

Start-up Procedure for Seasonal Public Water Systems

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." As of 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 noncommunity public water suppliers that depressurize a portion of their distribution system(s) are expected to follow the practices outlined in the Minnesota Department of Health (MDH) approved start-up procedure, **only those that completely depressurize their distribution system(s) are required to certify (document) its completion.** MDH 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 opportune 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 dissatisfied customers and/or increased regulatory oversight.

The sanitary condition of distribution system piping and components observed at the time of start-up is a reflection of the condition in which the system was depressurized at the time of shutdown. While a "shutdown plan" 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 that properly licensed professionals are required when plumbing and well repair work is done.

The MDH 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 in properly maintaining their system. Owners/operators of the system can perform all the required elements of the procedure; it is not necessary to contract with licensed professionals.

*A **seasonal system** is a noncommunity 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.*

*A **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 MDH that the procedure has been completed before serving water to the public.*

Required Elements

System Inspection

- Look for any damage or evidence of contamination that may have occurred during the off-season.
- Inspect the wellhead(s) and verify that the well casing is structurally sound, the well cap is tightly attached, vents are downturned with intact screens, and electrical conduit is securely in place.
- Assess water treatment equipment, storage tanks, and surface water intake (if applicable). It is recommended that non-pressurized storage tanks are disinfected. See the fact sheet at: [Cleaning and Disinfecting Non-Pressurized Water Storage Tanks \(https://www.health.state.mn.us/communities/environment/water/docs/ncom/stortankdisinfect.pdf\)](https://www.health.state.mn.us/communities/environment/water/docs/ncom/stortankdisinfect.pdf)
- Perform a walk-through of the distribution and plumbing systems.
- Observe pipes, valves, and backflow prevention devices. 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.

1. After the distribution system is filled and pressurized, turn off all taps and the power supply to the well and/or distribution system pump.
2. Read the system's pressure gauge and document the initial system pressure.
3. 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. **Keep all pressure readings on file.** Comparing pressure loss data from year to year can provide insight into the relative degree of leakage within the distribution systems.

Please note that a functional pressure gauge is required to perform this step of the start-up procedure.

Flushing

Flushing is essential maintenance; it removes 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 a sufficient number of taps to obtain maximum flow rate. If applicable, monitor the water level in any non-pressurized storage tanks so they do not run dry.
- Prior to flushing, remove all faucet strainers/aerators to prevent sediment from clogging them.
- If possible, flushing should start at taps closest to the well or storage tank and end at taps furthest from the well or storage tank 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, flush longer if necessary. Large distribution systems may need to be flushed in sections one at a time in order to achieve adequate flow rates for effective flushing.

Recommended Elements

System Disinfection

Water system disinfection is strongly encouraged by MDH 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 or into non-pressurized storage tanks, running it throughout the system, and allowing adequate contact time before flushing. Refer to: [Well Disinfection \(https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/disinfection.pdf\)](https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/disinfection.pdf)

Well 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

For systems on an annual (reduced) sampling schedule, your sanitarian will collect a water sample for total coliform bacteria during the operating season at the time of greatest vulnerability. **It is recommended that all public water suppliers also sample their drinking water prior to opening for the season.** This will help identify any water quality problems before opening and serving the public. If the water system has been disinfected, ensure 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 ensure there is no chlorine residual in the water system. This does not apply to systems that use continuous chlorination as part of their treatment process. For a list of certified laboratories, please see: [Environmental Laboratory Accreditation Program\(http://www.health.state.mn.us/labsearch\)](http://www.health.state.mn.us/labsearch)

Summary

- The Revised Total Coliform Rule took effect on April 1, 2016.
- All seasonal public water systems that completely depressurize their distribution systems are required to follow a state-approved procedure and certify its completion. A reminder notice will be sent to seasonal systems in April of each year. To certify, sign and return the notice to MDH or send an email to the address provided in the notice.
- Failure to complete an approved start-up procedure **and** notify MDH of its completion is a violation of the RTCR and will result in the system being placed on monthly total coliform monitoring.
- For additional information, refer to the **Start-up Procedure Checklist** and the **Revised Total Coliform Rule Summary** at: [Restaurants, Resorts, Campgrounds Transient \(https://www.health.state.mn.us/communities/environment/water/noncom/transient.html\)](https://www.health.state.mn.us/communities/environment/water/noncom/transient.html).
- Contact your sanitarian or engineer if you have questions about seasonal opening procedures. MDH contact information is available at: [Drinking Water Protection Contacts \(https://www.health.state.mn.us/communities/environment/water/org/index.htm\)](https://www.health.state.mn.us/communities/environment/water/org/index.htm).

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