

SECTION 100.40

CHLORINATION – DISINFECTION

DISINFECTING WATER MAINS

Disinfection shall not be completed until after successful completion of pressure testing per District Standards. Bacteria tests results shall be tested by Basic Lab. Bacteria test results shall be approved prior to connecting to the existing water system.

After final flushing and before the new main is connected to the distribution system, two consecutive samples taken 24 hours apart shall be collected from the new main for testing. A residual chlorine level of 10 MG/L or more shall be present after 24 hours. If residual level is less than 10 MG/L the disinfection process shall be repeated.

AWWA C651-05 – This standard presents essential procedures for disinfecting new and repaired water mains. All new water mains shall be disinfected before they are placed in service. All water mains taken out of service for inspection, repair, or other activity that might lead to contamination of water shall be disinfected before they are returned to service.

CHLORINATION OF NEW WATER MAINS BY TABLET METHOD

The District requires that new water mains be disinfected by the introduction of chlorine such that the final solution should have a residual of 50 MG/L (50PPM) and shall remain in contact for a minimum of 24 hours. This may be accomplished by the tablet method on small diameter mains.

The Tablet Method is described as follows:

1. Calcium Hypochlorite tablets shall be placed in each section of pipe, hydrants, and other appurtenances. The tablets shall be attached by an NSF approved adhesive. There shall be no adhesive on the tablet, except on the broad side attached to the surface of the pipe. If the tablets are attached before the pipe section is placed in the trench, their position shall be marked on the section, so it can be readily determined that the pipe is installed with the tablets at the top.

Chlorine concentration requirements can be achieved as follows:

NO. OF 5-G CALCIUM HYPOHLORITE TABLETS TO OBTAIN 50 PPM (BASED ON TABLETS CONTAINING 65% AVAILABLE CHLORINE)					
PIPE DIAMETER (INCHES)	LENGTH OF PIPE SECTION (FEET)				
	13' or Less	18'	20'	30'	40'
4	2	2	2	2	2
6	2	2	2	4	4
8	2	4	4	6	8
10	4	6	6	8	10
12	6	8	8	12	14
16	8	12	14	20	26

2. When installation has been completed, the main shall be filled with water at a rate such that water within the main will flow at a velocity no greater than 1 ft/sec. Precautions shall be taken to assure that air pockets are eliminated. This water shall remain in the pipe for at least 24 hours. If the water temperature is less than 41°F (5°C), the water shall remain in the pipe for at least 48 hours. Valves shall be positioned so that the strong chlorine solution in the treated main will not flow into water mains in active service.

3. At water tie-ins, minimum disinfection shall be achieved by swabbing the new pipe sections and fittings with 5% (5-percent) hypochlorite solution before installation and flushing the main from both directions. If possible, before returning the system to service.

NOTE: This information is a compilation of information from the AWWA Manual on Water Chlorination, and AWWA Standards C651-05.

DEWATERING

All flows from dewatering of pipelines shall be captured or diverted such that no flows directly or indirectly enter rivers, creeks, drainages, or storm drains without approval from both the State Regional Water Quality Control Board and the District. All dewatering shall be conducted with a de-chlorination diffuser. A permit shall be obtained from the City of Redding prior to dewatering into the City's Sanitary Sewer System.

DISINFECTION OF WATER STORAGE FACILITIES

Refer to AWWA C652-11.

DISINFECTION OF WELLS

Refer to AWWA C654-03.