

**SECTION 02 65 00
UNDERGROUND STORAGE TANK REMOVAL**

SPEC WRITER NOTE:

1. Delete text between // // not applicable to project. Edit remaining text to suit project.
2. Consider including unit prices for additional soil sampling and testing and contaminated soil removal. Show maximum excavation limits on drawings as scope included in contract price. Coordinate excavation limits with tank sizes.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing and disposal of underground storage tank (UST) liquid contents.
2. Removing, cleaning, and disposing UST.
3. Testing and removing contaminated soils.
4. Backfilling and restoring excavation areas.

1.2 RELATED WORK

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

- A. Section 01 45 29, TESTING LABORATORY SERVICES: Laboratory Services.
- B. Section 02 41 00, DEMOLITION: Demolition Exposing UST.
- C. //Section 31 20 00, EARTHWORK: UST Removal Excavation. //
- D. //Section 31 20 00, EARTHWORK: Excavation Backfilling. //
- E. //Section 31 20 11, EARTHWORK (SHORT FORM): UST Removal Excavation. //
- F. //Section 31 20 11, EARTHWORK (SHORT FORM): Excavation Backfilling. //
- G. //Section 32 12 16, ASPHALT PAVING: //
- H. //Section 32 90 00, PLANTING: Excavation Surface Restoration. //

1.3 PRICE AND PAYMENT PROCEDURES

SPEC WRITER NOTE: Contract time and price will be adjusted under provisions of "Differing Site Conditions," (FAR 52.236-2). Unit prices must be submitted before awarding contract.

- A. Differing Site Conditions: Extent of excavation and restoration for UST removal indicated on drawings and extent of additional soils sampling and testing specified in this section are estimated. Variations less

than 5 percent change are not cause for contract price and time adjustments. Additional work will be paid by unit prices as directed by Contracting Officer's Representative.

1.4 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. American Petroleum Institute (API):
 - 1. 1604-96(R2010) - Closure of Underground Petroleum Storage Tanks.
 - 2. 2217A-09 - Safe Work in Inert Confined Spaces in the Petroleum and Petrochemical Industries.
 - 3. 2015-14 - Safe Entry and Cleaning of Petroleum Storage Tanks.
- C. Code of Federal Regulations (CFR):
 - 1. 40 CFR Part 280 - Underground Storage Tanks; Technical Requirements.
 - 2. 49 CFR Part 178 - Specifications for Packagings.
- D. United States Environmental Protection Agency (EPA):
 - 1. SW-846 - Evaluating Solid Waste: Physical/Chemical Methods.

1.5 PRE-REMOVAL MEETINGS

- A. Conduct pre-removal meeting at project site minimum 30 days before beginning work of this section.

SPEC WRITER NOTE: Edit participant list to ensure entities influencing outcome attend.

- 1. Required Participants:
 - a. Contracting Officer's Representative.
 - b. // Architect/Engineer. //
 - c. // Inspection and Testing Agency. //
 - d. Contractor.
 - e. UST removal contractor.

SPEC WRITER NOTE: Edit meeting agenda to incorporate project specific topics.

- 2. Meeting Agenda: Distribute agenda to participants minimum 3 days before meeting.
 - a. Removal schedule.
 - b. Removal sequence.
 - c. Preparatory work.
 - d. Contaminated material containment and disposal.
 - e. Removal.
 - f. Inspecting and testing.
 - g. Other items affecting successful completion.

3. Document and distribute meeting minutes to participants to record decisions affecting UST removal/closure.

1.6 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Notice of intent to close UST.
- C. Test Reports: Submit laboratory analytical reports.
 1. UST liquid contents analysis.
 2. UST interior environment analysis.
 3. Soil sample analysis.
- D. Qualifications: Substantiate qualifications comply with specifications.
 1. UST removal contractor.
 2. Testing laboratory.
 3. Liquid disposal facility.
 4. UST and associated piping/equipment disposal facility.
 5. Soil disposal facility.
- E. UST removal plan.
- F. Record Documents:
 1. Six copies of Final UST Closure Report.
 2. Record Drawings in electronic computer-aided design (CAD) file format showing:
 - a. Soil sample locations.
 - b. Detailed plan view.
 - c. Piping removal diagrams.
 - d. Control removal diagrams.
 - e. Component diagrams including tank removal procedure.
 - f. Detailed sequence of procedure.
 3. Photographs of work in progress showing UST removal plan compliance.
 4. Chain-of-custody documentation.
 5. Disposal facility receipts, disposition reports, and non-hazardous waste manifests.

1.7 QUALITY ASSURANCE

- A. UST Removal Contactor: Experienced contractor, registered or licensed by applicable state agency regulating UST removal.
- B. Testing Laboratory: State certified independent testing laboratory experienced in hazardous waste liquid and soil testing.
- C. Liquid Disposal Facility: State certified disposal facility qualified to receive and dispose UST liquid contents.

- D. UST Disposal Facility: State certified disposal facility qualified to receive and dispose UST(s).
- E. Soil Disposal Facility: State certified disposal facility qualified to receive and dispose contaminated soils.
- F. UST Removal Plan: Describe detailed procedures for:
 - 1. Removing and disposing UST liquid content.
 - 2. Removing, ventilating, cleaning and disposing UST.
 - 3. Soil sampling and testing.
 - 4. Removing and disposing contaminated soils.
- G. UST Final Closure Report: Assemble work progress documentation showing removal plan compliance, including:
 - 1. Sample test records.
 - 2. Local Fire Marshal requirement.
 - 3. State Agency requirements.
 - 4. Hazardous material plan for local VA management.

1.8 FIELD CONDITIONS

- A. Do not close or obstruct streets, sidewalks or drives without Contracting Officer's Representative's approval.
 - 1. Submit closure request minimum // 30 // 45 // 60 // days before starting work.

1.9 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS

2.1 ACCESSORIES

- A. Waste Collection Drums: 49 CFR Part 178; Type 1A2, steel, removable head, 200 L (55 gallon) capacity, capable of containing waste without loss.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate demolition specified in Section 02 41 00, DEMOLITION required to access UST site.

3.2 UST CLOSURE SEQUENCE

- A. Notify applicable State Agency minimum 30 days before UST closure.

- B. Determine if contamination from UST is present.
- C. When contamination exists, notify Contracting Officer's Representative and cooperate to record site with applicable State Agency and EPA.
- D. Remove UST liquid contents, UST, and associated equipment (i.e., product lines, dispensers).
- E. Remove contaminated soil.
- F. Backfill excavated area.
- G. Restore excavation surfaces.

3.3 UST CLOSURE

- A. Conform to API 1604, 40 CFR Part 280, 29 CFR Part 1910, and 29 CFR Part 1926.

3.4 UST LIQUID CONTENTS REMOVAL

- A. Collect, test, and analyze UST liquid content samples.
 - 1. Identify individual constituents and concentrations.
 - 2. Identify lower explosive limits for constituents in gaseous form.
 - 3. Identify disposal facilities qualified to receive and process UST liquid contents (i.e., petroleum and/or petroleum contact water [PCW]).
- B. Remove UST liquid contents before removing UST.
 - 1. Record liquid volume removed from UST.
- C. Deliver UST liquid contents to disposal facility.
 - 1. Obtain signed receipt including date, time, total liquid volume, and description of materials received.
 - 2. Obtain final report of UST liquid contents disposition after disposal completion.

3.5 REMOVAL OF PIPING, ANCILLARY EQUIPMENT, AND UST

- A. Excavate overburden and soils immediately surrounding UST as specified in // Section 31 20 00, EARTHWORK // Section 31 20 11, EARTHWORK (SHORT FORM) //.
 - 1. Contain and cover excavated materials with 0.15 mm/6 mil polyethylene sheeting to prevent loss and mixing with other materials until completion of initial soil testing. Provide straw bale berm around the outer limits of the containment area and cover with polyethylene sheets. Secure edges of sheets to keep the polyethylene sheeting in place.
 - 2. Disconnect all piping and ancillary equipment from the tank. Remove the piping completely (interior and exterior of the tank). Cap all tank ancillary equipment and piping connections, except those

connections necessary to inert the tank within the excavation zone. Clean the piping exterior and ancillary equipment to remove all soil and inspect for signs of corrosion and leakage. Ensure no spillage of the piping contents occurs. Remove the tank from the excavation and clean the exterior to remove all soil and inspect for signs of corrosion, structural damage, or leakage. Use only non-sparking type materials or equipment which comes into contact with the tank, or in the vicinity of the excavation such as shovels, slings and tools. After removal from the excavation, place the tank on a level surface [adjacent to the tank excavation] [at an approved location] and secure it with wood blocks to prevent movement.

- B. Place UST on ground adjacent to removal location.
- C. Secure UST before cleaning.

3.6 UST CLEANING

- A. Measure combustible gas and oxygen concentrations within UST.
- B. Ventilate UST interior to reduce combustible gas concentrations to maximum 10 percent of lower explosive limit and to provide 19.5 to 23.5 percent oxygen concentration.
 - 1. Test UST interior atmosphere confirming gas concentrations.
 - 2. Complete required ventilation before cleaning.
- C. Cut ports in UST wall facilitating cleaning access. Comply with API Standard 2217A and API Standard 2015 for UST entry.
- D. Clean surface contaminants from UST and access port interior wall surfaces.
 - 1. Contain removed materials without producing further contamination.
 - 2. Collect removed materials in waste collection drums. Seal drums to prevent material loss.
- E. Request UST inspection by local // Fire Marshal // and // State Agency // certifying completed UST cleaning.
- F. Dismantle UST as required for transport to disposal facility.
- G. Deliver UST, removed access ports, and waste collection drums to disposal facility.
 - 1. Obtain signed receipt including date, time, quantity, and description of materials received.
 - 2. Obtain final report of materials disposition after disposal completion.

3.7 SOIL TESTING

- A. Collect appropriate amount of soil samples from UST excavation area after tank removal. Sampling requirements vary vastly from state to state. Designer should consult the latest state requirements for the appropriate sampling methods.
1. Collect appropriate amount of soil samples from the UST piping, fuel island/or dispensers, and soil stockpile. Testing requirements are dependent on regulations applicable to the locations where the tanks and piping are being removed. Verify number of tests required and required location for each test. Containerize samples to prevent sample loss and preserve sample condition until tested.

SPEC WRITER NOTE: Edit test requirements to be consistent with known UST contents. Hazards, other than hydrocarbons, regulated under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) may be present. If other contaminants exist, specify testing for them.
 2. Test and analyze samples according to EPA SW-846 for total petroleum hydrocarbon (TPH) concentrations. Hydrocarbon tests vary vastly from state to state. Designer should consult the latest state requirements for the appropriate hydrocarbon test methods. Additional analysis will likely include: benzene, toluene, ethylbenzene, and xylenes (BTEX), and polynuclear aromatic hydrocarbons (PAHs).
- B. When soil testing reveals evidence of // hydrocarbons // at concentrations greater than permitted by applicable // State Agency // for uncontaminated soil used as fill material, collect appropriate amount of soil samples in accordance with applicable state agency.
1. Test and analyze samples as specified for initial samples.
 2. Notify Contracting Officer's Representative when additional samples are contaminated.
 3. The base price for volume between the final tank volume of material for the enclosure and the enclosure shall not to exceed 76 cubic meters (100 cubic yards) of soil removed. Any work beyond 76 cubic meters (100 cubic yards) and more than 6 test locations shall be considered extra and shall be based on unit pricing.
- C. Perform additional soil sampling and testing around UST as directed by Contracting Officer's Representative until contamination concentration

is less than permitted by applicable // State Agency // for uncontaminated soil used as fill material.

3.8 CONTAMINATED SOIL REMOVAL

- A. Excavate contaminated materials as specified in // Section 31 20 00, EARTHWORK // Section 31 20 11, EARTHWORK (SHORT FORM) //.
- B. Remove contaminated soil from site according to applicable // State Agency // requirements. Petroleum contaminated soil should be profiled, and analytical results provided to the landfill for their approval prior to transportation. Upon approval, the petroleum contaminated soil should be transported under non-hazardous waste manifest (if applicable).
- C. Deliver contaminated soils to disposal or treatment facility.
 - 1. Obtain signed receipt including date, time, quantity, and description of materials received.
 - 2. Obtain final report of materials disposition after disposal completion.
 - 3. Obtain a copy of each non-hazardous waste manifest.

3.9 UST EXCAVATION BACKFILL AND RESTORATION

SPEC WRITER NOTE: Earthwork sections include fill, engineered fill, and granular fill used for backfill. Multiple fill materials may be required to accommodate paved and landscaped finished surfaces.

- A. Backfill excavation with fill materials and compact as specified in // Section 31 20 00, EARTHWORK // Section 31 20 11, EARTHWORK (SHORT FORM) //.
- B. Restore pavements, sidewalks, and curbs matching adjacent materials as specified in // Section 32 05 23, CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS // Section 32 12 16, ASPHALT PAVING //.
- C. Restore landscaped areas and grass areas to match adjacent materials as specified in Section 32 90 00, PLANTING.

3.10 FIELD QUALITY CONTROL

SPEC WRITER NOTE: Section 01 45 29, TESTING LABORATORY SERVICES includes VA provided testing for large projects and contractor provided testing for small projects. Coordinate testing responsibility.

- A. Field Tests: Performed by testing laboratory specified in Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Perform sampling and testing for the following:
 - 1. UST liquid contents.
 - 2. UST interior environment.
 - 3. Soils contamination.
- C. Record chain-of-custody for samples until disposal.

3.11 PROTECTION

- A. Protect restored areas from traffic and construction operations.
- B. Repair damage.

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