Seasonal Non-community Public Water System Start-up Activities

PWS ID:		City/Town:
PWS Name:		Person who performed/oversaw start-up procedure:
Prior year shut-down date:	Date checklist was completed:	Date system was opened for operation:

Instructions: All seasonal non-community public water systems must complete a start-up procedure as required by Massachusetts Drinking Water Regulations. The Seasonal Start-up Procedure and Certification form must be submitted to the appropriate MassDEP Regional Office after the start-up procedure has been completed and before the system serves water to the public. This checklist may be used to assist you with your start-up procedure. The Procedure/Recommendations column provides guidance on how to complete the start-up procedure and address problem areas. This checklist should be retained in the water system records.

Activity	Description	Done ✓	N/A ✓	Procedure / Recommendations
1. Pre-Inspection Activities	1.1 Review MassDEP Sample Schedule. Consult with MassDEP regional office if changes to the PWS Coliform Sampling Plan are necessary.			Start early so your opening is not delayed - at least one month before planning to begin serving water so there is time to make necessary repairs.
	1.2 Make arrangements for sample analysis by a certified lab			
	1.3 Reviewed and addressed all non-compliance issues from prior years.			
2. Initial Inspection				Do a thorough inspection to ensure the integrity of the entire system.
2.1 Well and pumphouse	2.1.1 Well cap is tight and secure			
	2.1.2 Pump house, if present, is locked and secure			
	2.1.3 Well casing is structurally sound			Look for cracks or corrosion in well casing.
	2.1.4 The well casing vent is turned downward and the screen is intact			
	2.1.5 Rodents and insects are being kept out of the well house			Look for signs of insects, rodents and other animals (droppings, chewed paper, or nesting materials) in the pump house and under the well cap, if it is not secure. Take measures to exclude animals such as keeping vegetation trimmed away from the well.
	2.1.6 Backup generator, liquid fuel and treatment chemicals are stored to capture any leaks in a secondary (backup) containment area			
	2.1.7 The sample tap does not leak and flows freely when opened			
	2.1.8 Chemicals (e.g. pesticides, fuels, solvents) are stored outside the well(s) Zone I			
	2.1.9 Verify water meter is working and properly located to track all water use.			Meter accuracy can be verified by pumping into a bucket or barrel of known volume and comparing it to the meter readings

	2.1.10 Determine that well pit is secure and sanitary (i.e., no signs of flooding, animals, insects)			
Activity	**Description**	**Done**	**N/A**	**Procedure / Recommendations**
2.2 Atmospheric Storage tanks	2.2.1 Tank(s) were visually inspected for corrosion and physical damage			
	2.2.2 The water level controls are functioning properly			
	2.2.3 The access hatches are locked and the hatch areas and lids are protected from insects			
	2.2.4 The tank(s) overflow pipes are screened, the screens are intact and the discharge is at least 12 inches above grade			
	2.2.5 The tank vents are turned downward and properly screened			
	2.2.6 Inside of the tank(s) was inspected and cleaned within the last five years			
	2.2.7 Necessary repairs were identified and completed			
	2.2.8 Animals (i.e., mammals, birds, bats, insects, reptiles, etc.) are being kept out of the tank			
	2.2.9 Insects and spiders are being kept out of the hatch area, especially on the inside of the lid			
	2.2.10 Storage tank(s) roof and sides are structurally intact without holes and cracks			
	2.2.11 Coating on inside and outside of the tank(s) is in good condition			
2.3 Pressure tanks	2.3.1 Tanks were visually inspected for corrosion and physical damage			Ensure that none of your pressure tanks are waterlogged (i.e. bladder has not been compromised)
	2.3.2 All valves, gauges and controls are functioning properly			
	2.3.3 Necessary repairs were identified and completed			
2.4 Distribution lines and valves	2.4.1 All accessible lines and equipment were visually inspected for signs of damage or corrosion			
	2.4.2 All valves were successfully opened and closed			
	2.4.3 All outdoor hose bibs have vacuum breakers			
	2.4.4 All yard hydrants are of an acceptable design and do not have weep holes			
	2.4.5 All testable backflow prevention devices have been tested the proper number of times by a certified tester within the past 12 months			
	2.4.6 System was checked for leaks			Read the source meter when the system use should be zero, such at 2 a.m., to get an estimate of leaks.

	2.4.7 All RV dump stations have an air gap provided			
	2.4.8 RV dump station drinking water lines can't reach the sewer pad			
Activity	**Description**	**Done**	**N/A**	**Procedure / Recommendations**
2.5 Chlorination (for systems that have permanent chlorination)	2.5.1 Chlorinator is pumping chlorine at an adequate dose throughout distribution			Test the free chlorine residual at least twice on separate days and evaluate results to ensure target doses and residuals are being met. Make adjustments as needed
	2.5.2 Treatment is working properly			http://www.mass.gov/eea/agencies/massdep/water/drinking/recommendations-for-private-wells-inundated-by-flooding.html
	2.5.3 Chlorine residual test kit is working and the reagents are fresh			
	2.5.4 All of the chlorinator tubing has been replaced within the last year			http://www.who.int/water_sanitation_health/hygiene/envsan/technotes/en/
	2.5.5 Chemical feed pump is working properly			http://www.mass.gov/eea/docs/dep/water/laws/a-thru-h/glchpt5.pdf (general information in MassDEP guidelines)
	2.5.6 Chemical injection points have been checked and cleaned			http://www.mass.gov/eea/docs/dep/water/laws/a-thru-h/glchpt8.pdf (tank guidelines include a short section on disinfection that references AWWA standard C652)
	2.5.7 Bought new chlorine solution and properly discarded last year's supply			AWWA Standard C651 provides detailed guidance and procedures for disinfecting components of a water system.
	2.5.8 Have enough Chemical Addition Report forms for the current year			
2.6 Treatment systems	2.6.1 All components have been visually inspected for damage			
	2.6.2 Chemical injection points have been checked and cleaned			
	2.6.3 Associated pumps and valves are working properly			
	2.6.4 Necessary NSF-approved chemicals are on-hand and not expired			
	2.6.5 Treatment unit is actually adding or removing the water quality parameter in question			Measure the parameter at least twice on separate days
3. Pressurize system	3.1 Well pumps operate properly			Turn on the power to the pumps and treatment equipment.
	3.2 System is fully pressurized			Run water through the entire water system by opening up hydrants, blow-off valves and faucets. The goal is to remove all air pockets and sediment so the water is clear.
				If present, ensure backup power system is

				operational.
	3.3 System is not leaking			Confirm that all pressure tanks are properly pressurized (check psi).
Activity	**Description**	**Done**	**N/A**	**Procedure / Recommendations**
	3.4 Chlorinator and any other treatment systems are operating properly			Verify that chemical feed rates are correct.
4. Initial Disinfection and flush	4.1 Fresh chlorine (sodium hypochlorite) was added and pumped throughout all tanks and distribution lines with sufficient concentration and retention time to disinfect the system. Chlorine must be NSF approved. Do not use any scented chlorine bleach.			10 mg/l free chlorine held overnight is recommended. **Additional guidance may be found at the end of this checklist.** Also, AWWA Standard C651-05 provides guidance for disinfecting water mains. Begin flushing with tap closest to the source. Flush all lines thoroughly but maintain 30 pounds per square inch (psi) of pressure. After flushing, a system that normally chlorinates should have normal chlorine residual levels.
	4.2 Entire system was flushed. Non-chlorinated systems must remove free chlorine to non-detectable level. Chlorinated water must be de-chlorinated prior to discharge into any water body, wetland, or drainage ditch.			
5. Collect total coliform samples				Systems that do not have a chlorine test kit to confirm that chlorine is not detectable can ensure chlorine is absent by waiting a period of seven days or more after flushing the system to take samples.
5.1 Chlorine levels before sampling	5.1.1 In non-chlorinated systems –chlorine is non-detectable.			
	5.1.2 In chlorinated systems –chlorine is at least 0.2 mg/l free chlorine and less than 4.0 mg/l.			
5.2 Collect special purpose TC samples	Collect coliform samples in accordance with the systems coliform sampling plan on file. If there is no routine site on the sampling plan representing the re-activated portion of the system, ensure additional special samples are collected at start-up representing the re-activated area(s) farthest downstream from the entry point. The sample(s) must be TC negative before serving water to the public. If any samples are TC positive, repeat disinfection, flushing and sampling procedure until only TC negative samples are obtained.			Multiple TC samples are recommended especially in distribution systems that are large or split into different sections. Ensure start-up sample collection includes sites representative of the re-activated portions of the system.
6. Complete Start-up Certification Form	Submit completed Seasonal Start-up Procedure and Certification form to the MassDEP office where the system is located) before serving water to the public. (add form link)			Keep a copy of this Checklist and Certification form with your water system records.