CHAPTER 3.15
TESTING AND DISINFECTION OF WATER LINES

Sections:
3.15.005 General.
3.15.010 Testing.
3.15.015 Flushing.
3.15.020 Disinfection.

3.15.005 GENERAL. All culinary water lines shall be tested, flushed, and disinfected to the American Water Works Association (AWWA) ANSI/AWWA Standard C651-99 as outlined in this Chapter.

3.15.010 TESTING. Tests shall be made upon completion of system installation or any valves portion thereof. All tests shall be made at the expense of the Contractor and in the presence of the City Engineer or his representative.

A. Lines shall be slowly filled with water, no more than one (1) fps velocity, venting off all air. If required, taps shall be provided at line high points to bleed off the air, and after testing these shall be plugged. The line shall be pressurized to an amount equal to one hundred-fifty (150) percent of the normal static pressure of the system. This pressure shall remain steady for a period of two (2) hours for water line approval.

3.15.015 FLUSHING. After both pressure testing and chlorination, all pipelines shall be flushed. Flushing shall be accomplished through hydrants or, if a hydrant does not exist at the end of the line, the Contractor shall install a tap sufficient in size to provide for a 2.5 foot per second flushing velocity in the line. The following is the flow quantity required to provide a 2.5 foot per second flushing velocity:

Pipe Size (in.)	Flow (gpm)
2	26
4	100
6	220
8	390
10	610
12	880

3.15.020 DISINFECTION. After flushing, all culinary water lines shall be disinfected by chlorination. Chlorination shall provide a minimum of twenty-five (25) ppm residual after twenty-four (24) hours contact in the pipeline. This may be expected with an application of fifty (50) ppm, although some conditions may require more. Chlorine in the form of a one (1) percent slurry of high-test calcium hypochlorite (HTH, Perchloron, Pittchlor, etc. which are seventy (70) percent available chlorine by weight) shall be fed into the pipeline, in the presence of the City Engineer or his representative, in such a manner as to mix with the water flowing in the pipeline. (One (1) percent slurry -- 10,000 ppm -- results from mixing one pound of calcium hypochlorite with 8.40 gallons of water.) Or one of the other acceptable disinfection methods listed in the ANSI/AWWA C651-99 Standard.

A. The following table provides information as to the required quantity of slurry to be used per one hundred (100) feet of pipe to provide a chlorine concentration of fifty (50) ppm:

Pipe Size (inch)	Vol. of 100 ft. Length (gal.)	Req'd Amt. 1% Chlorine Solution/100 ft. of Pipe (gal.)
1½	9.18	0.07
2	16.32	0.12
2½	25.50	0.18
3	36.73	0.26
4	65.28	0.47
6	146.90	1.05
8	261.10	1.87
10	408.10	2.92
12	587.60	4.20

B. During the process of chlorinating the pipeline, all valves and other pipeline appurtenances shall be operated several times to provide sufficient contact with the chlorinating agent. Following chlorination, the water line shall be drained and thoroughly flushed and, if necessary, rechlorinated until a satisfactory bacteriological test is obtained and the appropriate bacteriological results are reported and turned into the City Engineer or his representative.

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