

SECTION 13320

WASTEWATER COMPOSITE SAMPLERS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope

1. Furnish and install two (2) refrigerated automatic wastewater samplers including, but not limited to:
 - a. Sampler container
 - b. Sample bottles
 - c. Sampler controller
 - d. Sample suction tubing
 - e. Furnish complete automatic sampler system
 - f. Furnish specified spare parts
2. Location
 - a. Influent sampler to be located in Headworks Building electrical equipment and control room (interior installation)
 - b. Effluent sampler to be located in Pumping & Disinfection Building
3. Coordination: Coordinate entire installations

B. Additional Requirements Specified Elsewhere

1. Section 01010: Summary of Work
2. Section 01340: Shop Drawings, Product Data and Samples
3. Section 01400: Quality Control
4. Section 01600: Materials and Equipment
5. Section 01730: Operating and Maintenance Data

C. Related Requirements Specified Elsewhere

1. Section 05500: Metal Fabrications
2. Section 05501: Anchor Bolts and Drilled-In Anchors
3. Section 07900: Joint Sealants
4. Section 13300: Utility Control System
5. Section 15060: Pipe and Pipe Fittings
6. Division 16: Electrical

1.2 QUALITY ASSURANCE

A. Acceptable Suppliers

1. Designed, coordinated, and supplied by a single responsible manufacturer or supplier of metering, sampling and control systems

B. Reference Standards

1. ISA: Instrument Society of America

C. Design Basis

1. ISCO 4700 Refrigerated Sampler
2. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items

1.3 SUBMITTALS

A. In accordance with Section 01340

B. Shop drawings and product data

1. Sufficient data to verify compliance with these specifications and to illustrate construction and assembly of the products
2. Complete fabrication, assembly, foundation and installation drawings and installation instructions
3. Detailed specifications and data describing all instruments, materials, parts, devices and accessories utilized in the complete composite sampler assembly
4. Composite sampler
 - a. Name of manufacturer
 - b. Type and model
 - c. Materials of construction
 - d. Equipment components
 - e. Accessories
 - f. Dimensions
 - g. Equipment weight
 - h. Anchor bolt layout and size
 - i. All performance criteria, operation and options for flow-based or time-based composite sample collection
5. Electrical wiring and control system diagrams and drawings
6. List of spare parts to be furnished

C. Certification of Compliance

1. Manufacturer's affidavit of compliance certifying
 - a. All equipment and materials comply with these specifications with any exceptions noted
 - b. Equipment has been properly installed and is operating within specification tolerances
 - c. All tests have been performed with satisfactory results

D. Operating and Maintenance Manuals in accordance with Section 01730

PART 2 - PRODUCTS

2.1 WASTEWATER COMPOSITE SAMPLER

A. General

1. Automatic sampler capable of sequential or composite sampling
2. Unit to draw samples from open channels and route samples to storage bottles for collection
3. Line power operation: 120 VAC, single phase, 60 Hz
4. Suitable for indoor installation or outdoor installation without additional enclosure for weather protection

B. Refrigeration Unit

1. Copper refrigeration lines with polyester or resin coating
2. Condenser coil polyester powder coated
3. Double wall LLDPE cabinet
4. Non-CFC refrigerant
5. Urethane insulation
6. Lockable door with magnetic gasket
7. Capable of refrigeration and heating to maintain internal temperature of 39° F under ambient conditions of -20° F to +120° F
8. Suitable for year-round outdoor use

C. Sample Controller

1. Enclosure: NEMA 4X, mounted on refrigerator housing
2. Display to indicate sampler status and program information
3. Battery backup for controller memory
4. User initiated diagnostics routine capabilities
5. Signal input from flow meters: 4 to 20 mA DC

D. Sample Pump

1. Minimum Suction Lift: 25'
2. Minimum Suction Velocity: 2.5 feet per second
3. Body: ABS Plastic
4. Capable of multiple suction line air or liquid purgings before and after sample is taken
5. Sample stream to be direct from sampled channel to sample bottle.
6. Accuracy: Repeatable sample volumes to ± 5 ml.
7. Sample Volume: Programmable from 10 ml to 990 ml.
8. Liquid Detector: Non-wetted, non-conductive detector to monitor the presence of liquid during sample collection sequence
9. Programming
 - a. User programmable to collect sequential or composite samples
 - b. Sample collection initiation delay programmable from 0 to 9,999 minutes
 - c. Minimum 24 sample times, programmable
 - d. Capable of storing up to 5 sample routines
 - e. Uniform sampling at regular intervals from 1 minute to 99 hours

- f. Flow paced sampling for flow proportional composite sample
 - 1) 4 to 20 mA DC signal from flow monitoring system transmitter
- g. Provide with extended programming
 - 1) Real time sampling
 - 2) Line rinse: 0 to 3 times
- 10. Sample bottle float shutoff device
- 11. Data storage
 - a. Program settings
 - b. Sampling event results
 - c. Indicate on controller display
- 12. Power requirements
 - a. 120 V AC, single phase, 60 Hz
- 13. Tubing: 3/8" I.D. vinyl suction tubing
 - a. End strainer: weighted polypropylene
- 14. Bottles:
 - a. One (1) 2.5 gallon polyethylene bottle compatible for use with composite sampler
 - b. One (1) 24 -bottle cartridge with 24, 350 ml glass bottles, bottle carrier and accessories compatible for sequential sampling

2.2 SPARE PARTS

- A. Packaged in containers suitable for long term storage and bearing labels clearly designating contents and pieces of equipment for which the part is intended
- B. Furnish all spare parts recommended by the manufacturer
- C. The following spare parts to be furnished as a minimum
 - 1. Sample bottles
 - a. Three (3) 2.5 gallon polyethylene bottles
 - b. 24 - 350 ml glass sequential sample bottles with bottle carrier
 - 2. Tubing
 - a. 50 feet of 3/8" I.D. vinyl suction tubing

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install all equipment in accordance with manufacturer's instructions and recommendations and as specified herein
 - 1. Provide a complete, functioning and operational system
 - 2. Provide signal converters and boosters as required
 - 3. Assure adequate and minimum recommend clearance to adjacent surfaces and equipment
 - 4. Provide gas-tight, removable sealant at suction tubing-wall sleeve annulus
 - a. Install sealant at each end of wall sleeve

- B. Take special care to maintain proper alignment of all components
 - 1. Correct any misalignment, noisy operation or other indication of improper setting
- C. Remove all grease, dirt, excess paint, etc. from equipment prior to final acceptance
- D. Take precautions, as necessary, to properly protect all equipment from damage
 - 1. Installed equipment to be protected from further construction operations

3.2 FIELD QUALITY CONTROL

- A. Provide manufacturer's field services in accordance with Section 01400
- B. Provide all necessary facilities, equipment and accommodations to program, test, calibrate and train Owner's personnel in proper operation and maintenance prior to startup of treatment plant operation

END OF SECTION