

Section 13207

GROUND STORAGE TANK (GST) MODIFICATIONS, CLEANING AND DISINFECTION

PART 1 GENERAL

1.01 SUMMARY

This Section includes the furnishing and installation of surface water inlet piping, appurtenances, cleaning and disinfection of existing ground storage tanks (GST) as shown on the Plans and as described herein.

1.02 MEASUREMENT AND PAYMENT

Unless indicated in the Unit Price Schedule as a pay item, no separate measurement or payment for Work performed under this Section. Include cost of same in Contract price bid for Work of which this a component part.

1.03 REFERENCES

This Section references the following publications in their current editions. The publications listed below form a part of this Section to the extent referenced. The publications are referred to in the text by basic designation only.

- A. AWWA C210: Standard for Liquid-Epoxy Coatings and Linings for Steel Water Pipe and Fittings
- B. AWWA C652: Standard for Disinfection of Water - Storage Facilities

1.04 SUBMITTALS

Submit the following in accordance with Sections 01330 – “Submittal Procedures” and 01782 – “Operations and Maintenance Data.”

- A. Shop Drawings
 - 1. Product technical data including:
 - a. Manufacturer's installation instructions
 - B. Dimensioned, easily read full size (22" x 34") drawings of GST, and appurtenances, including location of wall and roof penetrations, piping, piping appurtenances, details of connections, pipe supports, and coating system, signed and sealed by a professional engineer registered in the State of Texas.
 - C. Acknowledgement that piping products submitted meet requirements of specification sections and standards referenced.

- D. Design certificate signed and sealed by professional engineer licensed in the State of Texas that calculations have been performed in accordance with project criteria and standard engineering practices.
- E. Operation and Maintenance Manuals

1.05 RELATED REQUIREMENTS

- A. Section 01330 – “Submittal Procedures”
- B. Section 01782 – “Operations and Maintenance Data”
- C. Section 02502 – “Steel Pipe and Fittings”
- D. Section 09902 – “Painting and Protective Coating”
- E. Section 09905 – “Repainting and Repair of Existing Water Facilities”
- F. Section 15130 – “Pressure Gauges, Transmitters and Elements”

1.06 - 1.13 (NOT USED)

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Surface Water Line Piping
 - 1. Size: See PLANS
 - 2. Material:

Steel in accordance with Specification 02502 - "Steel Pipe and Fittings" with a minimum thickness of ¼”
 - 3. Coating and Lining:
 - a. Lining:

Epoxy in accordance with AWWA C210.
 - b. Coating in accordance with Section 09902 - "Painting and Protective Coating"
- B. Pipe support system for the overflow pipes shall be in accordance with the PLANS.

- C. For level instrumentation to be added during installation of surface water line see Section 15130 – “Pressure Gauges, Transmitters and Elements.”

2.03 – 2.04 (NOT USED)

PART 3 EXECUTION

3.01 GENERAL / MANUFACTUER(S) (NOT USED)

3.02 PREPARATION

- A. Cleaning and draining of the GST shall be performed by the Contractor unless the Contract Documents and Plans stipulate otherwise.
- B. Before constructing penetration and connection of the surface water line and appurtenances to the GST, the GST is to be drained.
- C. Discharge of water from the GST during draining shall be in accordance with all Federal, State, and Local regulations.
- D. Contractor shall clean, remove and dispose of all foreign material remaining in the GST after draining. All materials (if any) found to have settled to the bottom of the GST are to be removed and disposed of in accordance with all Federal, State, and Local regulations.

3.03 ERECTION / INSTALLATION / APPLICATION AND/OR CONSTRUCTION

Construction of surface water line, penetration(s), supports, and appurtenances are to be in accordance with details shown on Plans.

3.04 REPAIR/RESTORATION

- A. As needed, restore surface of the exterior and interior of the GST at locations where surface water line supports are connected to the GST or any other locations damaged or affected during cleaning or construction of the surface water line and appurtenances to original condition. Surface coating repair to be in accordance with GST manufacturer and Section 09905 – “Repainting and Repair of Existing Water Facilities.”
- B. Contractor shall clean, remove and dispose of all foreign material remaining in the GST after construction of the surface water line connection to the GST, appurtenances, and repairs before refilling and disinfecting GST.
- C. Contractor is responsible for proper disposal of all material cleaned from GST.

3.05 FIELD QUALITY CONTROL

A. Disinfection

1. Prior to refilling GST, thoroughly clean and flush GST interior. Remove all foreign matter from GST.
2. Disinfect GST and all associated piping included in the Plans using Chlorination Method 2 or Method 3 described in AWWA C652. Disinfection process to meet TCEQ regulatory requirements. Chlorine residual in the GST shall not be greater than 3 ppm after the conclusion of the test. The water shall be delivered to the distribution system only after bringing the concentration to levels appropriate for distribution as specified by TCEQ.
3. Comply with the requirements of AWWA C652, Chlorination Method 1, Method 2, or Method 3 for the disposal of disinfection water (paragraphs 4.1.5 and 4.1.5.1).
4. Sampling:
 - a. Coordinate with the Project Manager for the collection of water samples for bacteriological analysis.
 - b. The Owner is to identify and hire an independent testing lab to conduct collection of water samples and bacteriological analysis.
 - c. GST Manufacturer or Contractor is to notify the Project Manager when the GST is ready for testing and coordinate with testing lab.
 - d. Three consecutive, satisfactory water samples are required. A satisfactory water sample is a sample analyzed and determined to meet State Department of Health criteria for bacterial analysis.
 - e. Repeat disinfection and water sampling procedures, if necessary, until three consecutive water samples meet State Department of Health criteria for bacterial analysis.
 - f. Water samples will be collected and tested to verify that they meet TCEQ requirements for bacterial analysis for potable water systems before the GST will be accepted to be put back online.

- B. Filling of the GST shall be coordinated with Operator of the Facility, the Project Manager and the Contractor. The GST shall be filled at a rate that meets manufacturer's recommendations.

3.06 – 3.10 (NOT USED)

END OF SECTION