



ADDENDUM 3

November 20, 2018

ITB WS 06-19

**VERTICAL TURBINE PUMP SYSTEM BID
(Equipment Only)**

for the

Arbennie Pritchett WRF Reclaimed Water Expansion Project

The following changes, additions, and or deletions are hereby made a part of the Bidding Documents for the Bid # WS 06-19 as fully and completely as if the same were fully set forth therein:

CONTRACT DOCUMENTS

TECHNICAL SPECIFICATIONS

- I. 11215 - Vertical Turbine Effluent Pumps
 - 1) Section 11215- Part 2 Products/subsection 2.01.C.1.a
 - a. **CHANGE** - "...silicon bronze ASTM B 584 C87500" to "...316L SS ASTM A240"
 - 2) Section 11215- Part 2 Products/subsection 2.01.E.5
 - a. **DELETE** - line items (a), (b) & (c) entirely.
 - 3) Section 11215- Part 2 Products/subsection 2.02.A.7
 - a. **CHANGE** - "...service factor of 1.15 and" to "...service factor of 1.15 on Sine Power and 1,0 on Inverter Power and..."
 - 4) Section 11215- Part 2 Products/subsection 2.01.K.
 - a. **CHANGE** - 2.01.K.1 "Provide mechanical seals unless specified otherwise" to "Provide self flushing mechanical seals. Seal type shall be either split cartridge or single cartridge type unless specified otherwise. A spacer style flanged coupling and Steady Bushing shall be supplied per manufactures requirements to minimize shaft disassemble for seal replacement "
 - b. **CHANGE** - 2.01.K.4 "Acceptable Manufacturer: Chesterton or equal" to "Acceptable Manufacturer: Chesterton 442C (Split Seal) or Chesterton 155 (Single Cartridge Seal)"
 - 5) Section 11215- Part 3 Execution/subsection 3.03:
 - a. **REPLACE** - Entire Subsection 3.03 with the following:

A. Factory Testing:

- 1) The pump manufacturer shall conduct full scale, full range factory performance tests with respect to capacity, head, and horsepower with NPSH plotted from similar tests on the same bowl assembly.
- 2) When tested, the pump shall be driven by a certified calibrated motor equivalent to the motor horsepower and speed specified.
- 3) The Engineer shall have the option to witness the pump tests and certified test reports shall be submitted for approval prior to shipment of the pump. Tests shall be conducted in accordance with applicable Hydraulic Institute Standard for Level "A" testing for each pump. The test report shall be certified by a professional engineer of the pump manufacturer and shall cover the following items:
 - a) Capacity vs. head curve in U.S. Gallons per minute and feet.
 - b) Efficiency vs. flow curve in percent
 - c) Brake horsepower vs. flow curve.
 - d) Speed of rotation
 - e) Impeller size and number.
 - f) Certified bearing life calculations in accordance with AFBMA standards
 - g) A table with a listing of a minimum of 6 test points throughout the pump range including shut off, rated capacity, and run out. Show capacity, total head, BHP, efficiency, and speed.
- 4) Three copies of all test reports shall be submitted.
- 5) If the results of the factory tests fail to demonstrate compliance with the requirements of this Section, the Contractor shall modify or replace the deficient pump as necessary, at no additional cost to the Owner and shall resubmit certified factory test reports on each modified or replacement pump.
- 6) Balance of Vibration: the rotating parts of each pump and its driving motor shall be statically and dynamically balanced before final assembly. The driving motor alone shall operate without vibration in excess of the limits stated in the latest revision of NEMA MG1. The complete unit, consisting of the motor and pump, connected and in normal operation, shall not develop amplitudes of vibration exceeding limits recommended by the latest revision of Hydraulics Institute Standards for vertical turbine pumps handling clean liquids.

B. Field Testing:

- 1) Prior to acceptance of the installed pump, demonstrate proper operation of the pump at the guarantee point, at which time data shall be taken on the total head, flow, and horsepower requirements of the pump. Furnish all instruments and labor required for this procedure.
- 2) A test log shall be presented to the ENGINEER upon the completion of the field test that records the following:
 - a) Flow, measured by flowmeter. (GPM)
 - b) Discharge pressures as measured by calibrated gauges (PSI)
 - c) Calculated velocity heads at discharge flanges and total head (FT)
 - d) Motor phase-to-phase voltage, phase current and 3-phase kilowatts.
- 3) Balance of Vibration: The rotating parts of each pump and its driving motor shall be statically and dynamically balanced before final assembly. The driving motor alone

shall operate without vibration in excess of the limited stated in the latest revision of NEMA MG 1. The complete unit, consisting of the motor and pump, connected and in normal operation, shall not develop amplitudes of vibration exceeding limits recommended by the latest revision of Hydraulics Institute Standards for vertical turbine pumps handling clean liquids.

- 4) Test Failures: Units failing the field tests shall be realigned and retested.

QUESTIONS

Question 13: Item 1.01.C.2 refers to section 9900 for the painting but item 2.04.A lists a specific coating schedule. Which applies?

Response 13: Utilize the paint schedule in 2.04.A. Section 9900 is general specification for construction and touch-up painting.

Question 14: Item 2.01.D.2. Is Tnemec N140 interior bowl coating acceptable?

Response 14: Yes

Question 15: Sheet E5.0 light fixtures refer to sheet E9.1 for more information but there is no Sheet E9.1 in the set. What type light fixtures are required?

Response 15: The area light will be provided by others and is not included in this solicitation.