CLEANING AND START-UP OF MECHANICAL PIPING SYSTEMS

1. GENERAL

1.1 Summary

.1 Section Includes:

.1 Procedures and cleaning solutions for cleaning mechanical piping systems.

1.2 Scope

.1 Provide for cleaning and disinfection of the new domestic water piping and systems.

.2 Provide all temporary strainers, connections and by-pass lines as required.

.3 Provide equipment to add chemicals to the systems as specified herein.

.4 Provide equipment to operate and control the system as specified herein.

1.3 References

.1 Do HVAC water treatment in accordance with ASME Boiler Code Section VII, and requirement and standards of regulating authorities, except where specified otherwise. American Society for Testing and Materials International (ASTM)

1.4 Submittals

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submittals to include:

.1 Submit shop drawings including proposed chemicals, quantities, procedures and equipment to be supplied. Provide written operating instructions and system schematics.

.2 Provide written report containing log and procedure of system cleaning, and giving times, dates, problems encountered and condition of water.

.3 Submit written report containing test results and list of chemicals added during cleaning and disinfection.

.4 Notify Contract Administrator 7 days prior to cleaning and disinfection so that work may be verified and reviewed.

1.5 Quality Assurance

.1 The water treatment cleaning and disinfection process shall be supplied and performed by the Contractor. This work shall be directed by the water treatment specialist. Who, upon

completion, shall certify that the process is satisfactory and submit a report outlining the cleaning operation and the treatment process.

1.6 Domestic Water Piping Cleaning and Disinfection Service

.1 The water treatment specialist shall provide instruction and direction for installation, set-up and adjustments, and shall submit a written report on system operations.

.2 The water treatment specialist shall provide necessary MSDS, test kits and log books.

2. PRODUCTS

2.1 Not used

3. EXECUTION

3.1 Pre-Operational Cleaning And Disinfection

.1 The Contractor shall disinfect pipes intended to carry potable water before being placed in service. Disinfection procedures shall conform to the requirements of any governing agency having jurisdiction.

.2 Properly isolate existing system from cleaning chemicals and foreign debris.

.3 Flushing:

.1 Before disinfecting, the mechanical contractor shall flush all foreign matter from the new pipeline and equipment. He/she shall provide hoses, pumps, 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, then flushing the line at a lower velocity.

.4 Lockout and Signage:

.1 Before disinfection the mechanical contractor will lock off the fixtures from use or post appropriate signage to warn that the water is non-potable during the disinfection procedure.

.5 Disinfection Mixture:

.1 The Contractor shall prepare a disinfection mixture of chlorine.

.6 Point of Application:

.1 The chlorine mixture shall then be introduced through the new distribution piping. 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. The chemical treatment specialist shall analyze and record the free available chlorine residual in the treated system.

.7 Retention Period:

.1 Treated water containing no less than 50 ppm free available chlorine 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 an adequate time allowance. At the end of the 24 hour period, the disinfection mixture shall have a strength of at least 20 ppm of free available chlorine.

.8 The water treatment specialist shall analyze and record the free chlorine residual of the tested system.

.9 The above procedure shall be repeated at the Contractor's expense if the free chlorine level drops below minimum requirements.

.10 After disinfection, the water from the line shall be flushed until it meets health department requirements, after which new potable water system may be connected to existing systems.

.11 Samples shall be drawn from the extremities of the systems and submitted to an independent lab for complete bacteriological analysis including total coliform and escherichia coli.

.12 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.

.13 Reports:

.1 A report shall be submitted to the Contract Administrator detailing the procedures followed and the results of the bacteriological analysis.

END OF SECTION