

SECTION 015000 - TEMPORARY FILTRATION AND DISINFECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 SUMMARY

- A. Provide, install, and remove temporary mobile treatment units to provide filtration and disinfection of solids and vectors during the existing filtration system rehabilitation.

1.3 QUALITY ASSURANCE

- A. All water contacting material shall be of the type for use in contact with potable water and comply with ANSI/NSF 61 - Drinking Water System Components - Health Effects.
- B. Process equipment shall meet the applicable requirements of the Recommended Standards for Water Works, 2018 Edition, GLUMRB (10 States Commission).

1.4 SUBMITTALS

- A. Provide the Engineer with a system schematic showing all processes, capacities, and utility requirements.
 - 1. Filtration Rates.
 - 2. Number of Filter Units.
 - 3. Structural Details.
 - 4. System Hydraulics.
 - 5. Filter Material.
 - 6. Backwash or Cleaning System
 - 7. Chemical Injection and Mixing System Details.
 - 8. Electrical Power Requirement.
 - 9. Potable Water Requirement.

- B. Provide an affidavit stating that the materials furnished that come into contact with potable water comply with the applicable requirements of ANSI/NSF 61.

1.5 DELIVERY, COMMISSIONING, DECOMMISSIONING, AND REMOVAL

- A. All in accordance with the Provider's instructions and Section 016600.
- B. Deliver all equipment in an undamaged condition.

- C. Set-up and commission all equipment while training the existing water treatment plant's operators in the operation of the temporary equipment.
- D. Decommission all temporary equipment and remove it from the WTP site.
- E. All shall be under the direct supervision of an employee of the temporary equipment Provider experienced in this procedure.

PART 2 - PRODUCTS

2.1 TEMPORARY TREATMENT EQUIPMENT PROVIDERS

- A. AWC Water Solutions LTD.,
- B. SUEZ WTS Services USA, Inc.,
- C. Pall Corporation;
- D. Or Engineer approved equal.

2.2 GENERAL EQUIPMENT DESCRIPTIONS

- A. Pumps to transfer pre-treated water.
- B. Trailer mounted filtration equipment.
- C. Trailer mounted system for the neutralization and dechlorination of cleaning waters.
- D. Inter-connecting piping system with points to disinfect and fluoridate filtered water.

2.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Quantity and Quality
 - 1. Flow Rate: 560 gallons per minute.
 - 2. Operating Time: An estimated 12 continuous hours per 24-hour day.
 - 3. Volume: 400,000 gallons per 10 to 12 hour period
 - 4. Minimum Vector Removal: 2 log of Cryptosporidium, 2.5 log of Giardia, and 2 log of viruses.
 - 5. Maintain required flows during individual unit backwash cycles.
- B. Pumps and Piping
 - 1. Pump(s) and piping to feed clarified water from WTP's Recarbonation Tank.
 - 2. Pump(s) and piping to send backwash to WTP's Backwash Water Recovery Basin, providing a 2-times pipe diameter air gap at the basin.
 - 3. Pump(s) and piping to send Filter to Waste flow to the Backwash Water Recovery Basin, providing a 2-times pipe diameter air gap at the basin.

4. Pump(s) and piping end filtered water to the WTP's Clearwell No. 1.
5. Piping and equipment to inject and mix chlorine solution disinfectant into the flow to the clearwell.
6. Piping and equipment to inject and mix liquid hydrofluorosilicic acid into the flow to the clearwell.

C. Cleaning and Flushing Water Discharge Requirements

1. The neutralization system shall achieve a pH of 6.5 to 9.0 prior to disposal.
2. The dechlorination system shall achieve a Cl₂ residual >0.5 mg/l prior to disposal.
3. xxx
4. xxx

D. Miscellaneous

1. Redundancy shall be provided for all critical equipment (pumps, etc.) in case of failure.
2. Provide turbidimeters for filtered water and sample taps at key points for monitoring.

2.4 OWNER PROVIDED PRODUCTS AND SERVICES

- A. Certified drinking water equipment operators.
- B. System monitoring and testing.
- C. Electric power for all temporary equipment.
- D. Disinfection and fluoridation chemicals.
- E. Chemical metering and supply pumps.
- F. Potable water.
- G. Discharge point for flushing, disinfection, and off-line operation discharge waters.

PART 3 - EXECUTION

3.1 TRAINING

- A. Prior to the implementation of the temporary filtration equipment, the WTP water operations staff will receive training from the filtration equipment supplier in the operation of the temporary units. The operation of the units will remain under the control of the WTP water operations staff throughout the period when they are in use for the treatment of water for distribution. Support services will be available as needed from the temporary filtration equipment supplier during the time the units are in use.

3.2 START-UP ASSISTANCE

- A. The temporary filtration equipment supplier's representative shall remain on site for at least 2 days after the filtered water passes the required bacterial tests.

3.3 SCHEDULE

- A. Deliver the temporary filtration equipment to the site, set-up, disinfected and tested all prior to the start of the work on the existing filter system.
- B. The temporary equipment will be required for a period estimated to be 30 days or as long as it takes to complete the existing filter rehabilitation.

3.4 DISINFECTION

- A. Prior to placing the temporary equipment into full operation, disinfect it in accordance with AWWA C653 – Disinfection of Water Treatment Plants. Take two or more filtered water samples from each of the temporary trailers not less thirty minutes apart and test for the presence of coliform at a laboratory facility approved by the Ohio EPA.
- B. Chlorine and hydrofluorosilicic acid feed rates shall be adjusted by the WTP operators to maintain total and residual concentrations in the WTP discharge that are within the Ohio EPA designated ranges.
- C. Do not remove the temporary equipment from the site until placing the existing filter system back in operation.

END OF SECTION 015000