

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Caustic solution pump and accessories for pH control.
- B. Injection Pumps.
- C. Caustic Storage Tanks
- D. Curtain containment system.

1.02 RELATED SECTIONS

- A. Section 220553 - Identification for Mechanical Piping & Equipment
- B. Section 221113 - Facility Piping
- C. Section 463383 – Chemical Pump Tables

1.03 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Shop Drawings: Submit manufacturer's literature - catalog cuts, installation instruction, wiring diagrams and operations & maintenance manuals.

1.04 OPERATION AND MAINTENANCE DATA

- A. Operation Data: Indicate proper operating instructions and procedures.
- B. Maintenance Data: Indicate types and methods of lubrication, cleaning, schedules, spare parts list and local parts supplier.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Do not remove manufacturer's packaging until product is ready to be installed.
- B. Do not store product directly on the ground.
- C. Store product on a firm, level surface.

1.06 COORDINATION

- A. Coordinate with all other adjacent electrical and mechanical work.

1.07 WARRANTY

- A. Provide manufacturer's standard warranty.
- B. Warranty to include coverage for materials.

1.08 EXTRA MATERIALS

- A. Provide one (1) standard manufacturer's pump spare kit for each pump installed along with the following spare parts for each pump: lubricant, v-belt, oil, union nut and half union.

- B. Provide one (1) standard manufacturer's preventive maintenance valve kit for each injection pump installed.
- C. Provide one (2) speed controllers.

PART 2 - PRODUCTS

2.01 SODIUM HYDROXIDE TREATMENT PUMP (TWO (2) PRE IRON REMOVAL)

- A. Install two (2) caustic metering pump in the location indicated on the drawings.
- B. Caustic metering pumps shall be motor driven, positive displacement type with mechanically actuated diaphragm furnished by **Encore 700, model #E7B3DACSA1** or equal. Pump shall have 2-inch head, PVC, NPT connection, clear Tyril with Hypalon diaphragm, PVC retainer, S.S. seats, S.S. balls, Hypalon O-rings. Separate manual stroke length control shall allow in-motion capacity adjustment of 0 to 100 percent, maximum speed of 144 strokes per minute, rated capacity of up to 24.2 gph, at 175 psig. **A/C Inverter Duty Motor** shall be, 1/2 Hp, TEFC enclosure, NEMA frame 48. Direct Coupled 230/480VAC, single phase, 60 Hz, CSA listed with re-settable thermal overload switch. Metering pump shall be provided with enclosed gear reducer and manually adjustable 3 step cone pulleys and v-belt drive for wide range of speed changes.
- C.
 - 1. Each pump shall be equipped with 10-foot length of cord with NEMA 120 volt, 20 amp, single phase twist-lock plug, for matching receptacle.
 - 2. **Two (2) VFD INVERTEK DRIVES**, 120 VAC-single phase, 3-phase output. **All wiring included.**
 - 3. Provide standard manufacturers preventative maintenance kit for each pump.
 - 4. Provide standard manufacturers pump discharge anti-siphon valve.
 - 5. Provide plastic base

2.02 SODIUM HYDROXIDE TREATMENT PUMP (TWO (2) POST-IRON REMOVAL)

- A. Install two (2) caustic metering pump in the location indicated on the drawings.
- B. Caustic metering pumps shall be motor driven, positive displacement type with mechanically actuated diaphragm furnished by **Encore 700, model #E7B3DACSA1** or equal. Pump shall have 2-inch head, PVC, NPT connection, clear Tyril with Hypalon diaphragm, PVC retainer, S.S. seats, S.S. balls, Hypalon O-rings. Separate manual stroke length control shall allow in-motion capacity adjustment of 0 to 100 percent, maximum speed of 144 strokes per minute, rated capacity of up to 24.2 gph, at 175 psig. **A/C Duty Motor** shall be, 1/2 Hp, TEFC enclosure, NEMA frame 48. Direct Coupled 230/480VAC, single phase, 60 Hz, CSA listed with re-settable thermal overload switch. Metering pump shall be provided with enclosed gear reducer and manually adjustable 3 step cone pulleys and v-belt drive for wide range of speed changes.
- C.
 - 1. Each pump shall be equipped with 10-foot length of cord with NEMA 120 volt, 20 amp, single phase twist-lock plug, for matching receptacle.
 - 2. Feed rate adjustment will be by stroke length adjustment over a 10:1 range. Feed rate adjustment shall be slide rule type scale graduated 0 to 100 percent with a micrometer to indicate setting. Device to be fitted with locknut to prevent feed rate change after setting.
 - 3. Provide standard manufacturers preventative maintenance kit for each pump.
 - 4. Provide standard manufacturers pump discharge anti-siphon valve.

2.03 CURTAIN CONTAINMENT SYSTEM

- A. Frame mount heavy duty 30 mil translucent polyethylene sheet around and above treatment tables/shelves. Frame shall be Type 316 stainless steel pipe. Fasteners shall be stainless steel.

2.04 ACCESSORIES

- A. Injector: for injecting sodium hypochlorite solution directly into the treated water stream, provide non-fouling injector tube assembly for 3/4 inch corporation stop. Constructed of schedule 80 gray PVC Hypalon and EPDM seals, PVC braided tubing, Hypalon poppet, brass chain and having an integral check valve. Suitable for 150 psig max, pressure and 125 SSU viscosity max.

2.05 STAINLESS STEEL PIPING AND ACCESSORIES

- A. All wetted parts of piping, valves and accessories shall be compatible with 50 percent caustic.
- B. All fittings shall be either PVC or Black Iron

PART 3 - EXECUTION

3.01 MANUFACTURER'S FIELD SERVICE

- A. Provide manufacturer's field services under provisions of Section 017500.
- B. Manufacturer shall provide a trained service technician for one day to verify proper installation, to start the system and to demonstrate operation to the Owner's designated representatives.
- C. Schedule demonstration with the Owner.

3.02 INSTALLATION

- A. A Petro-Tite test of the tank aboveground is required. Pressure should not exceed 5 pounds per square inch (psig) while a soap solution is applied to weld seams
- B. Abandonment or installation shall not commence until NCHD permit to construct is obtained by the owner.
- C. Install pumps in accordance with manufacturer's recommendations.
- D. Install sodium hydroxide pumps on tables/shelves as indicated on the Drawings.
- E. Protect equipment from damage until accepted by the Owner.
- F. All pumps and piping runs shall be braced, properly supported, neat and orderly in appearance and parallel to walls and floors where possible. The Contractor may make minor deviations from the plans to achieve this when necessary.

3.03 NOTIFICATION AND START-UP

- A. The Contractor shall notify the Engineer in writing a minimum of six (6) days prior to installation of the tank. This is to allow the required minimum five (5) day notification of the Nassau County Department of Health Services.
- B. The Contractor shall coordinate his actions with the Health Department and the Engineer to allow observation of all significant phases of construction and testing.

- C. Provide all materials and labor to startup and test all alarms, instruments, pumps, piping, valves, and tanks associated with the new and/or modified treatment systems.
- D. Demonstrate system operation to Owner.

3.04 WARRANTY

- A. Caustic tank shall be provided with standard manufacturer's warranty against leakage from corrosion. Warranty shall meet the standards of STI and copies of the STI warranty and supporting documents shall be delivered to the Owner prior to final payment on the project. The serial number of the tank and corresponding warranty shall be registered with STI.

END OF SECTION 463312.23