

Part 1 General

1.1 INTENT

- .1 This Section specifies services and material required for onsite, cleaning of new hot and cold domestic water system.

1.2 SUBMITTALS

- .1 Submit a written report of actual cleaning activities including:
 - .1 Times.
 - .2 System status.
 - .3 Problems encountered.
 - .4 Actions taken.
 - .5 Inspection results.

Part 2 Products – Not Used

Part 3 Execution

3.1 CLEANING - GENERAL

- .1 Maintain following conditions during cleaning process:
 - .1 Manual and automatic valves are in full open position.
 - .2 By-pass valves are operated to ensure full flow through entire system.
 - .3 Safety devices, including pressure relief valves are functioning.
 - .4 System is operated with a minimum pressure of 35 kPa(g) at highest point.

3.2 GENERAL CLEANING PROCEDURE

- .1 Flush system to remove loose debris and solder slag.

3.3 DOMESTIC HOT, COLD AND RECIRCULATING WATER SYSTEM CLEANING

- .1 Pipes intended to carry potable water shall be disinfected before being placed in service. Disinfection procedures shall conform to AWWA C651 as hereinafter modified or expanded, and the requirements of any governing agency having jurisdiction.
- .2 **Flushing:** Before disinfecting, the Mechanical Contractor shall flush all foreign matter from the pipeline. He/she shall provide hoses, pumps, temporary pipes, ditches, etc., as required to dispose of flushing water without causing damage to adjacent properties. The flushing velocities shall be at least 2.5 FPS. For large diameter pipe, where it is impractical or impossible to flush the pipe at 2.5 FPS velocity, the pipeline shall be cleaned in place from the inside by brushing and sweeping, the flushing the line at a lower velocity.
- .3 **Disinfection Mixture:** The Mechanical Contractor shall prepare the disinfection mixture with a chlorine-water solution having a free chlorine residual of 40 – 50 PPM. The disinfection mixture shall be prepared by injecting calcium or sodium hypochlorite and water into the piping and allowing it to flow at a measured rate so that water-chlorine solution is of the specified strength.
- .4 If the calcium hypochlorite procedure is used, first mix the dry powder with water to make a thick paste, then thin to approximately a one percent solution (10,000 PPM Chlorine). If the sodium hypochlorite procedure is used, dilute the liquid with water to obtain a one percent solution.
- .5 **Point of Application:** The chlorine mixture shall be injected into the piping to be treated at the beginning of the line, and through a corporation stop or suitable tap in the top of the line. Water from the existing system or other approved sources shall be controlled so as to flow slowly into the newly installed pipe during the application of chlorine. The rate of chlorine mixture flow shall be in such proportion to the rate of water entering the pipe that the combined mixture shall contain 40 – 50 PPM of free available chlorine. Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves shall be used if deemed necessary. A Specified Technical Sales Ltd. representative shall analyze and record the free chlorine residual at the farthest fixtures from the injection point.
- .6 **Retention Period:** Treated water shall be retained in the pipeline long enough to destroy all non-spore-forming bacteria. With proper flushing and the specified solution strength, 24 hours is adequate. At the end of the 24-hour period, the disinfection mixture shall have a strength of at least 25 PPM of chlorine.
- .7 The above procedure shall be repeated at the Mechanical Contractor's expense if the free chlorine level drops below the minimum requirements.
- .8 All valves, fixtures and other appurtenances shall be operated during disinfection to ensure that the disinfection mixture is dispersed into all parts of the line, including dead ends, new services and similar areas that otherwise may not receive the treated water. Specified Technical Sales Ltd. representative shall analyze and record the free chlorine residual at the farthest fixtures from the injection point.

- .9 After chlorination, the water from the line shall be flushed until it meets health department requirements.
- .10 Disposal of Disinfection Water: Disposal of disinfecting water shall be done in an approved manner. Disinfecting water should not be allowed to flow into a waterway without adequate dilution or other satisfactory method of reducing chlorine concentrations to a safe level.

END OF SECTION