

# Start-up Procedures

## For Non-community Water Systems

September 2017

DOH 331-310  
Revised

Start-up procedures help ensure your water is safe to drink after a partial or full system shutdown. Start preparing your water system to open at least one month before you plan to serve water to customers. Use this time to evaluate the condition of the water system, make repairs, disinfect, and ensure the water system is free of coliform bacteria, following the steps listed below.

### Does your system completely depressurize for one or more months?

If yes, then your system is a Revised Total Coliform Rule (RTCR) “seasonal” system. You are required to certify you have completed a state-approved start-up procedure before serving water to the public each year. Contact your regional office if you are unsure this applies to you. See Seasonal Water System Start-Up Procedure Certification Form, DOH Pub. 331-560.

However, keep in mind that even systems that partially shut down or do not completely depressurize need to perform these start-up procedures when returning to routine operations.

All systems:

#### 1. Review your Water Facilities Inventory form (WFI) and Inspect the Water System

- Correct contact person, population figures, and other information, as needed, and send a copy to us. If you anticipate the schedule for your upcoming season of operation will differ from that shown on the WFI, please contact your regional office to discuss.
- Inspect all components of your water system, including your distribution lines. Identify potential problems using the *Small Water System Start-up Shut-down Self-Inspection Checklist\** (331-312). Repair any deficiencies you identify before you serve water.

#### 2. Activate the source and treatment

- Turn on the power to your pump and treatment equipment.
- Read and record the source meter on the checklist. If you don't have a source meter, arrange to have one installed as soon as possible.
- Measure the static water level in each groundwater source well. Disinfect the level probe, measure and record the result on the checklist. If you don't have a probe, ask your local health department if you can borrow one.
- **Chlorinated systems:** Purchase fresh chlorine, mix fresh feed solution, replace or clean all lines and parts, and verify the feed rate of the feed pump.
- **Other treatment:** Refer to the manufacturer, your written operating procedures, or call our regional engineer for instructions.

#### 3. Operate the water system

- Run water through the entire water system by opening up hydrants, blow-offs, and faucets. Make sure all pressure tanks are pressurized and each valve opens and closes.
- If people have access to the water during the start-up process, notify them start-up is in

progress and label accessible faucets as non-potable. If possible, disable accessible faucets during the start-up process.

#### 4. **Disinfect and flush**

- Disinfect and flush all sources, pressure tanks, storage tanks, and distribution lines. Refer to *Emergency Disinfection of Small Systems\** (331-242) for guidance.
  - **If anyone could drink** the water during the chlorination process, use 2 parts per million (ppm), and no more, of unscented household bleach (about  $\frac{3}{4}$  cup) for every 1,000 gallons of water in the system.
  - **If no one has access to the water**, use 5 ppm of unscented household bleach (about 1  $\frac{1}{2}$  cups) for every 1,000 gallons of water in the system.
  - Leave chlorinated water in the lines for at least 24 hours.
- Beginning with the tap closest to the source, flush all distribution lines thoroughly, away from all surface water such as lakes, streams, or ponds. Don't damage a pump by drawing water down below a pump intake level. If you have a storage tank, maintain 30 pounds per square inch of pressure in the lines.

#### 5. **Collect coliform samples**

- Measure the chlorine residual from taps or blow-offs throughout your distribution lines. You will need a chlorine residual test kit that measures from 0 to 3.5 ppm of "free chlorine." **Untreated systems** must not have any detectable free chlorine when coliform samples are collected. If you do detect chlorine, re-flush before collecting coliform samples. **Chlorinated systems** should have free chlorine residual at the "normal" operating level for the system (and greater than 0.2 ppm) when samples are collected.
- Collect several coliform samples at different locations in your distribution lines two weeks prior to opening. Refer to the *Coliform Sampling Procedure\** (331-225) for instructions.
- Check "Information Only" on the lab slip. These samples will not count for compliance.
- Re-evaluate the water system if any samples are unsatisfactory. Refer to *Troubleshooting Checklist for Coliform Contamination\** (331-180). Call our regional office for assistance.

#### 6. **Additional things to do**

- Add a calendar reminder early in the month to collect coliform samples based on the WFI Box 33. Be sure you know where and when to drop-off or mail your samples for testing.
- Collect other water quality tests (such as nitrate).
- Have all backflow prevention devices tested by certified tester. Make repairs, if needed.
- Refine treatment operations. Understand water flow rate, chemical feed rates, pressure differentials, and so on. Make sure treatment is removing or adding what it was designed to remove or treat. Test by measuring it.
- Calibrate all instruments.
- Inventory supplies. Order what you need for the entire season.
- Check the area where any treatment backwash discharges to ensure there is no blockage and water can drain freely. Make sure backwash water can't enter the water supply.

#### 7. **Provide drinking water**

When all sample results are satisfactory and the water system is operating as it should, you can start serving drinking water to the public. Take down any "non-potable" signs, and restore faucets that were temporarily disabled.

\*Available online at <https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm>

### **For more information**

#### **Call our regional office:**

**Northwest Region**  
Kent 253-295-6750

**Eastern Region**  
Spokane Valley 509-329-2100

**Southwest Region**  
Tumwater 360-236-3030