

TECHNICAL SPECIFICATIONS

SWTP Odor Control Rehabilitation Project

ITB# 2025-015

PART 1 DETAIL SCOPE OF WORK

1.01 Scope: This proposal outlines comprehensive rehabilitation work for the odor control system, including two degasifiers (A and B) and one scrubber unit. This project consists of furnishing and installing new internal platforms and supports, furnishing and installing new filter media, vacuuming and disposing of the existing filter media, painting and coating of the entire system including clear well walls and deck, replacing the acoustic wall, and replacing corroded control planes and disconnects. This project must begin in the summer of 2025, stipulating that one of the degasifiers must remain operational throughout the rehabilitation. Work will be conducted on weekdays, from Monday to Friday, from 7 AM to 5 PM. Any water outages need to be coordinated with the Project Manager.

Degasifier DG 301A- Duall Division 7000 CFM Air Flow Rate

- Replace mist media on top of the tower.
- Inspect for damage and repair manifold and spray nozzles.
- Replace airflow valves/tower isolation valves to the scrubber.
- Install new differential gauges on each tower.
- Repair any damage and paint the degasifier to match the existing color.
- Install Plexi glass windows with dark covers to inspect media in tower.
- Replace blower outfall.

Degasifier DG 301B- Duall Division 7000 CFM Air Flow Rate

- Replace internal platform and supports for the filter media.
- Replace packing media in each packing chamber.
- Replace mist media on top of the tower.
- Inspect for damage and repair manifolds and spray nozzles.
- Replace airflow valves/tower isolation valves to the scrubber.
- Install new differential gauges on each tower.
- Repair any damage and paint the degasifier to match the existing color.
- Install Plexi glass windows with dark covers to inspect media in tower.

Scrubber- Duall Division 14000 CFM Air Flow Rate

- Replace internal platforms and supports for the filter media.
- Replace media in each packing chamber.
- Install/Repair new chemical feed ports and Ph and ORP probe ports.
- Repair weak areas of the structure (deterioration around chemical feed ports and monitoring probes and paint Scrubber).

Painting Coating

- Painting/Coating the entire system including degasifiers, scrubber, clear well exterior walls, concrete pad, concrete desk, supports, pipes, ductwork, exhaust fans, etc.
- Label pipe per ANSI/ASME A13.1

Acoustic Wall:

- Replace the acoustic wall to match existing.

Miscellaneous Items:

- Replace rusted control panels must be housed in a white heat shield NEMA 4X for the fan and motor of desgasifiers.
- Replace (10) rusted electrical disconnect must be housed in a white heat shield NEMA 4X panels
- Performing startup and commissioning of equipment.

PART 2 GENERAL**2.01 CONTRACTOR'S USE OF PREMISES**

- A. The Contractor shall limit the use of the premises for his/her Work and for storage at South Water Treatment to allow for ongoing use and operation of the facility by the Owner.
- B. Coordinate use of premises with the Owner.
- C. The Contractor shall assume full responsibility for security of all his/her and subcontractors' materials and equipment stored on the site.
- D. If directed by the Owner, then move or remove any stored items which interfere with operations of Owner or other contractors.

2.02 QUALITY ASSURANCE

- A. The Contractor shall comply with all codes, ordinances, rules, regulations, orders, and other legal requirements of the City of Marco Island.
- B. All work must be performed using OSHA for confined space and hazardous fumes emitted.
- C. No existing structure or concrete shall be shifted, cut, removed, or otherwise altered unless authorized by Owner's Project Manager.
- D. When removing materials or positions of existing structures and when making openings in existing structures, all precautions shall be taken and all necessary barriers, shoring and bracing and other protective devices shall be erected to prevent damage to the structure beyond the limits necessary for the new work, protect personnel, control dust and to prevent damage to the structures or contents by falling or flying debris.
- E. Contractor Qualifications: Contractors shall have a minimum of (5) years of experience in this type of projects including: safety policy programs for confined space work, scaffolding required for vessel access, qualified welding operator per WPS, PQR, WPQ GTAW, SMAW, FCAW, GMAW, approved coating applicator by manufacture.
- F. All welding shall be performed by qualified welders and shall conform to the applicable AWS welding code. Welding of steel shall conform to AWS D 1.1 and welding of aluminum shall conform to AWS D 1.2 and welding of stainless steel shall conform to AWS D 1.6.
- G. Furnish a notarized certificate stating that the coating meets the requirements and has the manufacturer's current printed literature on the specified product.
- H. The work shall be completely coordinated with the work of all sections of the specs. The contractor shall verify all dimensions and work needed on the project site before fabrication and installation of

items herein specified.

I. Standards

Covers all applicable sections of standards such as:

1. AFBMA - Load Ratings and Fatigue Life for Ball Bearings
2. ANSI - American National Standards Institute.
3. ASME - American Society of Mechanical Engineers.
4. ASSE – American Society of Safety Engineers (Safety Requirements for Confined Spaces)
5. ASTM – American Society for Testing and Materials for FRP Products
6. AWS - America Welding Society
7. STI – Steel Tank Institute
8. AA- Aluminum Association
9. IEC – International Electro-Technical Commission
10. NEMA – National Electrical Manufacturer’s Association
11. NFPA – National Fluid Power Association
12. SSPC – Steel Structures Painting Council
13. NEC – National Electrical Code NPFA 70

Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

2.03 DELIVERY, STORAGE AND HANDLING

- A. All material to be incorporated in the work shall be handled and stored by the Contractor. Provide secure storage and protection for products to be incorporated into the work.
- B. Deliver items to be incorporated into the work in sufficient time to be checked by the Owner prior to installation.
- C. The Contractor shall be responsible for all material and supplies sold and delivered to the Owner under this contract.
- D. Storage shall be in accord with the manufacturer’s instructions, with seals and labels intact and legible.
- E. The Contractor shall be responsible for handle, install, connect, clean, condition and adjust products in strict accordance with the manufacturer’s instructions and in conformity with specified requirements.

PART 3 MATERIALS AND EXECUTION

3.01 ANCHORS, BOLTS AND FASTENING DEVICES

- A. Furnish anchors, bolts, fasteners, etc., as necessary for installation of the work or as specified.
- C. Anchor bolts material shall be ASTM A307, Grade A standard headed bolts with heavy hex nuts, Grade A washers, unless otherwise noted.

- D. Unless otherwise noted, bolts for the connection of carbon steel or iron shall be steel machine bolts; bolts for the connection of galvanized steel or iron shall be galvanized steel or stainless-steel machine bolts; and bolts for the connection of aluminum or stainless steel shall be stainless steel machine bolts.
- E. Adhesive capsule anchors shall be a capsule chemical resin anchoring system. Capsules shall contain premeasured amounts of polyester or vinyl ester resin, aggregate and a hardener contained in a separate vial within the capsule. Stud assemblies shall consist of an all-thread anchor rod with nut and washer. Adhesive capsule anchors shall be Hilti, HV A Adhesive Anchor; Molly, Para-bond; Rawlplug, Rawl Chem-Stud or equal.
- F. Machine bolts and nuts shall conform to Federal Specification FF-B-575C. Bolts and nuts shall be hexagon type. Bolts, nuts, screws, washers and related appurtenances shall be Type 316 stainless steel.

3.02 MISCELLANEOUS METAL

- A. All stainless steel shall be Type 316.
- B. All miscellaneous metal work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability. Holes shall be drilled or punched. Edges shall be smooth and without burs. Fabricate supplementary pieces necessary to complete each item though such pieces are not definitely shown or specified.
- B. Connections and accessories shall be of sufficient strength to safely withstand the stresses and strains to which they will be subjected. Exposed joints shall be close fitting and jointed where least conspicuous. Threaded connections shall have the threads concealed where practical. Welded connections shall have continuous welds or intermittent welds as specified or shown. The face of welds shall be dressed flush and smooth.
- C. Miscellaneous stainless-steel items shall include beams, angles, bar racks, and any other miscellaneous stainless steel.

3.03 WELDING

- A. Reference standards
 - 1. American Welding Society (A WS)
 - a. A WS D 1.1 - Structural Welding Code - Steel.
 - b. A WS DI.2- Structural Welding Code- Aluminum.
 - c. A WS D 1.6 - Structural Welding Code- Stainless Steel
- C. Federal Specifications
 - a. FS-FF-B-575C- Bolts, Hexagonal and Square.
- D. Occupational Safety and Health Administration (OSHA)

3.04 PAINTING/COATING

A. Application Surface preparation and priming

Concrete Surfaces

Surface Preparation

- Clean salts, chlorides, and other contaminants on a daily basis per SSPC-SP1 Solvent Cleaning, prior to surface preparation, and the application of any coatings.
- Pressure clean with potable water to remove all loose coatings, salts, dust, dirt, contaminants, etc.
- Crack Repair: V-Notch all cracks and fill with Tnemec Series 154 Tnemec-Guard bulked with sand.

Coating System (minimum 3 years warranty)

- Prime Coat: Apply Tnemec Series 151 ElastoShield FC @ a rate of 1.0 – 2.0 mils DFT.
- Base Coat: Apply Tnemec Series 154 Tnemec-Guard at a rate of 10.0 – 14.0 mils DF
- Finish Coat(s): Apply (2) coats of Tnemec Series 157 EnviroCrete TX @ a rate of 6.0 – 10.0 mils DFT, per coat.

Fiberglass Scrubber and Degasifiers

Surface Preparation

- Clean salts, chlorides, and other contaminants on a daily bases per SSPC-SP1 Solvent Cleaning, prior to surface preparation, and the application of any coatings.
- Pressure clean with potable water to remove all salts, dust, dirt, contaminants, etc...
- Steel Brackets: Remove all coatings, rust, corrosion, and other contaminants by Power Tool Cleaning to a Commercial Grade in accordance with SSPC-SP15.
- Fiberglass: Remove all loose coatings, flaking gel-coat, etc... Feather edges and create a surface profile on all smooth, glossy areas.

Coating System (minimum 3 years warranty)

- Prime Coat: Apply Tnemec Series 108 ProBond @ a rate of 2.0 – 3.0 mils DFT.
- Steel Bracket Only: Apply Tnemec Series 135 Chembuild @ a rate of 4.0 – 6.0 mils DFT.
- Intermediate Coat: Apply Tnemec Series 1094 EnduraShield @ a rate of 2.0 – 3.0 mils DFT.
- Finish Coat: Apply Tnemec Series 1094 EnduraShield @ a rate of 2.0 – 3.0 mils DFT.

3.06 REFERENCE STANDARDS

A. The Society for Protective Coatings (SSPC).

1. SSPC SP-1 -Surface Preparation Specification No. 1 Solvent Cleaning.

2. SSPC SP-2- Surface Preparation Specification No.2 Hand Tool Cleaning.

- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

3.07 ELECTRICAL CONTROL PANELS

Electrical Control Panel (ECP) Electrical controls shall be housed in a NEMA 4X panel constructed of Type 316 stainless steel. The ECP shall house the necessary electronic components for the control and monitoring of the system. The ECP shall be mounted at the minimum distance from the foul air stream required by NFPA 820. The panel shall also be in compliance with electrical, instrumentation and controls design standards.

4. PROJECT REQUIREMENTS

4.01 PROJECT/SITE REQUIREMENTS

- A. Field measurements shall be taken at the site, prior to fabrication of items, to verify or supplement indicated dimensions and to ensure proper fitting of all items.
- B. Furnish all materials, labor, equipment, and incidentals required and perform all the painting necessary to complete this Contract in its entirety as specified herein. It is the intent of this Section to provide Field Painting that matches the existing facilities in terms of types and colors of coatings, except as modified herein.
- C. It is the intent of this Section to paint all exposed structural and miscellaneous steel; tanks and systems; pipe, fittings, air ducts, pipe supports, and valves; all as specified in the attached painting schedules and all other work obviously required to be painted unless otherwise specified.
- D. Aluminum-paint only where noted (as is specified). Paint items in accordance with the Paint Color Schedule. Provide vinyl film letters and numbers for markings as specified. Items noted in Paint Color Schedule as having factory finish and other factory finished items obviously are not field painted. The Contractor is responsible for having damaged factory finish painted items repaired or, if so ordered, for replacing items.
- E. Sections are responsible, as stated in each, for preparation and field touch-up of abrasions, welds, and damaged primed areas of primed or galvanized components after erection.

4.02 RELATED WORK

- A. Shop priming and surface preparation of equipment and piping (except copper piping) are to be primed.

4.03 SUBMITTALS

- C. Submit the following:
 - 1. Filter Media (main body packing)
 - 2. Mist Media
 - 3. Coating
 - 4. Internal grating and support

5. Control Panels

6. Disconnects

4.03 TESTING EQUIPMENT

A. Provide start up and commissioning

4.04 CLEANUP

- A. At all times keep the premises free from accumulation of waste material and rubbish caused by employees or work. At the completion of the painting, remove all tools, scaffolding, surplus materials, and all rubbish from and about the buildings and leave the work "broom clean" unless more exactly specified.
- B. All construction debris, dirt, and other contaminants shall be removed from the tank prior to being handed over to the Owner.
- C. Upon completion, remove all paint where it has been spilled, splashed, or spattered on all surfaces, including floors, fixtures, equipment, furniture, etc., leaving the work ready for inspection.
- D. After satisfactory testing has been completed and just prior to being placed in service, the tank shall be cleaned, and pressure washed. Touch-up all paint and coating defects prior to testing of the tank.

SEE TABLE 1. DESIGN INFORMATION OF THE DEGASIFIERS AND SCRUBBER SYSTEM

Table 1 WTP Degasifier/Scrubber System Design Information

Number of degasifiers	2 (DG 301A and DG 301B)
Degasifier diameter	12 ft each
Degasifier packing media depth	12 ft each
Degasifier media	Jaeger 3.5" Tripak
Degasifier airflow rate	7,000 cfm each
Degasifier water flow rate	2083 gpm each
Degasifier sulfide removal rate	98%
Scrubber diameter	6 ft
Scrubber packing media depth	10 ft
Scrubber airflow rate	14,000 cfm
Scrubber blowdown rate	11 gpm
Scrubber chemistry mode	Single chemistry – caustic only
Scrubber pH setpoint	11
Scrubber design caustic consumption	4.5 – 5.0 gph
Scrubber design H ₂ S load	6.25 lb/hr
Scrubber H₂S removal efficiency	99%

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SWTP Odor Control Rehabilitation - Existing Conditions



Scrubber



Front view of Degasifier B



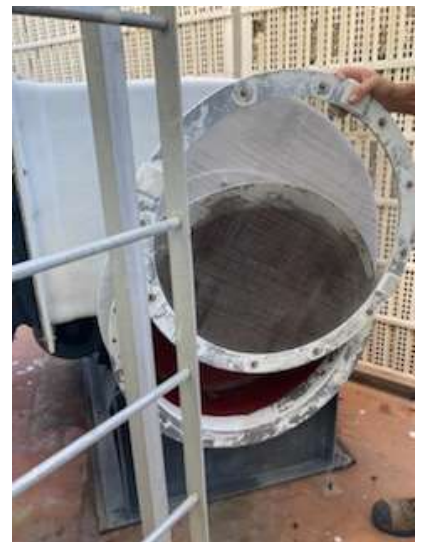
Degasifier A and B



Replace Acoustic
Wall



Replace Control
Panel



Replace Fan Covers

Replacement of Disconnects (10 total)

