

## SECTION 02534

### PUMP STATION TESTING

#### PART 1 GENERAL

##### 1.01 SCOPE

- A. The Contractor shall test sewage pump station, to the complete satisfaction of the Engineer, prior to final acceptance by the Department.
- B. The Contractor shall provide start-up service to place the pumps and controls in proper operation. During this service, the operation of the equipment will be reviewed and the station will be inspected for proper installation and operation. This service shall be provided by a representative of the manufacturer. The Contractor shall inform the Department 48-hours prior to commencement of such services. These services shall be at no additional cost to the Department.

#### PART 2 PRODUCTS

(Not Used)

#### PART 3 EXECUTION

##### 3.01 GENERAL

- A. The Engineer and the Contractor shall jointly be present to witness test for determination of conformance with approved plans and specifications.
- B. The Contractor shall notify the Department a minimum of forty-eight (48) hours in advance of the test.

##### 3.02 PROCEDURE FOR TESTING SEWAGE PUMP STATION

- A. The Contractor shall be responsible for testing the pump station in the manner described below:
  - 1. Place the operating mode selector switch in the manual position.
  - 2. Fill wet well with water.
  - 3. Start and stop each pump sequentially and then both pumps together. While doing this, add water to the wet well as necessary.
  - 4. With water level lower than pump's shut-off point, place selector switch to automatic position.
  - 5. Fill wet well slowly. Observe lead pump run.
  - 6. Increase water flow into wet well for lag pump to run.
  - 7. Stop pouring water into wet well and observe as both pumps shut off at the pre-selected levels.
  - 8. Disconnect power to pumps and fill wet well to alarm level and make sure it operates.
  - 9. Disconnect level controller and check that the lead pump is turned "on" and "off" at the proper levels by the float switches.

- B. If the above parts of the test show that any component is not operating as intended, make necessary adjustments and/or repairs and repeat steps 1 through 9, until the entire system operates trouble free.
- C. Fill the wet-well with water to the invert of the influent pipe. Leave it full of water for at least two hours. If the water level goes down, locate and repair the leak to the satisfaction of the Department. Repeat test to insure absence of leaks.

### 3.03 GENERATOR START-UP

- A. Upon completion of the initial start-up and system checkout, perform a field test, with the Engineer notified in advance, to prove full specified power, stability, voltage and frequency. The test shall run for four hours using a portable, dry resistive load bank capable of incremental loading. Use the load bank instrumentation to check the meters on the generator. The generator set shall be able to take its full rated KW load when applied in one step. The generator set shall also run continuously for four hours with all available load connected through the automatic load transfer switch. Records shall be maintained through the testing periods on coolant temperature, lubricating oil pressure, ambient air temperature, voltage, current, frequency and kilowatts. Record the data at fifteen minute intervals through the tests. There shall be a thirty minute unloaded run at the conclusion of each test to allow the engine to cool down before shutdown. Three copies of the field tests data shall be furnished to the Engineer. The generator set shall also be tested under a simulated power failure to check that the transfer sequence operates satisfactorily.

### 3.04 CERTIFICATIONS

- A. At the time of final acceptance inspection, and in addition to all other submittals required by the specifications, the Contractor shall furnish the following to the Engineer:
  - 1. Submit letter from electrical panel manufacturer certifying that:
    - a. The electrical panel has been inspected at the jobsite, after complete installation.
    - b. The electrical panel and its components match approved shop drawings and are in compliance with the project's plans and specifications.
    - c. The electrical panel and its components have not been modified, changed or altered in any way, shape, or form as to void the Underwriter Laboratory "UL" listing.
    - d. The electrical panel and its components are safe to energize and operate.
  - 2. Submit letter from the Contractor certifying that:
    - a. The electrical panel has been installed in accordance with the Department's standards and these specifications.
    - b. External wiring has been terminated inside the panel at the

designated "Terminal Boxes," in accordance with the approved electrical schematic and/or shop drawings.

- c. The electrical panel and its components have not been modified, changed or altered in any way, shape, or form as to void the Underwriter's Laboratory "UL" listing.
- d. The electrical panel and its components match approved shop drawings and are in compliance with the Department's specifications.
- e. The electrical wiring schematic and control schematic are current and reflect all approved field modifications made, if any.
- f. The electrical panel associated electrical equipment are safe to energize and operate.

**END OF SECTION**