MISSISSIPPI STATE DEPARTMENT OF HEALTH

MSDH Start-up Procedures for Non-Community Seasonal PWS

The United States Environmental Protection Agency's Revised Total Coliform Rule (RTCR) requires seasonal public water suppliers to implement a "state-approved start-up procedure." Starting April 1, 2016, seasonal systems that completely depressurize their distribution systems must start up with a state-approved procedure at the beginning of each operating season.

While all non-community public water suppliers that depressurize a portion of their distribution system(s) are expected to follow the practices outlined in the Mississippi State Department of Health's (MSDH) approved start-up procedure, **only those that completely depressurize their distribution system(s) are required to certify (document) its implementation.** MSDH must receive certification from the public water supplier that the state-approved start-up procedure has been completed.

Start-up at a seasonal public water supply is the appropriate time for a thorough examination of the water system's physical components. If repairs are needed, they can be accomplished prior to the start of the season without being an imposition on customers. Properly maintained systems are less likely to have water quality problems that can lead to disgruntled customers and/or increased regulatory oversight.

The sanitary condition of distribution system piping and components observed at the time of start-up is a indication of the condition in which the system was depressurized at the time of shutdown. While an appropriate shutdown procedure is not part of the seasonal start-up procedure, it is strongly encouraged to leave piping and components in as sanitary condition as possible when the system shuts down for the season. It is also important to keep in mind depending on the nature of start-up problems, specific licensed professionals may be needed to perform necessary repair work.

The MSDH approved procedure consists of the following required elements: a system inspection, an integrity check, and a thorough system flushing. Following this procedure will help ensure compliance with the RTCR and will assist the public water supplier to properly maintain the system.

*A **seasonal system** is a non-community public water supply that:*

- *Does not operate on a year-round basis and,*
- *Starts up and shuts down at the beginning and end of each season.*

*The intent of **state-approved start-up procedure:***

- *Provides public health protection by offsetting an increased contamination risk in water systems where piping and other system components are depressurized.*
- *Promotes proper maintenance and system self-inspection.*

Public water suppliers that completely depressurize** the distribution systems **must:

- ***Implement a** state-approved start-up procedure, and,*
- ***Certify** to MSDH compliance with the procedure before serving water to the public.*

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Failure to Conduct Approved Start-Up Procedures or Submit Certification

If a seasonal NCWS fails to conduct the state-approved start-up procedures prior to serving water to the public, a Coliform Treatment Technique Violation will be issued. Furthermore, that failure could result increased monitoring, and potential fines. Failure of a seasonal supply to submit the required start-up certification can also result in a reporting violation and potential fines.

Summary of Seasonal Supply Start-Up Procedures

Certification that the approved start-up procedures have been completed and the water is safe for public consumption is to be completed by the owner or a person designated by the owner. The owner is ultimately responsible for submitting the certification and providing safe drinking water.

Timing of Start-Up Procedures

The start-up of the water supply system should begin well in advance of the anticipated first day of public use. The start-up procedures may need to be performed more than once if coliform bacteria is found to be present in any of the pre-opening samples. Allow plenty of time for potential repairs, repeating these procedures, and for possible additional sampling before your anticipated opening day

Required Elements

System Inspection

- Look for any damage or evidence of contamination that may have occurred during the off-season.
- Evaluate the wellhead(s)
  - Verify that the well casing is structurally sound
  - Well cap is tightly attached
  - Vents are downturned with intact screens
  - Electrical conduit is securely in place
  - Physically clear all vegetation that may have grown around the wellhead(s). Do not spray herbicides or insecticides around the wellhead(s)
  - Ensure that no chemicals or other potential contaminant are stored near the wellhead
- Evaluate treatment equipment, distribution and plumbing systems
  - Evaluate equipment and distribution pipes, valves, and faucets for leaks
  - Well houses or well equipment rooms must be kept clean and not used a storage areas
- Evaluate storage/pressure tanks
  - Check for signs of cracks, excessive corrosion, or other defects
  - Drain tanks to remove any stagnant water, followed by proper disinfection
  - Once in service, verify that tank is not waterlogged
  - Note presence of pump "short cycling," unusual noises, vibrations, or excessive heat generation
- Evaluate for possible Cross-Connections meaning any connection of drinking water supply to any source not suitable for drinking
  - Inspect all air gaps and backflow preventers
  - Have testable backflow assemblies tested by a certified tester
  - Ensure that valves are exercised (turned off and on) and repair/replace as needed.

Integrity Check

Leaks in the system, especially in buried piping, provide potential conduits for contaminants to enter when the system is drained or when system pressure is lost. To help gain a better understanding of leakage within the distribution system(s), conduct an integrity check once the system is re-pressurized.

- After the distribution system is filled and pressurized, turn off all taps and the power supply to the well pump.
- Read the system's pressure gauge and write down the initial system pressure.
- After one hour, read the pressure gauge again and document the system pressure. Pressure loss over this one hour time span indicates leaks.

Some system leakage is expected, however locating and repairing leaks is strongly recommended. Ensure that repaired/replaced distribution system components are properly disinfected. Having the ability to isolate and then retest portions of the system (rather than the entire distribution system) can assist in locating leaks. Comparing pressure loss data from year to year can provide insight into the relative degree of leakage within the distribution systems. A functional pressure gauge is strongly recommended.

Flushing

Flushing is essential maintenance; it removes possible contaminants and debris from the system.

- Flush all wells and watermains for a minimum of 30 minutes.
- Waste this water to the ground surface rather than into a sewage treatment system. Be aware that adequate flow is necessary to effectively flush lines, therefore open sufficient taps to obtain maximum flow rate.
- Prior to flushing, remove all faucet strainers to prevent sediment from clogging them.
- If possible, flushing should progress from taps closest to the well and end at taps furthest from the well to ensure that clean water is used during flushing.
- Flush all service lines and building plumbing for a minimum of five minutes and the water runs clear. Large distribution systems may need to be flushed in sections one at a time in order to achieve adequate flow rates for effective flushing.
- It may be necessary to flush water to the ground surface to avoid potentially overloading the wastewater disposal system. Avoid creating a cross-connection by this action

Recommended Elements

System Disinfection

Water system disinfection is strongly encouraged by MSDH and is an optional step in the start-up procedure. Disinfection kills microorganisms that can be introduced during shut down or the off-season when the system is depressurized. Water system disinfection can be accomplished by introducing a solution of chlorine and water directly into the well, running it throughout the system, and allowing adequate contact time before flushing. For the MSDH recommended well disinfection procedure, refer to: http://msdh.ms.gov/msdhsite/_static/30,1937,76,225.html

Disinfection is not always feasible (e.g. flowing wells, wells containing drawdown seals, wells with packer-jets) or desirable due to corrosion potential or sedimentation within the well. In these cases, the distribution can be disinfected without introducing a disinfecting solution into the well itself. Consult with a

professional to determine how disinfecting the distribution system (and not the well) can be best accomplished.

Water Testing

On completion of a integrity test and the disinfection process, the system owner will be responsible for collecting at least two clear bacteriological water samples 24 hours apart from the supply's designated sampling location(s) within the distribution system. Depending on system size, additional samples may be required. Clear samples are defined as free of total coliform and e.coli bacteria.

Sampling of this type will help identify any water quality problems before opening and serving the public. If the water system has been disinfected, assure that all the chlorine is flushed from the system prior to collecting the sample to be analyzed. A chlorine test kit or test strips should be used to assure there is no chlorine residual in the water system. A list of laboratories certified to perform total coliform bacteria analyses on drinking water is located at:?

Once in operation, the system owner or his/her operator will be responsible for collecting a water sample(s) on a monthly basis to be tested for total coliform bacteria/e.Coli during the operating season.

Summary

- The Revised Total Coliform Rule takes effect on April 1, 2016.
- At that time, noncommunity seasonal public water systems that completely depressurize their distribution systems are required to follow the state-approved procedure and certify its implementation.
- Refer to the Seasonal System Start-up Procedure Checklist at for specific information.
- Contact the Bureau of Public Water Supply if you have questions about seasonal opening procedures.