

SECTION 11305

SAMPLERS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide two (2) automatic sampling units including automatic wastewater samplers, refrigerated sample collectors, and sampling chambers and all necessary piping, pumps, connections, controls, mounts, valves, motors, and appurtenances for a complete and operable installation, in accordance with the requirements of the Contract Documents.
 - 1. Install one (1) sampler unit inside the West Gallery near the East / West Splitter Box
 - 2. Install one (1) sampler unit inside the lower floor of the North Blower Building

1.02 QUALITY ASSURANCE

- A. Comply with applicable portions of Section 15050.
- B. Provide components that are the standard product of a manufacturer regularly engaged in the production of the required materials and equipment.
 - 1. A single manufacturer shall provide all components.
 - 2. The manufacturer shall be responsible for the design, construction and proper operation of all components.
- C. Comply with applicable standards.
 - 1. American National Standards Institute (ANSI)
 - 2. American Society for Testing Materials (ASTM)
 - 3. American Water Works Association (AWWA)
 - 4. Anti-Friction Bearing MANUFACTURERS Association (AFBMA)
 - 5. Hydraulic Institute Standards
 - 6. National Electrical Code (NEC)
 - 7. National Electrical MANUFACTURERS Association (NEMA)
 - 8. Occupational Safety and Health Administration (OSHA)
 - 9. Underwriters Laboratories, Inc. (UL)

- D. Design to provide satisfactory performance under the specified operating conditions.

1.03 SUBMITTALS

- A. Comply with Section 01300. Include the following information:
 - 1. Make, model, and weight of each sampler including pumps, motors and appurtenances.
 - 2. Manufacturer's catalog information that describes each type of sampler provided. Include
 - a. Specifications
 - b. A complete bill of materials that identifies all materials of construction.
 - c. Shop drawings and dimension drawings
 - 3. Pump performance curves showing the following:
 - a. Head vs. capacity
 - b. Horsepower vs. capacity
 - c. Pump efficiency vs. capacity
 - 4. Special shipping, storage, protection, and handling instructions.
 - 5. A list of manufacturer's recommended parts required to maintain the equipment for a period of one year, with current price information.
 - 6. A list of special tools, materials, and supplies furnished with the equipment for use prior to and during startup, and for future maintenance.
 - 7. Manufacturer's installation instructions.
- B. Submit Operation and Maintenance Manuals in accordance with Section 01210.
 - 1. A list of manufacturer's recommended parts required to maintain the equipment for a period of one year, with current price information.
 - 2. A list of special tools, materials, and supplies furnished with the equipment for use prior to and during startup, and for future maintenance.
 - 3. Manufacturer's installation instructions.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, handle, and store the equipment in accordance with Section 01600.

1.05 SPECIAL TOOLS AND SPARE PARTS

- A. Comply with Section 01750.
 - 1. Provide spare parts recommended by the manufacturer
- B. Furnish one complete set of special tools required to disassemble, service, repair, and adjust the equipment. A special tool shall be any item that is not readily available through a commercial tool supplier such as Snap-On or Mac tools.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. America SIGMA 900
- B. Teledyne Isco 4700
- C. Or Equal.

2.02 GENERAL

- A. Each sampler shall be a self-contained, factory pre-wired, floor-standing unit with the sampler located above the refrigerated sample collector. The sampler shall be the peristaltic pump type. Each unit shall be mounted in an all-weather cabinet, suitable for both indoor and outdoor applications, that provides a minimum of one inch of clearance between the floor and the bottom of the refrigerated sample collector.
- B. Sampling Capacity: Each sampler shall be capable of drawing a liquid sample at a rate not less than 2 ft/sec at a vertical lift of 25 feet, through a minimum 3/8-inch inside diameter tube.
- C. Each sampler shall be equipped with a pull-out bottle tray and sample collector. Each refrigerated collector shall include 24 1-L PE containers with distributor. Each refrigerated collector shall be capable of maintaining a temperature in the collector compartment between 4 degree C and 10 degree C. The sampler control will automatically shut down when the collector is full.

2.03 EQUIPMENT TAG

- A. East / West Sampler 4-7100-SAM
- B. North Sampler 5-7500-SAM

2.04 SAMPLE PUMP

- A. General: Each sampler shall be equipped with a sampling pump to alternately produce suction and a pressure condition in the sampling line.

- B. Pump Design and Construction: Each pump shall be of the peristaltic, dual roller type with a capacity, suction lift, and discharge head sufficient for the sampling system of the unit. The peristaltic pump shall be made of reinforced engineering plastic for corrosion resistance, with a minimum suction head of 28 ft.
- C. Pump Motor: Each motor shall be 1800 rpm, TEFC and shall not be overloaded when the pump is operated at any point on the H/Q curve within the recommended operating range of the pump. The motor shall operate on 115-volt, single-phase, 60-Hz power.
- D. Sample Tube: Each sampler shall be equipped with a length of vinyl, Teflon, or black PVC nylon-reinforced flexible plastic tubing and a 316 stainless steel strainer suitable for connection with the sampling chamber. Inside diameter of the tubing shall not be less than 3/8-inch. The tubing shall be connected using stainless steel hose clamps.
- E. Liquid Sensor: Non-contact sensor detects liquid sample to automatically compensate for changes in head heights.

2.05 REFRIGERATED UNIT

- A. Enclosure: Each sampler/controller shall be enclosed in a watertight reinforced fiberglass or LLDPE cabinet for anti-corrosive and UV resistance environment, and shall comply with NEMA 4X specifications. The cabinet shall contain access doors with locking mechanism. All equipment within the cabinet shall be easily accessible for maintenance
- B. Comply with the latest NEMA, IEEE, ANSI, and AFBMA Standards where applicable, and meet the requirements of Section 16050.
- C. Power Supply: Each sampler shall operate on 115-volt, single-phase, 60-Hz power with thermal overload protection, and it shall be supplied with a waterproof electrical junction box attached to the exterior for pickup of power, with power cord and plug, flow signal, status signal, and grounding wires.

2.06 CONTROLLER

- A. Operating Modes: Each sampler shall be capable of operating in any of the following 3 modes:
 - (1) Flow proportional basis from an external 4-20mA input signal.
 - (2) Timed basis from an internal clock.
 - (3) Manual basis by activation of a switch on the sampler.
- B. Include user interface with graphic display and internal battery.
- C. Status Display: low battery, low memory power, plugged intake, jammed distributor arm, sample collected and purge failure.

- D. Intake purge: air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths.
- E. Intake Rinse: intake line automatically rinsing with source liquid prior to each sample, up to 3 rinses.
- F. Intake Retries: if no sample is detected on initial attempt, sample collection cycle automatically repeated from 1 to 3 times.
- G. Controller shall be capable of self-diagnostics and data-logging.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install the sampler and appurtenances in accordance with the instructions of the manufacturer and in accordance with the Contract Documents.
- B. Pipe all pump drainage to the nearest floor drain.
- C. The Contractor shall provide the services of a qualified representative of the manufacturer for not less than one day to check the installed units and instruct the Owner's operating personnel.

END OF SECTION