

SECTION 01660 - EQUIPMENT TESTING AND PLANT START-UP

PART 1 - GENERAL

1.1 GENERAL

- A. Equipment testing and plant start-up is requisite to satisfactory completion of the contract and, therefore, shall be completed within the Contract Time.

1.2 EQUIPMENT TESTING

- A. The CONTRACTOR shall provide the services of an experienced and authorized representative of the manufacturer of each item of equipment indicated in the equipment schedules (excluding manually-operated valves smaller than 24 inches in size, injectors, tanks, batch-type disc meters, and rotameters, and any other minor items of equipment specifically exempted by the ENGINEER in writing), who shall visit the site of the WORK and inspect, check, adjust if necessary, and approve the equipment installation. In each case, the CONTRACTOR shall arrange to have the manufacturer's representative revisit the job site as often as necessary until any and all trouble is corrected and the equipment installation and operation are satisfactory to the ENGINEER.
- B. The CONTRACTOR shall require that each manufacturer's representative furnish to the ENGINEER a written report addressed to the OWNER certifying that the equipment has been properly installed and lubricated, is in accurate alignment, is free from any undue stress imposed by connecting piping or anchor bolts, and has been operated satisfactorily under full-load conditions.
- C. The CONTRACTOR shall be responsible for scheduling all operations testing. The CONTRACTOR is advised that the ENGINEER and the OWNER's operating personnel will witness operations testing and that the manufacturer's representative shall be required to instruct the OWNER's operating personnel in correct operation and maintenance procedures. Such instruction shall be scheduled at a time arranged with the OWNER at least two weeks in advance and shall be provided while the respective manufacturer's equipment is fully operational. On-site instruction shall be given by qualified persons who have been made familiar in advance with the equipment and systems in the plant. Prior to scheduling any operations testing, the CONTRACTOR shall have previously furnished the OWNER's Manuals required under Section 01300 - Contractor Submittals.
- D. The CONTRACTOR shall notify the ENGINEER at least three (3) days in advance of each equipment test.
- E. The CONTRACTOR shall furnish all personnel, power, water, chemicals, fuel, oil, grease, and all other necessary equipment, facilities, and services required for conducting the tests.

1.3 PLANT START-UP

- A. The start-up of a treatment plant is a highly complex operation requiring the combined technical expertise of the CONTRACTOR, manufacturers, Subcontractors, the ENGINEER, and the OWNER. The CONTRACTOR shall provide the effective coordination of all parties necessary for the successful plant start-up.

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- B. It is not the intent of the ENGINEER to instruct the CONTRACTOR in the start-up of the plant; however, the ENGINEER will be available prior to and during start-up to provide technical support to the CONTRACTOR.
- C. The CONTRACTOR shall be required to start-up the plant, under direction of the OWNER, operate it, and pass a seven (7) day test prior to acceptance. All equipment must properly run continuously 24 hours per day for the test period at rates indicated by the ENGINEER. If any item malfunctions during the test, the item shall be repaired and the test restarted at day zero with no credit given for the operating time before the aforementioned malfunction.
- D. Not less than three (3) months prior to start-up, the CONTRACTOR shall submit to the ENGINEER for review, a detailed schedule of operations which will be necessary to effect a successful initial operation and sustained period of operation for the duration of the required start-up period.
- E. The CONTRACTOR shall provide operating personnel for the duration of the start-up. Additionally, the CONTRACTOR shall provide all water, power, chemicals, and other consumables required for the test.
- F. The start-up shall not be commenced until all required leakage tests and equipment tests have been completed to the satisfaction of the ENGINEER.
- G. All defects in materials or quality of WORK which appear during this test period shall be immediately corrected by the CONTRACTOR. Time lost for equipment repairs, wiring corrections, control point settings, or other reasons which actually interrupt the start-up may, at the discretion of the ENGINEER, be justifiable cause for extending the start-up test duration.
- H. During the start-up, the CONTRACTOR shall provide the services of authorized representatives of the manufacturers, in addition to those services required under operations testing, as necessary, to correct faulty equipment operation.
- I. During the start-up, the CONTRACTOR shall keep records of the operations, in accordance with the instructions of the ENGINEER.

PART 2 - PRODUCTS (Not Used)

PART 3- EXECUTION (Not Used)

END OF SECTION