1. GENERAL

1.1 Summary

.1 Section Includes:

.1 Materials, components, equipment and chemicals for installation of complete HVAC water treatment system.

1.2 References

.1 American Society of Mechanical Engineers (ASME)

.1 ASME Boiler and Pressure Vessel Code, Section VII.

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM A 790/A 790M-10, Standard Specification for Seamless and Welded Ferritic/Ausenitic Stainless Steel Pipe

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.3 Submittals

.1 Product Data:

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

.1 Submit Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.2 Shop Drawings:

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit shop drawings with complete description of proposed chemicals, quantities, calculations, procedures, test kits and equipment to be supplied. Along with product shop drawings, provide copies of data sheets, procedure instructions and analysis reports to be used on this project.

.3 Submit written reports containing results of tests taken seven days after completion of chemical treatment.

.4 Provide monthly site visits within the warranty year to check the treatment, take samples, analyze and recommend proper addition of treatment. Provide written reports to Contract Administrator.

.5 Closeout Submittals:

.1 Submit operation and maintenance data for incorporation into manual specified in Section 01 33 00 - Submittal Procedures.

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

.2 Provide chemical treatment as specified herein and provide written reports. Reports shall be signed by the chemical treatment agency, mechanical contractor and commissioning agency.

.3 Chemical treatment agency shall provide directive and assistance to the Contractor in the cleaning and chemical treatment of all piping systems. Permanent equipment shall be flushed, degreased and chemically treated independent of the piping systems.

2. PRODUCTS

2.1 Materials

.1 Provide sufficient chemicals to treat and test the systems from the time of activation and acceptance of the building for the first year of operation by the owner.

.2 Materials which may contact finished areas shall be colorless and non-staining. Chemicals used must comply with environmental and health standards applicable to the usage on this project.

.3 System Cleaner: Fresh Domestic Water with inhibitor.

.4 Cooling Tower scale and corrosion inhibitor: Continuum AEC3139 provide ten (10) 24 kg pails.

.5 Cooling Tower Biocide: Spectrus OX1205C provide ten (10) 23 kg pails.

.6 Cooling Tower Biodispersant: Spectrus BD1504 provide two (2) 23 kg pails.

2.2 Equipment

.1 Promtrac cooling tower controller with a single powered relay and three pulse speed control relays with single inhibitor feed based on water meter input, bleed or % time with overfeed protection, conductivity based bleed relay, two application pulse relays (below), flow switch/status input, 2 line display and 5 key universal keypad.

.1 Selected options:

.1 Base: Cond control - inhibitor feed

.2 Application: ORP & Single Biocide Timer

.3 Expansion Option: None

.4 Remote communications: none

.2 Prominent combined conductivity, temperature and flow sensor rated for 100psi (CTF)

.3 Prominent ORP Sensor Package

.4 Three Prominent Concept Plus chemical feed pump solenoid-driven diaphragm-metering pump. Adjustment of the pump capacity is via the stroke length in the range of 10 to 100% or can be set at 1 of 4 stroke frequency settings. This gives an adjustment ratio of 1:40. Liquid end materials available in Polypropylene with EPDM seals, and Acrylic with Viton seals.

.1 Selected options:

.1 Liquid end materials: PVDF (Kynar)

.2 Seals: PTFE seals

.3 Liquid end version: W/ bleed valve, w/o valve springs

.4 Connection: Standard

.5 Labeling: Standard w/ logo

.6 Electrical connection: 1 ph 115V 50/60 Hz

.7 External retrofit kit: External retrofit kit pre-installed

.8 Accessories: With accessories

.9 Approval: UL and CSA Approvals

.5 Above products to be factory mounted and prewired to the Prominent Controller - Injection Backplane:

.1 3/8" thick white Polypropylene, wall mounted backplane sized to fit function

.2 Input and output 3/4" ball valves and PVC slip unions

.3 Plumbed in 3/4"SCH80 Solvent welded PVC pipe and fittings rated to 100 psi

.4 Injectors with 3/4"x1/2"PVC threaded reducers

.5 Sensors installed upstream of Injectors

.6 Pump shelves, non metallic

.7 Chemical injection T's

.6 Prominent pulse 2” water meter factory preset to k=10

.7 Belimo B220TFX120US 120 vac motorized ball bleed valve

.8 Three prominent 60 litre chemical dose tanks

.1 UV stabilized polyethylene

.2 litre and gallon graduations,

.3 thread on polyethylene closure

2.3 Test Kits

.1 All test kits shall be provided with adequate chemicals and reagents for one year of testing.

.2 Provide test kits as required to determine proper system treatment consisting of but not limited to the following:

.3 Cooling tower water treatment test kit GE Water L2880 low range Mo pocket colorimeter to determine proper inhibitor level.

.4 Cooling tower biocide treatment test kit GE Water L6251 to determine proper biocide level.

.5 Provide a conductivity meter GE Water L1592 to verify the conductivity level of the open recirculating water.

3. EXECUTION

3.1 Installation

.1 All pipework between the water treatment unit and connection to the condenser mains shall be in schedule 10S stainless steel tube (316) with screwed fittings.

3.1 System Cleaning

.1 Install water treatment feed/bleed equipment as per Specified Technical Sales recommendations.

.2 Install start-up strainers, up stream of the circulator pumps.

.3 Fill the piping with clean domestic water, dump the water to drain.

.4 Repeat step 3 until the flush water is clear then refill with water.

3.2 Start Up Procedure

.1 Initially add corrosion inhibitor to the system through the tower or other access. Calculate for 200 ppm dosage by volume.

.2 Call Specified Technical Sales Ltd. at this point to prove the operation of the water treatment control equipment and to train the operators in its operation.

.3 The tower and circulator pumps may be started up now and implement the inhibitor/biocide program as normal.

.4 Lower the conductivity set point to approx. 2/3 normal.

.5 Run the inhibitor level at 150% normal for the first week. Run the biocide level as normal.

.6 Test system water daily and adjust feed rates as necessary.

.7 Clean the strainers every 48 hours for the first week, then replace with standard strainers.

END OF SECTION