



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection – Drinking Water Program
Water Supply Facility Checklist for Hydrofluosilicic or Fluorosilicic Acid (H₂SiF₆) for Permit Review/Approval

Instructions to Applicant

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



The purpose of this Drinking Water Program (DWP) Facility Checklist is to assist the public water systems to prepare drinking water program permit applications that comply with current MassDEP regulations, policies, and guidelines. Completion of this checklist will ensure that the applicant has considered all minimum permitting aspects identified by the MassDEP Drinking Water Program. MassDEP may require additional information as regulations, standards, or procedures are implemented or revised.

A Massachusetts registered professional engineer must complete the appropriate section(s) of the checklist for the permit requested (including any brief explanations), sign the certification statement, and submit this checklist, brief explanations (where noted), and certification with the permit application (BRP WS 23A, BRP WS 23B, BRP WS 23C, BRP WS 24, BRP WS 25, BRP WS 29, BRP WS 34 or other BRP WS permit application). The DWP staff will use these documents to expedite the review/approval of the permit application.

MassDEP Guidelines & Policies for Public Water Systems:

<http://www.mass.gov/dep/water/laws/policies.htm#dwguid>

MassDEP Drinking Water Regulations 310 CMR 22.00:

<http://www.mass.gov/dep/service/regulations/310cmr22.pdf>

For this particular checklist it is understood when the following words are used that the words “fluoride,” “chemical”, “fluoridation”, “feed”, “pump”, “silly acid”, “H₂SiF₆”, or “feeder” shall mean Hydrofluosilicic Acid or Fluorosilicic Acid (H₂SiF₆).

If more than one chemical application or treatment plant is proposed, a separate checklist will be required.

N/A means “not applicable.”

A. Facility Information

PWS Name		
City/Town	PWS ID #	Source(s) Code #
Treatment Facility		Permit Application #
Check form submitted: <input type="checkbox"/> BRP WS 34 <input type="checkbox"/> BRP WS 29 <input type="checkbox"/> BRP WS 25		
<input type="checkbox"/> BRP WS 24 <input type="checkbox"/> BRP WS 23C <input type="checkbox"/> BRP WS 23B <input type="checkbox"/> BRP WS 23A		
<input type="checkbox"/> other BRP WS		MassDEP Transmittal #
Check construction status: <input type="checkbox"/> New Construction <input type="checkbox"/> Replacement or Upgrade Construction		



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B. Project Checklist

1. **Brief Project description**, including any waiver sought from MassDEP requirements.

2. Pumping Facilities

Answer the following questions regarding pumping facilities. Please note that the questions and sections correspond with the standards contained in the Massachusetts Department of Environmental Protection Drinking Water Program's latest editions of Guidelines and Policies for Public Water Systems.

Chapter 2.15 Operator Certification

Yes No N/A

1. With the proposed fluoride addition, and including any additional treatment processes, indicate the water treatment plant classification for this facility pursuant to 310 CMR 22.11B(4)(a):

- VSS I-T II-T III-T 1V-T

2. Does the applicant's proposed staffing plan comply with the Certified Operator provisions of 310 CMR 22.11B? Submittal of plan is required.

Chapter 5.1 (Treatment)

1. Will the engineer submit a copy of these proposed fluoride plans and specifications in one hard copy and one electronic copy on a compact disk (or memory stick) in PDF format for DEP approval?

2. Will a fluoride operation and maintenance (O&M) manual be prepared in accordance with DWP Policy 93-02 after construction?

3. Will the staff be trained in the fluoride O&M procedures after construction?

4. Will records be kept of such training and signed by both operator and trainer?

5. Will a calibration curve be provided for all fluoride feed pumps (after construction) for the operator?

6. Will the fluoride treatment pumping system be overseen by a certified operator who has been properly trained in the operation and maintenance of each piece of equipment?



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B. Project Checklist (cont'd)

	Yes	No	N/A
Chapter 5.7.1 Plans, Specifications & Coordination with MassDPH			
1. Will the fluoride metering system be designed to add 0.9 to 1.2 mg/L or optimal amounts of fluoride to finished water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is fluoride construction planned to begin within 3 years of MassDEP anticipated permit approval?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Will the fluoridated water be pumped to waste after construction to demonstrate optimal fluoridation under observation by MassDEP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 5.7.2 Fluoride Compound Storage			
1. Do the plans show a storage area for unopened barrels of H ₂ SiF ₆ to be stored on pallets inside a building, and isolated from other chemical storage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 5.7.3 Fluoride Chemicals, Chemical Feed Equipment, and Methods			
1. Do the specifications show the fluoride chemical to be approved by AWWA Standard B703-11 (or latest issue) for H ₂ SiF ₆ and NSF Standard 60?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the fluoride injection point after any filters (if used with alum at a water filtration plant)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the fluoride injection point into the filter effluent or clearwell influent (if used at a water filtration plant) to guard against overfeeding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. If protected water flush or carry water tee is provided, is it teed in on metering pump discharge line within 10 feet of final injection point with interlock solenoid valve to help avoid slug feeding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Will the fluoride metering pumps be accurate to within plus or minus 5% of any desired feed rate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are fluoride metering pumps flow paced or proportioned to water flow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Will two diaphragm-type anti-siphon or back-pressure valves be installed in the fluoride feed line, and both be easily accessible for annual operator inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Will all fluoride metering pumps be constructed so the pumps can not remain in "hand or manual" mode unless the switch is held in place by an operator?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Will the fluoride metering pumps be electrically interlocked with respective raw water pump or thermal type flow switch drilled into pipeline?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Will the fluoride metering pumps circuit include a nearby labeled pilot light showing when the interlock circuit is activated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. If not hardwired, will the fluoride metering pumps use a 115 VAC twist lock type plug and receptacle for safety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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B. Project Checklist (cont'd)

- | | Yes | No | N/A |
|---|--------------------------|--------------------------|--------------------------|
| 12. Are the fluoride metering pumps of a positive displacement type and sized in specifications to have a stroke rate not less than 20 strokes per minute at optimum fluoride levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. If fluoride is proposed to be added to filter effluent or clearwell and backwash water is intermittently recycled to plant influent, will special pacing provisions be made to compensate for added fluoride content in finished water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Will the fluoride metering pumps be installed on a shelf no more than 3 feet above top of fluoride daytank? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Will the suction line be designed to be as short as possible, and slope continuously upward to the pump with no false loops? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Chapter 5.7.4 Protective Equipment

1. Will personal protective equipment be provided at each fluoride injection point, consisting of:
- a. a pair of rubber or neoprene gloves? Yes No N/A
 - b. a respirator certified by the National Institute for Occupational Safety & Health (NIOSH) for acid gas with a soft rubber face-to-mask seal and replaceable cartridge (as necessary)? Yes No N/A
 - c. neoprene or rubber apron? Yes No N/A
 - d. splash-proof goggles and face mask? Yes No N/A

Chapter 5.7.6 Testing Equipment

1. Will fluoride testing equipment be provided consisting of specific ion type or SPADNS colorimetric method in compliance with 310 CMR 22.06(16) (b)? Yes No N/A
2. Will the fluoride testing equipment be portable and capable of being calibrated on a daily basis? Yes No N/A

Chapter 5.7.7 Fluoride Monitoring

1. Will Massachusetts DPH and MassDEP be consulted to set up an approved fluoride monitoring and surveillance plan before fluoridation begins? Yes No N/A
2. If this is the first time fluoride plans are prepared, write in date(s) of Board of Health Fluoridation Order(s) under MGL Chapter 111, Section 8C:
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3. Write in name(s) of Board of Health in Question 2:
-



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	Yes	No	N/A
4. Write in the natural fluoride content in mg/L at source(s) to be fluoridated:			<input type="checkbox"/>

5. Will the PWS applicant prepare and submit to MassDEP monthly Chemical Addition reports for H ₂ SiF ₆ added pursuant to 310 CMR 22.15(4) requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Chapter 6.0.1 Plans & Specifications

1. Are descriptions of feed equipment, including maximum, average, and non-zero minimum feed ranges (expressed in daily/monthly use and gallons/volume/weight per hour), provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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2. Are the locations of feeders, piping layout, and points of application shown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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3. Are descriptions of storage and handling facilities provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4. Are there sample specifications for the chemical to be used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5. Are there operating and control procedures, including proposed application rates?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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6. Are descriptions of testing equipment and procedures provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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7. Do the plans include a chemical schematic of all fluoride equipment and piping including sampling and monitoring equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Chapter 6.0.2 Chemical Application

1. Are chemicals applied at points and by means to assure maximum treatment efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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2. Are chemicals applied at points and by means to provide maximum safety to consumers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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3. Are chemicals applied at points and by means to provide maximum safety to operators?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4. Are chemicals applied at points and by means to assure satisfactory mixing of the chemicals with the water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5. Are chemicals applied at points and by means to prevent backflow, prevent back-siphonage, prevent bypassing of treatment units, and eliminate multiple points of feed through common manifolds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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6. Is completed chemical injection point into a pipeline that uses an injection nozzle with corporation stop, ball check (to prevent backflow), and safety chain/cable, or uses a diffuser pipe into a basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Chapter 6.0.3 General Equipment Design

1. Will the feeders be able to supply, at all times, the necessary amounts of chemicals at an accurate rate, throughout the range of feed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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B. Project Checklist (cont'd)

	Yes	No	N/A
2. Are the chemical-contact materials and surfaces resistant to the aggressiveness of the chemical solution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are corrosive chemicals introduced in such a manner as to minimize potential for corrosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are chemicals that are incompatible <i>not</i> fed, stored or handled together?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are all chemicals conducted from the feeder to the point of application in separate conduits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are chemical feeders as near as practical to the feed point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is pump sized in specifications such that pump will not operate at a point no lower than 10% of feed range dial at any time for greater metering accuracy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is pump sized in specifications such that pump will not deliver more than 2,000 % of optimal chemical dosage in mg/l to help prevent potential overfeeds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chapter 6.1.1 Feeders and Metering Pumps

1. Does the chemical feed system include a minimum of two feeders, of which the standby unit or a combination of units is of sufficient capacity to replace the largest unit during shutdown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are spare parts available for all feeders to replace parts that are subject to wear and damage, such as anti-siphon valves, belts, tubing, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chapter 6.1.2 Control of Feeders and Metering Pumps

1. Are feeders manually or automatically controlled in setting stroke rate, with automatic controls designed so as to allow override by manual controls?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is a means to measure treated water flow (in gpm and total gallons) provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are chemical feeders synchronized to start and stop (electrically interlocked with appropriate upstream water pump motor or thermal type flow switch) with the flow of water being treated as the primary electrical interlock?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Will the chemical metering pumps interlock system be hard wired or use a twist type plug and receptacle?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Will the controls be configured such that the chemical metering pumps are restarted only at the water treatment facility following an alarm initiated shutdown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Chapter 6.1.3 Chemical Safety Control Strategy for Critical Chemical Control Systems

	Yes	No	N/A
1. Are a portable fluoride meter, 2 different calibration standards, and labware accessories available for testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is a representative labeled raw water sample tap available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is a continuous fluoride analyzer with two alarm contacts available to prevent fluoride overfeed or fluoride underfeeds conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is there an emergency under and over-feed alarm system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there any emergency automatic phone, radio, or cellular dialer alarm to a properly certified operator to report a chemical under or over-feed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are controls designed so that if a chemical feed pump is in the manual mode, the operator is notified locally by a visual and/or audible alarm and/or remotely by an autodialer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does each metering pump have a HOA (hand, off, automatic) switch, and a timer on hand mode so chemical metering pump will automatically shut down after no more than one hour or a spring loaded HOA switch?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Will each HOA switch show proper signage on site explaining usage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. If not staffed 24/7/365, will the chemical feed pumps and water flow or water pumps automatically shut down and notify the operator if a fluoride underfeed or overfeed occurs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Will the chemical feed system be linked to a computer SCADA or alarm system via radio or leased phone lines?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Do the plans and specifications include a description of the "Chemical Safety Control Strategy for Critical Chemical Feed Systems" as described in section 6.1.3?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is a fluoride analyzer provided to monitor the treated water, or was a fluoride analyzer waiver granted by MassDEP in writing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Is the fluoride analyzer interlocked so if fluoride is out of range, then the water flow or water pumps and metering pump will automatically shut down and an alarm will be sent to the certified operator?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Is powering of all fluoride metering pumps configured to prevent overriding of the safety shut down system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Will the SOP include procedures to test all fluoride alarms and controls (both high and low) quarterly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Are the chemical feed system operational parameters recorded by a chart recorder, chart recorder electronic data logger, or SCADA system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Will the applicant's emergency response plan be updated to include the fluoride component?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
Chapter 6.1.6 Positive Displacement Solution Pumps			
1. Are positive displacement type solution pumps used to feed fluoride chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Will the metering pump specified be capable of operating against maximum pressure head at the point of injection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does each feeder have a pressure relief valve (that is safely tubed with cable ties or piped back into the daytank) on the discharge line for operator safety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Is there a clear minimum 500 ml calibration chamber (in ml) or mass flow meter mounted above each feed pump to aid the operator in setting the pump rate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.1.7 Liquid Chemical Feeders - Siphon Control			
1. Do liquid chemical feeders provide discharge at a point of positive pressure or provide vacuum relief; and provide an air gap or anti-siphon device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If a peristaltic pump is used, are 2 anti-siphon or back-pressure valves used on discharge line located where visible and easily accessible to the operator?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the metering pump located above the top of the daytank and does it avoid use of a flooded suction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.1.9 Location of Chemical Feed Equipment			
1. Is the fluoride feed equipment located in a separate room to reduce hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the chemical feed equipment readily accessible with adequate space provided for servicing, repair, and observation of operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the chemical feed equipment located either above or inside the containment area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.1.11 Chemical Storage and Process Tanks			
1. Is space provided for:			
a. at least 30 days of chemical supply to meet average treated water demand?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. convenient and efficient handling of chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are storage tanks and pipelines for liquid chemicals dedicated to the specific chemicals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Will the chemicals be stored in covered or unopened shipping containers, unless the chemical is transferred into an approved covered storage unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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B. Project Checklist (cont'd)

	Yes	No	N/A
4. Do bulk liquid chemical tanks (if used) have:			
a. a means to visually observe liquid level that is calibrated to indicate the liquid volume in the tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. a proper vent that is separate from any other chemical vent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. an overflow with minimum size and capacity equal to the fill pipe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. a minimum 6-inch high containment curb?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. a label to designate the chemical name contained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. a threaded and capped ball valved drain that discharges to a containment area or holding tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. a vent(s) sized at 150% of fill pipe diameter to prevent excess pressures or vacuum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. a bulk solution tank fill valve station labeled with the chemical name, 4 digit UN number (1778), and formula of the chemical, and provisions for locking when not in use, and provide containment for minor releases during the fill process?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. a cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. a high level liquid sensor that activate audible and visual alarms mounted at locations that will alert both the treatment system operator and tank truck delivery driver to prevent overfilling of bulk tank(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. a ball shut off valve on inside fill pipe to prevent backflow of chemical when hose is disconnected, and to guard against any unauthorized fill ups?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. a design to minimize accidental splashing, and is overflow brought down to 12-24 inches from floor that discharges over a splash plate, and away from any sensitive equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. outside vent(s) terminating to prevent contamination, such as, in a down turned position, and covered with a 24-mesh corrosion-resistant screen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. if penetrating a roof, does vent terminate at least 24 inches above the roof to prevent snowmelt from entering bulk tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. an inside building location or above ground location?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Do containment areas provide:			
a. a bermed area capable of containing 110% of the volume of the chemicals stored within the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. no floor drains or sump pumps unless the flow is directed to a separate containment area or tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
c. a sump or sloped to a low area to allow pumpage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. an overflow from chemical storage tanks that discharges to the containment area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. separate containment for chemicals that are not compatible, such as, acids and bases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. a leak/spill detection alarm device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. If overflow discharge to the outside of the containment area, can overflows do one of the following?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. discharge to a holding tank with a minimum volume equal to 25% of the storage tank, or			
b. discharge to a separate covered containment area with a minimum volume equal to 25% of the storage tank, or			
c. have an overflow capacity in the storage tank with a minimum volume equal to 25% of the capacity of the tank and a high audio and visual level alarm that will be set at the full level, excluding the overflow volume?			
7. Are two solution tanks of adequate volume provided, if necessary, to assure continuity of supply in servicing a solution tank?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are all chemical solutions kept covered and are the openings in bulk tanks with access openings curbed and fitted with tight overhanging covers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Subsurface locations for bulk solution tanks (if used):			
a. assure freedom from sources of possible contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. are located in a double walled containment vault with a spill/leak detection device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Are overflow pipes:			
a. directed downward into the containment area, with the end screened or otherwise protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. located where noticeable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. designed with a trap to prevent overflow from acting as an inside vent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is each large tank provided with a valved drain, protected against backflow in accordance with Cross Connection Control Regulations and liquid chemical feeder's guidance, and located so that chemicals from equipment failure, spillage, or accidental drainage will not enter the water in conduits or treatment or storage basins?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is a covered, labeled, and vented day tank provided when bulk storage tank(s) or barrel(s) are provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are the day tank(s) sized to hold no more than a 30 - 60 hour chemical supply at average treated water demand rate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
14. Are precise means (scale mounting) provided to measure the weight of fluoride fed daily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Transfer of Chemicals:			
a. Are motor or magnetic-driven transfer pumps to daytank provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Is a liquid level limit switch on daytank cover provided to automatically shut off transfer pump when daytank is full?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Is filling of daytank done manually and not automated and filled by a safe means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chapter 6.1.12 Feed Lines

1. Are feed lines as short and straight as possible in length of run and:			
a. of durable, corrosion resistant material?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. easily accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. protected against freezing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. readily cleanable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. properly protected and secured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the suction feed line(s) slope upward from the chemical source to the metering pump without loops to help avoid air-entrapment with a foot-valve?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the feed lines designed consistent with scale-forming or solids depositing properties of the water, chemical, solution or mixture conveyed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are the feed lines color-coded light blue with red band, labeled with chemical name, and show arrows for direction of flow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are any outside underground feed lines in secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are any outside underground secondary containment of feed lines sloped to a location where any leaks are visually noticeable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chapter 6.1.13 Handling

1. Are carts, elevators, drum skids, drum trucks (if used) and other appropriate means provided for lifting chemical containers to minimize excessive lifting by operators?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are provisions made for disposing of drums or barrels by an approved procedure which will minimize exposure (if used)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is a portable electric (PVDF) drum transfer pump with discharge tubing provided to transfer fluoride chemical from a barrel to day tank (if no bulk tank is provided)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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B. Project Checklist (cont'd)

	Yes	No	N/A
Chapter 6.1.14 Housing			
1. Are floor surfaces smooth, impervious, slip-proof and well drained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Do vents from feeders, storage facilities and equipment exhaust discharge to the outside atmosphere above grade and remote from air intakes, doors, windows, and parked vehicles?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is adequate ventilation and heating provided that conforms to all local and/or state codes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.2 Chemicals			
Shipping Containers			
1. Do specs state that chemical shipping containers shall be fully labeled to include chemical name, purity, concentration, supplier name and address?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.2.2 Specifications			
1. Do specs state that chemicals shall meet latest ANSI / AWWA B703-11 and NSF 60 specifications?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.2.3 Assay			
1. Are there provisions for assay of chemicals bulk delivered, such as a labeled sampling tap on fill line to bulk tank to verify accuracy of chemical specifications?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Will recommendation that visual and chemical sampling of chemical during delivery be conducted to verify the correct chemical is being added be included in standard operating procedure (SOP)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chapter 6.3 Operator Safety: Other Protective Equipment and Systems			
1. Are a pair of rubber gloves, an apron or other protective clothing, splash goggles, and facemask provided for each operator per Material Safety Data Sheets (MSDS) and OSHA 29CFR1910?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are a safety deluge shower and eyewash installed between the location of the hazard and the nearest means of egress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. If a bulk chemical tank over 1,000 gallons is used, are safety deluge shower and piped eye-washing device approved by ANSI Z358.1-2004?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Does activation of deluge shower or eyewash initiate a visual and audible alarm to remote location?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is a water-holding tank that will allow water to come to room temperature installed in the water line feeding the safety deluge shower and piped eye washing device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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B. Project Checklist (cont'd)

- | | Yes | No | N/A |
|---|--------------------------|--------------------------|--------------------------|
| 6. Will a sufficient amount of spill absorbent, such as hydrated lime, be stored on site for any uncontrolled discharges? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Will a standard MDPH/MassDEP operating procedure (SOP) for fluoride be posted in a protective shop envelope on the wall next to daytank for the operator, and will the fluoride MSDS be available on site? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Chapter 7.0 Pumping Facilities

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 1. Are analyzer discharges in compliance with DEP fact sheet “Registration of Discharges to the Ground From Pump Houses and Other Public Water System Facilities Including Discharges from In-line Analyzers”?
(http://www.mass.gov/dep/water/drinking/phdisreg.htm) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Is a representative labeled sample tap located 100 feet downstream available for daily fluoride testing of the treated water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Is a hydrant available to waste for adjusting the initial fluoride to optimum concentration? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Chapter 12.1 Minimum Components of Emergency Response Plans

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 1. Will the applicant’s emergency response plan (ERP) be updated to include the fluoride chemical addition emergency procedures and notification pursuant to 310 CMR 22.04(13) and MassDEP Guidelines and Policies for Public Water Supplies, Chapter 12 – Emergency Response Planning Requirements Guidance, including Appendix O – Handbook for Water Supply Emergencies?
http://www.mass.gov/dep/water/laws/policies.htm#dwguid
http://www.mass.gov/dep/water/drinking/systems.htm#emerresp | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|



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C. Certification

A. Applicant's Engineer

I hereby certify, as a Professional Engineer registered in Massachusetts, that the Drinking Water Facilities Checklist is a true and accurate representation on the information contained in my plans and specifications submitted with this permit application.

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Signature/Stamp of Professional Engineer

Date

Printed Name

Title

Employer

Phone Number

Email Address

Signature/Stamp of Second Professional Engineer (if needed)

Date

Printed Name

Title

Employer

Phone Number

Email Address

B. Applicant

This checklist and attached permit application are submitted on behalf of water representative:

City/Town

Address

PWS Name

PWS ID #

Phone Number

Applicant Name/Title

Email Address

Applicant Signature

Date