



Massachusetts Department of Environmental Protection

Bureau of Waste Prevention – Air Quality

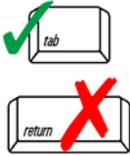
BWP AQ Adsorption Equipment

Submit with Form CPA-PROCESS whenever construction, substantial reconstruction or alteration of Adsorption Equipment is proposed unless exempt per 310 CMR 7.02(2)(b).

Transmittal Number _____

Facility ID (if known) _____

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Inlet Operating Conditions

1. Complete the tables below with information on inlet gas flow(s).

Table 1a					
Emission Unit No(s). Being Controlled	Average Inlet Gas Flow (Actual Cubic Feet Per Minute)	Moisture Content in the Inlet (Pounds Per Minute)	Inlet Temperature (Degrees Fahrenheit (°F))	Is the Gas Stream Pre-Cleaned? ¹	If Pre-Cleaned, Explain
				<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No	
				<input type="checkbox"/> Yes <input type="checkbox"/> No	

¹ You may be required to submit an additional supplemental form if you operate pre-cleaner equipment. Contact the MassDEP regional office for guidance.

Table 1b			
Emission Unit No(s). Being Controlled	Air Contaminant	Air Contaminant Range Before Control (Pounds Per Hour)	Air Contaminant Range Before Control (Parts Per Million by Volume, Dry Basis)
Total Before Control:			

2. Provide the capture efficiency of the ventilation system serving the Adsorption Equipment. The presumption is that the capture efficiency of the system meets the criteria of the Permanent Total Enclosure (PTE) detailed in EPA Method 204.

 Weight Percent (%)

3. If the proposed system does not meet the PTE criteria, explain:



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B. Specifications

1. Manufacturer of Adsorption Equipment: _____
Company _____
2. Model Number (or Equivalent): _____
Number _____
3. Adsorbent Material _____
Description _____
 - a. Mesh Size: _____
Size _____
 - b. Void Fraction: _____
Fraction _____
 - c. Bulk Density: _____
Pounds Per Cubic Feet _____
4. Amount of Adsorbent Used Per Bed: _____
Pounds _____
5. Number of Vessels: _____
Number _____
6. Number of Beds Per Vessel: _____
Number _____
7. Face Area Per Vessel: _____
Square Feet _____
8. Height of Bed: _____
Feet _____
9. Bed Volume: _____
Cubic Feet _____
10. Outlet Temperature of Unit: _____
Degrees Fahrenheit (°F) _____
11. Pressure Drop Across Unit: _____
Inches of Water _____
- 12a. Is the system designed to be pressurized for increased efficiency? Yes No
- 12b. If Yes, what is the system pressure? _____
Pounds Per Square Inch _____

C. Description of Adsorption Equipment

- 1a. What is the system's break point/saturation time? _____
- 1b. Describe in detail how the system's break point/saturation time was determined:



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C. Description of Adsorption Equipment (continued)

2. Describe in detail the system's cleaning procedure and schedule:

Three horizontal lines for describing the cleaning procedure and schedule.

3. Type of System:

Regenerative – Complete 4a. through 4d.

Non-Regenerative – Skip to D. Emissions Data

4a. Describe how the saturated adsorbent will be stripped:

Two horizontal lines for describing the stripping process.

4b. Time required to adequately strip adsorbent:

Minutes

4c. If stripping by steam:

Number of Pounds Per Hour

Pressure in Pounds Per Square Inch Gauge

Temperature in Degrees Fahrenheit (°F)

4d. Describe how the bed will be adequately cooled and dried prior to reuse:

Two horizontal lines for describing the cooling and drying process.

D. Emissions Data

1. Describe air contaminant emissions after control by the proposed Adsorption Equipment.

Table 2			
Air Contaminant	Air Contaminant Removal Efficiency (Weight Percent)	Air Contaminant Emission Rate After Control (Pounds Per Hour)	Air Contaminant Emission Rate After Control (Parts Per Million by Volume, Dry Basis)



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D. Emissions Data (continued)

2. Explain how the above air contaminant emissions data were obtained. Attach appropriate calculations and documentation.

E. Drawing of Adsorption Equipment Control System

You must attach to this form a schematic drawing of the proposed Adsorption Equipment and any pre-cleaner. The downstream design should be indicated on the drawing. At a minimum, the stack, sampling ports for emissions testing, and location of each pressure and temperature indicator must be shown.

Note: You must notify the BWP Compliance & Enforcement Chief in the appropriate MassDEP regional office by telephone as soon as possible, within but no later than one (1) business day after you discover any upset or malfunction to facility equipment that results in excess emissions to the air and/or a condition of air pollution. You must submit written notice within seven (7) days thereafter.

F. Monitoring, Record Keeping & Failure Notification

1. Describe the parameters that will be monitored as a surrogate for control device efficiency, and the frequency of monitoring. Continue on a separate attachment, if necessary.
2. Describe the monitoring methods and warning/alarm system that protect against operation when the unit is not meeting design efficiency (e.g. visual monitoring, audible alarm, flashing lights, temperature indicator, pressure indicator). Continue on a separate attachment, if necessary.
3. Describe the record keeping procedures to be used to verify monitoring and to identify the cause, duration and resolution of each failure. Continue on a separate attachment, if necessary.
4. Describe how failure of the Adsorption Equipment will be made known to the operator during normal operations (e.g. visual monitoring, audible alarm, flashing lights, time indicator, pressure indicator). Continue on a separate attachment, if necessary.



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F. Monitoring, Record Keeping & Failure Notification (continued)

- 5. List and explain all operating and safety controls associated with this system, including interlock systems that prevent introduction of the air contaminant(s) stream until the Adsorption Equipment is operating properly. Continue on a separate attachment, if necessary.

- 6. Describe the Adsorption Equipment's emergency procedures during system upsets. Continue on a separate attachment, if necessary.

- 7. Describe features of the system design and operation that will allow for emissions testing using MassDEP-sanctioned test methods. Continue on a separate attachment, if necessary.

G. Standard Operating & Maintenance Procedures

Attach to this form the standard operating and maintenance procedures for the proposed Adsorption Equipment, as well as a list of the spare parts inventory that you will maintain on site, as recommended by the equipment vendor(s).

H. Professional Engineer's Stamp

The seal or stamp and signature of a Massachusetts Registered Professional Engineer (P.E.) must be entered below. Both the seal or stamp impression and the P.E. signature must be original. This is to certify that the information contained in this Form has been checked for accuracy, and that the design represents good air pollution control engineering practice.

P.E. Name (Type or Print)

P.E. Signature

Position/Title

Company

Date (MM/DD/YYYY)

P.E. Number





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I. Certification by Responsible Official

The signature below provides the affirmative demonstration pursuant to 310 CMR 7.02(5)(c)8 that any facility(ies) in Massachusetts, owned or operated by the proponent for this project (or by an entity controlling, controlled by or under common control with such proponent) that is subject to 310 CMR 7.00, et seq., is in compliance with, or on a MassDEP approved compliance schedule to meet, all provisions of 310 CMR 7.00, et seq., and any plan approval, order, notice of noncompliance or permit issued thereunder. This Form must be signed by a Responsible Official working at the location of the proposed new or modified facility. Even if an agent has been designated to fill out this Form, the Responsible Official must sign it. (Refer to the definition given in 310 CMR 7.00.)

I certify that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment.

Responsible Official Name (Type or Print)

Responsible Official Signature

Responsible Official Title

Responsible Official Company/Organization Name

Date (MM/DD/YYYY)

