

Rivergrove Water District Standard for Disinfection of Water Mains

It is critical that new facilities be properly installed and disinfected to insure the water system for the District is not contaminated.

All work shall meet the requirements of OAR 333-061-0050 and AWWA C651-14. The District also requires actions as stated in this standard that may exceed the above references.

Rivergrove Water District personnel will operate the valve(s) that connect the new installation to the District water system. This is to ensure that District water supplies are not contaminated. The project inspector shall be notified the day prior to schedule operation of the valve(s). The installer shall contact Rivergrove Water District at (503) 635-6041. This service will be available Monday through Friday from 8:00 to 2:00 pm.

The installer will be responsible for the following:

- 1) Sampling taps shall be installed at a minimum spacing of 200 feet and a maximum 500 feet along continuous sections of pipe, at each end of a continuous section of pipe, and at dead ends of pipe that extend more than five feet from the primary distribution section. If a standard water service cannot be used for sampling the sampling tap shall be installed in accordance with Rivergrove Water District Standard plan for main line chlorination RGW-001.
- 2) Preliminary flushing shall be conducted prior to disinfection. It is required that recommendations on preliminary flushing in AWWA C651-14 be followed and that the time of day and length of flushing be recorded.
- 3) Install an injection point adjacent to the valve connecting the new water main to the existing District water supply. (Use RGW-001 detail.) Disinfection will be accomplished utilizing procedures and parameters for the Continuous Feed Method as outlined in AWWA C651-14. The chlorinated water shall be retained in the main for a minimum of 24 hours prior to the final flushing.
- 4) Prior to sampling, the installer shall contact an approved EPA certified lab to set up an account for all sampling charges.
- 5) After final flushing, samples must have a microbiological analysis for public water supplies under the drinking water requirements of the Oregon Health Authority Drinking Water Division and show the absence of coliform organisms. Two separate samplings will be required. The first sample set may be taken immediately following final flushing. Under supervision of Rivergrove Water District personnel, the installer may take the first sample from each sampling point and submit to an EPA certified laboratory for final analysis. A second sample set shall be taken a minimum of 24 hours following the final flushing,

which shall be at least 24 hours following the first sample set. An approved EPA certified laboratory will take this second sample from each sampling point and analyze each sample. All samples from both sample sets must show no coliform presence from all sample points. An original signed copy or carbon of the satisfactory test results must be provided to the Rivergrove Water District.

- 6) If the initial disinfection fails to produce satisfactory samples, disinfection actions in steps (2) through (4) above shall be repeated until satisfactory samples have been obtained. An original signed copy or carbon of the satisfactory test results must be provided to the Rivergrove Water District. After the Rivergrove Water District has received satisfactory test results from the installer/laboratory and all of the other applicable installation standards are complied with, the main will be placed in service.
- 7) Disinfection and pressure testing of potable water piping and appurtenances at end connections which are required to remain in service due to restrictions in allowable shutdown time shall be pressure tested and disinfected as described below:
 - A. Prior to connecting new potable water piping and appurtenances with existing piping and appurtenances, the interior of all new pipe, fittings, valves and appurtenances shall be swabbed or sprayed with a 1% to 5% percent calcium hypochlorite solution.
 - B. Following the disinfection procedures described above, connection of the new piping and appurtenances to the existing water system shall be made. During the system startup, Rivergrove Water District and the installer shall visually inspect all new fittings, piping, valves and appurtenances for evidence of leakage. Any leakage observed during this period shall be promptly repaired by the installer, at the installer's expense as required by Rivergrove Water District.
 - C. The water line shall be flushed thoroughly and the concentration of chlorine residual comparable to the normal level in the water system shall be re-established. Microbiological analysis shall be conducted as a record of the connection disinfection effectiveness.

It should be noted that fire hydrants connected to the newly installed water main are not considered available for fire protection needs until the water main has been placed in service by the Rivergrove Water District.

Upon completion, all temporary sample points shall be removed by the installer and inspected by Rivergrove Water District personnel.

RECOMMENDED PREVENTATIVE MEASURES DURING CONSTRUCTION:

1. **KEEP PIPE CLEAN**, take precautions to protect the interiors of pipes, fittings, and valves against contamination. The following are examples of such precautions,
 - A. Pipe delivered to the site for installation should be stored in a way that protects it from foreign material from contaminating the pipe, such as dust.
 - B. Do not install pipe in wet trench conditions. If this is not possible, the installer should take steps to ensure the pipe and fittings are kept as dry as possible during installation and not flooded with contaminated water, by the use of pumps and watertight plugs. Joints of all pipes in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the water is removed from the trench.
 - C. All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods.
 - D. Delay in placement of delivered pipe invites contamination. The more closely the date of delivery is correlated to that of pipe laying, the lower risk of contamination.
 - E. If dirt or other foreign materials enter the pipe from improper storage or installation, it should be removed and the pipe should be swabbed with a 1 percent hypochlorite disinfecting solution.
 - F. Before pressure testing, the main shall be properly flushed to remove air pockets and remove particulates that may be in the pipe. The flushing velocity of the main shall not be less than 2.5 ft/sec. The use of a hose in the flushing operation is strongly discouraged. Note: that proper flushing is no substitute for preventative measures during construction.