

SECTION 130

STERILIZATION

PART 1 - GENERAL

1.01 SCOPE

- A. Under this item the Contractor shall furnish all equipment, labor and materials including chlorine or chlorine compounds required for adequately sterilizing all units of the work. Unless otherwise specified, the water mains shall be treated in accordance with the latest AWWA Standard for disinfecting water mains, ANSI/AWWA C601, latest revisions.

PART 2 - PRODUCTS

2.01 STERILIZATION AGENT

The sterilization agent applied shall be free chlorine or a chlorine compound. The method of application and type of sterilizing agent shall be approved by the Engineer.

PART 3 - EXECUTION

3.01 STERILIZATION PROCEDURE

- A. Upon completion of the construction and installation of equipment, the Contractor shall sterilize all plant units, piping, pumps and connections thereto, all distribution system piping and storage tanks and any surfaces that shall be in contact with the potable water.
- B. Prior to sterilization, all surfaces shall be thoroughly flushed with clear water.
- C. Sterilization shall be accomplished by the application of clear water containing a minimum of 50 parts per million of available chlorine. The chlorine bearing water shall remain in contact with the surfaces being sterilized for a period of not less than 24 hours. At the end of the contact period the chlorine residual in all units and at extremities of pipelines and other representative points shall be at least 25 ppm.

APPLICATIONS OF 70% CHLORINE TO NEW WATER LINES FOR STERILIZATION

$$\text{VOLUME} = 0.785D^2H \text{ (IN CUBIC FEET)}$$

SIZE OF PIPE 100	DIAMETER FT	CUBIC FT/FT	GALS/FT	CHLORINE OZ PER
2"	0.1667 =	0.0218	0.16	0.15oz
4"	0.3333 =	0.0872	0.65	0.60oz
6"	0.5000 =	0.1963	1.47	1.37oz
8"	0.6700 =	0.3524	2.64	2.45oz
10"	0.8333 =	0.5451	4.08	3.79oz
12"	1.0000 =	0.7850	5.88	5.47oz
14"	1.1667 =	1.0685	8.01	7.45oz
16"	1.3333 =	1.3956	10.47	9.74oz
18"	1.5000 =	1.7663	13.25	12.32oz
20"	1.6667 =	2.1806	16.36	15.20oz
24"	2.0000 =	3.1400	23.55	21.90oz

- D. In the process of chlorinating newly constructed units and newly installed pipe, all valves or other appurtenances shall be operated while the units and pipelines are filled with the chlorinating agent.
- E. Upon completion of the sterilization procedure all units and piping shall be flushed with potable water until the chlorine residual remaining is 1.0 part per million or less and the replacement water throughout the units, upon suitable bacteriological tests, has proved to be of acceptable quality. This satisfactory quality of water should continue for two full days as demonstrated by laboratory examination of samples taken from a tap located and installed in such a way as to prevent outside contamination.
- F. No portion of new work shall be placed in service to consumers until sterilization has been completed and approved by the Engineer. Should the initial treatment fail to result in acceptable water, the chlorination procedure shall be repeated until satisfactory results are obtained.

3.02 UNITS TO BE STERILIZED

- A. All units of water treatment plants including all water piping, pumps, filter and clear well.
- B. Steel and/or concrete water storage tanks and connections.
- C. The entire water distribution system including:
 - 1. New pipelines
 - 2. Existing pipelines reconnected to new lines
 - 3. Filtered water supply lines
 - 4. Booster pumping stations.
- D. Potable water supply lines in sewage treatment plants and other structures.

**** END OF SECTION ****