SECTION 15189

CHEMICAL WATER TREATMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Packaged Side Stream Filter.

1.02 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide chemical treatment materials, chemicals, and equipment including electrical characteristics and connection requirements.

C. Shop Drawings: Indicate system schematic, equipment locations, and controls schematics, electrical characteristics and connection requirements.

D. Manufacturer's Installation Instructions: Indicate placement of equipment in systems, piping configuration, and connection requirements.

E. Project Record Documents: Record actual locations of equipment and piping, including sampling points and location of chemical injectors.

1.03 QUALITY ASSURANCE

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable code for addition of non-potable chemicals to building mechanical systems and to public sewage systems.

B. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

1.05 MAINTENANCE MATERIALS

A. See Section 01600 - Product Requirements, for additional provisions.

B. Provide 2 additional bags for side stream filter.

PART 2 PRODUCTS

2.01 PACKAGED SIDE-STREAM FILTRATION SYSTEM

A. Manufacturers:
   1. Lakos.
   2. Substitutions: See Section 01600 - Product Requirements.

B. System:
   1. The separator package shall provide direct pumping through a specific centrifugal-action solids-from-liquid separator and immediate return of flow to system flow.
   2. Separated solids shall be continuously bled from the separator's collection chamber into the package's integral solids recovery vessel and solids collection bag.
   3. Excess liquid shall pass through the bag and return to system flow via piping connected to the package's pump suction line. Alternatively, the separated solids may be purged periodically to desired disposal with an automatic purge valve.
   4. System fluid shall exit the separator by following the center vortex in the separation barrel and spiral upward to the separator outlet.

C. Pump: End-suction, single stage; TEFC motor; cast iron housing; iron impeller; bronze shaft sleeve; BUNA-N mechanical shaft seal; flooded suction required.

D. Separator: Centrifugal-action design, incorporating a true tangential inlet and mutually tangential Swirlex internal accelerating slots, employed to promote the proper velocity necessary for the removal of the separable solids. The internal accelerating slots shall be spiral-cut for optimum flow transfer, laminar action and particle influence into the separation barrel. The separator's internal vortex shall allow this process to occur without wear to the accelerating slots.
   1. Separated particle matter shall spiral downward along the perimeter of the inner separation barrel, in a manner which does not promote wear of the separation barrel, and into the solids collection chamber, located below the vortex deflector plate.

E. Performance: In a single pass through the separator, given solids with a specific gravity of 2.6 and water at 1.0, performance shall be as scheduled. Additionally, particles finer in size, heavier by specific gravity and some lighter by specific gravity will also be removed, resulting in an appreciable aggregate removal of particles (up to 75%) as fine as 5 microns.

F. Solids collection vessel: Housing shall be 304 stainless steel with stainless steel basket and coated carbon steel lid with air pressure relief valve; 25-micron fiberfelt solids collection bag. Flow control orifice included. Solids capacity: 360 cubic inches (6 liters).

G. An Indicator Package, sensing pressure differential through the solids recovery vessel, shall identify when the internal bag requires cleaning/replacement.
   1. Provide indicator gauge may be supplemented with a dry electric contact in order to operate a light or audible signal when bag servicing is required.

H. Piping: Schedule 40 galvanized carbon steel; reinforced rubber hose to solids recovery vessel.

I. Electrical control: IEC starter with overload module; HOA selector switch; NEMA-4x enclosure; re-set/disconnect/trip switch; 120 volt, single phase control voltage; CSA-approved.

J. Power requirement:See schedule.

K. Valves: Ball valves on purge line for isolation of solids-handling/purging equipment.

L. Optional inlet/outlet valve kit: Butterfly valve on inlet and outlet (globe valve on outlet of TBI-0065 only).

M. Skid plate: Structural steel framework.

N. Maximum working pressure: 125 psi (8.6 bar).

O. Maximum operating temperature: 100º F (38º C).

PART 3 EXECUTION

3.01 PREPARATION

A. Systems shall be operational, filled, started, and vented prior to cleaning. Use water meter to record capacity in each system.

B. Place terminal control valves in open position during cleaning.

C. Verify that electric power is available and of the correct characteristics.

3.02 CLEANING SEQUENCE

A. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed. Include disassembly of components as required.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION