

SECTION 02 65 00

UNDERGROUND STORAGE TANK REMOVAL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN PETROLEUM INSTITUTE (API)

API PUBL 1628	(1996) A Guide to the Assessment and Remediation of Underground Petroleum Releases
API RP 1604	(1996; R 2010) Closure of Underground Petroleum Storage Tanks
API RP 2003	(2015; 8th Ed) Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents
API RP 2219	(2016) Safe Operation of Vacuum Trucks Handling Flammable and Combustible Liquids in Petroleum Service
API STD 2217A	(2017) Safe Work in Inert Confined Spaces in the Petroleum and Petrochemical Industries
API Std 2015	(2018) Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks

ASTM INTERNATIONAL (ASTM)

ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D1557	(2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³) (2700 kN-m/m ³)
ASTM D2167	(2015) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D4397	(2016) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D6938	(2017a) Standard Test Method for In-Place Density and Water Content of Soil and

Soil-Aggregate by Nuclear Methods (Shallow
Depth)

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2024) Safety -- Safety and Occupational
Health (SOH) Requirements

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 530-R-97-007 (1997) Best Management Practices (BMPs)
for Soils Treatment Technologies;,
Suggested Operational Guidelines to
Prevent Cross-Media Transfer of
Contaminants During Cleanup Activities

EPA 600/4-79/020 (1983) Methods for Chemical Analysis of
Water and Wastes

EPA SW-846 (Third Edition; Update IV) Test Methods
for Evaluating Solid Waste:
Physical/Chemical Methods

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

40 CFR 261 Identification and Listing of Hazardous
Waste

40 CFR 262 Standards Applicable to Generators of
Hazardous Waste

40 CFR 264 Standards for Owners and Operators of
Hazardous Waste Treatment, Storage, and
Disposal Facilities

40 CFR 265 Interim Status Standards for Owners and
Operators of Hazardous Waste Treatment,
Storage, and Disposal Facilities

40 CFR 266 Standards for the Management of Specific
Hazardous Wastes and Specific Types of
Hazardous Waste Management Facilities

40 CFR 268 Land Disposal Restrictions

40 CFR 279 Standards for the Management of Used Oil

40 CFR 280 Technical Standards and Corrective Action
Requirements for Owners and Operators of
Underground Storage Tanks (UST)

1.2 SYSTEM DESCRIPTION

The work consists of removal, decontamination and disposal of one , 3785 L
underground storage tank and associated piping and ancillary equipment,
including but not limited to dewatering (if approved), disposal of
contaminated soil, providing reports which are required by regulatory

agencies, and backfilling.. The tank is constructed of steel and is at the location shown on the drawings . The 3785 L tank was used for storing fuel oil and must be taken out of service once the replacement generator is operational. Residue remaining in the tank is considered a special waste. Subsurface conditions are represented on drawings . Existing native soils are predominantly Kanto loam. Backfill material should conform to the Satisfactory Materials paragraph in Section 31 00 00. Groundwater was not encountered during soil borings conducted from 5 to 10 m below grade. Ground water near Fussa City is commonly encountered deeper than 30 m. However, perched rain water can cause temporary high subsurface water levels at the site that dissipate over time after a storm event. Verify the actual conditions prior to submitting a bid. The site is not a hazardous waste site, but due to the nature of the materials and hazards present, use specified procedures until closure activities are complete.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

- Work Plan; G.
- Site Safety and Health Plan; G
- Excavation and Material Handling Plan; G
- Field Sampling and Laboratory Testing Plan; G
- Tank and Piping Removal And Disposal Plan; G
- Spill and Discharge Control Plan; G
- Qualifications; G
- Laboratory Services; G
- State Licensed Waste Transporter

SD-06 Test Reports

- Laboratory and Field Testing Reports
- Tank Contents Verification
- Contaminated Water Disposal
- Soil Examination, Testing, and Analysis
- Backfilling; G.

SD-11 Closeout Submittals

- Salvage Rights; G
- Tank Closure Report

1.4 QUALITY ASSURANCE

1.4.1 Qualifications

Substantiate a minimum of 2 years of tank removal experience, including subcontractors and personnel employed on the project, and certification by the local authority having jurisdiction for tank removal work. Experience shall include removal, transportation, and disposal of underground tanks and associated piping, in conformance with the following:

- a. API RP 1604

- b. 40 CFR 280, State and local regulations and procedures.
- c. Applicable safety rules and regulations.
- d. Use of equipment and procedures for testing and vapor-freeing tanks.
- e. Handling and disposal of types of wastes encountered in underground tank and pipe removal including disposal of underground tanks and associated piping.
- f. Excavation, testing, and disposal of petroleum contaminated soils, liquids, and sludge.
- g. Project titles, dates performed, owner's names, points of contact for each project with current contact phone numbers.

1.4.2 Laboratory Services

Submit documentation for laboratory services in accordance with Local Authority requirements .

1.4.3 Support Staff

Identify all staff involved for the various components, including personnel collecting and shipping samples, and detail staff member's qualifications.

1.4.4 Preconstruction Conference and Work Plan

Prior to the commencement of work, a preconstruction conference will be scheduled by the Contracting Officer. Prepare and submit a comprehensive Work Plan within 30 days of contract award. The work plan shall conform to the requirements of this specification, API RP 1604, API Std 2015, API RP 2003, API STD 2217A and API RP 2219. Allow 30 days in the schedule for the Government's review and approval. No adjustment for time or money will be made for re-submittals required as a result of noncompliance. No work at the site is allowed, with the exception of site inspections and mobilization, until the Work Plan is approved. As a minimum, include the following in the Work Plan:

1.4.4.1 Site Safety and Health Plan

Furnish detailed safety, health, and accident prevention provisions and develop a Site Safety and Health Plan (SSHP). Incorporate the requirements of 29 CFR 1910 and EM 385-1-1 into the SSHP. Include current training certification statement for personnel prior to entry into the work site. Do not commence work until the SSHP is approved by the Contracting Officer. As a minimum, include the following:

- a. Health and safety organization, including discussion of distribution of functions and responsibilities.
- b. Organization and components of the SSHP.
- c. Physical and chemical site hazard identification.
- d. Basic toxicology and toxicity information.

- e. Discussion of the EZ and CRZ.
- f. Protective clothing.
- g. Respiratory protection.
- h. Air quality monitoring.
- i. Personnel exposure guidelines.
- j. Decontamination procedures.
- k. Basic first aid review.
- l. Emergency response and contingency plan.
- m. Site entry and exit procedures.
- n. Sampling procedures.

1.4.4.2 Excavation and Material Handling Plan

Describe methods, means, equipment, sequence of operations and schedule to be employed in excavation, transport, handling, borrowing source and stockpiling of soil during underground tank removal. Include shoring requirements. Fifteen days before beginning tank removal work, submit to the Contracting Officer, for approval, a material handling plan that describes phases of dealing with the contaminated soil and water as it relates to the proposed tank and piping removal, including methods of excavating, a material handling plan for the contaminated material, soil testing requirements, and water pumping and collection requirements.

1.4.4.3 Field Sampling and Laboratory Testing Plan

Describe field sampling methods and quality control procedures. Identify laboratory and laboratory methods to be used for contamination testing. Include sample reports showing sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and quality control procedures.

1.4.4.4 Tank and Piping Removal and Disposal Plan

Describe methods, means, sequence of operations, and schedule to be employed in the testing, pumping, cleaning, de-vaporizing, inspecting, cutting and removal, and disposal of underground storage tanks and piping. Include methods to be employed for product, sludge, vapor, and pumpable liquid removal; purging and inerting; and storage methods proposed for control of surface water. Also address the following:

- a. Treatment Options
- b. Identification of waste, tank and contaminated soil transporters and means of transport.
- c. Disposal and alternate facilities, disposal or remediation.
- d. Decontamination procedures and coordination with SSHP.

1.4.4.5 Spill and Discharge Control Plan

Develop a comprehensive spill and discharge control plan. Consider and

provide contingency measures for potential spills and discharges from handling and transportation of contaminated soils and water. A possible source of guidance for assessment and remediation is API PUBL 1628.

1.4.4.6 Site Safety And Health Officer

Identify an individual to serve as the Site Safety and Health Officer (SSHO) to report problems and concerns regarding health and safety to the Contracting Officer. Provide documentation that the SSHO possesses working knowledge of local and Federal occupational safety and health regulations, and provide training, in accordance with 29 CFR 1910 to Contractor employees in air monitoring practices and techniques. The SSHO shall remain onsite to provide day to day industrial hygiene support, including air monitoring, training, and daily site safety inspections. The SSHO may be assigned other duties, such as project foreman or quality control manager.

1.4.5 Permits and Licenses

As required or as directed by the Contracting Officer, obtain local, state, or federal permits and licenses that directly impact the Contractor's ability to perform the work prior to commencing removal operations.

1.4.6 Statutes and Regulations

Perform tank closures, removal, and disposal in accordance with 40 CFR 280, 40 CFR 262, 40 CFR 264, and 40 CFR 265 as well as the applicable local, and Federal regulations.

1.5 PROJECT/SITE CONDITIONS

Notify the Installation Environmental Coordinator (IEC) and the Contracting Officer 30 days prior to tank removal. The Contractor is responsible for contacting the Local Authority Having Jurisdiction in accordance with the applicable reporting requirements.

PART 2 PRODUCTS

2.1 PLASTIC SHEETING

Provide plastic sheeting conforming to ASTM D4397.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Furnish labor, materials, necessary permits, laboratory tests, and reports and equipment to remove and dispose of products remaining in the underground tanks; clean and vapor free the underground tanks and connecting piping; excavate, remove underground tanks and associated piping, and backfill to the level of the adjacent ground; sample soil and water to determine if contaminated; dispose of tanks and associated piping, and petroleum contaminated soil and water.

3.1.1 Safety Guidelines

Comply with personnel safety guidelines specified by the Authority Having Jurisdiction, and conform to the guidelines as stipulated in the approved

SSHP.

3.1.2 Exclusion Zone (EZ) And Contamination Reduction Zone (CRZ)

Do not permit personnel, not directly involved with the project, to enter work zones, called the EZ and CRZ. The EZ is an area around the tank a minimum of 3 m from the limits of the tank excavation. At the perimeter of the EZ, establish a CRZ. Clean equipment and personnel within the CRZ, as stated in the paragraph titled "Personnel and Equipment Decontamination." Locate the Contractor's site office, parking area, and other support facilities outside the EZ and CRZ. Clearly mark and post boundaries of the EZ and CRZ. Include a site map, outlining the extent of work zones and location of support facilities, in the SSHP.

3.1.3 Onsite Training

Prior to starting onsite work, conduct a health and safety training class directed by the SSHO to discuss the implementation of the SSHP. Notify the Contracting Officer 24 hours prior to beginning the training class.

3.1.4 Personnel Protection

Furnish appropriate personal safety equipment and protective clothing to personnel and ensure that safety equipment and protective clothing is kept clean and well maintained. Furnish three clean sets of personal protective equipment and clothing for use by the Contracting Officer or official visitors as required for entry into the EZ.

3.1.5 Respiratory Protection Program

Fully employ respiratory protection program, addressing respirator usage and training, in accordance with 29 CFR 1910 and EM 385-1-1.

3.1.6 Decontamination

Decontaminate or properly dispose of personal protective equipment and clothing worn in contaminated areas at the end of the work day. The SSHO is responsible for ensuring that personal protective clothing and equipment are decontaminated before being reissued.

3.1.7 Emergency Response and First Aid Equipment

- a. Prior to commencement of work, thoroughly review emergency response and contingency plan in accordance with 29 CFR 1910. In an emergency, take action to remove or minimize the cause of the emergency, alert the Contracting Officer, and institute necessary measures to prevent repetition of the emergency. Equip site-support vehicles with route maps providing directions to the medical treatment facility.
- b. Provide appropriate emergency first aid equipment for treatment of exposure to site physical and chemical hazards. Provide and post a list of emergency phone numbers and points of contact for fire, hospital, police, ambulance, and other necessary contacts. Provide and post a route map detailing the directions to the nearest medical facility.
- c. Notify the Contracting Officer of any unforeseen hazard or condition which becomes evident during work.

3.1.8 Burning and Explosives

Use of explosives or burning debris is not allowed. Do not permit ignition sources in the EZ and CRZ.

3.1.9 Protection of Existing Structures and Utilities

Take all necessary precautions to avoid damage to existing structures, their appurtenances, monitoring wells, or utilities that may be affected by work activities. Repair any damage to utilities and monitoring wells resulting from the Contractor's operations at no expense to the Government. Coordinate with the installation to locate underground utilities prior to beginning construction. Do not disturb utilities encountered which were not previously shown or otherwise located without approval from the Contracting Officer.

3.1.10 Shoring

Provide shoring in accordance with Local Authority requirements.

3.2 TANK CONTENTS VERIFICATION

Conduct sampling and analysis in accordance with the approved Sampling and Analysis Plan. Submit reports, including the chain-of-custody records.

3.2.1 Sampling

Sample tank product, pumpable liquids, tank coatings and sludge. If the data is not adequate, additional sampling and analysis to the extent required by the approved offsite facility receiving the material is the responsibility of the Contractor. Meeting all regulatory requirements, including the preparation of hazardous materials and waste for transportation, is the responsibility of the Contractor.

3.2.2 Analysis

Test tank contents for the parameters listed herein. Include total petroleum hydrocarbons (TPH), benzene, ethylbenzene, toluene and xylene (BETX) and lead in the analysis.

3.2.3 Characterization

Prior to removing any of the tank contents, characterize the contents to determine the type of required disposal: in a special manner based on local, state, and Federal disposal regulations. Characterize tank product, pumpable liquids, and sludge in accordance with 40 CFR 261 and 40 CFR 279. Submit the waste contents determination and accompanying test results for each phase present in the tank to the Contracting Officer.

3.3 CLEARING, GRUBBING AND REMOVALS

3.4 TOPSOIL

3.5 PREPARATIONS FOR EXCAVATION

Before excavating, remove residual liquids trapped in the product lines

and remove all product from the tank. Purge and vent the tank in accordance with API RP 1604, and as specified herein.

3.5.1 Removal of Product, Pumpable Liquids, and Sludge

Remove and dispose of tank product, pumpable liquids, and sludge. Use of Government facilities for permanent storage or disposal of the wastes is prohibited. Temporary storage on Government facilities will be allowed only until testing is complete, manifests (if necessary) are complete, and transportation is arranged. The Contractor is responsible for obtaining all required permits. Usable product shall be the property of the Contractor. Provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal restriction notices and notifications, necessary for accomplishment of the work, including materials necessary for cleaning up spills that could occur from tank removal operations.

3.5.2 Contaminated Water Disposal

3.5.2.1 Sampling, Analysis, and Containment

Sample and analyze contaminated water both prior to and after treatment. Conform analysis of contaminated water to be taken to an offsite treatment facility to the requirements of the treatment facility, with documentation of all analyses performed furnished to the Contracting Officer in accordance with paragraph RECORDS. Contain, store onsite, and analyze contaminated water prior to transport to the approved treatment, storage and disposal facility and dispose of in accordance with applicable disposal regulations set by the Authority Having Jurisdiction. Provide approved containers, vehicles, equipment, labor, signs, labels, placards and manifests and associated land disposal notices and notifications, necessary for accomplishment of the work.

3.5.2.2 Treatment

Treat contaminated water onsite or offsite by oil water separation , or other means as approved by the Contracting Officer. If contaminated water is to be treated onsite, specify the proposed treatment in the Work Plan and submit for approval, including the chain-of-custody records. Install temporary storage and treatment equipment in the general vicinity of the tanks at a location approved by the Contracting Officer. Sample and analyze treated effluent and secure approval of results by the Contracting Officer before discharge to the surface . Treat and discharge effluent in accordance with the discharge permit.

3.6 PURGING AND INERTING

After the tank and piping contents have been removed, but prior to excavation beyond the top of the tank, disconnect all the piping (except the piping needed to purge or inert the tank). Purge flammable and toxic vapors from the tank or make the tank inert in accordance with API RP 1604, with the exception that filling with water is not permitted and, if dry ice is employed, use a minimum of 1.8 kg per 500 L of tank volume. Continuously monitor the tank atmosphere for combustible vapors if the tank is purged, or continuously monitor for oxygen, if the tank is inerted.

3.7 EXCAVATION

Mark all excavation areas, as well as work near roadways, in accordance

with the requirements of the Authority Having Jurisdiction.

3.7.1 Tank Excavation

- a. Provide Contracting Officer with written documentation, no later than 30 days before work begins, that proper State or local authorities have been notified. Notify the Contracting Officer at least 48 hours prior to start of tank removal work. Stage operations to minimize the time that tank excavation is open and the time that contaminated soil is exposed to the weather. Provide protection measures around the excavation area to prevent water runoff and to contain the soil within the excavation area.
- b. Perform excavation around the perimeter of the tank to limit the amount of potentially petroleum contaminated soil that could be mixed with previously uncontaminated soil. Segregate petroleum contaminated soil in separate stockpiles.
- c. Maintain an excavation around the tank of sufficient size to allow workers ample room to complete the work, but also protect the workers from sliding or cave-ins. Install sheeting, bracing, or shoring in the absence of adequate side slopes if there is a need for workers to enter the excavated area. Divert surface water to prevent direct entry into the excavation.
- d. Dewatering of the excavation may require a discharge permit by the State and shall be limited to allow adequate access to the tank and piping, to assure a safe excavation, and to ensure that compaction and moisture requirements are met during backfilling. Dewatering may result in the production of petroleum contaminated water and/or free product. Recover free product from the groundwater only as part of necessary dewatering.
- e. Collect and test water generated by dewatering during excavation required for removal of tanks or piping, surface water collected in open excavation, or water used for washing equipment or existing concrete or bituminous surfaces, in accordance with EPA 530-R-97-007, EPA 600/4-79/020, EPA SW-846 and state or locally required analyses.

3.7.2 Temporary Containment of Excavated Soil

Provide temporary containment area near the excavated area. Cover containment area with 0.75 mm polyethylene sheeting. Place excavated soil on the impervious barrier and cover with 0.15 mm polyethylene sheeting. 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.

3.7.3 Piping Excavation

Perform excavation as necessary to remove tank piping and ancillary equipment in accordance with paragraphs: Shoring, Tank Excavation, and Open Excavations.

3.7.4 Open Excavations

Secure open excavations and stockpile areas while awaiting confirmation test results from the soil beneath the tank. Backfill the excavation as soon as possible after tank and contaminated soil removals have been

completed and confirmation samples have been taken. Divert surface water around excavations to prevent water from directly entering into the excavation.

3.7.5 Hidden Structures

During excavation activities, if asphalt pavement, concrete slabs, or other hidden structures are encountered, remove and wash with high pressure water cleaning equipment. Remove and dispose of the pavement, concrete, and other structures as specified in Section 02 41 00 DEMOLITION.

3.7.6 Stockpiles

Uncontaminated excavated soil shall be stockpiled and used for backfill in the tank excavation prior to using borrow material. Petroleum contaminated soil, that is not a state-regulated hazardous waste, shall be disposed of offsite. Excavated material that is regulated by the state as a hazardous waste which is visibly stained and which has an obvious petroleum odor or as required by the Authority Having Jurisdiction is considered contaminated. Place in containers such as drums, roll-offs or dumpsters for sampling in accordance with paragraph Stockpiled Material Sampling. Separately stockpile uncontaminated soil from the contaminated soil, a safe distance away from, but adjacent to, the excavation. Locate the container cover to prevent rain or surface water from coming into contact with the contaminated soil, as well as limit the escape of the volatile constituents in the container.

3.7.7 Acceptable Levels of Contamination

Take further samples and test soils with OVA/FID readings of 10 ppm or greater for TPH and for BTEX in accordance with EPA SW-846 and EPA 600/4-79/020, and for toxicity characteristic leaching procedure (TCLP) for lead if leaded gasoline was stored in or near the underground tank being removed. For stockpiled soils, provide a minimum of one test for every 77 cubic meters for TPH, and one test for every 77 cubic meters for BTEX and TCLP. Soils that contain 50 ppm or more TPH, 10 ppm or more BTEX or have TCLP reading of 10 ppm lead or virgin petroleum products are considered contaminated materials. Soils which are less than the above may be used as clean fill. Furnish results to the Contracting Officer within 24 hours after the results are obtained.

3.8 REMOVAL OF PIPING, ANCILLARY EQUIPMENT, AND TANK

3.8.1 Piping and Ancillary Equipment

Disconnect all piping and ancillary equipment from the tank. Remove the piping completely (interior and exterior of the tank) or as directed by the Contracting Officer. 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, as specified in the Work Plan, and as required in paragraph SPILLS. If the soil under and around the tank pad is contaminated, remove the tank pad and dispose of offsite at an approved waste facility.

3.8.2 Tank

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 and secure it with wood blocks to prevent movement.

3.8.3 Contaminated Soil, Tank and Piping Excavation Examination

- a. After the tank has been removed from the ground, examine and test the adjacent and underlying soil for any evidence of leakage. Visually inspect the soil for staining after removal of all obviously contaminated soil, then screen for the presence of volatile and/or semi-volatile contamination using a real time vapor monitoring instrument .
- b. If tank is 6 m or less in length, take two samples. Take each sample 0.60 m from each end of the tank and 0.60 m below the bottom of the excavation.
- d. Analyze samples for TPH, BTEX, and TCLP. Perform sampling and analysis conforming to standards specified above for stockpiled soils. Soils that contain 50 ppm or more TPH, 10 ppm or more BTEX, or have TCLP reading of 10 ppm of lead or virgin petroleum products are considered contaminated materials. Soils which are less than the above may be used as clean fill. Furnish results to the Contracting Officer within 24 hours after the results are obtained. Along with the results furnish a sketch showing underground tank, sampling location, and extent of excavations.
- e. Stockpile onsite in accordance with paragraph Stockpiles uncontaminated soil or Transport offsite for disposal petroleum contaminated soil not regulated by the state as hazardous waste. Stockpile contaminated soil or suspected contaminated soil, or, if the site is a RCRA-designated CAMU, containerized until further disposition.
- f. The Contracting Officer will determine the extent of the contaminated soil to be removed from each site, not to exceed 25 per site. Report any evidence indicating that the amount of contaminated soil may exceed the individual site limit specified, to the Contracting Officer the same day it is discovered. If minimal additional excavation is required, the Contracting Officer may allow the Contractor to proceed. If extensive contamination is encountered, sample the excavation and backfill in accordance with paragraph BACKFILLING.

3.8.4 Testing Along Piping

For every 7.5 m of product delivery piping, for every change in direction, and at every mechanical joint take one soil sample and analyze for TPH, BTEX, and TCLP. Conform sampling and analysis of soil materials to EPA standards specified above.

3.9 TANK CLEANING

Provide clean and vapor free tank in accordance with API RP 1604.

- b. Fuel Removal: All possible fuel will be pumped or otherwise removed from the tank by the Government. Consider remaining fuel contaminated or waste fuel; pump into 208 liters drums or other suitable containers for disposal in accordance with approved procedures meeting local, State, and Federal regulations. Dispose of remaining fuel emulsions in accordance with applicable local, State, and Federal regulations. Drums or tanks used for containerizing waste fuel will be furnished by the Contractor. Oil/water separator for fuel will be furnished by the Contractor.

3.9.1 Exterior

Remove soil from the exterior of the tank, piping, and associated equipment to eliminate soil deposition on roadways during transportation to a temporary storage area, ensure markings will adhere to the surfaces, and simplify tank cutting. Use non-sparking tools to remove soil. Recover removed uncontaminated soil and use them as backfill in the former tank excavation. Remove and containerize soil believed to be contaminated.

3.9.2 Temporary Storage

If the tank is stored after the tank exterior is cleaned and ancillary equipment is removed, and prior to being cut into sections, label the tank as directed in API RP 1604, place it on blocks, and temporarily store it on a flat area adjacent to the excavation. Prior to cleaning the tank interior, monitor the tank atmosphere for combustible vapors and purge or inert it if combustible vapors are detected. Provide warning labels as follows:

"TANK HAS CONTAINED LEADED GASOLINE

NOT VAPOR FREE

NOT SUITABLE FOR STORAGE OF FOOD OR LIQUIDS
INTENDED FOR HUMAN OR ANIMAL CONSUMPTION

DATE OF REMOVAL: MONTH/DAY/YEAR"

Make tank unusable for future use, then transport and dispose of tank in accordance with Federal and local regulations.

3.9.3 Interior

Clean tank interior using a high pressure (greater than 3.45 MPa), low volume (less than 0.13 L/s) water spray or Steam clean tank interior until all loose scale and sludge is removed, and contamination, in the form of a sheen, is no longer visible in the effluent stream. Also clean the interior surfaces of piping, to the extent possible, using the same method used for cleaning the tank. Contaminated water generated from interior cleaning operations (of both piping and tank) shall not exceed the following quantities for each UST cleaned:

UST VOLUME (LITERS)	PERCENT OF UST VOLUME
3,785 or less	5

Handle in accordance with paragraph Contaminated Water Disposal all contaminated water resulting from cleaning operations. Clean so as to eliminate, to the greatest extent possible, the need for personnel to enter the tank. Use specially designed tank cleaning equipment which allows the tank to be cleaned prior to cutting into sections without requiring personnel to enter the tank or, if less specialized equipment is used, the tank shall be partially dissected to overcome confined space entry hazards. Accomplish this work in accordance with the requirements of the Authority Having Jurisdiction.

3.10 SOIL EXAMINATION, TESTING, AND ANALYSIS

3.10.1 Tank Excavation Sampling Procedures

After soil known to be contaminated has been removed or after soil excavation is complete, sample the excavation with procedures, number, location, and methodology in accordance with state regulations.

3.10.2 Stockpiled Material Sampling

Sampling locations, number and specific procedures are as required by the Authority Having Jurisdiction and the disposal facility.

3.10.3 Analysis

Test soil samples from the excavation and stockpiled material in accordance with the approved Sampling and Analysis Plan for the following parameters: total petroleum hydrocarbon (TPH), benzene, ethylbenzene, toluene, xylene (BETX) and toxicity characteristic leaching procedure (TCLP). Submit copies of all test results, including the chain-of-custody records, to the Contracting Officer.

3.11 BACKFILLING

- a. Backfill the tank area and any other excavations only after the soil test results have been approved. Complete contaminated soil removal after approval by the Contracting Officer.
- b. Dewater the excavation if necessary. Use stockpiled material, subjected to chemical confirmation testing as backfill, if it is found to conform to the requirements of clean fill in accordance with appropriate local regulations. Place clean backfill in layers with a maximum loose thickness of 200 mm, compacted to 90 percent maximum density for cohesive soils and 95 percent maximum density for

cohesionless soils. Perform density tests using an approved commercial testing laboratory or by facilities furnished by the Contractor. Attach test results to Contractor's Quality Control Report; submit 3 copies of the report for each UST site opened, prepared in a standard 3-ring binder, within 14 days of completing work at each site. Label each binder with contract number, project name, location and tank number; each binder shall be indexed. Furnish a copy of the report to the Installation Environmental Coordinator. Perform a minimum of 1 density test on each lift. Determine laboratory tests for moisture density relations in accordance with ASTM D1557, Method B, C, or D, or ASTM D6938. A mechanical tamper may be used, provided that the results are correlated with those obtained by the hand tamper. Determine field in-place density shall be in accordance with ASTM D1556/D1556M, ASTM D6938, or ASTM D2167.

3.12 DISPOSAL REQUIREMENTS

3.12.1 Treatment, Disposal, and Recycling

Perform disposal of hazardous or special wastes in accordance with all local, State, and Federal solid and hazardous waste laws and regulations; and conditions specified herein. This work includes all necessary personnel, labor, transportation, packaging, detailed analyses (if required for disposal, manifesting or completing waste profile sheets), equipment, and reports. Recycle product and pumpable liquids removed from the tank to the greatest extent practicable. Dispose of the tanks removed in a manner approved by the local jurisdiction. Provide manifest for each tank disposed of in this manner as required by the Authority Having Jurisdiction to document delivery and acceptance at the disposal facility.

3.12.2 Tank and Ancillary Equipment Disposal

After the tank, piping, and ancillary equipment have been removed from the excavation and the tank cleaned, cut the tank into sections with no dimension greater than 1500 mm. Dispose of tank and piping sections in a local approved offsite disposal facility. Perform tank cutting prior to being taken from the tank removal site. Do not sell the tank intact. Dispose of ancillary equipment at an approved offsite disposal facility. Piping shall be disconnected from the tank and removed unless otherwise indicated.

3.12.3 Transportation of Wastes

Provide transportation in accordance with Department of Transportation (DOT) Hazardous Material Regulations and State and local requirements, including obtaining all necessary permits, licenses, and approvals. Submit evidence that a State licensed waste transporter is being used.

3.12.4 Salvage Rights

The Contractor retains the rights to salvage value of recycled or reclaimed product and metal not turned in to the DRMO or otherwise identified, so long as the requirements of 40 CFR 266 and 40 CFR 279, or the applicable State requirements are met. At the end of the contract, provide documentation on the disposition of salvaged materials.

3.12.5 Manifest Records

Maintain records of all waste determinations, including appropriate

results of analyses performed, substances and sample location, the time of collection, and other pertinent data as required by 40 CFR 280, Section 74 and 40 CFR 262 Subpart D. Also record transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and the disposal or reclamation facility, shall and available for inspection, as well as copies of the following documents:

- a. Manifests.
- b. Waste analyses or waste profile sheets.
- c. Certifications of final treatment/disposal signed by the responsible disposal facility official.
- d. Land disposal notification records required under 40 CFR 268 for hazardous wastes.

3.12.6 Documentation of Treatment or Disposal

Take wastes, other than recyclable or reclaimable product or metal, to a treatment, storage, or disposal facility which has EPA or appropriate state permits and or special waste identification numbers and complies with the provisions of the disposal regulations. Furnish documentation of acceptance of special waste by a facility legally permitted to treat or dispose of those materials shall be furnished to the Contracting Officer not later than 5 working days following the delivery of those materials to the facility; and include a copy in the Tank Closure Report. Furnish a statement of agreement from the proposed treatment, storage or disposal facility and certified transporters to accept or special wastes in the Work Plan. If the Contractor selects a different facility than is identified in the Work Plan, provide documentation for approval to certify that the facility is authorized and meets the standards specified in 40 CFR 264.

3.13 SPILLS

Use appropriate vehicles and operating practices to prevent spillage or leakage of contaminated materials from occurring during operations. Inspect vehicles leaving the area of contamination to ensure that no contaminated materials adhere to the wheels or undercarriage. Take immediate containment actions as necessary to minimize effect of any spill or leak. Cleanup in accordance with applicable Federal, State, local laws and regulations, and district policy at no additional cost to the Government.

3.14 INSPECTIONS

Arrange for and perform required inspections. Provide copies of inspections to Contracting Officer.

3.15 TANK CLOSURE REPORT

Submit a Site Assessment/Tank Closure Report in a single binder notebook containing a collection of reports, records, starting and ending dates of reporting period, inspections, documentation, and data as follows:

- a. Complete UST Notification Form (within 30 days of closure).

- b. Description of work, including removal procedures, number of tanks removed, identification of tanks removed and disposed of (include site map showing location of tank and piping), cubic yards of excavated soil, location of disposal sites, and dates of excavation.
- c. Site plan, including location of tanks and piping, limits of excavation, sampling points, results of excavation, and depths.
- d. Laboratory and field testing reports, copies of data and test results from testing laboratory and the chain-of-custody records.
- e. Tank disposal paperwork (3 copies of UST Notification Form and method of conditioning tank for disposal), contaminated soil disposal paperwork (include laboratory testing reports), and contaminated water disposal paperwork (include laboratory testing reports).
- f. Certifications required by implementing agency.
- g. Building permit, inspection permits, and other permits required for underground tank removal, notifications, and inspection reports.
- h. Cumulative quantities of soil excavated, beginning with start date for each tank and associated piping.

3.16 COMPACTION, FINISH GRADING, and SEEDING

Provide backfill, compaction, grading, and seeding in accordance with Section 31 00 00 EXCAVATION. Line the excavation with two plastic sheets before backfilling.

-- End of Section --