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## SPECIFICATIONS FOR ON-SITE REBUILD OF TRAVELING WATER SCREENS

### 1. GENERAL

#### 1.1. WORK INCLUDED

- 1.1.1. Includes all replacement parts and labor necessary for the rebuild of two Traveling Water Screens. The Traveling Water Screens are two-post, through-flow type.

#### 1.2. REFERENCES

- 1.2.1. The replacement components shall be designed, manufactured, tested and installed in accordance with all applicable federal and state requirements and applicable sections of the latest editions of the following codes and standards:

- |           |      |   |
|-----------|------|---|
| 1.2.1.1.  | AGMA | American Gear Manufacturers Association           |
| 1.2.1.2.  | AISC | American Institute of Steel Construction          |
| 1.2.1.3.  | AISI | American Iron and Steel Institute                 |
| 1.2.1.4.  | ANSI | American National Standards Institute             |
| 1.2.1.5.  | ASTM | American Society for Testing and Materials        |
| 1.2.1.6.  | AWS  | American Welding Society                          |
| 1.2.1.7.  | IEEE | Institute of Electrical and Electronics Engineers |
| 1.2.1.8.  | NEC  | National Electrical Code                          |
| 1.2.1.9.  | NEMA | National Electrical Manufacturers' Association    |
| 1.2.1.10. | OSHA | Occupational Safety and Health Act                |
| 1.2.1.11. | SSPC | Steel Structures Painting Council (SSPC)          |

### 1.3. BACKGROUND

#### 1.3.1. General Information

1.3.1.1. Location: Phenix City Raw Water Pump Station, Phenix, AL

1.3.1.2. Equipment: (2) Traveling Water Screen, 2-Post Design, Through-Flow Type

1.3.1.3. Original Manufacturer: FMC Corporation

1.3.1.4. Manufacturer's Model: 45A ID

1.3.1.5. Dimensions: 3'-0" Basket Width x 27'-0" Sprocket Centers

#### 1.3.2. Performance Requirements

1.3.2.1. The rebuild of the traveling water screens shall be conducted, and parts supplied, so that the original design attributes are maintained. All parts indicated for replacement shall be replaced with parts identical to the original, unless otherwise specified. Any deviations must be approved by the owner prior to proceeding.

1.3.2.2. All replacement parts must be manufactured by the original equipment manufacturer.

### 1.4. SUBMITTALS

#### 1.4.1. Supplier Credential Submittals

1.4.1.1. Certification documenting that the supplier has a minimum of five years' experience in the manufacture of replacement components, removal, installation and service of traveling water screens. The selling company, component manufacturing company, and service provider must be one and the same Company.

1.4.1.2. Documentation that the service crew includes at least two certified, commercial divers. Certificates indicating successful completion of an accepted diving program will be submitted.

1.4.1.3. A list of at least five previous projects of similar scope that were completed successfully, including owner's name, site/plant name, location, scope of work, and contact information.



1.4.1.4. Quality Assurance: The Manufacturer's production facility and project office shall be ISO9001:2008 certified and proof of this certification shall be submitted.

## 1.5. QUALITY ASSURANCE

### 1.5.1. Qualifications

1.5.1.1. Material and equipment shall be standard products of a manufacturer regularly engaged in the design and manufacturing of such products. The standard products, exclusive of improvements to selected aspects of the equipment due to upgrades in manufacturing processes, materials, and features, shall have been in satisfactory commercial, institutional, and/or industrial use for a minimum of twenty-five years prior to the date of these Contract Documents. The twenty-five-year use shall include applications of equipment and materials under similar circumstances and similar size. The twenty-five-years experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs or brochures. The manufacturer of the equipment shall have a dive service organization that is directly associated with the manufacturer and is capable of providing service for the life cycle of the products.

1.5.1.2. Welding shall be in accordance with the AWS D1.1 code.

1.5.1.3. The Manufacturer's quality management system shall be ISO9001:2008 certified.

## 1.6. DELIVERY, STORAGE, AND HANDLING

### 1.6.1. Storage and Protection

1.6.1.1. All equipment delivered and placed in storage shall be stored with protection from the weather, dirt and dust, and other contaminants, by the owner.

## 1.7. PROJECT/SITE CONDITIONS

### 1.7.1. Environmental Requirements

1.7.1.1. Asbestos and asbestos-containing products shall not be used. If the service crew encounters asbestos, or has reason to believe there are asbestos containing materials present, work shall stop and the owner shall be notified.



## 1.8. WARRANTY

- 1.8.1. Upon completion of the traveling water screen rebuild, with all designated components, and successful commissioning, the supplier shall guarantee that the furnished equipment and service is in accordance with the requirements of this Section. The manufacturer shall guarantee the equipment against defects or failure for a period of 12-months from the date of final acceptance or 18-months after delivery whichever occurs first.
- 1.8.2. The Screen Manufacturer will provide an Equipment Bond that will be written to the owner and equal to 100% of the value of the Travelling Water Screen Equipment Purchase Order. The Manufacture's Bond will be in effect from the Date of the Purchase Order through the completion of the End of the Warranty Period.

## 2. PRODUCTS

### 2.1. MANUFACTURER

- 2.1.1. Subject to compliance with requirements of these Specifications, manufacturer offering components and labor for the on-site rebuild of two 3'- 0" Trays x 27'- 0" Centers, Two-Post Design, Thru-Flow Type Traveling Water Screen.

### 2.2. MATERIALS

- 2.2.1. All materials shall be new and undamaged and shall conform to pertinent AISC and ASTM standard specifications.
- 2.2.2. The following components are to be replaced on the traveling water screens:
  - 2.2.2.1. Screen #1:
    - 2.2.2.1.1. (2) Take up bearings assemblies including bronze bushing in cast steel housings
    - 2.2.2.1.2. (12) New 400 series stainless steel tooth inserts with 18-8 stainless steel attachment fasteners
    - 2.2.2.1.3. (1) New drive sprocket
    - 2.2.2.1.4. (1) New idler sprocket with bronze bushing



- 2.2.2.1.5. (3) New carbon steel driven sprocket segments with 18-8 stainless steel attachment fasteners
- 2.2.2.1.6. (1) New strand of drive chain
- 2.2.2.1.7. All new chain track guide angles in intermediate frame sections and boot section
- 2.2.2.1.8. (1) New foot shaft assembly complete with C1040 steel shaft, cast iron sprockets, split bronze bearings, keys and set collar
- 2.2.2.1.9. (2) New cast iron boot castings
- 2.2.2.1.10. (1) New carbon steel boot plate
- 2.2.2.1.11. All new main carrier chain, (66 feet left-hand and 66 feet right-hand), lubricated design with C1040 carbon steel side bars, case hardened steel pins, bushings and rollers and lubrication fitting
- 2.2.2.1.12. New 18-8 stainless steel attachment hardware for the above components
- 2.2.2.2. Screen #2:
  - 2.2.2.2.1. (2) Take up bearings assemblies including bronze bushing in cast steel housings
  - 2.2.2.2.2. (12) New 400 series stainless steel tooth inserts with 18-8 stainless steel attachment fasteners
  - 2.2.2.2.3. (1) New drive sprocket
  - 2.2.2.2.4. (1) New idler sprocket with bronze bushing
  - 2.2.2.2.5. (3) New carbon steel driven sprocket segments with 18-8 stainless steel attachment fasteners
  - 2.2.2.2.6. (1) New strand of drive chain
  - 2.2.2.2.7. All new chain track guide angles in intermediate frame sections and boot section
  - 2.2.2.2.8. (1) New foot shaft assembly complete with C1040 steel shaft, cast iron sprockets, split bronze bearings, keys and set collar



- 2.2.2.2.9. (2) New cast iron boot castings
- 2.2.2.2.10. (1) New carbon steel boot plate
- 2.2.2.2.11. All new main carrier chain, (66 feet left-hand and 66 feet right hand), lubricated design with C1040 carbon steel side bars, case hardened steel pins, bushings and rollers and lubrication fitting
- 2.2.2.2.12. New 18-8 stainless steel attachment hardware for the above components

### 2.2.3. Welding

- 2.2.3.1. Except as otherwise specified, for all replacement parts supplied, all welds, welding, and related operations for structural steel and low alloy steel shall conform to the applicable provisions of the AWS Structural Welding Code, AWS D1.1, Sections 1 through 8, as issued by the American Welding Society. If a conflict exists between symbols specified in AWS D1.1 and AWS D2.4, the requirements of AWS D1.1 shall govern. Except as otherwise specified, welding shall be performed using only those joint details, base metals, and welding processes which are pre-qualified in accordance with the referenced AWS code.

## 2.3. FINISHES

### 2.3.1. Shop Finish Coating of Traveling Water Screen Replacement Components

- 2.3.1.1. All ferrous metal surfaces except galvanized materials, sprockets, gears, etc., and stainless steel shall be painted after shop fabrication. Surfaces shall be dry and of proper temperature when painted and free of grease, oil, dirt, grit, rust, loose mil scale, weld flux, slag, weld splatter, or other objectionable substance.
- 2.3.1.2. Structural steel and castings, except machinery, machined items, seal plates and main tray chains, shall have surface preparation in accordance with SSPC-SP10 followed by Two (2) shop finish coats of Amerlock 2 (NSF61) medium gray epoxy paint at 5-6 mils D.F.T. each coat for a total system finish D.F.T of 10-12 mils.
- 2.3.1.3. Carrier chain shall receive one (1) shop coat of a food grade rust preventative.



2.3.1.4. No on-site cleaning, painting or coating of components or structures is to be done

### **3. EXECUTION**

#### **3.1. INSURANCE**

- 3.1.1. Insurance is required for this solicitation. General Requirement:
- 3.1.2. The supplier shall provide verification of insurance coverage in the amounts below (as a minimum) within 14 calendar days of the contract award.
- 3.1.3. Specific Coverage Amounts (per each occurrence unless otherwise noted):
  - 3.1.3.1. Commercial General Liability: \$2,000,000
  - 3.1.3.2. Personal Injury: \$2,000,000
  - 3.1.3.3. General Aggregate: \$4,000,000
  - 3.1.3.4. Automobile Liability: \$5,000,000
  - 3.1.3.5. Umbrella Liability: \$25,000,000
  - 3.1.3.6. Workers Compensation: \$1,000,000

#### **3.2. PREPARATION**

- 3.2.1. All replacement parts are to be delivered to the site, and be available for use, prior to the crew arriving at the site.
- 3.2.2. Electrical disconnection to be completed by the owner

#### **3.3. REMOVAL**

- 3.3.1. The traveling water screen housing will be removed, and the spray header disconnected by the supplier's crew to allow screen removal.
- 3.3.2. The traveling water screens will be removed from the well, as a completely assembled unit, utilizing a crane and operator supplied by the supplier, under the direction of the supplier's crew. The supplier will supply all required rigging for the screen removal. The screens will be laid down in an area suitable for the rebuild to be completed.

### 3.4. REBUILD

- 3.4.1. The supplier's crew will set-up equipment and proceed to replace the parts indicated in this specification on each traveling water screen.
- 3.4.2. Any areas of concern, not addressed in this proposal, will be brought to the attention of the owner. No additional work will be complete without prior approval from the owner.

### 3.5. INSTALLATION

- 3.5.1. The supplier's crew will inspect the embedded screen guides, and clean as necessary to allow installation.
- 3.5.2. The supplier's crew will inspect the well bottom in the area that the screen is to be placed. Cleaning of the area immediately under the screen shall be completed by the supplier's crew prior to installation of the screen. If there is excessive accumulation of debris in this area, or more extensive cleaning of the intake required, the owner is to be notified. Additional cleaning, if required, will be completed at the supplier's daily rates.
- 3.5.3. After cleaning of the well and guides, the screen will be installed in the well, as a completely assembled unit, utilizing a crane and operator supplied by the supplier, under the direction of the supplier's crew. The supplier will supply all required rigging for the screen installation.
- 3.5.4. Re-connection of the spray piping will be completed by the supplier's crew.
- 3.5.5. Electrical connection to be completed by the owner.

### 3.6. FINAL CHECK-OUT AND COMMISSIONING

- 3.6.1. After installation, the screens will be test run and the operation will be observed and verified. The traveling water screens shall be completely inspected by the service crew and they shall make any adjustments that he deems appropriate. The screens will receive initial lubrication and adjustments, as necessary.

### 3.7. TRAINING

- 3.7.1. Upon completion of the installation and commissioning, the service crew shall provide hands-on training, at the equipment, on the operation and maintenance of the traveling water screens.





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