

**CLEANING AND START-UP OF MECHANICAL PIPING SYSTEMS**

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**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 degreasing of the chilled water related systems including:

- .1 All new and existing chilled water piping located in sub-basement mechanical room and piping serving the entire Administration Building. Chilled water piping to Council Building to be isolated with existing valves.

- .2 All new and existing condenser water piping.

.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.

**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 every 14 days from time of commissioning to Total Performance.

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

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**1.5 Quality Assurance**

- .1 The water treatment cleaning and treatment 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.
- .2 Standard of acceptance for chemical cleaners and inhibitors: G.E. Water.

**1.6 Water Treatment 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 instruct the maintenance personnel before Substantial Performance. Written instructions of the treatment, dosage control charts and test procedures shall be included in the maintenance manuals.
- .3 The water treatment specialist shall supply initial chemical until the time of Total Performance.
- .4 The water treatment specialist shall provide necessary MSDS, test kits and log books.

**2. PRODUCTS**

**2.1 Materials**

- .1 System cleaner: Ferroquest FQ7103 (Neutral pH cleaner to remove oil, grease, rust and mill scale).
- .2 Closed system corrosion inhibitor: Corrshield MD4102
- .3 Provide necessary MSDS, test kits and log books for testing inhibitor levels.

**3. EXECUTION**

**3.1 Pre-Operational Cleaning And Chemical Treatment**

- .1 All systems outlined in scope above must be chemically cleaned and flushed before water treatment is added. This includes partial or complete filling for pressure testing.
- .2 After all components of the piping system have been pressure tested and proven to be in full operational condition and leak free, flush entire system with fresh clean make-up water to remove loose mill scale, sediment and construction debris.
- .3 Provide drain connections to drain system in one hour. Install totalizing water meter to record capacity in each system
- .4 All drains for chemical treatment shall be piped to the nearest floor drain.
- .5 After initial flushing has been completed, clean all strainer screens

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- .6 Add cleaner to closed systems at concentration levels recommended by the water treatment specialist
- .7 After cleaning, drain system as rapidly as possible. Flush system by opening drain valves and opening bypass valve on water make-up to system. Continue flushing until tests show pH, iron, TDS and chloride levels of water leaving system are the same as entering system. Refill and immediately add water treatment to proper level.

**END OF SECTION**