore NB-VC-04 (and to a lesser extent at Vibracore NB-NC-05) an intact paleosol dating to 2680 +/- 40 BP was identified and an area of moderate potential for ancient Native American cultural resources were delineated (Figure 10). Based on the presented analysis of the results of the Phase I/IB investigation, the Board generally concurs with the report's overall findings.

With respect to the report's recommendation relative to the area of moderate potential for ancient Native American cultural resources (Figure 10), the Board recommends the proponent consider an alternative that would avoid any impact upon this area. The dated materials are suggestive Early Woodland Period sites. Such coastal sites have the potential to yield information on how ancient Native American responded to climate change and sea level rise. By examining well-preserved examples from the geologic record, we can begin to extrapolate past trends into the future as sea-level rise rates increase and, thereby, establish an informed perspective of how present-day coastal landscapes will respond.

If avoidance is not possible, the Board does not believe a program that relies solely on archaeological monitoring during dredging would be adequate. The limited investigation through one core sample may not be sufficient to identify the presence and extent of a site. We suggest, at minimum, some additional core sampling of this small area under an expanded Phase IB investigation, or a Phase II site examination to determine if the area contains important cultural resources. This additional investigation can proceed under Special Use Permit 10-005 provided you submit a revised research design/work plan for Board approval prior to commencing work.

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Finally, the proponent should also consider the possibility that heretofore-unknown submerged cultural resources be encountered during the course of the project. The Board expects that the project's sponsor will take steps to limit adverse affects and immediately notify the Board, as well as other appropriate agencies. The Board suggests the proponent develop an unanticipated finds procedure in accordance with the Board's *Policy Guidance for the Discovery of Unanticipated Archaeological Resources* (updated 9/28/06).

The Board appreciates the opportunity to comment on this report. Should you have any questions regarding this review, please do not hesitate to contact me at the address above or by telephone at (617) 626-1141.

Sincerely,

Victor T. Mastone
Director

Cc: B. Simon, MHC
K. Atwood, USACOE
R. Boeri, MCZM
J. Borkland, Apex
B. Washington, Wampanoag Tribe of Gay Head (Aquinnah)
C. Green (Mashpee Wampanoag Tribe)

APPENDIX 44

Summary Notes
New Bedford Enhanced Remedy
Tribal Consultation Meeting
March 15, 2011

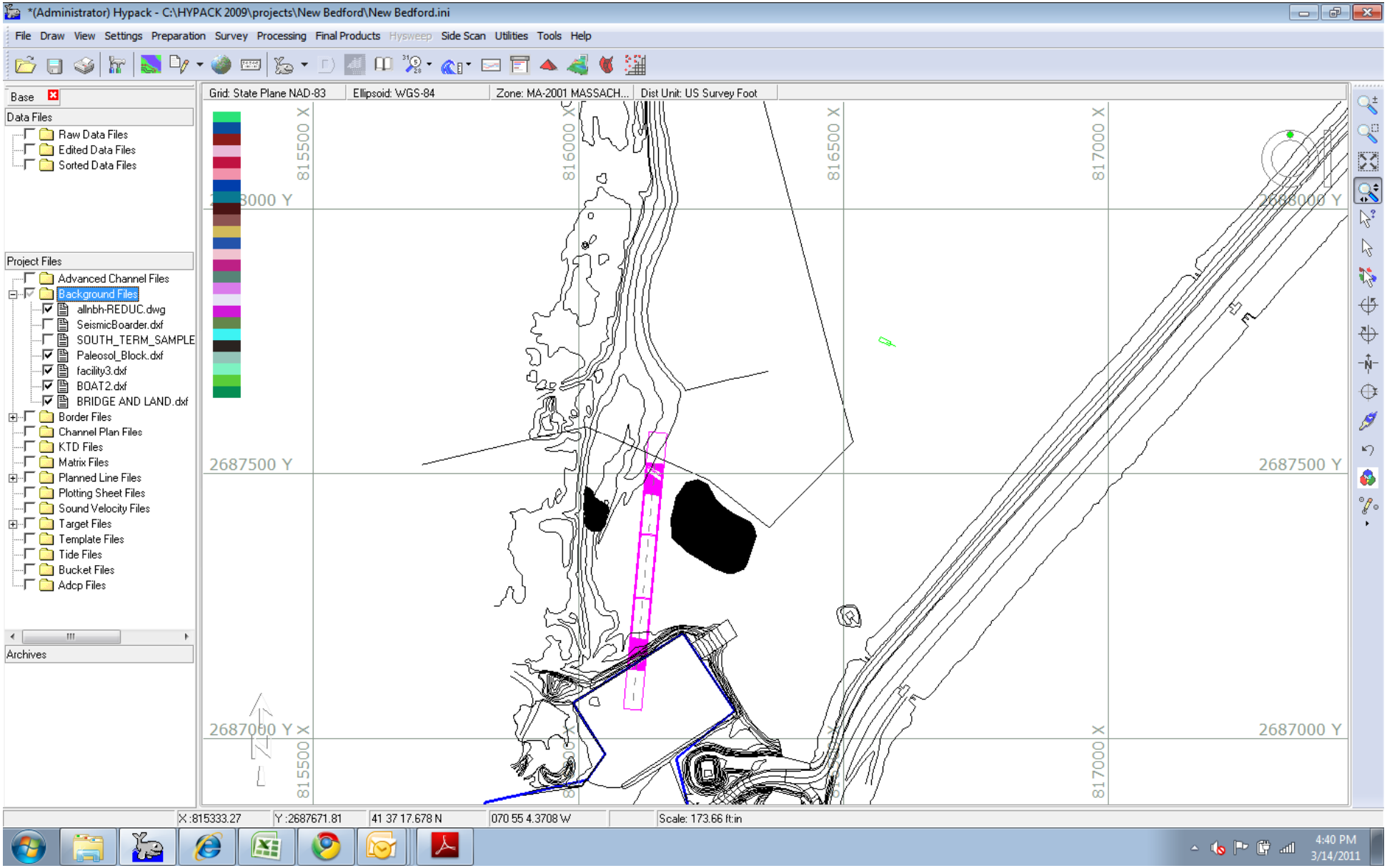
- Meeting began with tribal concerns regarding design of bulkhead in relation to paleosols. Chuckie Green raised concern with new bulkhead location split between two paleosol areas. Bulkhead configuration was changed to avoid paleosols. First concern is acreage; second concern is the borings: red, dusty material that may be a burial site.
- Jonathan (Aquinnah) relayed that dredging and subsequent erosion that dredging would cause "slope effect;" also, frequency of testing was questioned; not enough testing to define limits in the report.
- Bettina Washington: concerned with lack of space between construction and paleosols; Tribe did not get information until they requested boring information, and the tribes can't make a determination until provided an opportunity to review the data. Information from borings was obtained from the federal agency (EPA?) the "red, dusty substance" –Boring #2 – and additional borings undertaken – tribe was not notified, and fence was erected without notification.
- Chuckie Green: Tribes need to be notified. A change was made from original footprint to new footprint, and no rationale was provided.
- Gary Davis: When he first learned of the paleosol issue, it became evident that they needed to conduct outreach to the tribes. He called Lois Adams and requested a meeting – this meeting. With respect to recent borings, Gary assumes responsibility. He stated that the borings were near the paleosol area, but not within the area. He apologized and provided his direct phone number 617-626-4983 – and said that he is available anytime.
- Jay Borkland (Apex) stated that a large CDF is planned to fill in Palmers Cove and to expand port. Project will serve to create a permanent port in New Bedford because (1) a CDF is needed in harbor and 92) city needs a new shipping port.
- Joel Klein (JMA) described Phase 1 (upland) report – entire upland area is all previously disturbed offshore area. Concern is shipwreck potential and Native American historical sites. A shipwreck was found, but deemed not eligible for historic register.
- Peter Leach (JMA): described the geophysical method used. Working with APEX and a UMASS professor, they collected seismic data – but gasses proved problematic – and they used tight lines with 50' spacing, but not straight lines. Sub-meter accuracy GPS was used and data analyzed by UMASS professor, and some targets identified. Of 5 areas studied, two were consistent with paleosols. They placed two cores through these area as well as three other areas. The two cores revealed "well presented paleosols." The "dusty red" designation for the material was based on the Munsell color chart and was not indicative of a dry core sample.
- Both tribes stated that they did not receive copies of the report – hard copy or CD. Apex claims that the tribes were provided copies of the reports.

- Five draft geotechnical borings were being analyzed. No cultural materials were found in paleosols. They investigated the intertidal area also, a total of 116 cores, and in 90% of the area there were "modern" sands/gravels overlying till. Date on paleosol was 2680 BP. The disturbed area seemed to be from the industrial era, as coal and brick were found, and this implies that the area is sheltered from storms.
- Gary Davis: Detail was provided regarding avoidance of paleosols in relation to current borings. Location of paleosols discovered earlier was avoided during recent boring operation.
- Lois Adams: A follow-up conference call would be appropriate, once Chuckie and Bettina have the opportunity to review.
- Jay Borkland (Apex): The redesign was reconfigured to avoid paleosol vicinity – a bailing bridge is planned…. Considered "temporary" but not solely for construction access. How temporary it will be will be up to the City of New Bedford. City will use it for access to lower area.
- Dredgeline accounts for the width of the vessels on either side and in between. Sheet Piling will be installed 10 feet from paelosols, but from shore.
- Gary Davis: When this issue came up 4 weeks ago, he immediately set up this meeting.
- Chuckie Green: He was not aware that the sheet piling would be installed from shore, so this being the case, the 10-foot separation is acceptable. However, he requested that (1) the activity needs to be monitored by a CRM; (2) the questionable core sample (dusty red) be analyzed to ensure that it is not culturally sensitive.
- Bettina Washington: Still wants to see the scope of work prior to weighing in.

- Lois Adams: the resulting to-do list from the meeting is as follows:
    - Tribes to call Gary Davis directly with concerns
    - All parties will receive copies of reports and findings from Gary Davis
    - A direct line of communication will be established between Tribes/Gary Davis
    - Aquinnah Wampanoag reserves comment at this time
    - Questionable core sample will be sent for analysis
    - Regular system of communication will be established
    - Cultural monitoring to take place
    - Scope of work on how sheet piling will be installed will be provided
    - Protection protocols to be spelled out in case something is discovered during geotechnical investigation

Adjourn

Name	Organization	Telephone	Email
Bettina Washington	WTGH	508 560 9014	Bettina@wampanoagtribe.net
Mike Stover	EPA	617 918 1123	Stover.michael@epa.gov
Chuckie Green	Mashpee Wampanoag	508 419 6017 ext. 3	egreeen@matrcho.com
Jay Borklalnd	Apex	671 728 0070	jborkland@apexcos.com
Peter Leail	JMA	484 844 4116	pleaeh@jhonmilerassociates.com
Joel Klein	JMA	914 271 0897	jklein@johnmilenerassociates.com
Victor Mastone	MBUAR	617 626 1141	Victor.mstoneostate.ma.us
Chet Myer	Apex Companies	617 908 5778	cmyers@apexcos.com
Gary Davis	EEA	617 626 4983	garydavis@state.ma.us
Lois K. Adams	EPA	617 918 1591	Adams.lois@epa.gov


*(Administrator) Hypack - C:\HYPACK 2009\projects\New Bedford\New Bedford.ini
File Draw View Settings Preparation Survey Processing Final Products Hysweep Side Scan Utilities Tools Help
Base
Data Files
Raw Data Files
Edited Data Files
Sorted Data Files
Project Files
Advanced Channel Files
Background Files
allnbh-REDUC.dwg
SeismicBoarder.dxf
SOUTH_TERM_SAMPLE
Paleosol_Block.dxf
facility3.dxf
BOAT2.dxf
BRIDGE AND LAND.dxf
Border Files
Channel Plan Files
KTD Files
Matrix Files
Planned Line Files
Plotting Sheet Files
Sound Velocity Files
Target Files
Template Files
Tide Files
Bucket Files
Adcp Files
Archives
Grid: State Plane NAD-83
Ellipsoid: WGS-84
Zone: MA-2001 MASSACH...
Dist Unit: US Survey Foot
815500 X
816000 X
816500 X
817000 X
2688000 Y
2687500 Y
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X :815333.27
Y :2687671.81
41 37 17.678 N
070 55 4.3708 W
Scale: 173.66 ft:in
4:40 PM
3/14/2011

APPENDIX 45

Apex Companies, LLC

"Where Excellence Meets Value"

184 High Street, Suite 502
Boston, MA 02110
and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

March 23, 2011

Mr. Chuckie Green
Mashpee Wampanoag Tribe
766 Falmouth Road
PO Box 1048
Mashpee, MA 02649

Re: Complete Set of Archaeological Survey Reports

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Dear Mr. Green:

Apex Companies, LLC is pleased to provide a complete set of archaeological reports that were generated as a result of archaeological investigations associated with the above referenced project, as requested at the consultation meeting on March 15, 2011. You will find enclosed a set of hard-copy reports and a pdf version of all the reports on a CD. These reports include:

1. JMA NB South Terminal Assessment of Upland Archaeological Potential
2. JMA NB South Terminal Assessment of Inter-Tidal Archaeological Potential
3. JMA NB South Terminal Assessment of Sub-Tidal Archaeological Potential
4. Apex Letter to MHC – Project Re-design
5. Apex Letter to MBUAR – Project Re-design
6. Dolan Phase 1 and 1b Underwater Archaeological Investigation
7. Dolan/JMA Phase 2 Underwater Archaeological Investigation

If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC

Received By: _____

Date: 3/25/11

Gregory F. Harper, MA, RPA
Cultural Resource Specialist

Apex Companies, LLC

"Where Excellence Meets Value"

184 High Street, Suite 502
Boston, MA 02110
and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

March 23, 2011

Ms. Bettina Washington
Wampanoag Tribe of Gayhead (Aquinnah)
20 Black Brook Road
Aquinnah, MA 02535-1546

Re: Complete Set of Archaeological Survey Reports

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Dear Ms. Washington:

Apex Companies, LLC is pleased to provide a complete set of archaeological reports that were generated as a result of archaeological investigations associated with the above referenced project, as requested at the consultation meeting on March 15, 2011. You will find enclosed a set of hard-copy reports and a pdf version of all the reports on a CD. These reports include:

1. JMA NB South Terminal Assessment of Upland Archaeological Potential
2. JMA NB South Terminal Assessment of Inter-Tidal Archaeological Potential
3. JMA NB South Terminal Assessment of Sub-Tidal Archaeological Potential
4. Apex Letter to MHC – Project Re-design
5. Apex Letter to MBUAR – Project Re-design
6. Dolan Phase 1 and 1b Underwater Archaeological Investigation
7. Dolan/JMA Phase 2 Underwater Archaeological Investigation

If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC

Received By: _____

Date: 3/25/11

Gregory F. Harper, MA, RPA
Cultural Resource Specialist

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April 27, 2011

Ms. Lois Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
Environmental Protection Agency
5 Post Office Square
Suite 100
Boston, MA 02109

Re: Complete Set of Archaeological Survey Reports

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Dear Ms. Adams:

Apex Companies, LLC is pleased to provide a complete set of archaeological reports that were generated as a result of archaeological investigations associated with the above referenced project, as requested at the consultation meeting on March 15, 2011. You will find enclosed a set of hard-copy reports and a USB Drive containing all of the reports. These reports include:

1. JMA NB South Terminal Assessment of Upland Archaeological Potential
2. JMA NB South Terminal Assessment of Inter-Tidal Archaeological Potential
3. JMA NB South Terminal Assessment of Sub-Tidal Archaeological Potential
4. Apex Letter to MHC – Project Re-design
5. Apex Letter to MBUAR – Project Re-design
6. Dolan Phase 1 and 1b Underwater Archaeological Investigation
7. Dolan/JMA Phase 2 Underwater Archaeological Investigation
8. Additional Analyses and Interpretation of Vibracore NB-VC-02, JMA, April, 2011

If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC

Received By: Ronald Letterge Date: 4-27-11

Gregory F. Harper. MA. RPA
Cultural Resource Specialist

APPENDIX 46

ADDITIONAL ANALYSES AND INTERPRETATION OF VIBRACORE NB-VC-02

PREPARED FOR

APEX COMPANIES, LLC
184 HIGH STREET
BOSTON, MASSACHUSETTS 02110

PREPARED BY

PETER LEACH, RPA

JOHN MILNER ASSOCIATES, INC.
535 NORTH CHURCH STREET
WEST CHESTER, PA 19380

LABORATORY RESULTS PREPARED BY

TEST AMERICA LABORATORIES, INC.
WESTFIELD EXECUTIVE PARK,
53 SOUTHAMPTON ROAD,
WESTFIELD, MA 01085

APRIL 2011

1.0 INTRODUCTION

Apex Companies, LLC, on behalf of the New Bedford Redevelopment Authority, contracted John Milner Associates, Inc. (JMA) to conduct a marine archaeological assessment comprising remote sensing and coring survey of the subtidal portions of the proposed South Terminal Marine Infrastructure Park (the Project) in New Bedford, Bristol County, Massachusetts . The Project includes construction of a Confined Disposal Facility (CDF) in support of the disposal of contaminated sediments associated with environmental remediation activities, and navigational dredging activities. The completed Project will include the extension of the existing South Terminal bulkhead to the south for approximately 800 linear feet, which would create a 19.95 acre Marine Industrial Park facility with 1,000 linear feet of bulkhead space that could support vessels drafting up to 30 feet. Once built-out, the total estimated area of the combined properties (present upland parcels plus the new land created via the bulkhead extension) would total approximately 19.95 acres.

A total of 69 individual seismic profiles, collected on September 16, 2010 by Dr. Allen Gontz with assistance from JMA and Apex Companies, LLC personnel, were analyzed on September 18, 2010 and five vibracores targets were selected. Analysis of the five vibracores revealed a submerged and buried paleosol and a truncated B horizon in two cores, while the remaining three cores were interpreted as containing Holocene marine, Pleistocene glacial, and modern disturbed sediments.

During a Tribal consultation meeting in New Bedford, Massachusetts on March 15, 2011, issues were raised regarding vibracore NB-VC-02 which was located outside the defined limits of the buried paleosol. JMA initially concluded that the core contained disturbed sediments of modern origin. However, the possibility was raised that the core contained evidence that suggested the possible presence of an inundated Native American burial. JMA and Apex agreed to conduct additional analyses of NB-VC-02 (see Appendix I for core log sheet) to investigate this possibility. Vibracore NB-VC-02 was delivered to the Westfield, Massachussets facility of TestAmerica Laboratories, Inc., on April 1, 2011. Analyses requested included energy-dispersive x-ray spectroscopy (EDS), polarized light microscopy (PLM), and scanning electron microscopy (SEM) (Appendix II), as well as an assessment of volatile organic compounds, semivolatile organic compounds, grain size, and percent solids (Appendix III).

This supplemental report provides an overview of the TestAmerica Laboratories, LLC analyses, and an interpretation of the results to address the issues raised during the March 15 Tribal Consultation meeting.

2.0 VIBRACORE NB-VC-02

Vibracore NB-VC-02 was extracted 445 feet southeast (132 degrees from true north) of the existing bulkhead's southeastern corner, 23 feet east of the bottom slope limit of the proposed dredge channel extension. The location of the vibracore was selected to ground-truth acoustic reflectors approximately 260 feet from the start of Seismic Line 44-1247. A total of 3.3 feet of continuous sediment was extracted. The core stratigraphy comprised 1.9 feet of gleyed silts and silty sands, overlying 0.1 feet of silty sand

capping 1.3 feet of dark reddish brown medium to coarse sand. The sands in the bottom 1.3 feet of the core were interrupted by numerous gray, apparently gleyed coarse sand lenses. The upper 1.9 feet of the core stratigraphy are interpreted as Holocene marine sediments, supported by prevalent marine bivalve shell fragments. The lower 1.4 feet of the core stratigraphy are more difficult to interpret. The dark reddish brown color of the sediments would indicate former subaerial weathering, yet the sediment is interspersed with layers of gleyed sediment of likely marine origin. The initial interpretation of the dark reddish brown sediment in this core was based on research regarding storm sewage runoff in New Bedford Harbor, and suggested that the dark reddish brown sand at the base of the core may be a direct result of bacterial and organic oxidation processes related to sewage runoff (Voyer et al., 2000). The source of core refusal is unknown, given the unidentifiable nature of the sediment in the bottom half of the core.

Correlation of Vibracore NB-VC-02 with Seismic Line 44-1247 revealed that the stratified, topmost acoustic unit comprised Holocene marine sediments. The core sampled a sediment type of unknown origin below the marine units, which appears as a weakly stratified acoustic unit in the seismic data. The acoustic basement appears to contain numerous hyperbolic reflectors, indicative of point source objects such as cobbles and boulders, and is likely till.

Visual inspection of the core revealed no cultural materials or evidence of submerged upland landscapes.

3.0 SUMMARIZED LABORATORY METHODS AND RESULTS

The archived core half from vibracore NB-VC-02 was delivered to the Westfield, Massachusetts facility of TestAmerica Larboratories by Ms. Mary Bruno of Apex Companies, LLC on April 1, 2011. TestAmerica employees extracted an individual sediment sample from the core at 2.35 feet, 2.85 feet, and 3.35 feet from the top of the core.

TestAmerica performed a suite of laboratory analyses comprising energy-dispersive x-ray spectroscopy (EDS), polarized light microscopy (PLM), and scanning electron microscopy (SEM) (Appendix II), as well as an assessment of volatile organic compounds (VOC), semi-volatile organic compounds (SOC), grain size, and percent solids (Appendix III). The reader is referred to the cited Appendices included with this report for detailed laboratory results.

3.1 Summary of EDS, PLM, and SEM Results

Sample NBVC02-2.35-T (Sample taken from Vibracore NB-VC-02 at 2.35 feet). The sample at 2.35 feet contained 95% mineral grains, 3% biological material, and 2% opaque material. The sample was dominated by quartz grains, and contained aluminum-silicates. The biological material included marine bivalve fragments and diatoms.

Sample NBVC02-2.85-M (Sample taken from Vibracore NB-VC-02 at 2.85 feet). The sample at 2.85 feet contained 96% mineral grains, 2% biological material, and 2% opaque material. The sample was dominated by quartz grains, and contained aluminum-silicates. The laboratory indicated that this sample was a darker red-brown color than the previous sample. When the grains were crushed and examined, the source darker color was identified as a thin surface coating on the quartz grains. The biological material included marine bivalve fragments and diatoms.

Sample NBVC02-3.35-B (Sample taken from Vibracore NB-VC-02 at 3.35 feet). The sample at 3.35 feet contained 97% mineral grains, 1% biological material, 2% opaque material, and trace amounts of soot (wood ash-charcoal). The sample was dominated by quartz grains, and contained aluminum-silicates. The laboratory indicated that this sample was a dark red-brown color. When the grains were crushed and examined, the source darker color was identified as a thin surface coating on the quartz grains. The biological material included marine bivalve fragments and diatoms.

TestAmerica Laboratory Summary. TestAmerica indicated that the samples exhibited similar compositions, with quartz and aluminum silicate representing the dominant components of the samples. The dark color was a result of thin surface coatings, though the coatings were not oxidized iron. The iron content in the samples did not increase with depth.

3.2 Summary of Grain Size, Percent solids, VOC, and SOC

Grain Size and Percent Solids. The grain size analysis of samples from Vibracore NB-VC-02 is presented in Table 1, below.

Table 1.1 Grain Size Analysis of Samples from Vibracore NB-VC-02

Sample Number	*% Moisture*	*% Solids*	*% Gravel*	*% Sand*	*% Coarse Sand*	*% Med Sand*	*% Fine Sand*	*% Silt*	*% Clay*
NB-VC-02 3.35B	13	87	2.7	89.6	2.0	31.1	56.5	5.0	2.7
NB-VC-02 2.85M	13	87	2.6	92.5	3.5	32.5	56.5	2.4	2.5
NB-VC-02 2.35T	15	85	0.5	91.8	1.8	23.4	66.6	4.6	3.2

Volatile Organic Compounds (VOC). TestAmerica Laboratories analyzed each of the three samples for 35 individual compounds, and used three surrogate compounds as a control. The three samples were found to contain none of the 35 compounds.

Semi-volatile Organic Compounds (SOC). TestAmerica Laboratories analyzed each of the three samples for 64 semi-volatile organic compounds, and used six surrogate compounds as a control. Only one sample, NB-VC-02 3.35B, contained the hydrocarbon *Pyrene*, and no other SOCs. The remaining two samples contained no SOCs.

4.0 DISCUSSION

4.1 Surface Coatings on Quartz Grains

TestAmerica identified surface coatings on quartz grains in the samples from vibracore NB-VC-02, and concluded that the thin surface coatings were not the result of iron oxidization. Furthermore, they determined that the iron content of the samples did not increase with depth. Surface coatings on sediment grains can occur in aluminum and silica enriched sediments, and are potentially enhanced by biological/microbial activity. It seems that the quartz grains in the samples from vibracore NB-VC-02 exhibit coatings that are consistent with those identified by Penn et al. (2001) in a study of oxide coatings from the Atlantic coastal plain. Their study evaluated grain coatings initially identified as originating from iron oxides and discovered that the dark reddish-brown color can be achieved through the presence of non-ferrous materials, and may be enhanced by microbial activity.

The paucity of iron in the samples is intriguing, since the sediment appeared to have been oxidized under initial visual observation. The major issue raised with vibracore NB-VC-02 was that the presence of a "dusky red" sediment could indicate the presence of red ochre which could, in turn, be suggestive of the presence of a Native American burial. In burials with red ochre, the red (and sometimes yellow) color results from the presence of ochre which is comprised of various iron oxides. The ochre is often used to coat the interred remains or incorporated into the cremated remains. Iron oxides may react to heat during cremations, as high temperatures are required to break down a skeleton. During this process iron oxides may become magnetically enhanced and subsequently more oxidized. The low iron content, and no evidence for changes in iron content with depth, is not consistent with expected iron concentrations in burials where red ochre was used.

4.2 Comparison with vibracore NB-VC-04

In natural soil formation processes, illuvial transport of iron oxides from the upper to the lower soil horizons is the process that enriches subsoil in iron and produces the characteristic strong brown color of the B horizon. Illuvial iron content decreases with depth, resulting in paler soil colors down the soil profile. However, constant submergence of a soil profile, through sea-level rise for example, results in a geochemical reduction of the iron oxides through time. The iron oxides in a strong-brown B horizon become continually more reduced, and the color of the sediment becomes steadily lighter. This geochemical reduction can be observed in the B horizon of the submerged, buried paleosol from vibracore NB-VC-04. The paleosol formed when local relative sea-level was approximately 11 feet lower than present, while the dark reddish-brown sediment was identified approximately 13 feet below present sea-level. Additionally, the paleosol in vibracore NB-VC-04 did not exhibit the degree of staining that was observed in vibracore NB-VC-02. If the dark reddish-brown sediment in vibracore NB-VC-02 had been formed in a terrestrial environment, and was subsequently submerged as a result of Holocene sea-level transgression, not only would a similar level of geochemical reduction likely have occurred, but the surface coatings on the sediment grains should not have formed.

4.3 Stratigraphy of Vibracore NB-VC-02

The stratigraphy of vibracore NB-VC-02 comprises approximately 1.8 feet of gleyed marine sediment capping 1.45 feet of dark reddish-brown sediment. The dark reddish-brown sediment is composed primarily of quartz grains (medium to fine sand) with thin surface coatings that are not a result of iron oxidization. The upper section of the dark reddish-brown sediment is interspersed with lenses of gleyed marine sediment, indicating marine sediment deposition. The presence of grain coatings above and below these marine sediment layers implies that the sediment formed in direct contact with marine depositional settings.

4.4 Biological Contents

The sediment samples removed from vibracore NB-VC-02 all contained diatoms and fragments of marine bivalves. The presence of these organisms in all three sediment samples, ranging in depth from 2.35 to 3.35 feet below the top of the core, implies that the sediment formed in direct contact with marine depositional settings.

4.4 Other Sample Contents

Trace amounts of soots (wood ash-charcoal) were identified in the deepest sample taken from vibracore NB-VC-02. The presence of micro-charcoal is common in the majority of sedimentary environments, and is especially common in marine depositional environments where a large amount of terrestrial sediments are eroded into and reworked. These micro-charcoal fragments could have originated from anywhere, and are most likely not *in situ.*

5.0 CONCLUSIONS

The results of the additional analyses of vibracore NB-VC-02 revealed that the samples contained mostly fine to medium quartz sand, with the presence of opaques and fragments of marine biological organisms. The quartz grains exhibited a thin surface coating that is not a result of encrustation by iron oxides. The surface coatings are most likely aluminum silicate coatings enhanced by biological/microbial activity in the presence of chemical compounds and organic solids, likely from localized sewage runoff and other contaminants. The low iron content in the sediment, and no associated changes in iron content with depth, provides additional evidence for the non-terrestrial origins of the sediment. Comparison with the paleosol identified in vibracore NB-VC-04 reveals further evidence for non-terrestrial deposition.

The ostensible stratigraphy of the lower half of the core indicates that the later stages of sediment deposition were interrupted by deposition of lenses of gleyed marine sediments. The biological materials, including marine bivalve fragments and diatoms, indicate that analyzed dark reddish brown sediment in the bottom half of the core has been in contact with submarine environments during its formation. The paucity of iron in the analyzed sediments is not consistent with red ochre burials that are characterized by the inclusion of various iron oxides into the interred skeletal or cremated remains. Finally, while chemical

tests revealed few volatile and semi-volatile compounds, the location of vibracore NB-VC-02 directly offshore of the historic mill complex may link the sediment's formation to local, historical industrial activities.

It is JMA's opinion that, in the light of initial core analyses and additional analyses conducted by TestAmerica Laboratories, vibracore NB-VC-02 does not contain evidence of formerly subaerial conditions, buried upland landscapes, or human or animal interments or cremations.

6.0 REFERENCES CITED

Penn, R.L., C. Zhu, H.Xu, D. R. Veblen
2001 Iron Oxide Coatings on Sand Grains from the Atlantic Coastal Plain: High-resolution Transmission Electron Microscopy Characterization. Geology, 29:9. 843-846.

Voyer, R.A., C. Pesch, J. Garber, J. Copeland, R. Comeleo
2000 New Bedford Harbor, Massachusetts: A Story of Urbanization and Ecological Connections. *Environmental History*, 5:352-377.

APPENDIX I

JOHN MILNER ASSOCIATES, INC. 535 N. Church Street, West Chester, PA 19380

CORE # : NB-VC-02 **DATE COLLECTED:** 9-23-10 **PERSONNEL:** Leach, Bruno, Ray, Metzger

LOCATION: New Bedford Harbor, South Terminal

SITE DESCRIPTION: Western Side of New Bedford Harbor, Marine Survey for Assessment of Submerged Prehistoric Archaeological Potential

CORING PROCEDURE: Electric Vibracore, 4" Diameter Core Barrel with Lexan Sleeve Insert, Quad Frame and Winch on Pontoon Boat

LOGGER: Peter A. Leach **DATE:** 10-01-10

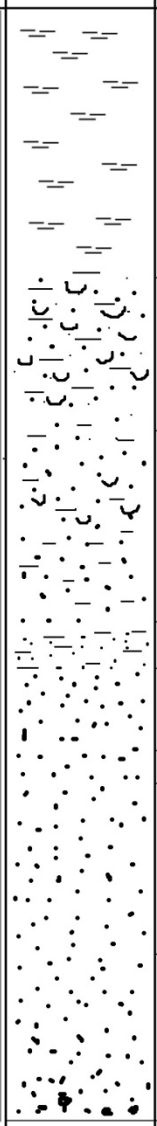
East: 816583.12 **North:** 2688252.9

Projection: MA State Plane Mainland UTM Feet

TIME: 3:15 PM **TIDE:** 1 ft

H20 Dpth: 8.5 ft **LENGTH** 3.35 ft

PNTR: 5.0 ft **COMPACT:**

DEPTH	PHOTOGRAPH	SKETCH	DESCRIPTION Txtr, Sed. Type; Flora/Fauna	COLOR	VOL % ORG	INTERPRETATION
0 ft			Silts and Clays	Gley 1 2.5/N (Black)		Marine Sediments
1.0 ft			Silty Coarse to Medium Sand ~30% Shell Fragments (Oyster, Clam, Scallop) Some Whole Valves Some Lg Granule and Small Pebble Gravel	Gley 1 2.5/N (Black)		
			Silty Coarse to Medium Sand < 5% Shell Fragments	Gley 1 3/N (Very Dark Grey)		
2.0 ft			Silty Medium to Fine Sand	7.5 YR 2.5/2		UNKNOWN SEDIMENT ORIGIN POSSIBLE STORM SEWAGE RUNOFF
			Coarse to Medium Sand	7.5YR 2.5/3 with Pockets of 7.5YR 4/1		
			Coarse Sand	7.5YR 3/1		
			Coarse Sand	10R 2.5/2 with Pockets of 7.5YR 3/2		
3.0 ft			Coarse Sand Small Pebbles at Bottom of Core	10R 2.5/2 (Very Dusky Red)		
		******* CORE REFUSAL -- NOT RECOVERED *******				
4.0 ft						

APPENDIX II

Apex Companies, LLC
184 High Street, Suite 502
Boston, MA 02110

Attention: Mary Bruno
STS Job#: 2101
Billing Ref: Project# New Bedford, 6690

Dear Mary: April 06, 2011

Please find enclosed three (3) PLM digital photomicrographs, eleven (11) SEM digital photomicrographs and eleven (11) EDS spectra from the three (3) submitted samples for particulate analysis by Polarized Light Microscopy (PLM) and Scanning Electron Microscopy/Energy Dispersive X-ray Spectrometry (SEM/EDX).

METHODS:

The samples were dried in a Blue M Model OV-18SA drying oven at 90 degrees C for 2 hours in a 3-inch aluminum weighing dish to remove any moisture. Numerous grains (both crushed and intact) were removed and separated with tweezers under the examination of a Nikon stereomicroscope. A portion of the grains were mounted on double-sided tape on a 1-inch SEM stub. Another portion of the grains were ground into a fine powder with a mortar and pestle, then an aliquot was deposited in index of refraction liquid (n=1.605 Cargille Series E High Dispersion) on a glass slide. The samples were then examined by PLM at 125x to identify the particulates making up this sample and to obtain percentages by visual estimate of the particle types present.

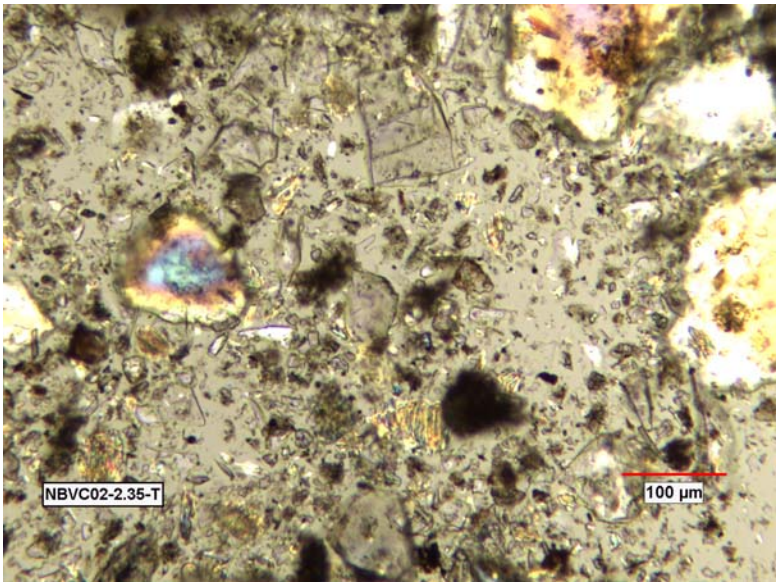
The SEM stub was coated with graphite from an Edwards Vacuum Evaporator to eliminate charging in nonconductive samples. The samples were examined in an Amray 3300 FESEM (field emission scanning electron microscope) with energy dispersive x-ray spectroscopy (EDS) using a light element detector to determine the elemental composition of the particles. Digital photomicrographs were taken of the particles both by PLM and SEM/EDS in order to document the observations in this report.

FINDINGS: NBVC02-2.35-T:

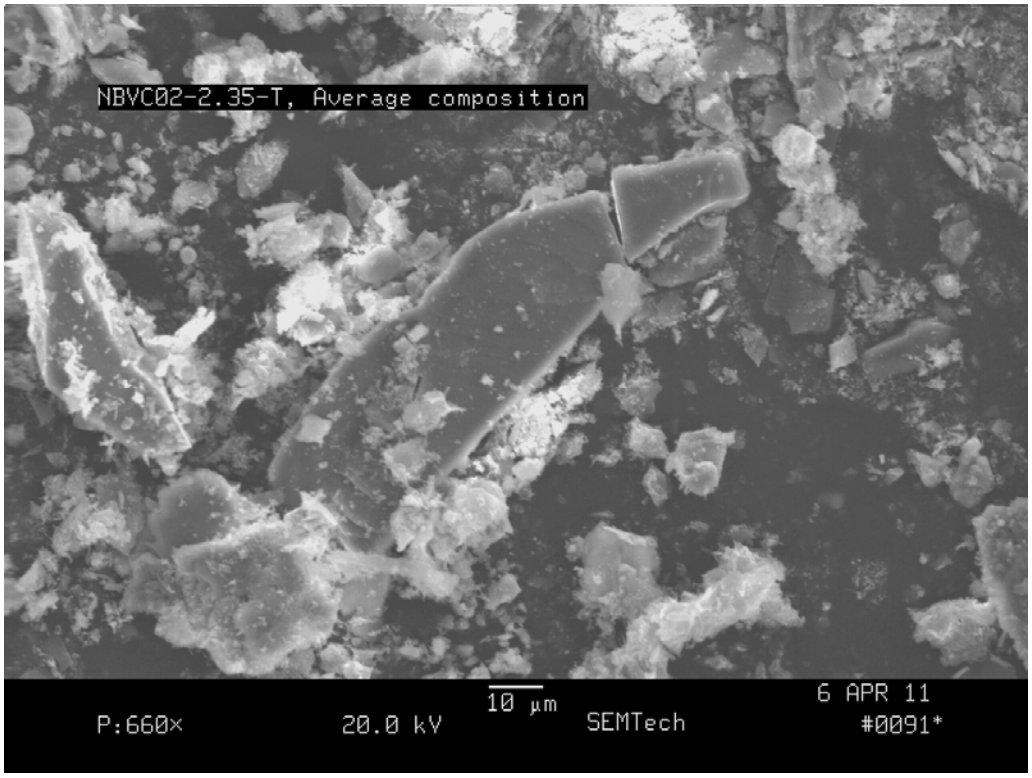
Please refer to the PLM and SEM photomicrographs as well as the EDS spectra. The following is the PLM categorical visual estimates for this sample.

95% Mineral grains (quartz, silicates, salts, k-feldspar)
3% Biologicals (marine shells, diatoms)
2% Opaques (non-soot organic & inorganic)

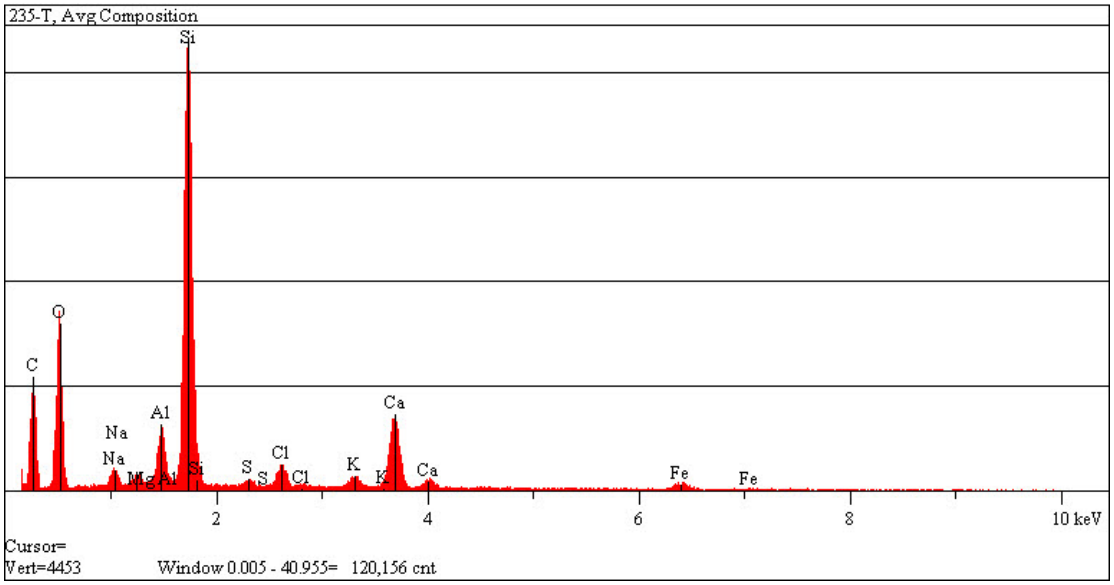
When examined under cross-polars, the vast majority of the grains were birefringent and partially transparent.



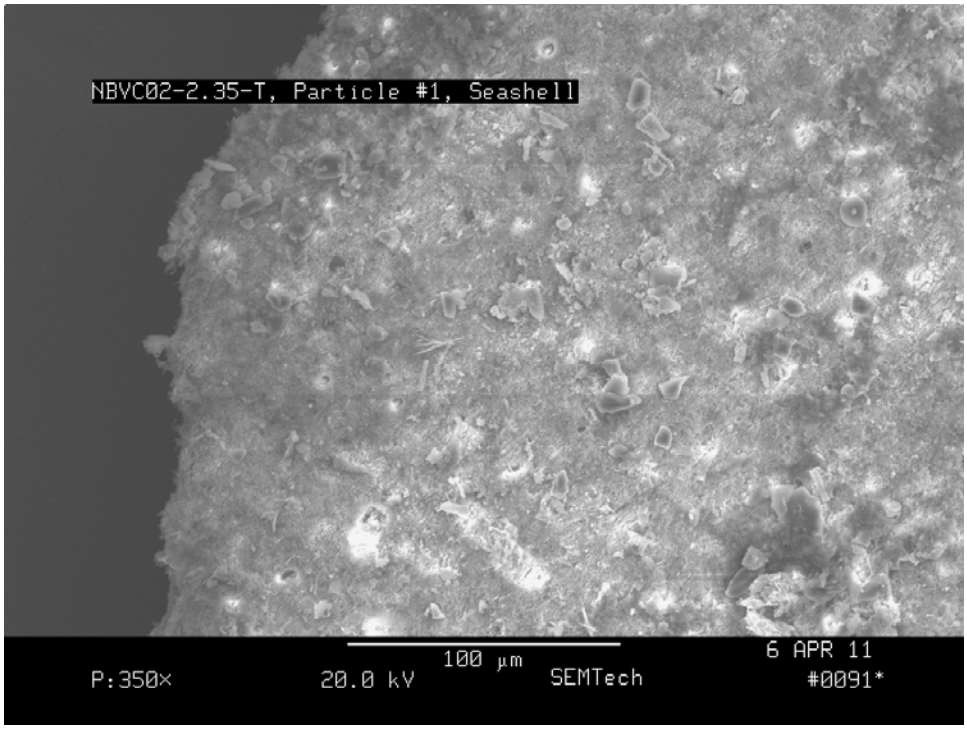
A crushed region of the mineral grains exhibited oval, polyhedral and plate-like grains by SEM.



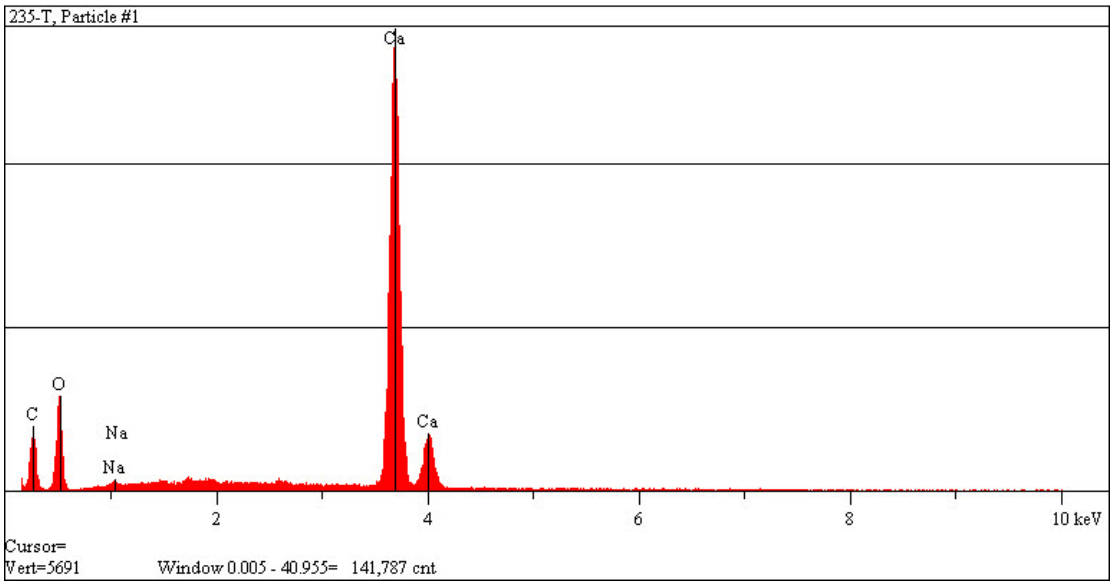
The average composition of these grains demonstrated a strong concentration of silicon, moderate concentrations of carbon, oxygen, aluminum and calcium, and minor amounts of sodium, magnesium, sulfur, chlorine, potassium and iron. The majority of the carbon content was due to the background of the tape on the stub. The sodium and chlorine was due to salts covering the surface of the particles.



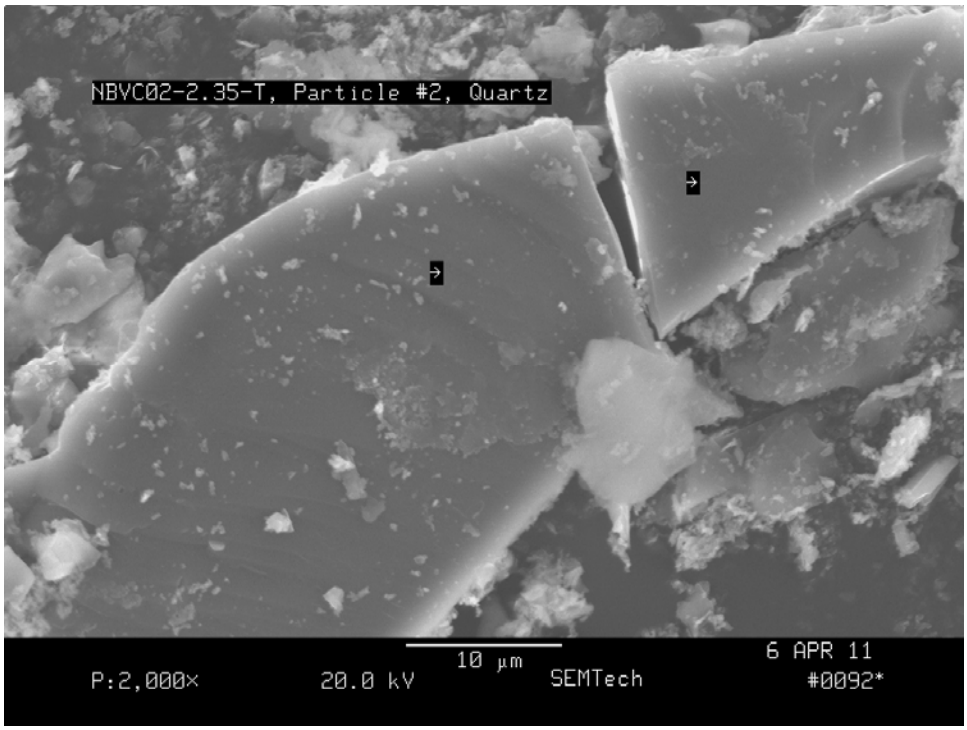
Numerous individual particles were examined in each sample. Particle #1 was a portion of the surface of a marine or sea shell.

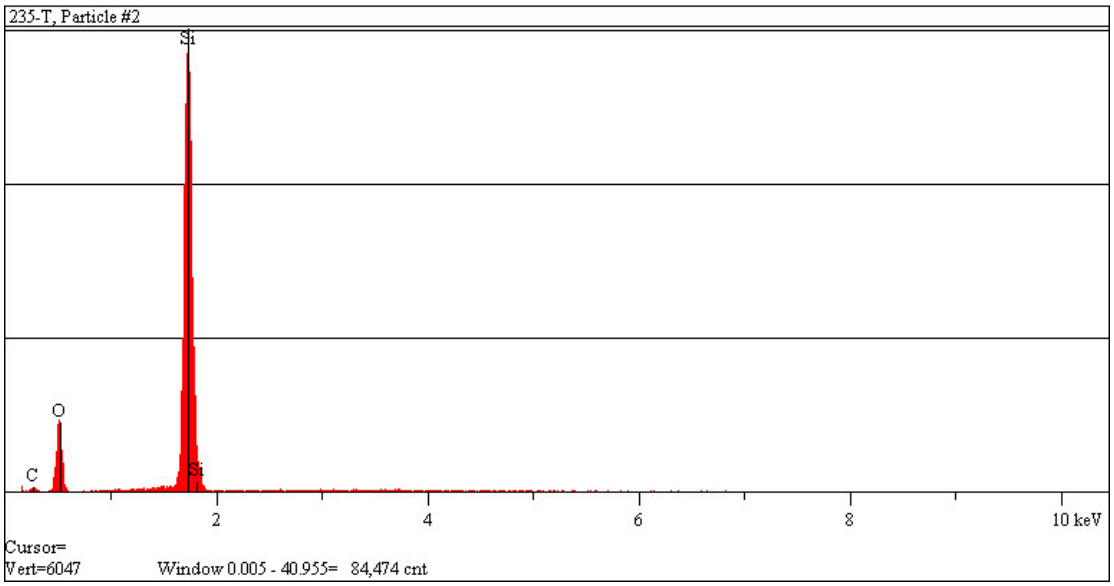


The EDS spectrum of the marine shell showed calcium carbonate as the composition. This sample contained more marine shells than the other two samples.

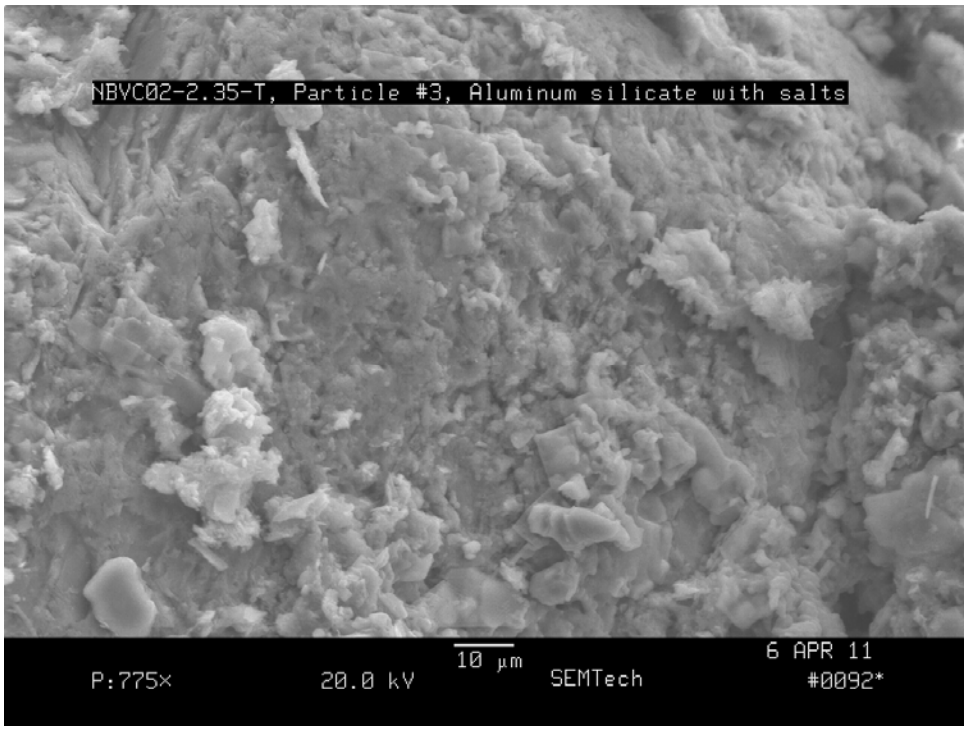


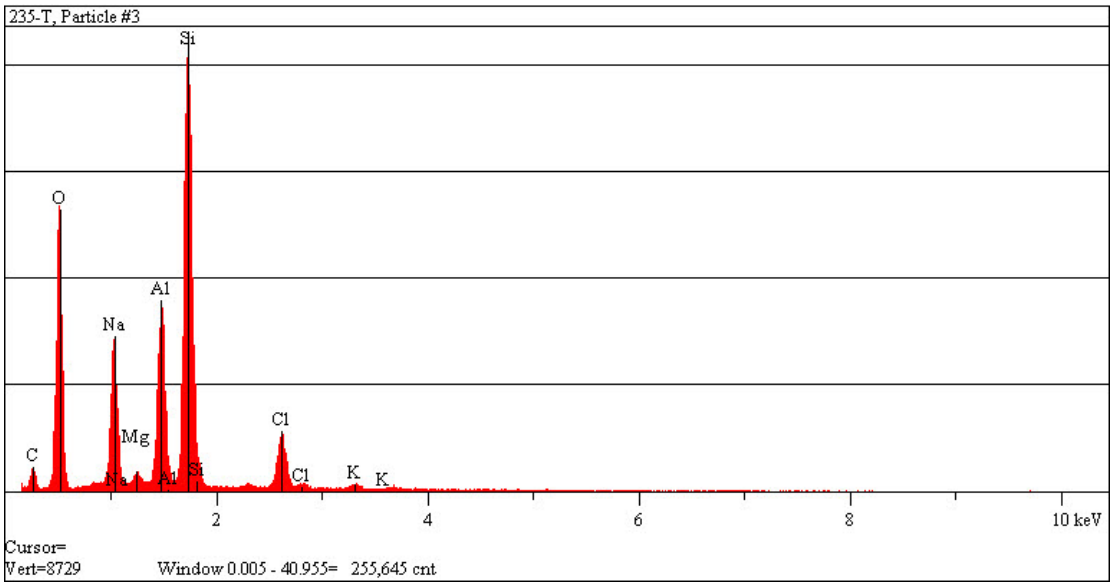
The second particle type in this sample was the most predominant type, consisting of silicon and oxygen, known as quartz.





The third particle type consists of irregular shaped particles that were composed of strong concentrations of silicon, moderate concentrations of oxygen and aluminum, with minor amounts of magnesium and potassium. These elemental ratios match aluminum silicates. (The sodium and chlorine peaks were due to the presence of salts on the surface).



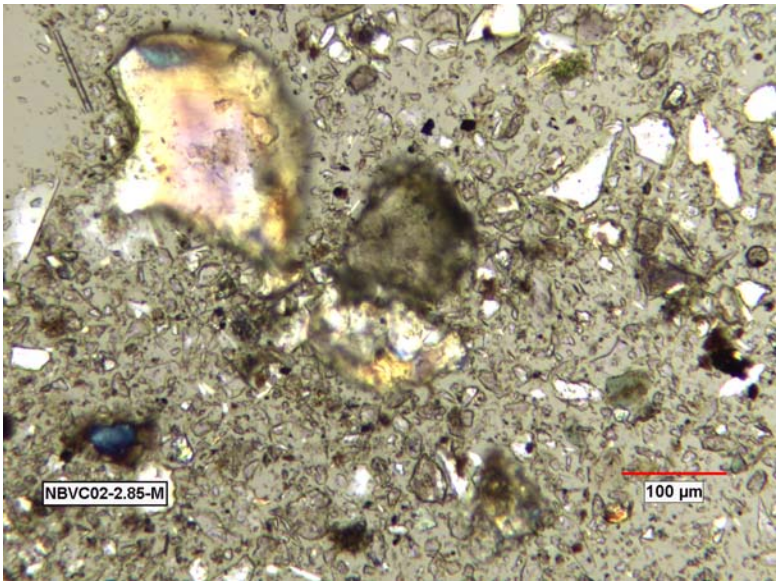


NBVC02-2.85-M:

The following is the PLM categorical visual estimates for this sample.

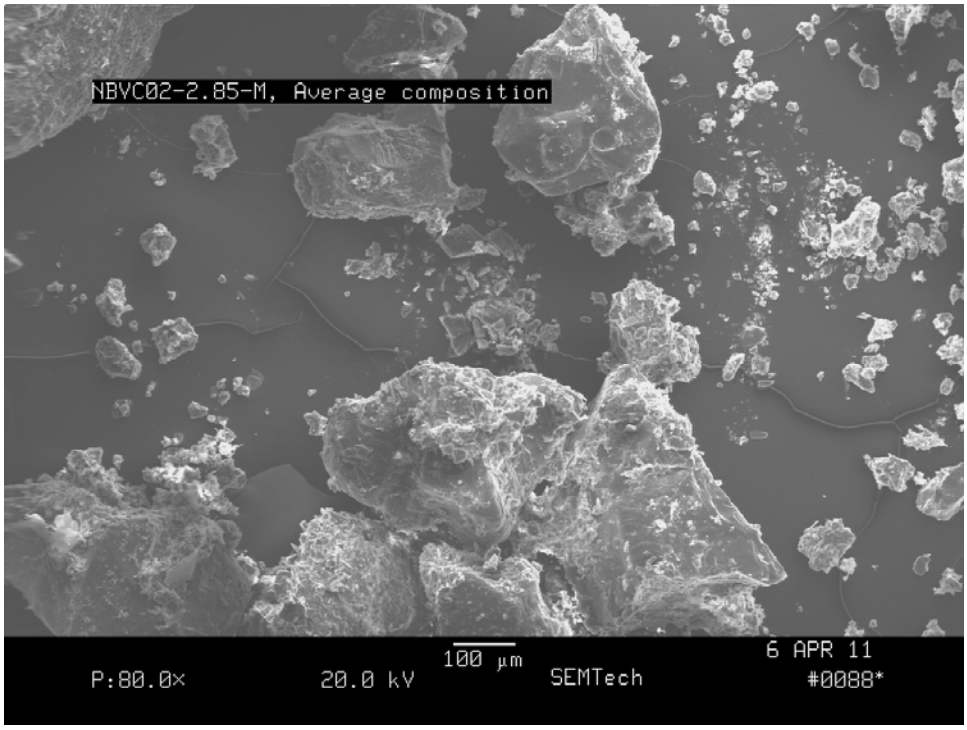
96% Mineral grains (quartz, silicates, salts, k-feldspar)
2% Biologicals (marine shells, diatoms)
2% Opaques (non-soot organic & inorganic)

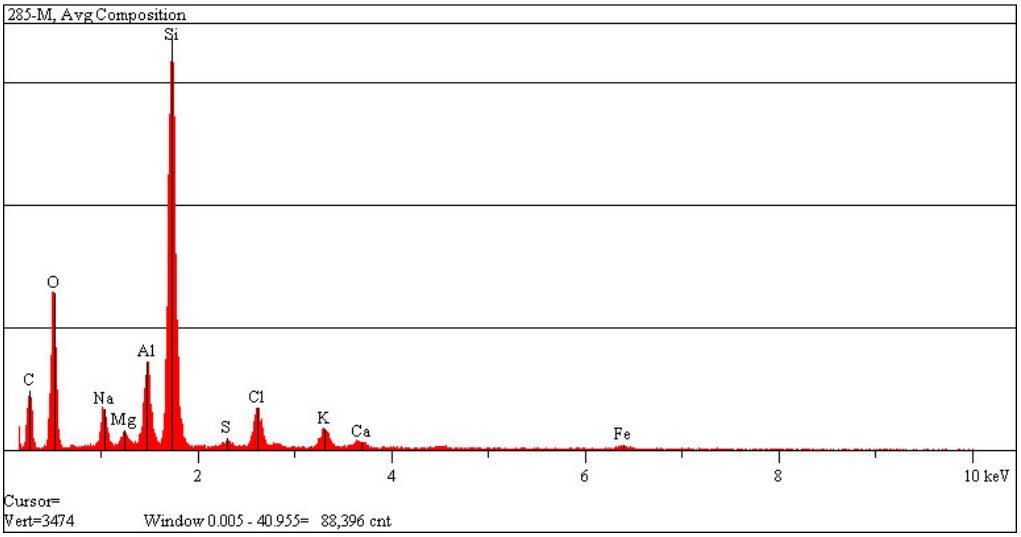
When examined under cross-polars, the vast majority of the grains were birefringent and partially transparent.



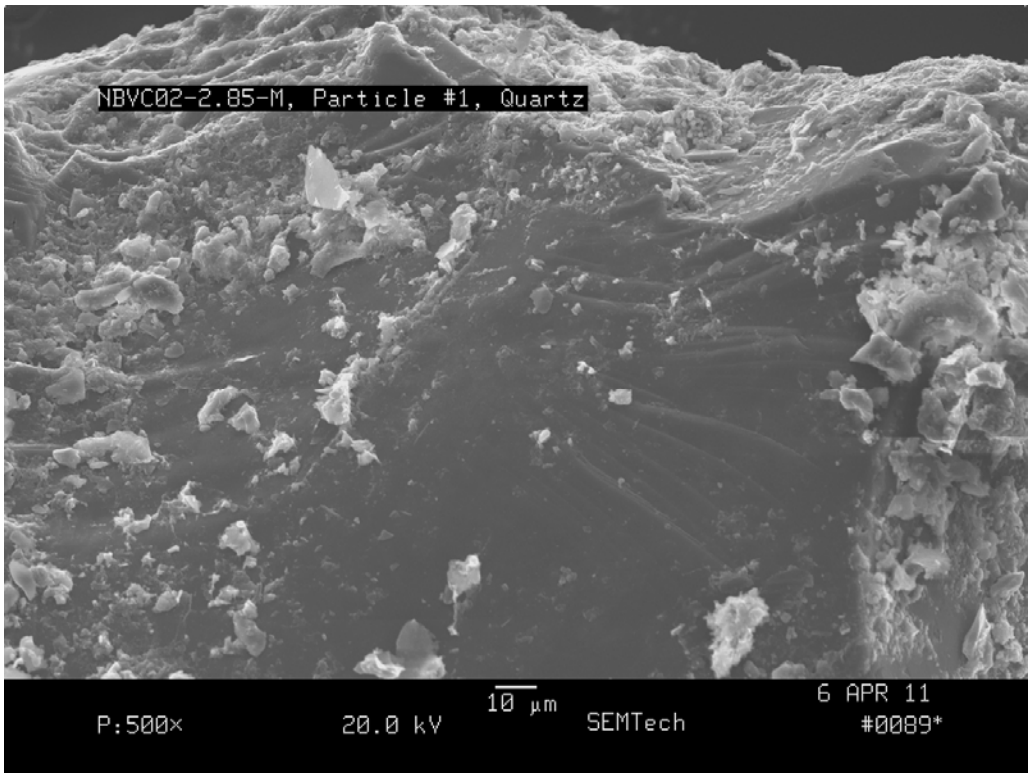
The color of the grains from this sample were characteristically a darker red-brown in color, but when the grains were crushed, the interior of the fragments were lighter in color, suggesting that the dark color was just a surface coating.

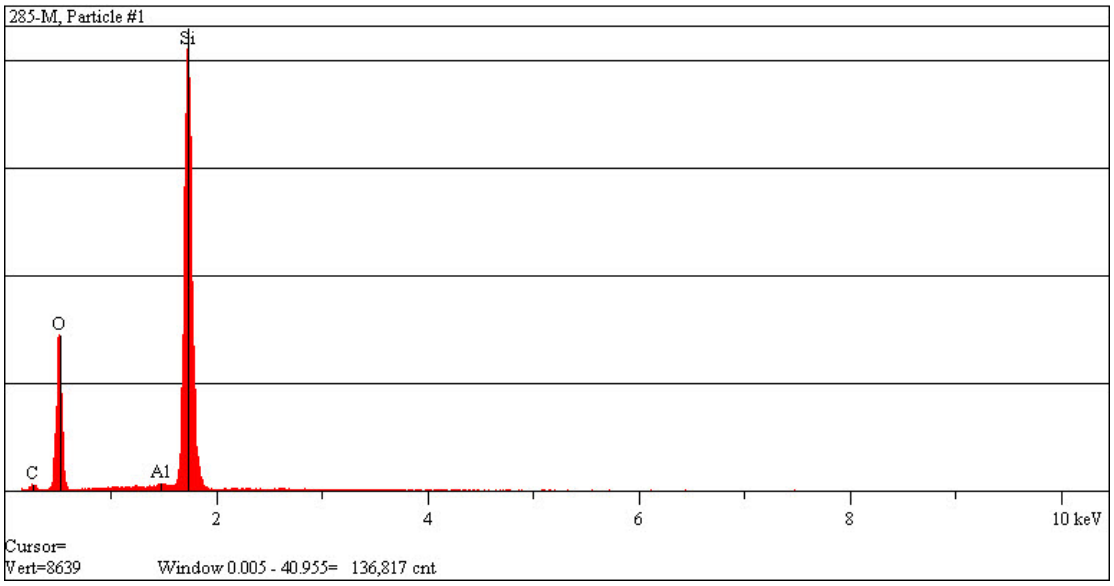
The average composition of these grains were similar to the previous sample, demonstrating a strong concentration of silicon, moderate concentrations of oxygen and aluminum, and minor amounts of sodium, magnesium, sulfur, chlorine, potassium and iron. The majority of the carbon content was due to the background of the tape on the stub. The sodium and chlorine was due to salts covering the surface of the particles.



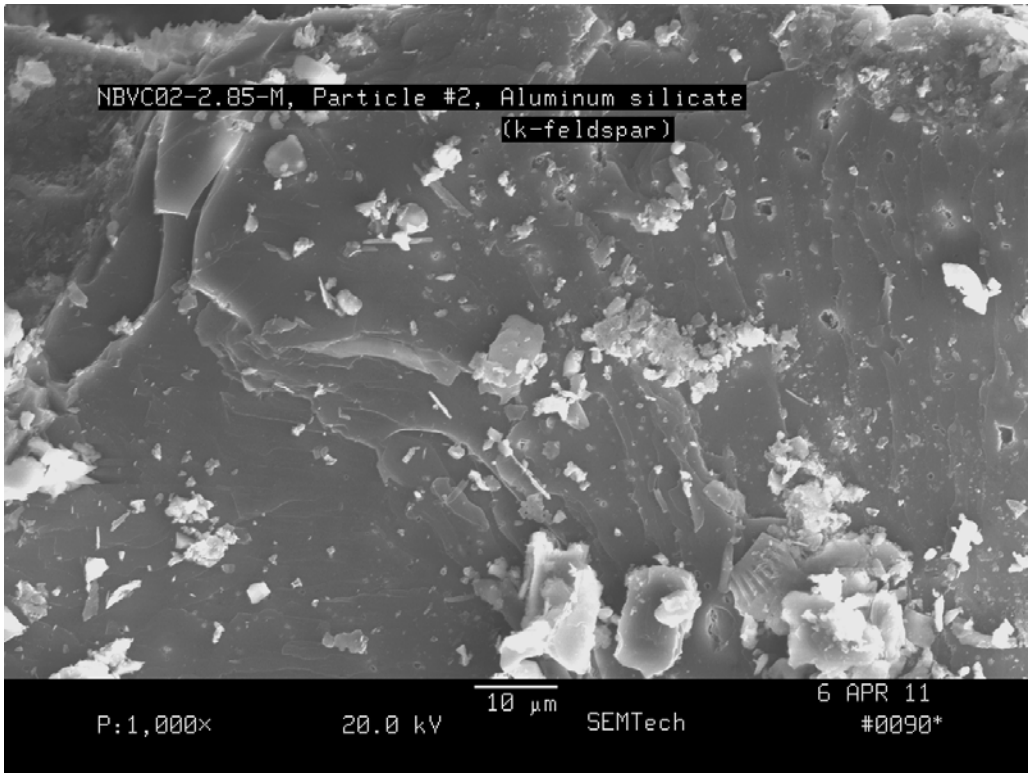


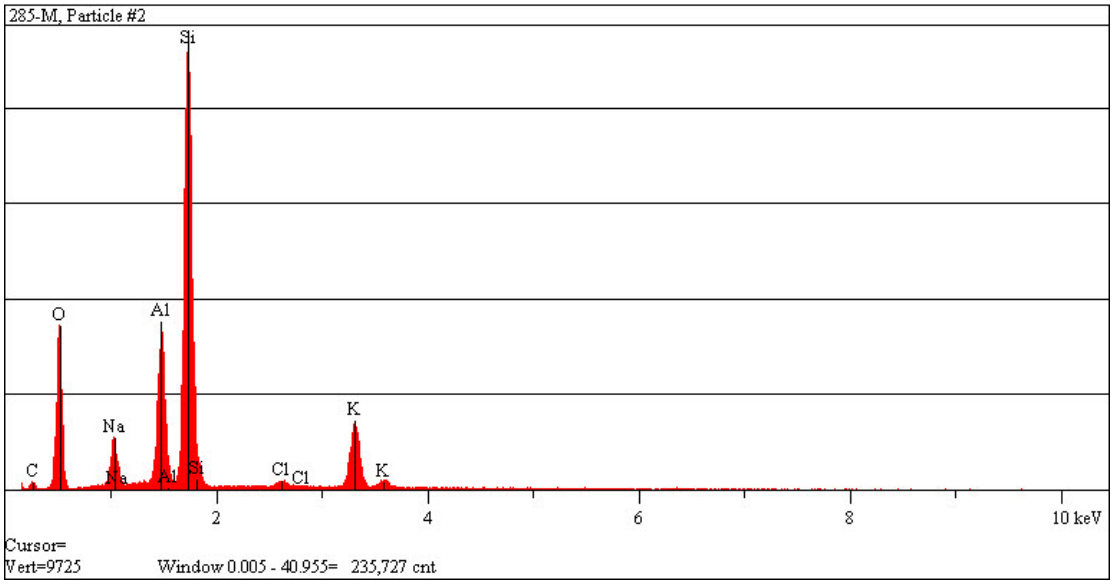
The most numerous grains (particle type #1) were quartz grains, as shown by the silicon and oxygen peaks, as well as the conchoidal fractures on the surface of the grains.





Particle type #2 was another aluminum silicate with an elevated potassium peak, characteristic of k-feldspars. The sodium and chlorine peaks were due to salts.



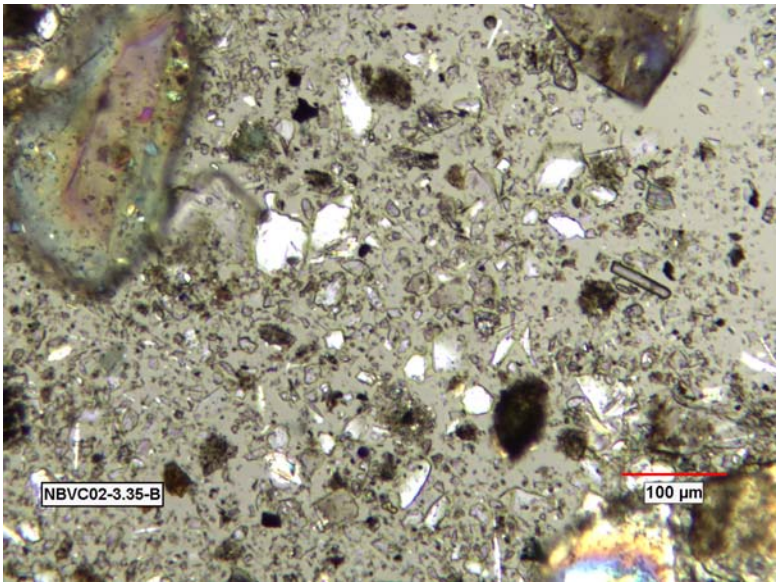


NBVC02-3.35-B:

The following is the PLM categorical visual estimates for this sample.

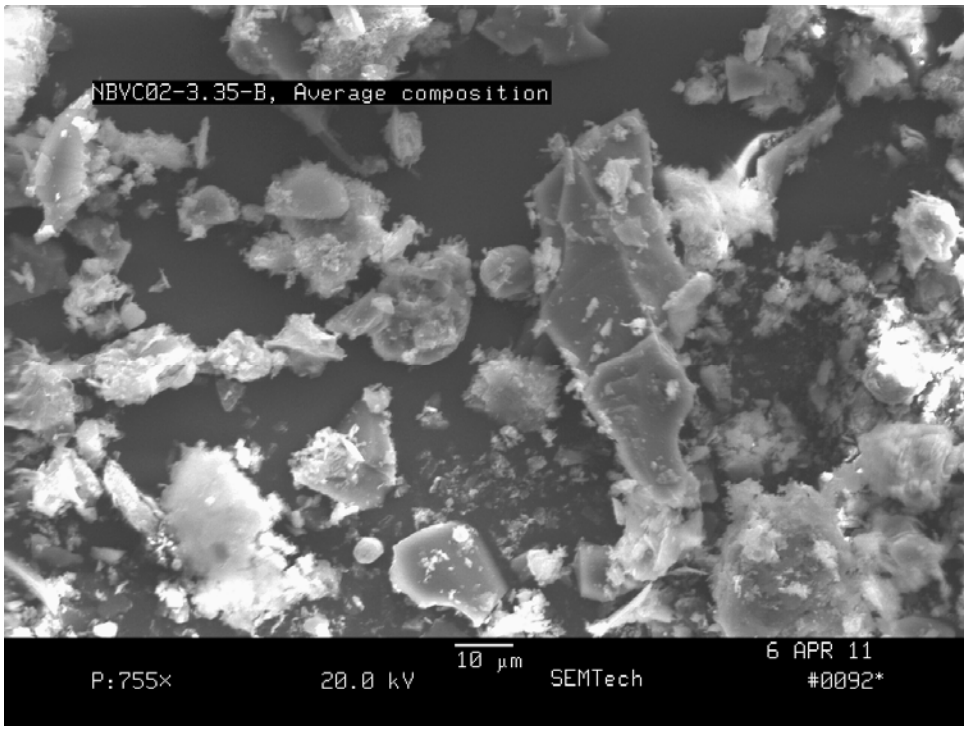
97%	Mineral grains (quartz, silicates, salts, k-feldspar)
2%	Opaques (non-soot organic & inorganic)
1%	Biologicals (marine shells, diatoms)
Trace	Soots (wood ash-charcoal)

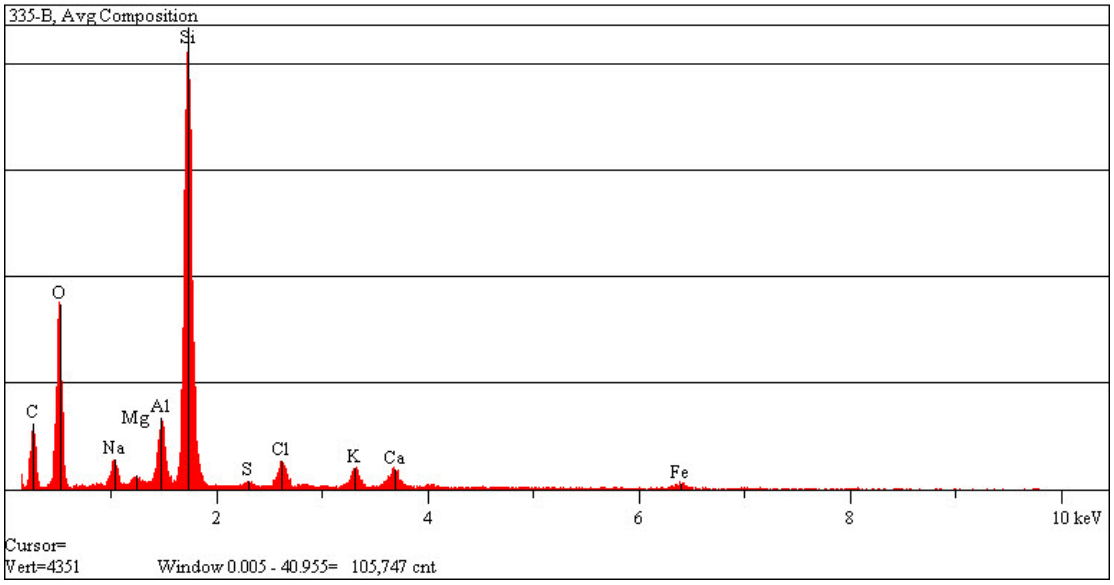
When examined under cross-polars, the vast majority of the grains were birefringent and partially transparent. The transparent rectangular fibers were salt crystals.



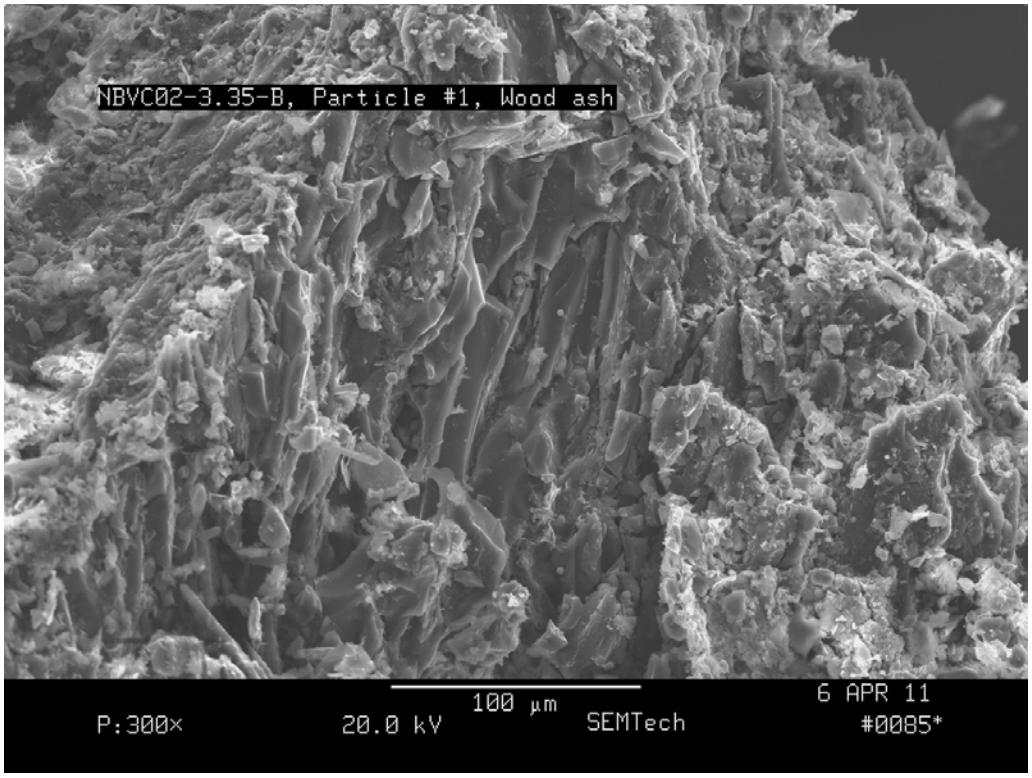
The color of the grains from this sample were also a characteristically a darker red-brown color, but when the grains were crushed, the interior of the fragments were lighter in color.

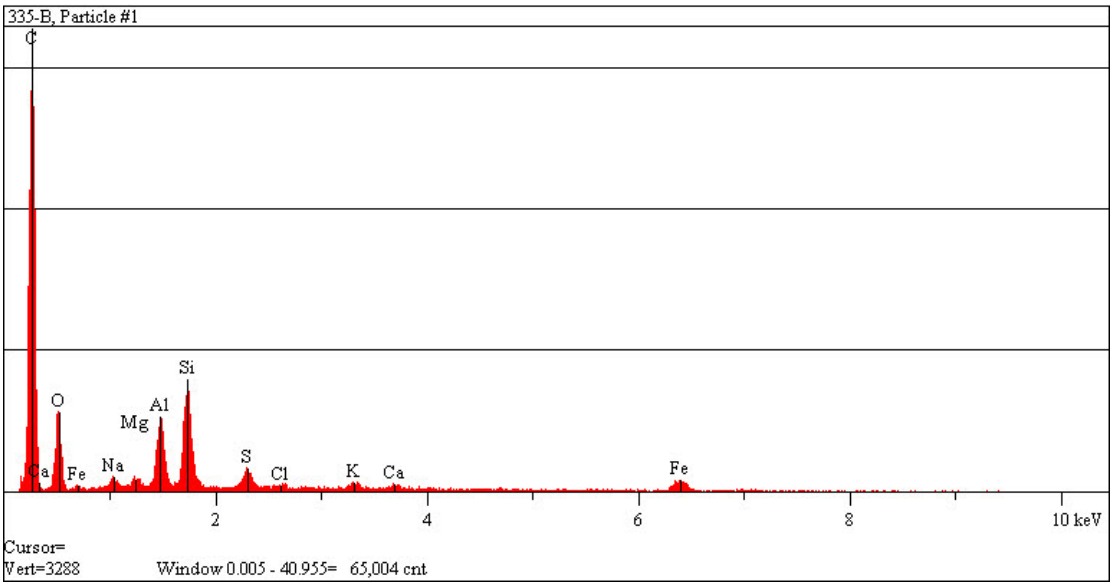
The average composition of these grains were similar to the previous samples, demonstrating a strong concentration of silicon, moderate concentrations of oxygen and aluminum, and minor amounts of sodium, magnesium, sulfur, chlorine, potassium, calcium and iron. The majority of the carbon content was due to the background of the tape on the stub. The sodium and chlorine was due to salts covering the surface of the particles.



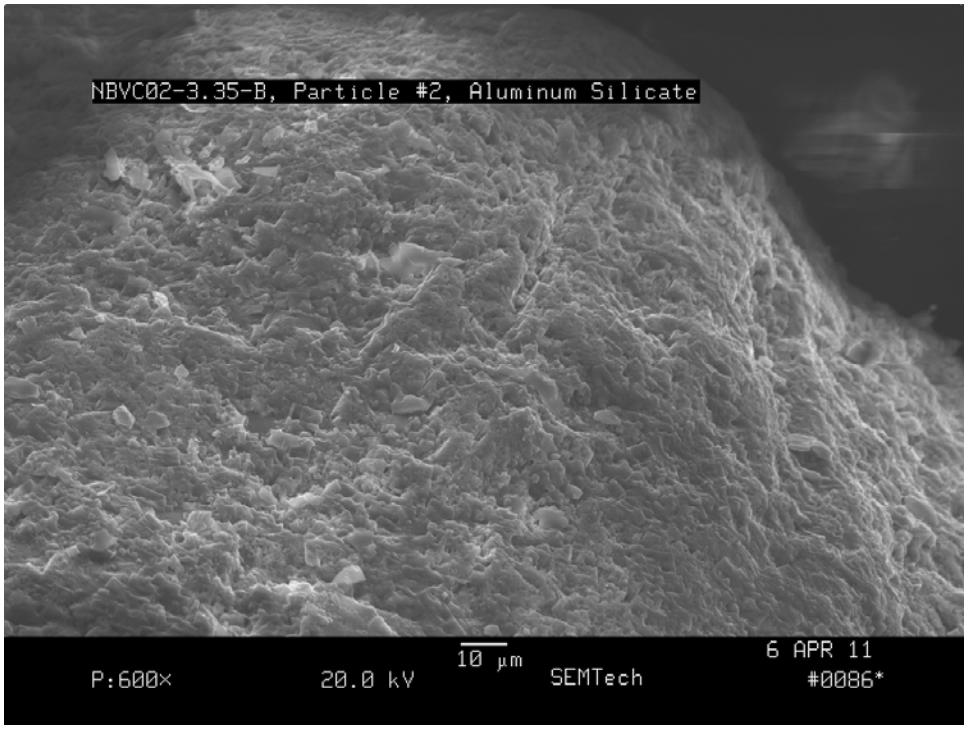


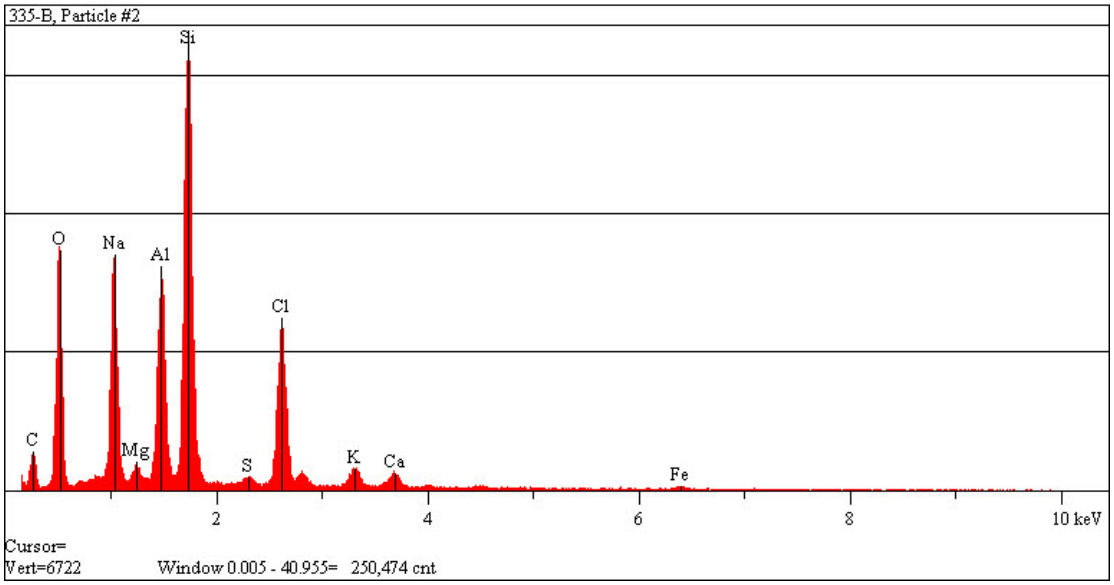
Particle #1 was soft and black in color, and by SEM, the surface of these fibrous particles showed vessels and circular indents or chambers, indicating the cellular structure of the wood. The chemistry was composed of a strong carbon concentration, moderate oxygen, aluminum and silicon, with minor peaks of sodium, magnesium, sulfur, chlorine, potassium, calcium and iron. These characteristics suggest wood ash, possibly from charcoal fragments.



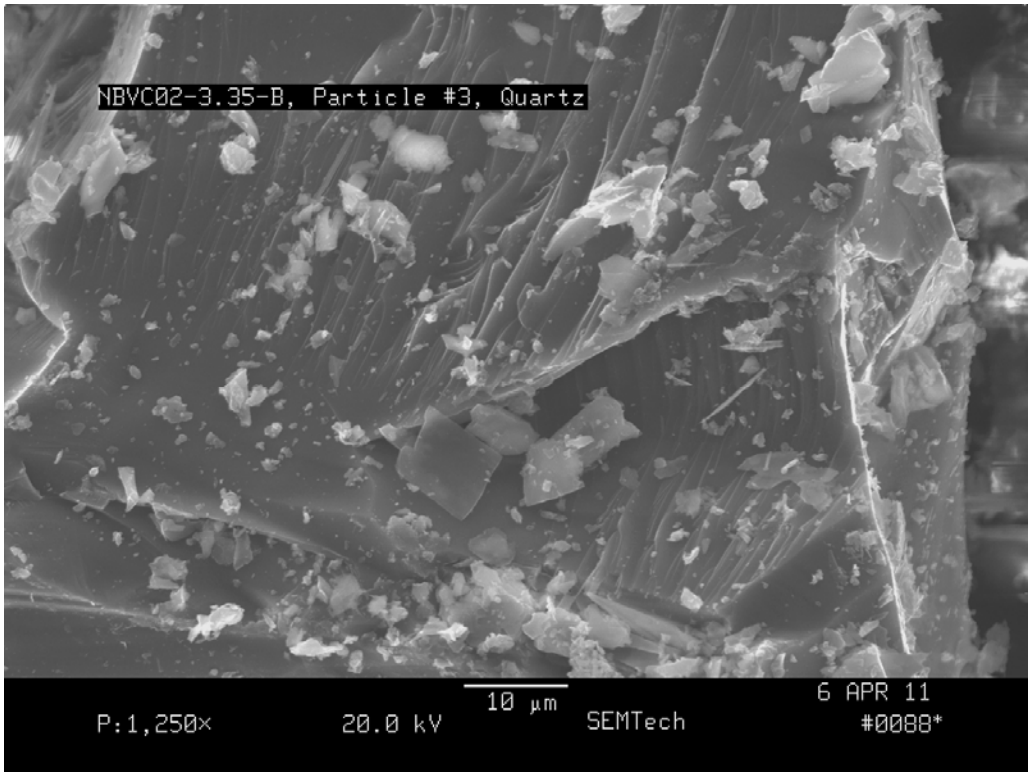


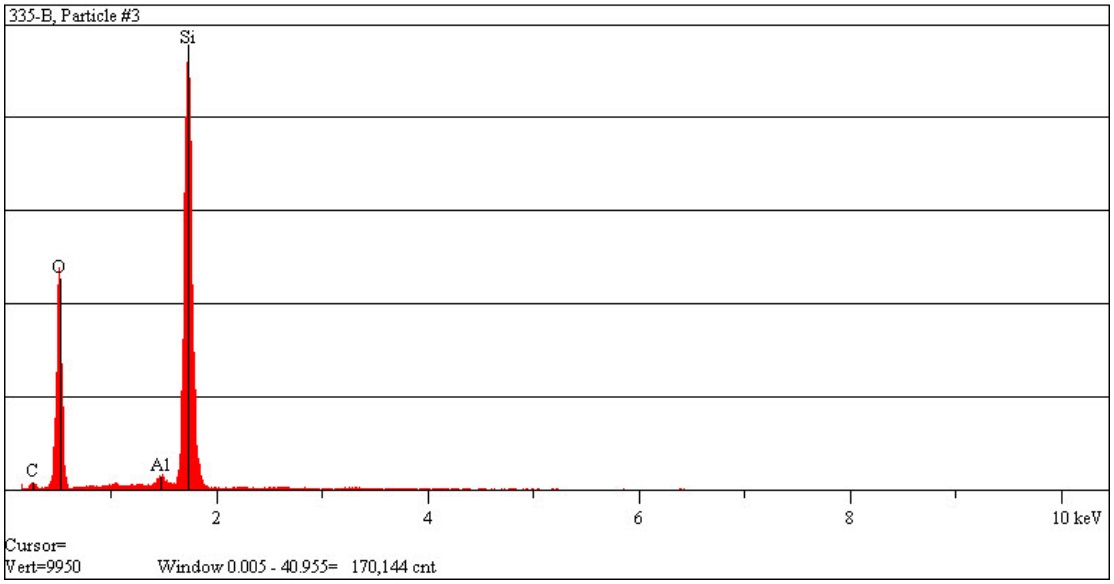
As in the previous two samples, aluminum silicates were also present. Some of the grains were also covered with numerous salt (sodium and chlorine) crystals.





As in the previous two samples, quartz (particle #3) was by far the predominant type of mineral grain present. Note the conchoidal fractures on the surface.





DISCUSSION:

All three samples were very similar in composition, composed predominantly of mineral grains, especially quartz and a few aluminum silicates. Salts were also ubiquitous, likely due to the presence of salts due to the nearby ocean.

Samples NBVC02-2.85-M and -3.35-B were significantly darker in color than sample NBVC02-2.35-T, but the compositions for all three were very similar. Also, when the mineral grains were crushed or fragmented, the interiors were lighter in color, which suggests the darker red-brown color was a surface coating. One may have postulated that the dark color was due to an element like iron, but there was no increase in iron content between the three samples, whether the mineral grains were crushed or left intact. The geochemistry of the groundwater may be causing the darker color, or if the surface coating is less than 50-100 nanometers and below 0.5% by weight, it would be below the detection limit of this EDS technique.

Should you have further questions, or need additional information, please contact me at any time.

Sincerely,

Ernest T. Dobi

Ernest T. Dobi, PhD.
Analytical Services Manager

APPENDIX III

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 360-33011-1

Job Description: 6690

For:
Apex Companies LLC
184 High Street
Suite 502
Boston, MA 02110

Attention: Mary Bruno

Approved for release.
Joe Chimi
Report Production Representative
4/8/11 3:05 PM

Designee for
Lisa A Worthington
Project Manager II
lisa.worthington@testamericainc.com
04/08/2011

Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all NELAC requirements for accredited parameters, exceptions are noted in this report. Pursuant to NELAC, this report may not be reproduced except in full, and with written approval from the laboratory. TestAmerica Westfield Certifications and Approvals: MADEP MA014, RIDOH57, CTDPH 0494, VT DECWSD, NH DES 2539, NELAP FL E87912 TOX, NELAP NJ MA008 TOX, NELAP NY 10843, NY ELAP 10843, North Carolina 647, NELAP PA 68-04386. Field sampling is performed under SOPs WE-FLD-001 and WE-FLD-002.

TestAmerica Laboratories, Inc.
TestAmerica Westfield Westfield Executive Park, 53 Southampton Road, Westfield, MA 01085
Tel (413) 572-4000 Fax (413) 572-3707 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

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CASE NARRATIVE

Client: Apex Companies LLC

Project: 6690

Report Number: 360-33011-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 04/01/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.8 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples NB-VC-02 3.35B (360-33011-1), NB-VC-02 2.85M (360-33011-2) and NB-VC-02 2.35T (360-33011-3) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared and analyzed on 04/06/2011.

All samples were received at the laboratory outside of the method holding time.

2-Butanone (MEK), 2-Hexanone and Acetone failed the recovery criteria low for LCS 360-71607/1-A. Acetone failed the recovery criteria low for LCSD 360-71607/2-A. Refer to the QC report for details.

No other difficulties were encountered during the VOC analyses.

All other quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples NB-VC-02 3.35B (360-33011-1), NB-VC-02 2.85M (360-33011-2) and NB-VC-02 2.35T (360-33011-3) were analyzed for semivolatile organic compounds (GC-MS) in accordance with SW846 8270C. The samples were prepared on 04/05/2011 and analyzed on 04/08/2011.

All samples were received at the laboratory outside of the method holding time.

No difficulties were encountered during the semivolatile organic compounds (GC-MS) analyses.

All quality control parameters were within the acceptance limits.

GRAIN SIZE
Samples NB-VC-02 3.35B (360-33011-1), NB-VC-02 2.85M (360-33011-2) and NB-VC-02 2.35T (360-33011-3) were analyzed for grain size in accordance with D422. The samples were analyzed on 04/04/2011.

This analysis was performed at TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403.

No difficulties were encountered during the grain size analyses.

All quality control parameters were within the acceptance limits.

PERCENT SOLIDS
Samples NB-VC-02 3.35B (360-33011-1), NB-VC-02 2.85M (360-33011-2) and NB-VC-02 2.35T (360-33011-3) were analyzed for percent solids in accordance with EPA Moisture. The samples were analyzed on 04/05/2011.

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

EXECUTIVE SUMMARY - Detections

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
360-33011-1	**NB-VC-02 3.35B**					
Pyrene		220	H	190	ug/Kg	8270C
Percent Moisture		13		1.0	%	Moisture
Percent Solids		87		1.0	%	Moisture
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		2.7			%	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		89.6			%	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		2.0			%	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		31.1			%	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		56.5			%	D422
Sieve Size 0.375 inch - Percent Finer		99.8			% Passing	D422
Silt		5.0			%	D422
Sieve Size #4 - Percent Finer		97.3			% Passing	D422
Clay		2.7			%	D422
Sieve Size #10 - Percent Finer		95.3			% Passing	D422
Sieve Size #20 - Percent Finer		89.3			% Passing	D422
Sieve Size #40 - Percent Finer		64.2			% Passing	D422
Sieve Size #60 - Percent Finer		29.7			% Passing	D422
Sieve Size #80 - Percent Finer		15.6			% Passing	D422
Sieve Size #100 - Percent Finer		11.8			% Passing	D422
Sieve Size #200 - Percent Finer		7.7			% Passing	D422
Hydrometer Reading 1 - Percent Finer		5.3			% Passing	D422
Hydrometer Reading 2 - Percent Finer		4.4			% Passing	D422
Hydrometer Reading 3 - Percent Finer		2.7			% Passing	D422
Hydrometer Reading 4 - Percent Finer		2.7			% Passing	D422
Hydrometer Reading 5 - Percent Finer		2.7			% Passing	D422
Hydrometer Reading 6 - Percent Finer		1			% Passing	D422
Hydrometer Reading 7 - Percent Finer		0.1			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
360-33011-2	**NB-VC-02 2.85M**				
Percent Moisture		13	1.0	%	Moisture
Percent Solids		87	1.0	%	Moisture
Sieve Size 3 inch - Percent Finer		100.0		% Passing	D422
Gravel		2.6		%	D422
Sieve Size 2 inch - Percent Finer		100.0		% Passing	D422
Sand		92.5		%	D422
Sieve Size 1.5 inch - Percent Finer		100.0		% Passing	D422
Coarse Sand		3.5		%	D422
Sieve Size 1 inch - Percent Finer		100.0		% Passing	D422
Medium Sand		32.5		%	D422
Sieve Size 0.75 inch - Percent Finer		100.0		% Passing	D422
Fine Sand		56.5		%	D422
Sieve Size 0.375 inch - Percent Finer		100.0		% Passing	D422
Silt		2.4		%	D422
Sieve Size #4 - Percent Finer		97.4		% Passing	D422
Clay		2.5		%	D422
Sieve Size #10 - Percent Finer		93.9		% Passing	D422
Sieve Size #20 - Percent Finer		86.4		% Passing	D422
Sieve Size #40 - Percent Finer		61.4		% Passing	D422
Sieve Size #60 - Percent Finer		26.8		% Passing	D422
Sieve Size #80 - Percent Finer		11.7		% Passing	D422
Sieve Size #100 - Percent Finer		7.8		% Passing	D422
Sieve Size #200 - Percent Finer		4.9		% Passing	D422
Hydrometer Reading 1 - Percent Finer		3.2		% Passing	D422
Hydrometer Reading 2 - Percent Finer		2.5		% Passing	D422
Hydrometer Reading 3 - Percent Finer		2.5		% Passing	D422
Hydrometer Reading 4 - Percent Finer		2.5		% Passing	D422
Hydrometer Reading 5 - Percent Finer		2.5		% Passing	D422
Hydrometer Reading 6 - Percent Finer		0.9		% Passing	D422
Hydrometer Reading 7 - Percent Finer		0.9		% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
360-33011-3	**NB-VC-02 2.35T**				
Percent Moisture		15	1.0	%	Moisture
Percent Solids		85	1.0	%	Moisture
Sieve Size 3 inch - Percent Finer		100.0		% Passing	D422
Gravel		0.5		%	D422
Sieve Size 2 inch - Percent Finer		100.0		% Passing	D422
Sand		91.8		%	D422
Sieve Size 1.5 inch - Percent Finer		100.0		% Passing	D422
Coarse Sand		1.8		%	D422
Sieve Size 1 inch - Percent Finer		100.0		% Passing	D422
Medium Sand		23.4		%	D422
Sieve Size 0.75 inch - Percent Finer		100.0		% Passing	D422
Fine Sand		66.6		%	D422
Sieve Size 0.375 inch - Percent Finer		100.0		% Passing	D422
Silt		4.6		%	D422
Sieve Size #4 - Percent Finer		99.5		% Passing	D422
Clay		3.2		%	D422
Sieve Size #10 - Percent Finer		97.7		% Passing	D422
Sieve Size #20 - Percent Finer		94.0		% Passing	D422
Sieve Size #40 - Percent Finer		74.3		% Passing	D422
Sieve Size #60 - Percent Finer		38.3		% Passing	D422
Sieve Size #80 - Percent Finer		18.3		% Passing	D422
Sieve Size #100 - Percent Finer		13.7		% Passing	D422
Sieve Size #200 - Percent Finer		7.7		% Passing	D422
Hydrometer Reading 1 - Percent Finer		7.2		% Passing	D422
Hydrometer Reading 2 - Percent Finer		5.2		% Passing	D422
Hydrometer Reading 3 - Percent Finer		4.2		% Passing	D422
Hydrometer Reading 4 - Percent Finer		3.2		% Passing	D422
Hydrometer Reading 5 - Percent Finer		3.2		% Passing	D422
Hydrometer Reading 6 - Percent Finer		1.2		% Passing	D422
Hydrometer Reading 7 - Percent Finer		1.2		% Passing	D422

METHOD SUMMARY

Client: Apex Companies LLC

Job Number: 360-33011-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds (GC/MS)	TAL WFD	SW846 8260B	
Closed System Purge and Trap	TAL WFD		SW846 5035
Semivolatile Organic Compounds (GC/MS)	TAL WFD	SW846 8270C	
Microwave Extraction	TAL WFD		SW846 3546
Percent Moisture	TAL WFD	EPA Moisture	
Grain Size	TAL BUR	ASTM D422	

Lab References:

TAL BUR = TestAmerica Burlington

TAL WFD = TestAmerica Westfield

Method References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Apex Companies LLC

Job Number: 360-33011-1

Method	Analyst	Analyst ID
SW846 8260B	Sadowski, Scott	SS
SW846 8270C	Rouleau, Catherine M	CMR
EPA Moisture	Nasiatka, Ellen M	EMN
ASTM D422	Peterson, Mark A	MAP

SAMPLE SUMMARY

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
360-33011-1	NB-VC-02 3.35B	Solid	10/01/2010 1515	04/01/2011 0950
360-33011-2	NB-VC-02 2.85M	Solid	10/01/2010 1515	04/01/2011 0950
360-33011-3	NB-VC-02 2.35T	Solid	10/01/2010 1515	04/01/2011 0950

SAMPLE RESULTS

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

% Moisture: 12.6

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51704.D
Dilution:	1.0			Initial Weight/Volume:	5.47 g
Analysis Date:	04/06/2011 1909			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Chloromethane		ND	H	5.2
Vinyl chloride		ND	H	2.6
Bromomethane		ND	H	5.2
Chloroethane		ND	H	5.2
Carbon disulfide		ND	H	2.6
Acetone		ND	H *	260
Methylene Chloride		ND	H	10
1,1-Dichloroethane		ND	H	2.6
Chloroform		ND	H	2.6
Benzene		ND	H	2.6
Toluene		ND	H	2.6
Tetrachloroethene		ND	H	2.6
2-Hexanone		ND	H *	26
Chlorodibromomethane		ND	H	2.6
Chlorobenzene		ND	H	2.6
Ethylbenzene		ND	H	2.6
Styrene		ND	H	2.6
Bromoform		ND	H	2.6
1,1,2,2-Tetrachloroethane		ND	H	2.6
1,1-Dichloroethene		ND	H	2.6
2-Butanone (MEK)		ND	H *	26
1,2-Dichloroethane		ND	H	2.6
1,2-Dichloropropane		ND	H	2.6
1,1,2-Trichloroethane		ND	H	2.6
1,1,1-Trichloroethane		ND	H	2.6
Carbon tetrachloride		ND	H	2.6
Dichlorobromomethane		ND	H	2.6
cis-1,3-Dichloropropene		ND	H	2.6
Trichloroethene		ND	H	2.6
4-Methyl-2-pentanone (MIBK)		ND	H	26
trans-1,3-Dichloropropene		ND	H	2.6
trans-1,2-Dichloroethene		ND	H	2.6
cis-1,2-Dichloroethene		ND	H	2.6
m-Xylene & p-Xylene		ND	H	5.2
o-Xylene		ND	H	2.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane	98		70 - 130
Toluene-d8 (Surr)	93		70 - 130
4-Bromofluorobenzene	96		70 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

% Moisture: 12.6

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51704.D
Dilution:	1.0			Initial Weight/Volume:	5.47 g
Analysis Date:	04/06/2011 1909			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Tentatively Identified Compounds **Number TIC's Found:** **0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	H

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

% Moisture: 13.3

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51705.D
Dilution:	1.0			Initial Weight/Volume:	5.69 g
Analysis Date:	04/06/2011 1934			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Chloromethane		ND	H	5.1
Vinyl chloride		ND	H	2.5
Bromomethane		ND	H	5.1
Chloroethane		ND	H	5.1
Carbon disulfide		ND	H	2.5
Acetone		ND	H *	250
Methylene Chloride		ND	H	10
1,1-Dichloroethane		ND	H	2.5
Chloroform		ND	H	2.5
Benzene		ND	H	2.5
Toluene		ND	H	2.5
Tetrachloroethene		ND	H	2.5
2-Hexanone		ND	H *	25
Chlorodibromomethane		ND	H	2.5
Chlorobenzene		ND	H	2.5
Ethylbenzene		ND	H	2.5
Styrene		ND	H	2.5
Bromoform		ND	H	2.5
1,1,2,2-Tetrachloroethane		ND	H	2.5
1,1-Dichloroethene		ND	H	2.5
2-Butanone (MEK)		ND	H *	25
1,2-Dichloroethane		ND	H	2.5
1,2-Dichloropropane		ND	H	2.5
1,1,2-Trichloroethane		ND	H	2.5
1,1,1-Trichloroethane		ND	H	2.5
Carbon tetrachloride		ND	H	2.5
Dichlorobromomethane		ND	H	2.5
cis-1,3-Dichloropropene		ND	H	2.5
Trichloroethene		ND	H	2.5
4-Methyl-2-pentanone (MIBK)		ND	H	25
trans-1,3-Dichloropropene		ND	H	2.5
trans-1,2-Dichloroethene		ND	H	2.5
cis-1,2-Dichloroethene		ND	H	2.5
m-Xylene & p-Xylene		ND	H	5.1
o-Xylene		ND	H	2.5

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	95		70 - 130
4-Bromofluorobenzene	95		70 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

% Moisture: 13.3

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51705.D
Dilution:	1.0			Initial Weight/Volume:	5.69 g
Analysis Date:	04/06/2011 1934			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Tentatively Identified Compounds **Number TIC's Found:** **0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	H

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

% Moisture: 14.8

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51706.D
Dilution:	1.0			Initial Weight/Volume:	6.20 g
Analysis Date:	04/06/2011 1957			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Chloromethane		ND	H	4.7
Vinyl chloride		ND	H	2.4
Bromomethane		ND	H	4.7
Chloroethane		ND	H	4.7
Carbon disulfide		ND	H	2.4
Acetone		ND	H *	240
Methylene Chloride		ND	H	9.5
1,1-Dichloroethane		ND	H	2.4
Chloroform		ND	H	2.4
Benzene		ND	H	2.4
Toluene		ND	H	2.4
Tetrachloroethene		ND	H	2.4
2-Hexanone		ND	H *	24
Chlorodibromomethane		ND	H	2.4
Chlorobenzene		ND	H	2.4
Ethylbenzene		ND	H	2.4
Styrene		ND	H	2.4
Bromoform		ND	H	2.4
1,1,2,2-Tetrachloroethane		ND	H	2.4
1,1-Dichloroethene		ND	H	2.4
2-Butanone (MEK)		ND	H *	24
1,2-Dichloroethane		ND	H	2.4
1,2-Dichloropropane		ND	H	2.4
1,1,2-Trichloroethane		ND	H	2.4
1,1,1-Trichloroethane		ND	H	2.4
Carbon tetrachloride		ND	H	2.4
Dichlorobromomethane		ND	H	2.4
cis-1,3-Dichloropropene		ND	H	2.4
Trichloroethene		ND	H	2.4
4-Methyl-2-pentanone (MIBK)		ND	H	24
trans-1,3-Dichloropropene		ND	H	2.4
trans-1,2-Dichloroethene		ND	H	2.4
cis-1,2-Dichloroethene		ND	H	2.4
m-Xylene & p-Xylene		ND	H	4.7
o-Xylene		ND	H	2.4

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane	96		70 - 130
Toluene-d8 (Surr)	94		70 - 130
4-Bromofluorobenzene	93		70 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

% Moisture: 14.8

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Prep Method:	5035	Prep Batch:	360-71607	Lab File ID:	V51706.D
Dilution:	1.0			Initial Weight/Volume:	6.20 g
Analysis Date:	04/06/2011 1957			Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				

Tentatively Identified Compounds **Number TIC's Found:** **0**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Tentatively Identified Compound		None	H

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

% Moisture: 12.6

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13462.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1241			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Acenaphthene		ND	H	190
Acenaphthylene		ND	H	190
Anthracene		ND	H	190
Benzo[a]anthracene		ND	H	190
Benzo[a]pyrene		ND	H	190
Benzo[b]fluoranthene		ND	H	190
Benzo[g,h,i]perylene		ND	H	190
Benzo[k]fluoranthene		ND	H	200
Bis(2-chloroethyl)ether		ND	H	380
Bis(2-chloroethoxy)methane		ND	H	380
Bis(2-ethylhexyl) phthalate		ND	H	380
2,2'-oxybis[1-chloropropane]		ND	H	380
4-Bromophenyl phenyl ether		ND	H	380
Butyl benzyl phthalate		ND	H	380
Carbazole		ND	H	380
4-Chloroaniline		ND	H	760
2-Chloronaphthalene		ND	H	380
4-Chlorophenyl phenyl ether		ND	H	380
Chrysene		ND	H	190
Dibenz(a,h)anthracene		ND	H	190
Dibenzofuran		ND	H	380
Di-n-butyl phthalate		ND	H	380
1,2-Dichlorobenzene		ND	H	380
1,3-Dichlorobenzene		ND	H	380
1,4-Dichlorobenzene		ND	H	380
3,3'-Dichlorobenzidine		ND	H	760
Diethyl phthalate		ND	H	380
Dimethyl phthalate		ND	H	380
2,6-Dinitrotoluene		ND	H	380
2,4-Dinitrotoluene		ND	H	380
Di-n-octyl phthalate		ND	H	380
Fluoranthene		ND	H	190
Fluorene		ND	H	190
Hexachlorobenzene		ND	H	380
Hexachlorobutadiene		ND	H	380
Hexachlorocyclopentadiene		ND	H	380
Hexachloroethane		ND	H	380
Indeno[1,2,3-cd]pyrene		ND	H	380
Isophorone		ND	H	380
Naphthalene		ND	H	190
2-Methylnaphthalene		ND	H	190
2-Nitroaniline		ND	H	380
3-Nitroaniline		ND	H	380
4-Nitroaniline		ND	H	380
Nitrobenzene		ND	H	380
N-Nitrosodi-n-propylamine		ND	H	380

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

% Moisture: 12.6

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13462.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1241			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
N-Nitrosodiphenylamine		ND	H	380
Phenanthrene		ND	H	190
Pyrene		220	H	190
1,2,4-Trichlorobenzene		ND	H	380
4-Chloro-3-methylphenol		ND	H	760
2-Chlorophenol		ND	H	380
2-Methylphenol		ND	H	380
2,4-Dichlorophenol		ND	H	380
2,4-Dimethylphenol		ND	H	380
2,4-Dinitrophenol		ND	H	380
4,6-Dinitro-2-methylphenol		ND	H	380
4-Nitrophenol		ND	H	380
2-Nitrophenol		ND	H	380
2,4,6-Trichlorophenol		ND	H	380
2,4,5-Trichlorophenol		ND	H	380
Phenol		ND	H	380
Pentachlorophenol		ND	H	380
3 & 4 Methylphenol		ND	H	380

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	82		30 - 130
2-Fluorobiphenyl	82		30 - 130
2-Fluorophenol	81		30 - 130
Nitrobenzene-d5	81		30 - 130
Phenol-d5	77		30 - 130
Terphenyl-d14	87		30 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

% Moisture: 12.6

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13462.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1241			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found:** **4**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	5.87	420	T H J
	Unknown	6.29	30000	T H J
	Unknown	7.13	310	T H J
99-98-9	1,4-Benzenediamine, N,N-dimethyl-	11.77	200	T H J N

Client: Apex Companies LLC | Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2 | Date Sampled: 10/01/2010 1515
Client Matrix: Solid | % Moisture: 13.3 | Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13463.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1316			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Acenaphthene		ND	H	190
Acenaphthylene		ND	H	190
Anthracene		ND	H	190
Benzo[a]anthracene		ND	H	190
Benzo[a]pyrene		ND	H	190
Benzo[b]fluoranthene		ND	H	190
Benzo[g,h,i]perylene		ND	H	190
Benzo[k]fluoranthene		ND	H	200
Bis(2-chloroethyl)ether		ND	H	380
Bis(2-chloroethoxy)methane		ND	H	380
Bis(2-ethylhexyl) phthalate		ND	H	380
2,2'-oxybis[1-chloropropane]		ND	H	380
4-Bromophenyl phenyl ether		ND	H	380
Butyl benzyl phthalate		ND	H	380
Carbazole		ND	H	380
4-Chloroaniline		ND	H	770
2-Chloronaphthalene		ND	H	380
4-Chlorophenyl phenyl ether		ND	H	380
Chrysene		ND	H	190
Dibenz(a,h)anthracene		ND	H	190
Dibenzofuran		ND	H	380
Di-n-butyl phthalate		ND	H	380
1,2-Dichlorobenzene		ND	H	380
1,3-Dichlorobenzene		ND	H	380
1,4-Dichlorobenzene		ND	H	380
3,3'-Dichlorobenzidine		ND	H	770
Diethyl phthalate		ND	H	380
Dimethyl phthalate		ND	H	380
2,6-Dinitrotoluene		ND	H	380
2,4-Dinitrotoluene		ND	H	380
Di-n-octyl phthalate		ND	H	380
Fluoranthene		ND	H	190
Fluorene		ND	H	190
Hexachlorobenzene		ND	H	380
Hexachlorobutadiene		ND	H	380
Hexachlorocyclopentadiene		ND	H	380
Hexachloroethane		ND	H	380
Indeno[1,2,3-cd]pyrene		ND	H	380
Isophorone		ND	H	380
Naphthalene		ND	H	190
2-Methylnaphthalene		ND	H	190
2-Nitroaniline		ND	H	380
3-Nitroaniline		ND	H	380
4-Nitroaniline		ND	H	380
Nitrobenzene		ND	H	380
N-Nitrosodi-n-propylamine		ND	H	380

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

% Moisture: 13.3

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13463.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1316			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
N-Nitrosodiphenylamine		ND	H	380
Phenanthrene		ND	H	190
Pyrene		ND	H	190
1,2,4-Trichlorobenzene		ND	H	380
4-Chloro-3-methylphenol		ND	H	770
2-Chlorophenol		ND	H	380
2-Methylphenol		ND	H	380
2,4-Dichlorophenol		ND	H	380
2,4-Dimethylphenol		ND	H	380
2,4-Dinitrophenol		ND	H	380
4,6-Dinitro-2-methylphenol		ND	H	380
4-Nitrophenol		ND	H	380
2-Nitrophenol		ND	H	380
2,4,6-Trichlorophenol		ND	H	380
2,4,5-Trichlorophenol		ND	H	380
Phenol		ND	H	380
Pentachlorophenol		ND	H	380
3 & 4 Methylphenol		ND	H	380

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	78		30 - 130
2-Fluorobiphenyl	74		30 - 130
2-Fluorophenol	73		30 - 130
Nitrobenzene-d5	79		30 - 130
Phenol-d5	71		30 - 130
Terphenyl-d14	76		30 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

% Moisture: 13.3

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13463.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1316			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found:** **3**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	5.86	360	T H J
	Unknown	6.28	28000	T H J
	Unknown	7.13	270	T H J

Client: Apex Companies LLC | Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3 | Date Sampled: 10/01/2010 1515
Client Matrix: Solid | % Moisture: 14.8 | Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13464.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1351			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Acenaphthene		ND	H	200
Acenaphthylene		ND	H	200
Anthracene		ND	H	200
Benzo[a]anthracene		ND	H	200
Benzo[a]pyrene		ND	H	200
Benzo[b]fluoranthene		ND	H	200
Benzo[g,h,i]perylene		ND	H	200
Benzo[k]fluoranthene		ND	H	210
Bis(2-chloroethyl)ether		ND	H	390
Bis(2-chloroethoxy)methane		ND	H	390
Bis(2-ethylhexyl) phthalate		ND	H	390
2,2'-oxybis[1-chloropropane]		ND	H	390
4-Bromophenyl phenyl ether		ND	H	390
Butyl benzyl phthalate		ND	H	390
Carbazole		ND	H	390
4-Chloroaniline		ND	H	780
2-Chloronaphthalene		ND	H	390
4-Chlorophenyl phenyl ether		ND	H	390
Chrysene		ND	H	200
Dibenz(a,h)anthracene		ND	H	200
Dibenzofuran		ND	H	390
Di-n-butyl phthalate		ND	H	390
1,2-Dichlorobenzene		ND	H	390
1,3-Dichlorobenzene		ND	H	390
1,4-Dichlorobenzene		ND	H	390
3,3'-Dichlorobenzidine		ND	H	780
Diethyl phthalate		ND	H	390
Dimethyl phthalate		ND	H	390
2,6-Dinitrotoluene		ND	H	390
2,4-Dinitrotoluene		ND	H	390
Di-n-octyl phthalate		ND	H	390
Fluoranthene		ND	H	200
Fluorene		ND	H	200
Hexachlorobenzene		ND	H	390
Hexachlorobutadiene		ND	H	390
Hexachlorocyclopentadiene		ND	H	390
Hexachloroethane		ND	H	390
Indeno[1,2,3-cd]pyrene		ND	H	390
Isophorone		ND	H	390
Naphthalene		ND	H	200
2-Methylnaphthalene		ND	H	200
2-Nitroaniline		ND	H	390
3-Nitroaniline		ND	H	390
4-Nitroaniline		ND	H	390
Nitrobenzene		ND	H	390
N-Nitrosodi-n-propylamine		ND	H	390

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

% Moisture: 14.8

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13464.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1351			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
N-Nitrosodiphenylamine		ND	H	390
Phenanthrene		ND	H	200
Pyrene		ND	H	200
1,2,4-Trichlorobenzene		ND	H	390
4-Chloro-3-methylphenol		ND	H	780
2-Chlorophenol		ND	H	390
2-Methylphenol		ND	H	390
2,4-Dichlorophenol		ND	H	390
2,4-Dimethylphenol		ND	H	390
2,4-Dinitrophenol		ND	H	390
4,6-Dinitro-2-methylphenol		ND	H	390
4-Nitrophenol		ND	H	390
2-Nitrophenol		ND	H	390
2,4,6-Trichlorophenol		ND	H	390
2,4,5-Trichlorophenol		ND	H	390
Phenol		ND	H	390
Pentachlorophenol		ND	H	390
3 & 4 Methylphenol		ND	H	390

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4,6-Tribromophenol	84		30 - 130
2-Fluorobiphenyl	82		30 - 130
2-Fluorophenol	81		30 - 130
Nitrobenzene-d5	82		30 - 130
Phenol-d5	78		30 - 130
Terphenyl-d14	85		30 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

% Moisture: 14.8

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Prep Method:	3546	Prep Batch:	360-71493	Lab File ID:	N13464.D
Dilution:	1.0			Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1351			Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL

Tentatively Identified Compounds **Number TIC's Found:** **4**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	5.87	440	T H J
	Unknown	6.29	31000	T H J
	Unknown	7.13	330	T H J
1599-67-3	1-Docosene	19.32	190	T H J N

General Chemistry

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Moisture	13		%	1.0	1.0	Moisture
	Analysis Batch: 360-71497		Analysis Date: 04/05/2011 1506			DryWt Corrected: N
Percent Solids	87		%	1.0	1.0	Moisture
	Analysis Batch: 360-71497		Analysis Date: 04/05/2011 1506			DryWt Corrected: N

General Chemistry

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Moisture	13		%	1.0	1.0	Moisture
Analysis Batch: 360-71497	Analysis Date: 04/05/2011 1506					DryWt Corrected: N
Percent Solids	87		%	1.0	1.0	Moisture
Analysis Batch: 360-71497	Analysis Date: 04/05/2011 1506					DryWt Corrected: N

General Chemistry

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Moisture	15		%	1.0	1.0	Moisture
Analysis Batch: 360-71497	Analysis Date: 04/05/2011 1506					DryWt Corrected: N
Percent Solids	85		%	1.0	1.0	Moisture
Analysis Batch: 360-71497	Analysis Date: 04/05/2011 1506					DryWt Corrected: N

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-1.txt
Dilution:	1.0			Initial Weight/Volume:	109.16 g
Analysis Date:	04/04/2011 2016			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		99.8		
Sieve Size #4 - Percent Finer		97.3		
Sieve Size #10 - Percent Finer		95.3		
Sieve Size #20 - Percent Finer		89.3		
Sieve Size #40 - Percent Finer		64.2		
Sieve Size #60 - Percent Finer		29.7		
Sieve Size #80 - Percent Finer		15.6		
Sieve Size #100 - Percent Finer		11.8		
Sieve Size #200 - Percent Finer		7.7		
Hydrometer Reading 1 - Percent Finer		5.3		
Hydrometer Reading 2 - Percent Finer		4.4		
Hydrometer Reading 3 - Percent Finer		2.7		
Hydrometer Reading 4 - Percent Finer		2.7		
Hydrometer Reading 5 - Percent Finer		2.7		
Hydrometer Reading 6 - Percent Finer		1		
Hydrometer Reading 7 - Percent Finer		0.1		

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 3.35B**

Lab Sample ID: 360-33011-1

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-1.txt
Dilution:	1.0			Initial Weight/Volume:	109.16 g
Analysis Date:	04/04/2011 2016			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		2.7		
Sand		89.6		
Coarse Sand		2.0		
Medium Sand		31.1		
Fine Sand		56.5		
Silt		5.0		
Clay		2.7		

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-2.txt
Dilution:	1.0			Initial Weight/Volume:	117.71 g
Analysis Date:	04/04/2011 2018			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		100.0		
Sieve Size #4 - Percent Finer		97.4		
Sieve Size #10 - Percent Finer		93.9		
Sieve Size #20 - Percent Finer		86.4		
Sieve Size #40 - Percent Finer		61.4		
Sieve Size #60 - Percent Finer		26.8		
Sieve Size #80 - Percent Finer		11.7		
Sieve Size #100 - Percent Finer		7.8		
Sieve Size #200 - Percent Finer		4.9		
Hydrometer Reading 1 - Percent Finer		3.2		
Hydrometer Reading 2 - Percent Finer		2.5		
Hydrometer Reading 3 - Percent Finer		2.5		
Hydrometer Reading 4 - Percent Finer		2.5		
Hydrometer Reading 5 - Percent Finer		2.5		
Hydrometer Reading 6 - Percent Finer		0.9		
Hydrometer Reading 7 - Percent Finer		0.9		

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.85M**

Lab Sample ID: 360-33011-2

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-2.txt
Dilution:	1.0			Initial Weight/Volume:	117.71 g
Analysis Date:	04/04/2011 2018			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		2.6		
Sand		92.5		
Coarse Sand		3.5		
Medium Sand		32.5		
Fine Sand		56.5		
Silt		2.4		
Clay		2.5		

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-3.txt
Dilution:	1.0			Initial Weight/Volume:	97.98 g
Analysis Date:	04/04/2011 2019			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE
Sieve Size 3 inch - Percent Finer		100.0		
Sieve Size 2 inch - Percent Finer		100.0		
Sieve Size 1.5 inch - Percent Finer		100.0		
Sieve Size 1 inch - Percent Finer		100.0		
Sieve Size 0.75 inch - Percent Finer		100.0		
Sieve Size 0.375 inch - Percent Finer		100.0		
Sieve Size #4 - Percent Finer		99.5		
Sieve Size #10 - Percent Finer		97.7		
Sieve Size #20 - Percent Finer		94.0		
Sieve Size #40 - Percent Finer		74.3		
Sieve Size #60 - Percent Finer		38.3		
Sieve Size #80 - Percent Finer		18.3		
Sieve Size #100 - Percent Finer		13.7		
Sieve Size #200 - Percent Finer		7.7		
Hydrometer Reading 1 - Percent Finer		7.2		
Hydrometer Reading 2 - Percent Finer		5.2		
Hydrometer Reading 3 - Percent Finer		4.2		
Hydrometer Reading 4 - Percent Finer		3.2		
Hydrometer Reading 5 - Percent Finer		3.2		
Hydrometer Reading 6 - Percent Finer		1.2		
Hydrometer Reading 7 - Percent Finer		1.2		

Client: Apex Companies LLC

Job Number: 360-33011-1

Client Sample ID: **NB-VC-02 2.35T**

Lab Sample ID: 360-33011-3

Client Matrix: Solid

Date Sampled: 10/01/2010 1515

Date Received: 04/01/2011 0950

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-16136	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	360-33011-D-3.txt
Dilution:	1.0			Initial Weight/Volume:	97.98 g
Analysis Date:	04/04/2011 2019			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE
Gravel		0.5		
Sand		91.8		
Coarse Sand		1.8		
Medium Sand		23.4		
Fine Sand		66.6		
Silt		4.6		
Clay		3.2		

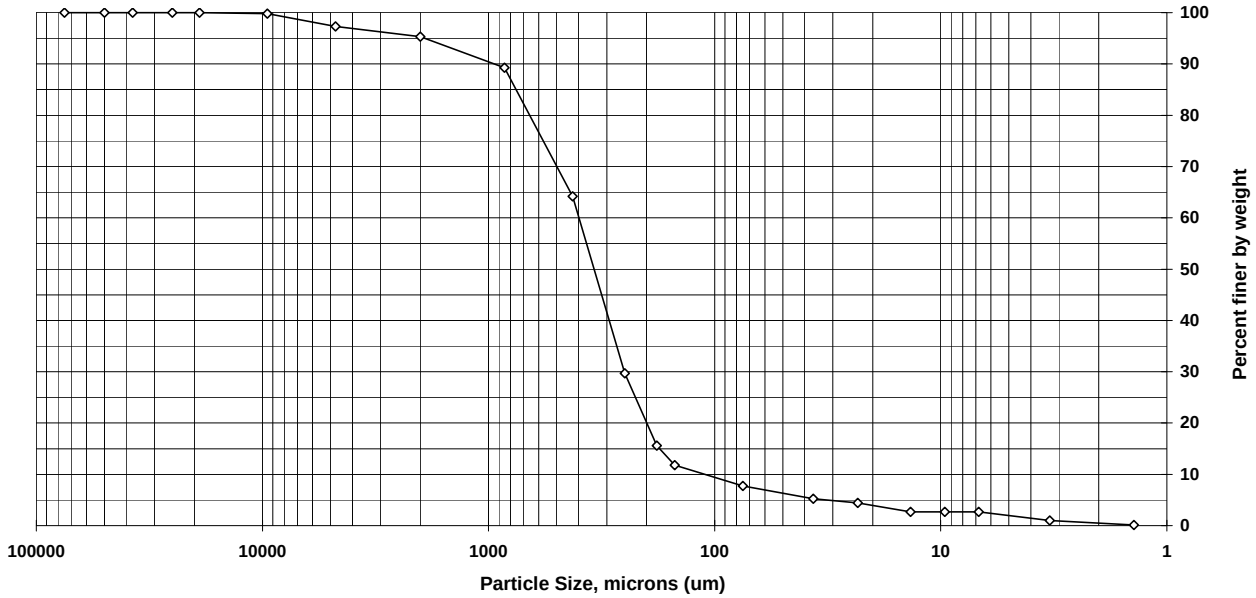
Particle Size of Soils by ASTM D422

				Date Received:	04/01/11
Sample ID:	NB-VC-02 3.35B	**Percent Solids:**	86.2%	**Start Date:**	04/04/11
Lab ID:	360-33011-D-1	**Specific Gravity:**	2.650	**End Date:**	04/07/11

Shape (> #10): subrounded

Non-soil material: shells

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	99.8	0.2
#4	4750	97.3	2.5
#10	2000	95.3	2.0
#20	850	89.3	6.0
#40	425	64.2	25.1
#60	250	29.7	34.5
#80	180	15.6	14.1
#100	150	11.8	3.8
#200	75	7.7	4.1
Hyd1	36.6	5.3	2.5
Hyd2	23.3	4.4	0.9
Hyd3	13.6	2.7	1.7
Hyd4	9.6	2.7	0.0
Hyd5	6.8	2.7	0.0
Hyd6	3.3	1.0	1.7
Hyd7	1.4	0.1	0.9

Soil Classification	Percent of sample
Gravel	2.7
Sand	89.6
Coarse Sand	2.0
Medium Sand	31.1
Fine Sand	56.5
Silt	5.0
Clay	2.7

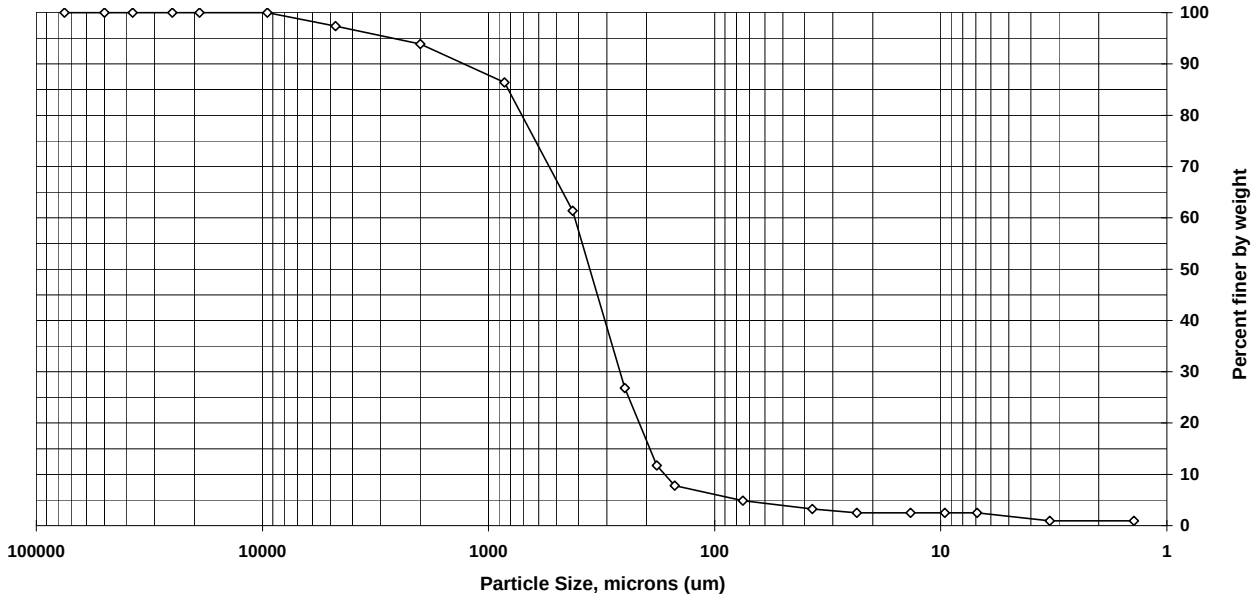
Particle Size of Soils by ASTM D422

				Date Received:	04/01/11
Sample ID:	NB-VC-02 2.85M	**Percent Solids:**	87.1%	**Start Date:**	04/04/11
Lab ID:	360-33011-D-2	**Specific Gravity:**	2.650	**End Date:**	04/07/11

Shape (> #10): subangular

Non-soil material: shells

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	97.4	2.6
#10	2000	93.9	3.5
#20	850	86.4	7.5
#40	425	61.4	25.0
#60	250	26.8	34.6
#80	180	11.7	15.1
#100	150	7.8	3.9
#200	75	4.9	2.9
Hyd1	37	3.3	1.6
Hyd2	23.5	2.5	0.8
Hyd3	13.6	2.5	0.0
Hyd4	9.6	2.5	0.0
Hyd5	6.9	2.5	0.0
Hyd6	3.3	0.9	1.6
Hyd7	1.4	0.9	0.0

Soil Classification	Percent of sample
Gravel	2.6
Sand	92.5
Coarse Sand	3.5
Medium Sand	32.5
Fine Sand	56.5
Silt	2.4
Clay	2.5

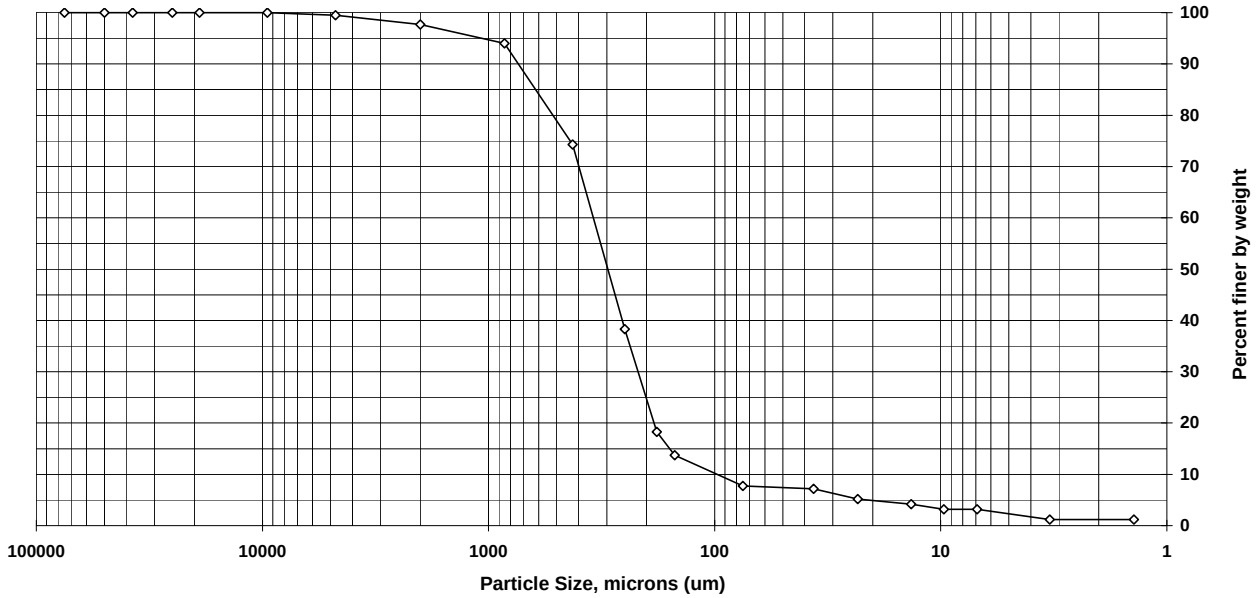
Particle Size of Soils by ASTM D422

				Date Received:	04/01/11
Sample ID:	NB-VC-02 2.35T	**Percent Solids:**	81.8%	**Start Date:**	04/04/11
Lab ID:	360-33011-D-3	**Specific Gravity:**	2.650	**End Date:**	04/07/11

Shape (> #10): angular

Non-soil material: shells

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.5	0.5
#10	2000	97.7	1.8
#20	850	94.0	3.7
#40	425	74.3	19.7
#60	250	38.3	36.0
#80	180	18.3	20.0
#100	150	13.7	4.6
#200	75	7.7	6.0
Hyd1	36.5	7.2	0.5
Hyd2	23.3	5.2	2.0
Hyd3	13.5	4.2	1.0
Hyd4	9.7	3.2	1.0
Hyd5	6.9	3.2	0.0
Hyd6	3.3	1.2	2.0
Hyd7	1.4	1.2	0.0

Soil Classification	Percent of sample
Gravel	0.5
Sand	91.8
Coarse Sand	1.8
Medium Sand	23.4
Fine Sand	66.6
Silt	4.6
Clay	3.2

TestAmerica Burlington

Sediment Grain Size - D422

Client		Date Received	04/01/11
Client Sample ID	NB-VC-02 3.35B	Start Date	04/04/2011 20:16
Lab Sample ID	360-33011-D-1	End Date	04/07/2011 2:27

Dry Weight Determination

Tin Weight	1.02	g
Wet Sample + Tin	11.70	g
Dry Sample + Tin	10.23	g
% Moisture	13.76	%

Non-soil material:	shells
Shape (> #10):	subrounded
Hardness (> #10):	hard

Date/Time in oven	04/04/2011 20:17
Date/Time out of oven	04/05/2011 19:35

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		109.16	109.16
Sample Weight (Oven Dried)			94.1

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			4.45
Sample <#10			89.7
% Passing #10			82.2

Hydrometer Data

Serial Number	341356
Calib. Date (mm/dd/yyyy)	05/06/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0040
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.000166667
Hydrometer Cal Intercept	1.006833333
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500	447.51	447.67	0.16	g	99.8	Gravel	
#4	4750	488.20	490.57	2.37	g	97.3	Gravel	
#10	2000	462.89	464.81	1.92	g	95.3	Sand	Coarse
#20	850	390.64	396.24	5.60	g	89.3	Sand	Medium
#40	425	355.37	379.00	23.63	g	64.2	Sand	Medium
#60	250	323.10	355.59	32.49	g	29.7	Sand	Fine
#80	180	312.95	326.25	13.30	g	15.6	Sand	Fine
#100	150	329.31	332.93	3.62	g	11.8	Sand	Fine
#200	75	321.03	324.85	3.82	g	7.7	Sand	Fine
				0.00	g	7.7		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	94.1

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0065	20.5	36.6	5.26	Silt	
5	5	1.0060	20.5	23.3	4.41	Silt	
15	15	1.0050	20.5	13.6	2.7	Silt	
30	30	1.0050	20.5	9.6	2.7	Silt	
60	59	1.0050	20.5	6.8	2.7	Silt	
250	256	1.0040	20.5	3.3	0.996	Clay	
1440	1440	1.0035	20.5	1.4	0.142	Clay	

TestAmerica Burlington

Sediment Grain Size - D422

Client		Date Received	04/01/11
Client Sample ID	NB-VC-02 2.85M	Start Date	04/04/2011 20:18
Lab Sample ID	360-33011-D-2	End Date	04/07/2011 2:44

Dry Weight Determination

Tin Weight	1.03	g
Wet Sample + Tin	11.20	g
Dry Sample + Tin	9.89	g
% Moisture	12.88	%

Non-soil material:	shells
Shape (> #10):	subangular
Hardness (> #10):	hard

Date/Time in oven	04/04/2011 20:19
Date/Time out of oven	04/05/2011 19:35

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		117.71	117.71
Sample Weight (Oven Dried)			103

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			6.27
Sample <#10			96.7
% Passing #10			82.2

Hydrometer Data

Serial Number	341356
Calib. Date (mm/dd/yyyy)	05/06/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0040
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.000166667
Hydrometer Cal Intercept	1.006833333
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500			0.00	g	100.0	Gravel	
#4	4750	488.20	490.87	2.67	g	97.4	Gravel	
#10	2000	462.89	466.49	3.60	g	93.9	Sand	Coarse
#20	850	390.64	398.39	7.75	g	86.4	Sand	Medium
#40	425	355.37	381.14	25.77	g	61.4	Sand	Medium
#60	250	323.10	358.74	35.64	g	26.8	Sand	Fine
#80	180	312.95	328.51	15.56	g	11.7	Sand	Fine
#100	150	329.31	333.34	4.03	g	7.8	Sand	Fine
#200	75	321.03	324.03	3.00	g	4.9	Sand	Fine
				0.00	g	4.9		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	103

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0055	20.5	37	3.25	Silt	
5	5	1.0050	20.5	23.5	2.47	Silt	
15	15	1.0050	20.5	13.6	2.47	Silt	
30	30	1.0050	20.5	9.6	2.47	Silt	
60	58	1.0050	20.5	6.9	2.47	Silt	
250	256	1.0040	20.5	3.3	0.91	Clay	
1440	1440	1.0040	20.5	1.4	0.91	Clay	

TestAmerica Burlington

Sediment Grain Size - D422

Client		Date Received	04/01/11
Client Sample ID	NB-VC-02 2.35T	Start Date	04/04/2011 20:19
Lab Sample ID	360-33011-D-3	End Date	04/07/2011 2:59

Dry Weight Determination

Tin Weight	0.99	g
Wet Sample + Tin	13.00	g
Dry Sample + Tin	10.81	g
% Moisture	18.23	%

Non-soil material:	shells
Shape (> #10):	angular
Hardness (> #10):	hard

Date/Time in oven	04/04/2011 20:20
Date/Time out of oven	04/05/2011 19:36

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		97.98	97.98
Sample Weight (Oven Dried)			80.1

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			1.83
Sample <#10			78.3
% Passing #10			79.9

Hydrometer Data

Serial Number	341356
Calib. Date (mm/dd/yyyy)	05/06/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0040
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-0.000166667
Hydrometer Cal Intercept	1.006833333
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample		% Finer	Classification	Sub Class
3 inch	75000			0.00	g	100.0	Gravel	
2 inch	50000			0.00	g	100.0	Gravel	
1.5 inch	37500			0.00	g	100.0	Gravel	
1 inch	25000			0.00	g	100.0	Gravel	
3/4 inch	19000			0.00	g	100.0	Gravel	
3/8 inch	9500			0.00	g	100.0	Gravel	
#4	4750	488.20	488.61	0.41	g	99.5	Gravel	
#10	2000	462.89	464.31	1.42	g	97.7	Sand	Coarse
#20	850	390.64	393.61	2.97	g	94.0	Sand	Medium
#40	425	355.37	371.16	15.79	g	74.3	Sand	Medium
#60	250	323.10	351.95	28.85	g	38.3	Sand	Fine
#80	180	312.95	328.95	16.00	g	18.3	Sand	Fine
#100	150	329.31	333.02	3.71	g	13.7	Sand	Fine
#200	75	321.03	325.81	4.78	g	7.7	Sand	Fine
				0.00	g	7.7		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	80.1

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0070	20.5	36.5	7.18	Silt	
5	5	1.0060	20.5	23.3	5.18	Silt	
15	15	1.0055	20.5	13.5	4.18	Silt	
30	29	1.0050	20.5	9.7	3.17	Silt	
60	58	1.0050	20.5	6.9	3.17	Silt	
250	250	1.0040	20.5	3.3	1.17	Clay	
1440	1434	1.0040	20.5	1.4	1.17	Clay	

DATA REPORTING QUALIFIERS

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Section	Qualifier	Description
GC/MS VOA		
	*	LCS or LCSD exceeds the control limits
	H	Sample was prepped or analyzed beyond the specified holding time
GC/MS Semi VOA		
	J	Indicates an Estimated Value for TICs
	N	Presumptive evidence of material.
	T	Result is a tentatively identified compound (TIC) and an estimated value.
	H	Sample was prepped or analyzed beyond the specified holding time

QUALITY CONTROL RESULTS

Client: Apex Companies LLC

Job Number: 360-33011-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Prep Batch: 360-71607					
LCS 360-71607/1-A	Lab Control Sample	T	Solid	5035	
LCSD 360-71607/2-A	Lab Control Sample Duplicate	T	Solid	5035	
MB 360-71607/3-A	Method Blank	T	Solid	5035	
360-33011-1	NB-VC-02 3.35B	T	Solid	5035	
360-33011-2	NB-VC-02 2.85M	T	Solid	5035	
360-33011-3	NB-VC-02 2.35T	T	Solid	5035	
Analysis Batch:360-71611					
LCS 360-71607/1-A	Lab Control Sample	T	Solid	8260B	360-71607
LCSD 360-71607/2-A	Lab Control Sample Duplicate	T	Solid	8260B	360-71607
MB 360-71607/3-A	Method Blank	T	Solid	8260B	360-71607
360-33011-1	NB-VC-02 3.35B	T	Solid	8260B	360-71607
360-33011-2	NB-VC-02 2.85M	T	Solid	8260B	360-71607
360-33011-3	NB-VC-02 2.35T	T	Solid	8260B	360-71607

Report Basis
T = Total

GC/MS Semi VOA					
Prep Batch: 360-71493					
LCS 360-71493/2-A	Lab Control Sample	T	Solid	3546	
LCSD 360-71493/3-A	Lab Control Sample Duplicate	T	Solid	3546	
MB 360-71493/1-A	Method Blank	T	Solid	3546	
360-33011-1	NB-VC-02 3.35B	T	Solid	3546	
360-33011-2	NB-VC-02 2.85M	T	Solid	3546	
360-33011-3	NB-VC-02 2.35T	T	Solid	3546	
Analysis Batch:360-71674					
LCS 360-71493/2-A	Lab Control Sample	T	Solid	8270C	360-71493
LCSD 360-71493/3-A	Lab Control Sample Duplicate	T	Solid	8270C	360-71493
MB 360-71493/1-A	Method Blank	T	Solid	8270C	360-71493
360-33011-1	NB-VC-02 3.35B	T	Solid	8270C	360-71493
360-33011-2	NB-VC-02 2.85M	T	Solid	8270C	360-71493
360-33011-3	NB-VC-02 2.35T	T	Solid	8270C	360-71493

Report Basis
T = Total

Client: Apex Companies LLC

Job Number: 360-33011-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:360-71497					
360-33011-1	NB-VC-02 3.35B	T	Solid	Moisture	
360-33011-2	NB-VC-02 2.85M	T	Solid	Moisture	
360-33011-3	NB-VC-02 2.35T	T	Solid	Moisture	

Report Basis
T = Total

Geotechnical					
Analysis Batch:200-16136					
360-33011-1	NB-VC-02 3.35B	T	Solid	D422	
360-33011-2	NB-VC-02 2.85M	T	Solid	D422	
360-33011-3	NB-VC-02 2.35T	T	Solid	D422	

Report Basis
T = Total

Client: Apex Companies LLC

Job Number: 360-33011-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DBFM %Rec	TOL %Rec	BFB %Rec
360-33011-1	NB-VC-02 3.35B	98	93	96
360-33011-2	NB-VC-02 2.85M	97	95	95
360-33011-3	NB-VC-02 2.35T	96	94	93
MB 360-71607/3-A		97	94	95
LCS 360-71607/1-A		96	100	93
LCSD 360-71607/2-A		97	99	92

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane	70-130
TOL = Toluene-d8 (Surr)	70-130
BFB = 4-Bromofluorobenzene	70-130

Client: Apex Companies LLC

Job Number: 360-33011-1

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	TBP %Rec	FBP %Rec	2FP %Rec	NBZ %Rec	PHL %Rec	TPH %Rec
360-33011-1	NB-VC-02 3.35B	82	82	81	81	77	87
360-33011-2	NB-VC-02 2.85M	78	74	73	79	71	76
360-33011-3	NB-VC-02 2.35T	84	82	81	82	78	85
MB 360-71493/1-A		93	91	92	93	90	98
LCS 360-71493/2-A		96	93	87	86	88	99
LCSD 360-71493/3-A		95	93	88	87	87	99

Surrogate	Acceptance Limits
TBP = 2,4,6-Tribromophenol	30-130
FBP = 2-Fluorobiphenyl	30-130
2FP = 2-Fluorophenol	30-130
NBZ = Nitrobenzene-d5	30-130
PHL = Phenol-d5	30-130
TPH = Terphenyl-d14	30-130

Client: Apex Companies LLC

Job Number: 360-33011-1

Method Blank - Batch: 360-71607

Method: 8260B
Preparation: 5035

Lab Sample ID:	MB 360-71607/3-A	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Client Matrix:	Solid	Prep Batch:	360-71607	Lab File ID:	V51700.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	04/06/2011 1734	Units:	ug/Kg	Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Chloromethane	ND		5.0
Vinyl chloride	ND		2.5
Bromomethane	ND		5.0
Chloroethane	ND		5.0
Carbon disulfide	ND		2.5
Acetone	ND		250
Methylene Chloride	ND		10
1,1-Dichloroethane	ND		2.5
Chloroform	ND		2.5
Benzene	ND		2.5
Toluene	ND		2.5
Tetrachloroethene	ND		2.5
2-Hexanone	ND		25
Chlorodibromomethane	ND		2.5
Chlorobenzene	ND		2.5
Ethylbenzene	ND		2.5
Styrene	ND		2.5
Bromoform	ND		2.5
1,1,2,2-Tetrachloroethane	ND		2.5
1,1-Dichloroethene	ND		2.5
2-Butanone (MEK)	ND		25
1,2-Dichloroethane	ND		2.5
1,2-Dichloropropane	ND		2.5
1,1,2-Trichloroethane	ND		2.5
1,1,1-Trichloroethane	ND		2.5
Carbon tetrachloride	ND		2.5
Dichlorobromomethane	ND		2.5
cis-1,3-Dichloropropene	ND		2.5
Trichloroethene	ND		2.5
4-Methyl-2-pentanone (MIBK)	ND		25
trans-1,3-Dichloropropene	ND		2.5
trans-1,2-Dichloroethene	ND		2.5
cis-1,2-Dichloroethene	ND		2.5
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		2.5

Surrogate	% Rec	Acceptance Limits
Dibromofluoromethane	97	70 - 130
Toluene-d8 (Surr)	94	70 - 130
4-Bromofluorobenzene	95	70 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Method Blank TICs- Batch: 360-71607

Cas Number	Analyte	RT	Est. Result	Qual
	Tentatively Identified Compound		None	

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 360-71607

Method: 8260B
Preparation: 5035

LCS Lab Sample ID:	LCS 360-71607/1-A	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Client Matrix:	Solid	Prep Batch:	360-71607	Lab File ID:	V51697.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	04/06/2011 1622	Units:	ug/Kg	Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 360-71607/2-A	Analysis Batch:	360-71611	Instrument ID:	HP #1 GC/MS
Client Matrix:	Solid	Prep Batch:	360-71607	Lab File ID:	V51698.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 g
Analysis Date:	04/06/2011 1646	Units:	ug/Kg	Final Weight/Volume:	5 g
Prep Date:	04/06/2011 0928				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Chloromethane	78	91	70 - 130	15	25		
Vinyl chloride	86	100	70 - 130	16	25		
Bromomethane	95	107	70 - 130	12	25		
Chloroethane	86	99	70 - 130	14	25		
Carbon disulfide	116	121	70 - 130	4	25		
Acetone	54	60	70 - 130	10	25	*	*
Methylene Chloride	89	94	70 - 130	5	25		
1,1-Dichloroethane	88	92	70 - 130	4	25		
Chloroform	84	90	70 - 130	7	25		
Benzene	85	88	70 - 130	4	25		
Toluene	85	90	70 - 130	5	25		
Tetrachloroethene	97	101	70 - 130	3	25		
2-Hexanone	65	72	70 - 130	10	25	*	
Chlorodibromomethane	83	89	70 - 130	7	25		
Chlorobenzene	92	94	70 - 130	3	25		
Ethylbenzene	98	99	70 - 130	1	25		
Styrene	94	96	70 - 130	3	25		
Bromoform	97	103	70 - 130	5	25		
1,1,2,2-Tetrachloroethane	89	97	70 - 130	9	25		
1,1-Dichloroethene	93	96	70 - 130	4	25		
2-Butanone (MEK)	69	73	70 - 130	7	25	*	
1,2-Dichloroethane	85	88	70 - 130	4	25		
1,2-Dichloropropane	85	89	70 - 130	5	25		
1,1,2-Trichloroethane	88	92	70 - 130	5	25		
1,1,1-Trichloroethane	91	93	70 - 130	2	25		
Carbon tetrachloride	92	91	70 - 130	2	25		
Dichlorobromomethane	84	89	70 - 130	6	25		
cis-1,3-Dichloropropene	87	93	70 - 130	7	25		
Trichloroethene	88	92	70 - 130	4	25		
4-Methyl-2-pentanone (MIBK)	79	86	70 - 130	9	25		
trans-1,3-Dichloropropene	91	97	70 - 130	6	25		
trans-1,2-Dichloroethene	89	93	70 - 130	5	25		
cis-1,2-Dichloroethene	85	89	70 - 130	5	25		
m-Xylene & p-Xylene	97	98	70 - 130	1	25		
o-Xylene	91	91	70 - 130	0	25		

Client: Apex Companies LLC

Job Number: 360-33011-1

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Dibromofluoromethane	96	97	70 - 130
Toluene-d8 (Surr)	100	99	70 - 130
4-Bromofluorobenzene	93	92	70 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Method Blank - Batch: 360-71493

Method: 8270C
Preparation: 3546

Lab Sample ID:	MB 360-71493/1-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13459.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1058	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Result	Qual	RL
Acenaphthene	ND		170
Acenaphthylene	ND		170
Anthracene	ND		170
Benzo[a]anthracene	ND		170
Benzo[a]pyrene	ND		170
Benzo[b]fluoranthene	ND		170
Benzo[g,h,i]perylene	ND		170
Benzo[k]fluoranthene	ND		180
Bis(2-chloroethyl)ether	ND		330
Bis(2-chloroethoxy)methane	ND		330
Bis(2-ethylhexyl) phthalate	ND		330
2,2'-oxybis[1-chloropropane]	ND		330
4-Bromophenyl phenyl ether	ND		330
Butyl benzyl phthalate	ND		330
Carbazole	ND		330
4-Chloroaniline	ND		670
2-Chloronaphthalene	ND		330
4-Chlorophenyl phenyl ether	ND		330
Chrysene	ND		170
Dibenz(a,h)anthracene	ND		170
Dibenzofuran	ND		330
Di-n-butyl phthalate	ND		330
1,2-Dichlorobenzene	ND		330
1,3-Dichlorobenzene	ND		330
1,4-Dichlorobenzene	ND		330
3,3'-Dichlorobenzidine	ND		670
Diethyl phthalate	ND		330
Dimethyl phthalate	ND		330
2,6-Dinitrotoluene	ND		330
2,4-Dinitrotoluene	ND		330
Di-n-octyl phthalate	ND		330
Fluoranthene	ND		170
Fluorene	ND		170
Hexachlorobenzene	ND		330
Hexachlorobutadiene	ND		330
Hexachlorocyclopentadiene	ND		330
Hexachloroethane	ND		330
Indeno[1,2,3-cd]pyrene	ND		330
Isophorone	ND		330
Naphthalene	ND		170
2-Methylnaphthalene	ND		170
2-Nitroaniline	ND		330
3-Nitroaniline	ND		330
4-Nitroaniline	ND		330
Nitrobenzene	ND		330

Client: Apex Companies LLC

Job Number: 360-33011-1

Method Blank - Batch: 360-71493

Method: 8270C
Preparation: 3546

Lab Sample ID:	MB 360-71493/1-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13459.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1058	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Result	Qual	RL
N-Nitrosodi-n-propylamine	ND		330
N-Nitrosodiphenylamine	ND		330
Phenanthrene	ND		170
Pyrene	ND		170
1,2,4-Trichlorobenzene	ND		330
4-Chloro-3-methylphenol	ND		670
2-Chlorophenol	ND		330
2-Methylphenol	ND		330
2,4-Dichlorophenol	ND		330
2,4-Dimethylphenol	ND		330
2,4-Dinitrophenol	ND		330
4,6-Dinitro-2-methylphenol	ND		330
4-Nitrophenol	ND		330
2-Nitrophenol	ND		330
2,4,6-Trichlorophenol	ND		330
2,4,5-Trichlorophenol	ND		330
Phenol	ND		330
Pentachlorophenol	ND		330
3 & 4 Methylphenol	ND		330

Surrogate	% Rec	Acceptance Limits
2,4,6-Tribromophenol	93	30 - 130
2-Fluorobiphenyl	91	30 - 130
2-Fluorophenol	92	30 - 130
Nitrobenzene-d5	93	30 - 130
Phenol-d5	90	30 - 130
Terphenyl-d14	98	30 - 130

Method Blank TICs- Batch: 360-71493

Cas Number	Analyte	RT	Est. Result	Qual
	Unknown	6.29	32100	T J
	Unknown	7.13	351	T J
	Unknown	5.87	492	T J

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 360-71493

Method: 8270C
Preparation: 3546

LCS Lab Sample ID:	LCS 360-71493/2-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13460.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1132	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 360-71493/3-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13461.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1207	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Acenaphthene	114	115	40 - 140	1	30		
Acenaphthylene	96	97	40 - 140	0	30		
Anthracene	113	115	40 - 140	1	30		
Benzo[a]anthracene	122	123	40 - 140	1	30		
Benzo[a]pyrene	124	123	40 - 140	1	30		
Benzo[b]fluoranthene	114	118	40 - 140	4	30		
Benzo[g,h,i]perylene	109	111	40 - 140	2	30		
Benzo[k]fluoranthene	125	123	40 - 140	2	30		
Bis(2-chloroethyl)ether	90	90	40 - 140	1	30		
Bis(2-chloroethoxy)methane	92	93	40 - 140	1	30		
Bis(2-ethylhexyl) phthalate	119	122	40 - 140	2	30		
2,2'-oxybis[1-chloropropane]	102	100	40 - 140	2	30		
4-Bromophenyl phenyl ether	111	110	40 - 140	1	30		
Butyl benzyl phthalate	108	110	40 - 140	2	30		
Carbazole	107	107	40 - 140	0	30		
4-Chloroaniline	60	70	40 - 140	15	30		
2-Chloronaphthalene	84	85	40 - 140	2	30		
4-Chlorophenyl phenyl ether	111	112	40 - 140	1	30		
Chrysene	119	123	40 - 140	3	30		
Dibenz(a,h)anthracene	111	111	40 - 140	0	30		
Dibenzofuran	102	105	40 - 140	3	30		
Di-n-butyl phthalate	115	116	40 - 140	1	30		
1,2-Dichlorobenzene	89	86	40 - 140	4	30		
1,3-Dichlorobenzene	86	85	40 - 140	1	30		
1,4-Dichlorobenzene	87	85	40 - 140	3	30		
3,3'-Dichlorobenzidine	91	98	40 - 140	8	30		
Diethyl phthalate	114	117	40 - 140	2	30		
Dimethyl phthalate	107	107	40 - 140	1	30		
2,6-Dinitrotoluene	105	106	40 - 140	1	30		
2,4-Dinitrotoluene	109	110	40 - 140	1	30		
Di-n-octyl phthalate	114	116	40 - 140	2	30		
Fluoranthene	113	114	40 - 140	1	30		
Fluorene	117	118	40 - 140	1	30		
Hexachlorobenzene	107	108	40 - 140	0	30		
Hexachlorobutadiene	89	90	40 - 140	1	30		

Client: Apex Companies LLC

Job Number: 360-33011-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 360-71493

Method: 8270C
Preparation: 3546

LCS Lab Sample ID:	LCS 360-71493/2-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13460.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1132	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 360-71493/3-A	Analysis Batch:	360-71674	Instrument ID:	Inst. N
Client Matrix:	Solid	Prep Batch:	360-71493	Lab File ID:	N13461.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.00 g
Analysis Date:	04/08/2011 1207	Units:	ug/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	04/05/2011 1434			Injection Volume:	1 uL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Hexachlorocyclopentadiene	81	80	40 - 140	1	30		
Hexachloroethane	88	86	40 - 140	3	30		
Indeno[1,2,3-cd]pyrene	111	111	40 - 140	0	30		
Isophorone	76	77	40 - 140	1	30		
Naphthalene	87	89	40 - 140	2	30		
2-Methylnaphthalene	91	94	40 - 140	3	30		
2-Nitroaniline	104	107	40 - 140	3	30		
3-Nitroaniline	93	101	40 - 140	9	30		
4-Nitroaniline	117	119	40 - 140	2	30		
Nitrobenzene	92	93	40 - 140	1	30		
N-Nitrosodi-n-propylamine	94	95	40 - 140	0	30		
N-Nitrosodiphenylamine	95	95	40 - 140	0	30		
Phenanthrene	111	112	40 - 140	1	30		
Pyrene	111	112	40 - 140	1	30		
1,2,4-Trichlorobenzene	83	82	40 - 140	0	30		
4-Chloro-3-methylphenol	98	101	30 - 130	3	30		
2-Chlorophenol	94	92	30 - 130	1	30		
2-Methylphenol	94	93	30 - 130	1	30		
2,4-Dichlorophenol	95	97	30 - 130	2	30		
2,4-Dimethylphenol	97	100	30 - 130	3	30		
2,4-Dinitrophenol	97	95	30 - 130	2	30		
4,6-Dinitro-2-methylphenol	110	107	30 - 130	2	30		
4-Nitrophenol	113	109	30 - 130	4	30		
2-Nitrophenol	95	97	30 - 130	2	30		
2,4,6-Trichlorophenol	106	107	30 - 130	0	30		
2,4,5-Trichlorophenol	112	112	30 - 130	1	30		
Phenol	99	100	30 - 130	1	30		
Pentachlorophenol	116	111	30 - 130	4	30		
3 & 4 Methylphenol	97	96	30 - 130	0	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
2,4,6-Tribromophenol	96	95	30 - 130
2-Fluorobiphenyl	93	93	30 - 130
2-Fluorophenol	87	88	30 - 130
Nitrobenzene-d5	86	87	30 - 130
Phenol-d5	88	87	30 - 130

Client: Apex Companies LLC

Job Number: 360-33011-1

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Terphenyl-d14	99	99	30 - 130

State Accreditation Matrix

Method Name	Description	State where Primary Accreditation is Carried				
		New Hampshire (NELAC) prim.	Mass	Conn	Florida (NELAC)	North Carolina
821-R-02-012	Toxicity, Acute (48-Hour)(list upon request)	NP			NP	
SM 4500 Cl F	Chlorine, Residual		NP			
SM 9215E	Heterotrophic Plate Count (SimPlate)		P			
SM 9222D	Coliforms, Fecal (Membrane Filter)		P/NP			
SM 9223	Coliforms, Total, and E.Coli (Colilert-P/A)		P			
SM 9224	Coliforms, Total, and E.Coli (Enumeration)		P			
1103.1	E.coli		ambient/ source			
Enterolert	Enterococcus					
200.8 Rev 5.4	Metals (ICP/MS) (list upon request)	NP/P	NP/P	NP/P		
200.7 Rev 4.4	Metals (ICP)(list upon request)	NP/P	NP/P	NP/P		
6010B	Metals (ICP)(list upon request)	NP/SW		NP/SW		
245.1	Mercury (CVAA)	NP/P	NP	NP/P		
7470A	Mercury (CVAA)	NP		NP		
7471A	Mercury (CVAA)	SW		SW		
SM 2340B	Total Hardness (as CaCO3) by calculation	NP/P	NP	NP/P		
3005A	Preparation, Total Recoverable or Dissolved Metals	NP/P		NP/P		
3010A	Preparation, Total Metals	NP/P		NP/P		
3020A	Preparation, Total Metals	NP/P/SW		NP/P/SW		
3050B	Preparation, Metals	SW		SW		
504.1	EDB, DBCP and 1,2,3-TCP (GC)	P	P	P		
608	Organochlorine Pest/PCBs (list upon request)	NP	NP	NP		
625	Semivolatile Org Comp (GC/MS)(list upon request)	NP		NP		
3546	Microwave Extraction	SW				
3510C	Liquid-Liquid Extraction (Separatory Funnel)	NP		NP		
3540C	Soxhlet Extraction	SW				
3550B	Ultrasonic Extraction	SW		SW		
600/4-81-045	Polychlorinated Biphenyls (PCBs) (GC)		NP	NP		
8081A	Organochlorine Pesticides (GC)(list upon request)	NP/SW		NP/SW		
8082	PCBs by Gas Chromatography(list upon request)	NP/SW		NP/SW		
8270C	Semivolatile Comp.(GC/MS)(list upon request)	NP/SW		NP/SW		
CT ETPH	Conn - Ext. Total petroleum Hydrocarbons (GC)			NP/SW		
MA-EPH	Mass - Extractable Petroleum Hydrocarbons (GC)			NP/SW		NP/SW
524.2	Volatile Org Comp (GC/MS)(list upon request)	P	P	P		
524.2	Trihalomethane compounds	P	P	P		
624	Volatile Org Comp (GC/MS)(list upon request)	NP	NP	NP		
5035	Closed System Purge and Trap	SW		SW		
5030B	Purge and Trap	NP		NP		
8260B	Volatile Org Comp. (GC/MS)(list upon request)	NP/SW		NP/SW		
MAVPH	Mass - Volatile Petroleum Hydrocarbons (GC)			NP/SW		NP/SW
180.1	Turbidity, Nephelometric	P	P	P		
300	Anions, Ion Chromatography	NP/P	NP/P	NP/P		
410.4	COD	NP	NP	NP		
1010	Ignitability, Pensky-Martens Closed-Cup Method	SW		SW		
10-107-06-2	Nitrogen, Total Kjeldahl	NP	NP	NP		
7196A	Chromium, Hexavalent	NP/SW		NP/SW		
9012A	Cyanide, Total and/or Amenable	NP/SW		NP/SW		
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	NP		NP		
9040B	pH	NP		NP		
9045C	pH	SW		SW		
L107041C	Nitrogen, Nitrate	NP	P	NP/P		
L107-06-1B	Nitrogen Ammonia	NP	NP	NP/P		
L204001A CN	Cyanide, Total	P	NP/P	NP/P		
L210-001A	Phenolics, Total Recoverable	NP	NP	NP		
SM 2320B	Alkalinity	NP/P	NP/P	NP/P		
SM 2510B	Conductivity, Specific Conductance	NP/P	NP/P	NP/P		
SM 2540C	Solids, Total Dissolved (TDS)	NP/P	NP/P	NP/P		
SM 2540D	Solids, Total Suspended (TSS)	NP	NP	NP		
SM 3500 CR D	Chromium, Hexavalent	NP		NP		
SM 4500 H+ B	pH	NP/P	NP/P	NP/P		
SM 4500 NO2 B	Nitrogen, Nitrite	NP	P	NP/P		
SM 4500 P E	Phosphorus, Orthophosphate	NP/P	NP	NP/P		
SM 4500 P E	Phosphorus, Total	NP	NP	NP		
SM 4500 S2 D	Sulfide, Total	NP		NP		
SM 5210B	BOD, 5-Day	NP	NP	NP		
SM 5310B	Organic Carbon, Total (TOC)	NP/P	NP	NP/P		

Not all organic compounds are accreditied under NELAC
For methods with multiple compounds all compounds may not meet NELAC criteria, listing should be obtained from the laboratory

The lab carries additional accreditations with several states. This is the laboratories typcial listing but is subject to change based on the laboratories current certification standing.

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 360-33011-1

Login Number: 33011

List Source: TestAmerica Westfield

List Number: 1

Creator: Worthington, Lisa A

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	False	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 360-33011-1

Login Number: 33011
List Number: 1
Creator: Keeton, Jamie

List Source: TestAmerica Burlington
List Creation: 04/01/11 01:24 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO CUSTODY SEAL NUMBERS
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	16.0ºC, IR GUN ID 96, CF 0
COC is present.	True	NO WSA REC'D
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

TestAmerica Westfield
Westfield Executive Park 53 Southampton Road
Westfield, MA 01085
Phone (413) 572-4000 Fax (413) 572-3707

Chain of Custody Record

3160-33011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Mary Bruno
Company: Apex Companies, LLC
Address: 184 High St #502
City: Boston
State, Zip: MA, 02110
Phone: 617-728-0070
Email: mbruno@apexcos.com
Project Name/number: 6690
Site: New Bedford, MA

Sampler:
Phone:
Lab PM: Lisa Worthington
E-Mail:
Carrier Tracking No(s):
COC No: 014142
Page:
Job #:

Due Date Requested: 8
TAT Requested (days): 5 Day
Quote #: 36002615
PO #:
WO #:
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, H - Ascorbic Acid, I - Ice, J - DI Water, M - Hexane, N - None, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, Z - other (specify)

Regulatory programs:
MCP ☐ GW1/S1 ☐
RCP ☐ CT RSR ☐
DEP Form ☐ EDD Required ☐

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Sampler's Initials	Field Filtered Sample?	Perform MS/MSD?	VOCs +10	SVOCs +20	Grain Size	Total Number of containers	Special Instructions/Notes
			Preservation Code:									
NB_VC_02 3.35 B	10/1/10	1515		So				✓	✓	✓		
NB_VC-02 2.85M	↓	↓		↓				✓	✓	✓		
NB_VC-02 2.35T	↓	↓		↓				✓	✓	✓		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Mary Bruno	3/31/11 1410	Apex	[signature]	3/31/11 1410	TA
[signature]	3/31/11 1700	TA	[signature]	3/1/11 0950	
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: Cooler w/ ice 2.8°C

TAL-8245-360 0310

Page 59 of 59

APPENDIX 47

STAPLES
that was easy.

Shipment Receipt

Thank you for shipping with us!

Ship Date: Wed 27 Apr 2011

Expected Delivery: Thu 28 Apr 2011 End of Day

Ship From:
Apex/Greg Harper
1 Wamsutta St.
Suite 8
New Bedford, MA 02740
Tel: (508) 441-0999
Business
gharper@apexcos.com

Ship To:
Aquinnah Wampanoag Tribe Office
Ms. Bettina Washington
20 BLACK BROOK RD
AQUINNAH, MA 02535-1546
Business

Shipped Through:
Staples #0728
Fairhaven, MA 02719
(508) 997-5103

Shipment Information:
UPS Next Day Com
Small Carrier Box: 13 x 11 x 2
1.58 lbs Actual
2.00 lbs Billed
Customer Packed: 1

Service Options:
E-mail Notification(s): Shipped , Delivered
Declared Value=$100.00
Adult Sig Req(w/Delv Confirm)

Tracking Number: 1Z5AR154A293330436

Shipment ID: MAWHP788GY2UQ

Reference 1 --

Reference 2 --

Description of Goods: Booklet/Report

Shipment Charges:

UPS Next Day Com	23.40
Service Option(s)	5.25
Fuel Surcharge	3.28
Additional Handling	.00
Delivery Area Surcharge	1.85
Total Charges:	$ 33.78

Track Your Shipment
Log on to www.ups.com or contact UPS at 1-800-PICK-UPS.

Damaged, Lost or Late Claims
In the event that your package is damaged, lost or late, please contact the Staples® Ship Center Claims Department at 1-800-797-5924. All late claims must be called into the Staples Ship Center Claims Department within 15 days of the expected delivery date. Customers will need to ensure they keep ALL packaging materials and this Shipping Invoice, as well as proof of value in the event of a Damaged or Lost package; a repair estimate may be requested. Claims can take 6-8 weeks to be processed and payment to be issued.

Ship Center Terms and Conditions
I understand/agree that:
1) I am subject to all Staples and UPS Terms and Conditions for shipping packages. Ask a Staples associate for details.
2) Staples reserves the right to inspect any package shipped.
3) Staples will not be liable for damage to packages improperly packed, unless my receipt shows that I paid for Staples to pack the package.
4) Staples / UPS liability on any claim for loss or damage shall not exceed the (a) value declared by the customer (b) repair cost (c) replacement cost (d) fair market value; whichever is the smallest.
5) Staples will not ship any hazardous materials or other restricted items. There is a list posted at the Ship Center counter. Ask a Staples associate if you have any questions.
6) The value of my parcel does not exceed $100 unless otherwise shown on my receipt and I have paid the required fee.
7) International packages may be subject to duties, taxes and brokerage fees as determined by the destination country, to be paid by the receiving party. These duties and taxes cannot be prepaid or estimated by Staples.
8) If a package is returned to the store due to providing an incorrect Ship To address or the package is refused by the recipient, a $10 fee is charged upon package pick up.

Proof of Delivery

Close Window

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z5AR154A293330436
Service:	UPS Next Day Air®
Special Instructions:	ADULT SIGNATURE REQUIRED
Weight:	1.60 lbs
Shipped/Billed On:	04/27/2011
Delivered On:	04/28/2011 1:04 P.M.
Delivered To:	AQUINNAH, MA, US
Signed By:	WASHINGTON
Left At:	Receiver

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 04/28/2011 1:52 P.M. ET

Print This Page Close Window

Apex Companies, LLC

"Where Excellence Meets Value"

184 High Street, Suite 502
Boston, MA 02110
and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

April 27, 2011

Mr. Chuckie Green
Mashpee Wampanoag Tribe
766 Falmouth Road
PO Box 1048
Mashpee, MA 02649

Re: Additional Analysis and Interpretation of Vibracore NB-VC-02 Report

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Dear Mr. Green:

Apex Companies, LLC is pleased to provide a copy of the report associated with the above referenced project, as requested at the consultation meeting on March 15, 2011. You will find enclosed a hard-copy of the "Additional Analysis and Interpretation of Vibracore NB-VC-02" report and a pdf version of the report on a CD.

If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC

Received by: Rita Lopez
Date: 04/27/11

Gregory F. Harper, MA, RPA
Cultural Resource Specialist

Apex Companies, LLC

"Where Excellence Meets Value"

184 High Street, Suite 502
Boston, MA 02110
and
1 Wamsutta Street, Suite 8
New Bedford, MA 02740
Telephone 617-728-0070
Facsimile 617-728-0080

April 27, 2011

Ms. Lois Adams
Chief, Grants, Tribal and Municipal Assistance Branch
Office of Ecosystem Protection
Environmental Protection Agency
5 Post Office Square
Suite 100
Boston, MA 02109

Re: Complete Set of Archaeological Survey Reports

Project Name: ***New Bedford Harbor State Enhanced Remedy in New Bedford South Terminal, a/k/a Confined Disposal Facility, a/k/a South Terminal Marine Industrial Park Development, New Bedford, MA. (Project).***

Dear Ms. Adams:

Apex Companies, LLC is pleased to provide a complete set of archaeological reports that were generated as a result of archaeological investigations associated with the above referenced project, as requested at the consultation meeting on March 15, 2011. You will find enclosed a set of hard-copy reports and a USB Drive containing all of the reports. These reports include:

1. JMA NB South Terminal Assessment of Upland Archaeological Potential
2. JMA NB South Terminal Assessment of Inter-Tidal Archaeological Potential
3. JMA NB South Terminal Assessment of Sub-Tidal Archaeological Potential
4. Apex Letter to MHC – Project Re-design
5. Apex Letter to MBUAR – Project Re-design
6. Dolan Phase 1 and 1b Underwater Archaeological Investigation
7. Dolan/JMA Phase 2 Underwater Archaeological Investigation
8. Additional Analyses and Interpretation of Vibracore NB-VC-02, JMA, April, 2011

If you have questions regarding this correspondence, please do not hesitate to contact the undersigned at (617) 728-0070.

Sincerely,
Apex Companies, LLC

Received By: Ronald Letterge Date: 4-27-11

Gregory F. Harper. MA. RPA
Cultural Resource Specialist