Seasonal Public Water Systems

Start-up and Shutdown Checklist and Start-up Certification

Every seasonal water system that does not remain fully pressurized during the off-season must submit a certification of completing a State-approved start-up procedure after the system is re-pressurized, but before serving water to the public at the start of the operating season, in accordance with the Revised Total Coliform Rule [15A NCAC 18C Section .1539 (§141.854(i)(1)].

Use the attached checklist and certification to document your system's completion of our State-approved start-up procedure. Check the corresponding box for each procedure/task completed, and then certify that, at a minimum, the required start-up procedures (marked with an asterisk) were completed. **The start-up procedure must be completed annually. The checklist must be completed, certified, and submitted to the Public Water Supply Section prior to the system serving water to the public to receive full compliance credit**.

Please note that the failure to complete a State-approved start-up procedure prior to serving water to the public will result in a treatment technique violation for your system [Section .1539 (§141.860(b)(2)]. This treatment technique violation will require public notification to your customers within 30 days of the violation. Failure to provide certification that the checklist was completed or failure to certify the checklist prior to serving water to the public will result in a reporting violation [Section .1539 §141.860(d)(3), §141.861(a)(5)].

If you need assistance completing the State-approved start-up procedure, contact your regional office representative. You can look up your regional office's contact information by county at https://www.ncwater.org/?page=125.

We recommend that you use the checklist to perform shutdown procedures at your water system as well; however, implementation of shutdown procedures and the submittal of a certification of completion of shutdown procedures are not required.

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System Inspection

A routine inspection of the water system can help ensure that all components are operating properly. Most importantly, inspecting the system can protect public health by uncovering issues that could result in water quality problems.

Integrity Check

To help gain a better understanding of leakage within the distribution system, conduct an integrity check once the system is re-pressurized. 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 system.

Disinfection

If your water system does not continuously apply a disinfectant while in operation, disinfection before start-up is strongly recommended and, if performed, must precede flushing during 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 at start-up 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. Consult with a professional to determine how disinfecting the well, storage tank, and distribution system can be best accomplished in accordance with AWWA Standards C654 (for wells), C652 (for storage tanks), and C651 (for distribution systems). You are also encouraged to contact PWS Section regional staff for any advice concerning disinfection.

Flushing

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

Monitoring

In addition to collecting all required compliance samples during the operating season, sample(s) must be collected and analyzed for total coliforms/disinfectant residual, and result(s) must be “absent” of total coliform bacteria prior to opening for the season and serving water to the public. If sample(s) are collected during the water system’s scheduled compliance period, these samples may be used for compliance samples. Otherwise, make sure to label the sample(s) “non-compliance” and ask your laboratory to still submit the results to the Public Water Supply Section. For water systems that do not provide continuous disinfection after start-up, ensure that all chlorine is flushed from the system before collecting the sample(s) to be analyzed. A chlorine test kit or test strips should be used to ensure there is no chlorine residual in the water system. For systems that continuously apply chlorine as a singular disinfectant while in operation, at least 0.2 mg/L of free chlorine residual must be maintained at the entry point and at each total coliform sampling site within the distribution system.

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Start-up and Shutdown Checklist

Water System Name:
Water System No.:

System Inspection ***(Note: * tasks are required)***	**Start-up**	**Shutdown**
Verify that the pump house, if provided, and the well are protected from trespassers, e.g., locked and completely secure.	☐*	☐
Look for any damage or evidence of contamination, such as flooding, that may have occurred, and correct any problems.	☐*	☐
Inspect the wellhead(s) and verify that the well casing is structurally sound, the well cap is tightly attached, vents are in place and screened, and the electrical conduit is sealed.	☐*	☐
Inspect the water treatment equipment and storage tanks. Make sure the storage tank vents and overflows are screened.	☐*	☐
Perform a walk-through of the distribution and plumbing systems.	☐*	☐
Observe pipes, valves, and backflow prevention devices. Ensure that the valves are exercised (opened and closed) and repaired/replaced as needed.	☐*	☐

Integrity Check	**Start-up**	**Shutdown**
Turn off all taps and the power supply to the well pump after the distribution system is filled and pressurized.	☐	N/A
Read the system's pressure gauge, and write down the initial system pressure.	☐	N/A
Read the pressure gauge again after one hour, and document the system pressure. (Pressure loss over this one-hour time span indicates leaks.)	☐	N/A

Disinfection	**Start-up**	**Shutdown**
Introduce a chlorine solution directly into the well and run water throughout the system, allowing adequate contact time before flushing. Contact PWS Section regional staff or another water system professional for assistance with disinfection.	☐	N/A

Flushing ***(Note: * tasks are required)***	**Start-up**	**Shutdown**
Remove all faucet strainers prior to flushing to prevent sediment from clogging them.	☐*	N/A
Flush all wells and water mains. (A minimum of 30 minutes is recommended.)	☐*	N/A

Monitoring ***(Note: * tasks are required)***	**Start-up**	**Shutdown**
Prior to serving water to the public, a sample "absent" of total coliform (w/disinfectant residual, if applicable) must be collected. Recommended sampling locations include the wellhead, first customer, downstream of the storage tank, and at endpoints of the distribution system.	☐*	N/A
Verify your sampling schedules via Sampling Status or Drinking Water Watch on our website at https://pws.ncwater.org/WSReports.	☐	☐
Ensure all compliance samples have been collected and submitted to a North Carolina certified laboratory.	N/A	☐

Certification

Statement of Completion of State-approved Start-up Procedure for a Seasonal Public Water System

Water System Name:

Water System Number:

I hereby affirm that the required seasonal water system start-up procedures were implemented for the above water system prior to serving water to the public.

Date water system re-pressurized: _____
(Date that water pressure was restored to the entire water distribution system.)

"Absent" Total Coliform sample(s) collection date(s): _____
[with disinfectant residual, if applicable]
[Date(s) that water sample(s) were collected, and the results of the analyses (performed by a North Carolina certified laboratory) were "absent" of total coliform bacteria. "Absent" tests results are required prior to serving water to the public and for completion of the start-up procedure.]

Start-up procedure certification of completion date: _____
(Date when all required tasks on the start-up checklist were completed.)

Seasonal opening date: _____
(Date that the water system opened to the public and permitted access to the water.**)**

Anticipated closing date: _____
(Date that you plan to close the water system to the public for the season.)

Printed Name: _____ Position/Title:_____

Signature: _____ Date: _____

Relationship with the Water System (i.e. owner, operator, etc.): _____

Upon completion of the start-up procedure, <u>immediately submit the checklist and certification prior to serving water to the public</u> to the Public Water Supply Section's Total Coliform Rule Manager by one of the following methods:

- **By Mail:** Total Coliform Rule Manager, Public Water Supply Section, 1634 Mail Service Center, Raleigh, NC 27699-1634
- **By Email:** pwss.rtcr@ncdenr.gov
- **By Fax:** (919) 715-6637

For Public Water Supply Section's Use Only	
Date Received	
Date Entered into SDWIS	
Date Start-up Samples Received	