

PART 1 - GENERAL

- 1.1 GENERAL .1 This section contains the requirements for the supply, installation, testing and commissioning of electric piston-rod collection pumps, controls and motors.
- .2 This Section is to be read in conjunction with the provided process and instrumentation drawings and general arrangement drawings.
- 1.2 MEASUREMENT AND PAYMENT .1 Payment for provision of all items specified in this Section shall be by Lot Price. No separate payment will be made for work specified in the Contract Documents. All costs incurred by Contractor in meeting with the requirements of this Section shall be included in the bid price for the Work.
- 1.3 SUBMITTALS .1 Submit Shop Drawings in accordance with Section 01 33 00.
- .2 Provide Operation and Maintenance (O&M) Data for incorporation in the O&M Manual as specified in Sections 01 33 00 and 01 45 00.
- 1.4 COORDINATION .1 Coordinate with other Divisions to ensure that there is no conflict with the work.
- 1.5 SHIPMENT, PROTECTION, AND STORAGE .1 Accept pumps, motors, and accessories in original shipping containers and inspect for damage. Refer to and fill out Form 100 in Appendix Q.
- .2 Unload equipment and store in a cool dry place protected from damage by the elements.

PART 2 - PRODUCTS

- 2.1 DESIGN .1 Pumps to be electric piston-rod well collection pumps.
- .1 Supply and install two pumps (one duty pump and one stand-by pump) in the Leachate Pump Station Cell No.1.
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- 2.1 DESIGN (Cont'd)
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 - .1 Maximum flow: 1.44 m3/h
 - .2 Design Head: 12.0 m
 - .3 Tag No.:
 - .1 LP - P-01510.
 - .2 LP - P-01520.
 - .2 Supply and install two pumps (one duty pump and one stand-by pump) in the Leachate Pump Station Cell No.2.
 - .1 Maximum flow: 1.44 m3/h
 - .2 Design Head: 12.0 m
 - .3 Tag No.:
 - .1 LP - P-01510.
 - .2 LP - P-01520.
 - .2 The supply of process pumps under this Section shall come from a single Manufacturer.
- 2.2 PUMP OPERATION
- .1 The pump shall remove Leachate from a well casing of 324 mm diameter HDPE pipe.
 - .2 The fluid inlet shall be located at the bottom of the pump intake cylinder and be capable of removing Leachate to 0 submergence depth.
 - .3 Leachate shall be discharged through the eductor pipe and surface discharge tee.
- 2.3 MATERIALS OF CONSTRUCTION
- .1 Standard materials of construction shall be stainless steel, Buna Nitrile Seal, Delrin, fiberglass, and stainless steel.
- 2.4 ELECTRIC POWER
- .1 Required voltage: 400v / 3ph / 50Hz.
 - .2 No electric power shall enter into well.
- 2.5 PUMP MOTOR/ACTUATOR
- .1 Pump Electric Motor shall be a totally enclosed fan cooled motor.
 - .2 Electric motor shall be explosion proof and rated for variable speed control.
 - .3 The electric motor and linear actuator shall be located above surface grade on top of the well head.
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2.5 PUMP MOTOR/
ACTUATOR
(Cont'd)

- .4 The linear actuator shall reciprocate up and down providing mechanical power to the down hole piston pump via a fiberglass drive rod.

2.6 PUMP INTERNAL

- .1 The fluid discharge pipe (eductor pipe) for the pump will be HDPE or steel and shall serve as the tension member between the top and bottom of the pump.
- .2 The bottom Piston Pump with foot valve assembly of stainless steel and Delrin construction are to be provided.
- .3 The continuous fiberglass sucker-rod and rod connection assembly to be provided.
- .4 Both the foot valve and drive piston valve shall be free floating, self cleaning ball check valves.
- .5 Stainless steel screen.
- .6 Viton seal kits for seal plate and piston.

2.7 FINISHES

- .1 Finish in accordance with Section 43 90 10 and Section 43 90 20.

2.8 CONTROL PANEL

- .1 Local control panels are to be included in the Vendor Packages, as indicated on Drawings.
 - .2 Provide NEMA 4x 316 stainless steel enclosure for indoor duty, for each pump system as noted on contract drawings. Panels shall be in conformance with the requirements of Division 26.
 - .3 Provide the following hardwired I/O from the PLC:
 - .1 Pump 1 running status.
 - .2 Pump 2 running status.
 - .3 Fault alarm (contact opens in alarm conditions).
 - .4 High High level alarm (contact opens in alarm condition).
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- 2.9 SPARE PARTS .1 Provide a list of all spare parts which would be expected to be required under normal conditions for a period of five (5) years. At the Departmental Representative's request, provide a price for these parts.

PART 3 - EXECUTION

- 3.1 MANUFACTURER'S REPRESENTATIVE .1 Manufacturer's Representative shall be required to attend the site to instruct the Contractor, witness the installation and supervise testing, to ensure the equipment is installed and operated as intended, and provide training to the staff of the Departmental Representative.
- .2 Duties of the Manufacturer's Representative include, but are not limited to the following:
- .1 Installation Training: Instruct the Contractor in the methods and precautions to be followed in the installation of the pump. Attest to the Contractor's understanding of installation requirements as required by Form 101 in Appendix Q.
 - .2 Installation: Ensure that the pump is installed as required to provide satisfactory service. Cooperate with the Contractor as documented by Form 102 in Appendix Q.
 - .3 Testing: Support the Contractor to ensure and verify that the pump, including all component parts, operates as intended. Cooperate with the Contractor to fulfill the requirements for satisfactory performance of the equipment as documented by Form 103 in Appendix Q.
 - .4 Commissioning: Attend the commissioning of the process system which includes the pump specified in this section to ensure that the pump functions as intended in the process system.
- .3 Factory Acceptance Testing:
- .1 Prior to shipping, conduct factory performance testing. The testing shall include the complete pump assembly, including pump, variable speed drive and motor.
 - .2 Arrange and pay for Departmental Representative to witness factory testing.
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- 3.1 MANUFACTURER'S REPRESENTATIVE (Cont'd) .3 (Cont'd)
.3 Prepare and submit to the Departmental Representative for review a report showing all test results.
- 3.2 FACTORY ACCEPTANCE TESTING .1 Prior to shipping, ensure that factory performance testing is carried out and that the equipment meets the specified requirements.
.2 Ensure that witnessing of factory testing by a Departmental Representative is arranged well in advance.
- 3.3 INSTALLATION .1 Ensure the pump is installed as required to provide satisfactory service. Coordinate work with all affected disciplines.
.2 Complete and submit documentation in accordance with Form 102 in Appendix Q.
- 3.4 TESTING .1 Ensure that the pump, including all component parts, operates as intended.
.2 Fulfill the requirements for satisfactory performance of the equipment as documented by Form 103 in Appendix Q.
- 3.5 COMMISSIONING .1 Commission the pumps specified in this section to ensure that the pump functions as intended in the process system.
- 3.6 TRAINING .1 Train staff designated by the Departmental Representative in the operation and maintenance of the equipment.
.2 Use a complete set of draft operations and maintenance manuals for the equipment as part of training instruction materials.