

DPH Approved Start-Up Procedures for Seasonal Public Water Systems



Seasonal systems are public water systems that start-up and shut-down at the end of the operating season by depressurizing and dewatering all or part of the distribution system. These systems will be required to conduct the DPH's approved water system start-up procedures provided below when the new federal Revised Total Coliform Rule (RTCR) takes effect on April 1st, 2016. The system owner must provide verification to the DPH that these start-up procedures were completed prior to serving water to the public. Thus, please consider the time required to conduct and complete the system inspection, necessary repairs, disinfection, flushing, and water quality testing when scheduling start-up procedures to assure that your anticipated opening date is met.

1) Water System Inspection:

Drilled Wells: Inspect the ground surface to ensure that it slopes away from the well to prevent standing water or the ponding of water. Inspect the well casing to ensure that it extends at least six inches above finished grade; is structurally intact; and is free of major pitting or corrosion. The procedures here http://www.ct.gov/dph/lib/dph/drinking_water/pdf/well_casing_extension.pdf must be used to raise a casing. Watertight caps that meet <https://www.watersystemscouncil.org/resources/well-standards/pas-97/> are required. Inspect the cap and conduit lines to ensure that a tight seal is formed to the casing. Inspect the vent to ensure that the screen is intact; adequately shielded; and in good condition to prevent foreign matter from entering the well. Inspect the sanitary seal of a well with a split plate to ensure that the seal is watertight; the electrical wiring is encased in approved conduit; and that the vent is screened, shielded, and terminated in an inverted "U" or "J" to prevent foreign matter from entering the well.

Dug Wells: When practical, dug wells should be replaced to reduce susceptibility to bacteriological contamination. Inspect the well to ensure that the tiles project at least six inches above grade; the cover is constructed of reinforced concrete at least four inches thick and overlaps the tiles by at least two inches to form a watertight seal; and no holes, cracks, or chips exist. Inspect mortared joints and sidewall penetrations for watertight construction and signs of leaks or deterioration during disinfection. If needed, remove foreign matter and seal deteriorated joints or sidewall penetrations with hydraulic cement or cement mortar.

Storage Tanks: Inspect to assure that the tanks appear to be structurally sound and are free of cracks; holes; denting; excessive pitting or corrosion; and signs of leakage (i.e. staining). If there is any question or concern in regards to the tank's integrity; a professional should be hired to evaluate the tank. Inspect the tank's interior lining after draining stagnant water and removing sediment and foreign matter from the base of the tank. The approval of the DPH and a National Sanitation Foundation (NSF) Standard 61 listed coating is required for tank relining. Do not under any circumstances attempt to enter or reline storage tanks unless the Office of Safety and Health Administration's (OSHA) confined space entry requirements are met. Inspect atmospheric tanks to verify there is no nesting vermin; the tank caps and covers are intact; the hatch is properly fitted and secured; and the air vent and overflow screens are intact, free of debris, and securely fastened and shielded to prevent foreign matter from entering. Inspect pressure tanks to ensure that they function properly and are not waterlogged. Inspect the pressure gauges to ensure that they are operational and functioning properly and then document the operating pressure range for each distribution system zone.

Treatment: Inspect treatment units for signs of leakage/seepage and sanitary conditions. The units must be operated according to manufacturer's instructions and treatment components <http://info.nsf.org/Certified/PwsComponents/> and treatment chemicals <http://info.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=&TradeName=&ChemicalName=&ProductFunction=&PlantState=&PlantCountry=&PlantRegion> must be NSF certified. Inspect the treatment chemical containers to assure that the containers are properly stored; have the manufacturer's original label; and are maintained in sanitary conditions. Inspect the chemical treatment feed units to ensure that 'no flow' sensors are installed to prevent chemical overfeeds if the water supply is interrupted or the water flow is reduced. Inspect the backwash lines to assure that the lines are equipped with adequate air gaps.

Well Houses/Pump Houses and Pits and Vaults: Inspect the facilities to ensure that yard equipment, gasoline, fuel oils, paints, etc. is not stored within. Inspect the electrical panels and controls to ensure rodents have not nested before activating. Inspect the pits and vaults to ensure that such facilities are watertight; adequately lit; vented; and suitably drained or equipped with a sump pump. Keep all facilities locked to prevent access of unauthorized individuals and ensure that water system valves are exercised.

Distribution System: Reconnect the distribution system; the service lines; any associated plumbing; and identify and eliminate dead end piping where possible. Then exercise the water system valves; inspect for leaks; and ensure that the distribution system is watertight. Exercise the water system valves and inspect to ensure that any required backflow prevention devices are in-place.

2) Water System Disinfection and Flushing:

Disinfection: Thoroughly disinfect the entire system including sources of supply, water storage tanks (see example C), and the distribution system using the guidelines found here: http://www.ct.gov/dph/lib/dph/drinking_water/pdf/Well_Disinfection.pdf.

Flushing: Thoroughly flush the distribution lines for at least 30 minutes and the service lines for at least 5 minutes. Following a thorough flushing of the entire distribution, the absence of chlorine residual must be verified using an approved testing method.

3) Water Quality Monitoring and Reporting:

Monitoring/Reporting: The initial compliance sampling requirements are that each distribution system must be sampled and tested for coliform bacteria and each **source** of supply must be sampled and tested for nitrate. A total coliform absent result is satisfactory. If the results are not satisfactory the system must conduct additional flushing and/or system disinfection and upon the verification of the absence of any chlorine residual resample until satisfactory results are achieved. Water cannot be served to the public prior to providing the verification to the DPH that states the required system start-up procedures were completed and satisfactory water quality test results were achieved. For routine compliance monitoring a seasonal system that monitors quarterly must designate the time period or periods for monitoring based on site-specific considerations, such as monitoring during the periods of highest demand or the highest vulnerability to contamination as documented in the sample siting plan.