



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection – Drinking Water Program  
**Water Supply Facility Checklist for Various Forms of  
Phosphate Compounds Used for Corrosion Control and  
Sequestering for Permit Review/Approval**  
**Instructions to Applicant**

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 paragraph it is understood when the following words are used that the words “chemical”, “feed”, “pump”, or “feeder” shall mean Phosphate Compounds.

At the present time, phosphate compounds are not considered critical chemical feed systems and are therefore exempt from the Chemical Safety Control Strategy for Critical Chemical Feed System section in Guidelines Chapter 6.1.3.

**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

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



PWS Name

City/Town

PWS ID #

Source(s) Code #

Treatment Facility

Permit Application #

Check form submitted: ☐ BRP WS 34 ☐ BRP WS 29 ☐ BRP WS 25

☐ BRP WS 24 ☐ BRP WS 23C ☐ BRP WS 23B ☐ BRP WS 23A

☐ other BRP WS

MassDEP Transmittal #

Check construction status: ☐ New Construction ☐ Replacement or Upgrade Construction



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**B. Project Checklist**

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

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**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.

Yes No N/A

**Chapter 1.2.6 Proposed Treatment Processes**

1. Write the exact name and chemical formula of proposed phosphate compound to be used:

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**Chapter 1.2.12 Simultaneous Compliance**

1. Has a determination been made of any simultaneous compliance issues, such as an increase of lead and copper due to acidic phosphate chemical addition?

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**Chapter 2.15 Operator Certification**

1. With the proposed phosphate 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.

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**Chapter 2.12 Piping Color Code**

1. Will phosphate discharge chemical pipe and tubing be color coded light green with a red band?
2. Will name "Phosphate" be painted or placed on discharge pipe and tubing with arrows indicating direction of flow?

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**B. Project Checklist (cont'd)**

	Yes	No	NA
<b>Chapter 2.8.1 Testing and Monitoring Equipment</b>			
1. Will phosphate testing equipment (as approved or accepted by USEPA) capable of accurately measuring phosphate from 0.1 to 10.0 mg/l be provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Chapter 2.9 Sample Taps</b>			
1. Is a representative labeled raw water sample tap available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Chapter 5.1 (Treatment)</b>			
1. Will the engineer submit a copy of these proposed phosphate plans and specifications in one hard copy and one electronic copy on a compact disk (or memory stick) in PDF format for DEP approval?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The manganese concentration in the treated water is not between 0.3 to 1.0 mg/l. (If response is that the manganese concentration is between 0.3 to 1.0 mg/l, then an assessment by MassDEP Office of Research and Standards will be necessary to determine if removal is required.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Will the staff be trained in the phosphate O&M procedures after construction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Will records be kept of such training and signed by both operator and trainer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Will a calibration curve be provided for all phosphate feed pumps (after construction) for the operator?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Will the phosphate treatment pumping system be overseen by a certified operator who has been properly trained in the operation and maintenance of each piece of equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Was a pilot study or in-plant demonstration study conducted in accordance with DWP Policy 90-04 prior to submission of plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Chapter 5.6 Iron and Manganese Control</b>			
1. The concentration of iron and manganese present at the proposed phosphate compound injection point does not exceed 1.0 mg/l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The manganese concentration at the proposed phosphate compound injection point is not between 0.3 to 1.0 mg/l. (If response is that the manganese concentration is between 0.3 to 1.0 mg/l, then an assessment by MassDEP Office of Research and Standards will be necessary to determine if removal is required.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Will the phosphate metering system be designed to add up to 10.0 mg/l as PO <sub>4</sub> (or as recommended by chemical manufacturer) in the beginning until distribution system becomes stabilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Will SOP (Standard Operating Procedure) be written that flushing of the distribution system is recommended prior to initial phosphate addition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
5. Will satisfactory chlorine residuals be maintained in the distribution system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Will the phosphate solution tank be kept covered or have a hinged cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Will the phosphate solution tank be disinfected by carrying approximately 10 mg/l free chlorine in the phosphate solution tank? (Does not apply when phosphate contains zinc or when phosphate chemical solution composition can be shown to prevent microbiological growth.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Will the SOP be written that the optimal phosphate concentration will not exceed 4 mg/l as PO <sub>4</sub> after initial system stabilization?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Proposed phosphate treatment injection point is after any iron and manganese removal treatment (if any removal treatment is required).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the proposed phosphate treatment injection point prior, and as far as possible ahead as possible, to any aeration, oxidation, or chlorine disinfection treatment (if no iron or manganese removal treatment is required)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the proposed phosphate treatment chemical classified as food grade and will the proposed chemical specifications be written as such?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Has the proposed phosphate treatment been evaluated to cause no measurable impact on any lead or copper control treatment system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Will iron testing equipment with a capacity to accurately measure iron content to a minimum of 0.1 mg/l be provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Will manganese testing equipment with a capacity to accurately measure manganese content to a minimum of 0.01 mg/l be provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Chapter 5.8 Corrosion Control**

1. Is proposed phosphate compound certified to standard NSF 60?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the proposed phosphate compound approved by MassDEP? (Chemicals that have not been previously used in Massachusetts public drinking water supplies may require new technology approval and must receive approval from MassDEP before use. (Regulations 310 CMR 22.04(8) and DWP Policy 89-01).) For a list of Mass DEP approved phosphate compounds see: <a href="http://www.mass.gov/eea/docs/dep/water/compliance/newtech.pdf">http://www.mass.gov/eea/docs/dep/water/compliance/newtech.pdf</a> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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"/>
2. Are the locations of feeders, piping layout, and points of application shown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are descriptions of storage and handling facilities provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are there sample specifications for the chemical to be used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
5. Are there operating and control procedures, including proposed application rates?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are descriptions of testing equipment and procedures provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Do the plans include a chemical schematic of all phosphate equipment and piping including sampling and monitoring equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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"/>
2. Are chemicals applied at points and by means to provide maximum safety to consumers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are chemicals applied at points and by means to provide maximum safety to operators?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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"/>
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"/>
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"/>

**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"/>
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"/>



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**B. Project Checklist** (cont'd)

	Yes	No	N/A
<b>Chapter 6.1.1 Feeders and Metering Pumps</b>			
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"/>
<b>Chapter 6.1.2 Control of Feeders and Metering Pumps</b>			
1. Are feeders manually or automatically controlled in setting stroke speed, 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"/>
6. Will proper signage be provided whenever the phosphate metering pump control is placed in "hand", "manual" or "internal" mode to guard against any overfeeds?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Chapter 6.1.4 Controls and Alarms for Non-Critical Chemical Feed Systems</b>			
1. Will the SOP include procedures to test all phosphate alarms and controls (both high and low) and electrical interlock quarterly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Will any metering pump manual override mode operation initially activate a visual alarm and after a set period of time trigger an audible alarm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
<b>Chapter 6.1.6 Positive Displacement Solution Pumps</b>			
1. Are positive displacement type solution pumps used to feed phosphate 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 solution tank) 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"/>
<b>Chapter 6.1.7 Liquid Chemical Feeders - Siphon Control</b>			
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 or metering pump is used, is an anti-siphon or back-pressure valve installed 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 solution tank and does it avoid use of a flooded suction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Chapter 6.1.9 Location of Chemical Feed Equipment</b>			
1. Is the phosphate 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"/>
<b>Chapter 6.1.11 Chemical Storage and Process Tanks</b>			
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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	Yes	No	NA
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, 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	NA
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"/>
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"/>
14. Are precise means (scale mounting) provided to measure the weight of phosphate fed daily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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	Yes	No	N/A
15. Transfer of Chemicals:			
a. Are motor or magnetic-driven transfer pumps to solution tank provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Is a liquid level limit switch on solution tank cover provided to automatically shut off transfer pump when solution tank is full?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Is filling of solution tank 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 any outside underground feed lines in secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. 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 any phosphate chemical in liquid form from a barrel or drum to a solution tank (if no bulk tank is provided)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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"/>
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**B. Project Checklist** (cont'd)

	Yes	No	N/A
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"/>
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**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"/>
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**Chapter 6.2.2 Specifications**

1. Do specs state that chemicals shall meet latest ANSI/AWWA and NSF 60 specifications for B502-05 Sodium Polyphosphate, Glassy (Sodium Hexametaphosphate), B503-05 Sodium Tripolyphosphate, B504-05 Monosodium Phosphate, Anhydrous, B505-05 Disodium Phosphate, Anhydrous, or B506-06 Zinc Orthophosphate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**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"/>
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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"/>
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**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"/>
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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"/>
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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"/>
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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"/>
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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	NA
6. Will a sufficient amount of spill absorbent be stored on site for any uncontrolled discharges?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Will a standard MassDEP operating procedure (SOP) for phosphate be posted in a protective shop envelope on the wall next to solution tank for the operator, and will the phosphate MSDS be available on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Chapter 6.4.4 Phosphate Compounds**

1. Will a mechanical mixer be available in phosphate solution tank (if recommended by chemical supplier)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Will phosphate solution tank have an overflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Will a source of protected water be available for mixing phosphate chemical?	<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"? ( <a href="http://www.mass.gov/dep/water/drinking/phdisreg.htm">http://www.mass.gov/dep/water/drinking/phdisreg.htm</a> )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is a representative labeled sample tap located 100 feet downstream available for daily phosphate 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 phosphate 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 phosphate 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? <a href="http://www.mass.gov/dep/water/laws/policies.htm#dwguid">http://www.mass.gov/dep/water/laws/policies.htm#dwguid</a> <a href="http://www.mass.gov/dep/water/drinking/systems.htm#emerresp">http://www.mass.gov/dep/water/drinking/systems.htm#emerresp</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**Other**

1. Will the PWS applicant prepare and submit to MassDEP monthly Chemical Addition reports for phosphate added pursuant to 310 CMR 22.15 (4) requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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**B. Project Checklist** (cont'd)

**9. Detailed Explanation**

Please attach a brief explanation for any question answered “No” and “N/A” in the checklist. The brief explanation should explain why the applicant/applicant’s engineer does not feel this item is necessary to maintain the integrity of the design and/or operation of the facility.

Detailed explanation of the following question(s) is attached:

Section #	Page #	Question #
_____	_____	_____
_____	_____	_____
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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

\_\_\_\_\_  
Signature/Stamp of Second Professional Engineer (if needed)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Employer

\_\_\_\_\_  
Employer

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
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