****

U.S. ARMY CORPS OF ENGINEERS MRD-02070
SACRAMENTO DISTRICT ----------
SACRAMENTO, CA June 1991

UNDERGROUND STORAGE TANK REMOVAL

****

PART 1 GENERAL

****

NOTE: See additional Note A.

****

1.1 SUMMARY (Not Applicable)

****

NOTE: Paragraph "1.1. SUMMARY (Not Applicable)" is required in all CEGS in order to make CEGS compatible with guide specifications of other agencies within the SPECSINTACT system. However, this paragraph is not to be included in Corps of Engineers project specifications.

****

1.2 REFERENCES

****

NOTE: Issue (date) of references included in project specifications need not be more current then provided by the latest change (Notice) to this guide specification.

****

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

****

NOTE: Edit out those publications which are not referenced in the body of the specification.

Include the applicable state and local regulatory references in this paragraph, and include where appropriate in the body of the specification.

****

AMERICAN PETROLEUM INSTITUTE

RP1604-1987 & 3 Mar 89 Supplement — Removal and Disposal of Used Underground Petroleum Storage Tanks
Bull 1628 — Underground Spill Cleanup Manual
RP 2003 — Protection Against Ignitions Arising out of Static, Lightning and Stray Currents
Publ 2O15A — A Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning
Publ 22l7 — Guidelines for confined space work in the Petroleum Industry
Publ 22l9 — Safe Operating Guidelines for Vacuum Trucks in Petroleum Service

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) PUBLICATIONS

D 1556-82 — Density of Soil in Place by the Sand Cone Method
D 1557-78 — Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18-inch (457 mm) Drop.
D 2167-84 — Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
D 2487-85 — Classification of Soils for Engineering Purposes.

MILITARY STANDARDS

EM 385-1-1 (Rev Oct 87) — Corps of Engineers Safety and Health Requirements Manual.

CODE OF FEDERAL REGULATIONS - PROTECTION OF THE ENVIRONMENT SUBCHAPTER I - SOLID WASTES

40 CFR 260 — Hazardous Waste Management System: General
40 CFR 261 — Identification and Listing of

Hazardous Waste
40 CFR 262 Standards Applicable to Generators of Hazardous Waste
40 CFR 263 Standards Applicable to Transporters 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 280 Underground Storage Tanks; Technical Requirements

CODE OF FEDERAL REGULATIONS - TRANSPORTATION - SUBCHAPTER B - HAZARDOUS MATERIALS TRANSPORTATION AND PIPELINE SAFETY.

49 CFR 1O6 Rulemaking Procedures
49 CFR 107 Hazardous Materials Program Procedures

CODE OF FEDERAL REGULATIONS - TRANSPORTATION - SUBCHAPTER C - HAZARDOUS MATERIALS REGULATIONS

49 CFR 171 General Information, Regulations, and Definitions
49 CFR 172 Hazardous Materials Tables and Hazardous Materials Communications Regulations
49 CFR 173 Shippers - General Requirements for Shipments and Packaging
49 CFR 174 Carriage by Rail
49 CFR 177 Carriage by Public Highway
49 CFR 178 Shipping Container Specifications
49 CFR 179 Specifications for Tank Cars

[NATIONAL FIRE PROTECTION ASSOCIATION

30 Flammable and Combustible Liquids Codes
327 Standard Procedure for Cleaning or Safeguarding Small Tanks and Containers
329 Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids]

APPLICABLE STATE AND LOCAL REGULATIONS

1.3. UNIT PRICES

****

NOTE: Unit prices may be used when appropriate, and underground storage tank (UST) removal is a significant portion of the contract. Examples of Unit Pricing Bid Forms are in the Appendix. When UST removal is a relatively minor portion of a much larger contract, it may be most appropriate to include the UST removal costs in the lump sum bid. Coordinate with the appropriate contracting personnel regarding the best method to bid the project.

****

1.4. DEFINITIONS

1.4.1. Purging. Continuous removal of flammable or toxic vapors from the interior of a tank to a safe level appropriate with the level of personal protective equipment (PPE) prescribed.

1.4.2. Ancillary Equipment. Ancillary equipment includes, but is not limited to dispensing equipment, pumps, piping, valves, vent tubes, and underground service piping.

1.4.3. Phase. A distinctly separate stratified liquid or solid layer(s) of material contained within the tank.

1.4.4. Residue. Solid or semisolid material, sludge, liquid or vapor remaining in the tank(s) following removal of water and the liquid phase the tank was designed to store.

1.4.5. Disposal. Means the discharge, deposit, injection,

dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

1.4.6. Plan of Operations. The contractors comprehensive plan for the complete process of tank removal. As a minimum the plan would include but not be limited to excavation, removal and ultimate disposal of the tank, its contents, and any contaminated materials.

1.4.7. Contaminated Soil. Soil containing concentrations of chemical constituents above a predetermined level which require special precautions and/or disposal methods. The action level at which the state of _____ defines soil as being contaminated is [100] ____ ppm expressed as [total recoverable petroleum hydrocarbons (TRPH)] [_____].

1.4.8. Clean Fill. Materials shall conform to the requirements identified in ASTM D 2487, be free from roots, trash, debris, frozen material and stones larger than 3 inches, and materials not classified as ML, PT, OH, and OL. Materials from landfills, refuse, debris from previous construction or materials containing contaminated soil shall not be used as clean fill. Results of laboratory testing shall be submitted for approval to verify the fill meets these requirements.

1.4.9. Underground Storage Tank (UST). Any one or combination of tanks (including underground piping connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground.

1.4.10. Contaminated Water. Water containing concentrations of chemical constituents above a predetermined level which require special precautions and/or disposal methods. The action level at which the state of _____ requires special disposal requirements is [_____] 100 ppm expressed as] [total recoverable petroleum hydrocarbons (TRPH) [_____] [or discharge standards as identified in Paragraph 3.3.3. Contaminated Water].

****

NOTE: Coordinate the use of total petroleum

hydrocarbons (TPH) vs. total recoverable petroleum hydrocarbons (TRPH) in Paragraphs 1.4.7., 1.4.10. and throughout the specification based on the implementing agencies (IA) requirements.
****

1.5. SYSTEM DESCRIPTION (Not Used)

1.6. SUBMITTALS
****
NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.
****

In accordance with [SECTION: SPECIAL CLAUSES] [SECTION 01300: SUBMITTALS], the contractor shall submit the following items required by this section.

1.6.1. Category I.

1.6.1.1. Qualifications (1.7).

1.6.1.2. Plan of Operations (3.2.1.3.).

1.6.2. Category II. (For Information).

1.6.2.1. Test results for clean fill material (1.4.8.).

[1.6.2.2. Results from Sampling and Analysis of Tank Liquids, Residues, Contaminated Water, and Contaminated Soils (3.2.3., 3.2.5., 3.3.2., 3.3.3., 3.8.2.).]

[1.6.2.3. Proposed Wastewater Treatment Facilities, (3.3.3.2.)].

1.6.2.4. Documentation of Disposal (3.9.1., 3.9.6., 3.9.7., 3.9.12.)

1.6.2.5. List of Transporters and Disposal Facilities (3.9.7., 3.9.14.).

1.6.2.6. Manifests for Hazardous Waste Disposal (3.9.1.,

3.9.7.).

1.6.2.7. Solid Waste Transporters Permit (3.9.2., 3.9.14.).

1.6.2.8. License of Waste Disposal Facility (3.9.1., 3.9.2., 3.9.6., 3.9.8.).

1.6.2.9. Site Closure Documentation (3.10.).

****

NOTE: Chemical Data Acquisition Plan (CDAP) and

responsibility of the contractor.

1.8.3. Notification. The contractor shall notify the Installation Environmental Coordinator [_____] and the Contracting Officer's Representative (COR) [__] days prior to tank removal. The [COR] [contractor] [installation environmental coordinator] shall be responsible for contacting the Implementing Agency (IA) [_____] in accordance with the applicable reporting requirements.

****

NOTE: Various states will have an inspector present at the site during removal operations if requested and scheduled in advance. This practice is encouraged and expedites operations. Refer to the notes in the appendices of this specification for a list of state contacts.

40 CFR 280.71 requires a minimum of 30 days notice prior to a change in service or closure (or another reasonable time period as determined by the implementing agency). Coordinate closure requirements with the installation and the state to ensure adherence with the state's procedures, and to allow adequate time for any work performed for the installation by their design agent to be processed through the necessary installation channels.

RCRA Subtitle C tank closures fit into 3 categories:

1) Legally unpermitted tanks (these tanks store hazardous waste for less than 90 days);
2) Illegally unpermitted tanks (these tanks must be closed as a landfill);
3) RCRA Part B Permitted tanks which must have a spec closure plan completed and approved by the Implementing Agency (IA) prior to commencing closure activities. Coordinate with the installation environmental coordinator to ensure subtitle C tank closures are being accomplished in accordance with the applicable regulatory standards including the requirements defined in the Land Ban 40CFR 268. Uncertainties should be forwarded to the IA prior to com-mencing construction to ensure regulatory compliance. RCRA Subtitle C closures shall be

accomplished in accordance with the closure plans previously prepared and approved. Sections of this specification shall be modified, deleted, or otherwise revised as necessary to conform with those closure plans.

****

1.8.4. Disposal. Wastes resulting from tank removal activities shall be disposed of in accordance with Paragraph 3.9: DISPOSAL REQUIREMENTS.

1.9. FIELD EXAMPLES (Not Used).

1.10. MOCK-UPS (Not Used).

1.11. PREINSTALLATION CONFERENCE (Not Used).

1.12. DELIVERY/STORAGE/HANDLING

1.12.1. Tank Contents Handling and Storage. Any residue removed from the tanks shall be handled [and sampled] in accordance with the requirements identified in Paragraph 3.2.5.: Tank Contents Verification, and Paragraph 3.3.: PREPARATION FOR REMOVAL.

1.12.2. Soil Stockpiles. Soil excavated during tank removal operations shall be placed into separate contaminated and uncontaminated stockpiles as specified in Paragraph: 3.4.2.3.: Stockpiles. Uncontaminated soil shall [upon receipt of verification testing results] be used as fill for the excavation. Soil shall be treated in accordance with Paragraphs: 3.8.: SOIL TESTING AND ANALYSIS, 1.14.4.: EXCAVATIONS; and disposed of in accordance with Paragraph: 3.9.: DISPOSAL REQUIREMENTS.

****

NOTE: Refer to notes following Paragraphs 1.13.1, and 3.2.3. regarding special sampling and analysis requirements.

****

1.13. PROJECT/SITE CONDITIONS

1.13.1. General Site Information. In general, the work will consist of removal, decontamination and disposal of [____]

[_____] gallon [abandoned] underground storage tanks and associated piping. The tanks are at [the locations shown on the drawings] [the following locations: _____. The existing [_____] gallon tanks were used for storing [(un)leaded gasoline] [fuel oil] [diesel fuel] [waste oil] [_____] and were taken out of service in [_____]. Residue remaining in the tanks is considered [a special waste] [as hazardous waste] and shall be properly handled and disposed of in accordance with all federal, state, and local environmental regulations. [Inferred subsurface conditions are represented on [sheets _____] [figures _____.]] [Existing native soils are predominately _____. Backfill material is typically a _____.] [Groundwater [has been encountered within _____ feet of the surface] [is not expected to be encountered]. The Contractor is responsible for verifying the actual conditions prior to submitting a bid.] Contaminated surface soils and soils surrounding the tanks shall be properly handled and disposed of as [a special waste] [a hazardous waste] in accordance with all federal, state, and local environmental regulations. The site shall be [treated as a hazardous waste site and] given special consideration due to the nature of the materials and hazards present until closure activities are complete. Listed below are a list of tasks which are required for this project:

Sample, analyze, and characterize tank contents

Remove tank contents

Remove and Dispose of concrete slab above the tank and piping

Purge the tank

Excavate and stockpile material to expose tanks and piping

Disconnect piping from the tank

Decontaminate and remove piping

Remove tanks

Clean and decontaminate tank exteriors

Remove residue from tanks

Cut up and decontaminate tank interiors, collect and analyze resulting water

Sample and analyze soil at the bottom of the tank excavation, and soil stockpiles

Remove and dispose of concrete hold down slab, anchors and straps for the tank

Remove and dispose of contaminated soil

Dispose of the cut up tank sections

Transport [treat] and properly dispose of all wastes generated during the project, (soil, tank residue)

Backfill excavation and seed or pave

****

NOTE: Include any pertinent information regarding the former uses of the area including use as a gas station, waste oil storage facility, any chemical analyses done on contents, leak testing results, and any hazardous material that has been stored there, if it has been removed and any unusual site features that may be helpful to the bidders.

If waste oil tanks were included in the Installation Part B Permit, include that information in this paragraph.

NOTE: Edit these tasks to reflect the actual scope of the project, tasks may be added and deleted as required. Coordinate these tasks with the detailed paragraphs herein after.
Some states have designated non-contaminated waste oil as a special waste. Special wastes are not considered hazardous waste, however they are not considered to be municipal wastes either. Coordinate with the appropriate implementing state agency regarding proper disposal procedures and incorporate these requirements into Paragraphs 3.2.5., 3.3.2., 3.3.3., 3.7. and 3.9.

NOTE: TSD facilities are referenced throughout the specification. If applicable to your project leave them in, however if states or other IA do not require disposal in a facility defined as a TSD, delete it throughout the specification and insert the special landfill requirements or other suitable to terminology throughout the spec as appropriate.

If tank contents have previously been sampled and analyzed, include that information in tabular form similar to that shown in the Appendix to this specification.

Refer to the attached appendix for examples of bid schedules. See note following paragraph 3.3.2.3.

Provide only known (not inferred) information about subsurface conditions. Any drawing, table, or sheet presenting the information should provide the date the information was generated and caveat that subsurface conditions can vary from those displayed.

1.13.2. Borrow Area. Borrow shall be obtained from [the location indicated on the drawings] [off-site]. Clean fill imported from off site, classified in accordance with ASTM D 2487 as GW, GP, GC, SW, SC, CL, or CH free from snow, ice or frozen material may be utilized at the Contractors option. If off site materials are used, the contractor shall submit soil classification test results for approval prior to bringing the material on site.

1.13.3. Backfill. Backfill consisting of clean fill shall be placed in layers with a maximum loose thickness of [__] [8] inches, and compacted to [90] [__] percent maximum density for cohesive soils and [95] [__] percent maximum density for cohesionless soils. Density tests shall be performed by an approved commercial testing laboratory or by facilities furnished by the contractor. A minimum of one density test shall be performed on [each] [every ___] lift. Laboratory tests for moisture density relations shall be determined in accordance with ASTM D 1557, Method B, C, or D. A mechanical tamper may be used, provided that the results are correlated with those obtained by the referenced hand tamper. Field in place density shall be determined in accordance with ASTM D

1556, or ASTM D 2167.

****

NOTE: Various subparagraphs of paragraph 1.13 may be deleted if other suitable specification sections are already addressing the subject matter discussed.

Establish the number of tests and the frequency of the tests based on the size of the tank(s) to be removed and the locations from which the tanks are to be removed. In some cases, such as under pavements, special compaction and material requirements may apply and the specifications will need to be revised to address these special requirements.

****

1.14. SEQUENCING AND SCHEDULING

1.14.1. Plan Submittals. Work shall proceed in a manner to minimize disruption to operations at the effected facilities. The Contractor shall be responsible for submitting and obtaining approval of the chemical data acquisition plan, plan of operations, and site specific safety and health plan prior to beginning operations.

1.14.2. Permits. The Contractor shall coordinate with the installation and obtain all permits required by the installation prior to commencing tank removal activities.

[1.14.3. Tank Contents Verification. The Contractor shall characterize the wastes as specified in Paragraph 3.2.5.: Tank Contents Verification, prior to removing the contents.]

****

NOTE: Delete paragraph if government does sampling.

****

1.14.4. Excavations. The Contractor shall secure open excavations and stockpile areas while awaiting verification test results from the soil beneath the tank. The contractor shall schedule verification analyses to ensure that the results are available within [3] [____] days, the excavation shall not be left open for a period exceeding [5] [____] days. The contractor shall divert surface water around excavations to prevent water from directly entering into the excavation.

****

NOTE: The duration that tank excavations are left open depends on a variety of factors, a major one being the capability of the contractors lab to provide analyses within the specified turn around time. Short turn around times add cost to the contract, so carefully evaluate the need so unnecessary costs are not incurred to the contract.

****

1.15. WARRANTY (Not Used)

1.16. MAINTENANCE (Not Used)

PART 2. PRODUCTS (Not Used)

****

NOTE: See Additional Note B.

****

PART 3. EXECUTION

****

NOTE: See Additional Notes C and D.

****

3.1. General. The Contractor shall furnish all labor, materials, and equipment required for tank and ancillary equipment [dismantling], [cleaning], [temporary storage], [removal], [transport], [sampling], and disposal of the tank, [associated piping], [liquids], [residues], [and contaminated soils] [off-site], [at the location indicated on the drawings],
[at a location approved by] [the Contracting Officer] [in cooperation with] [the State Department of_____].
The contractor shall be responsible for providing information contained in Paragraph 3.10: TANK CLOSURE REPORTS, which is necessary for the user to submit to the implementing agency (IA)
to close the site.

****

NOTE: Various states will have an inspector present at the site during removal operations if requested

and scheduled in advance. This practice is encouraged and expedites operations. Refer to the information in the appendices of this specification for a list of state contacts. Reference notes to the designer following Paragraph 1.8.3.

****

3.2. PREPARATION

3.2.1. Protection.

3.2.1.1. Protection of Existing Structures and Utilities. The contractor shall take all necessary precautions to assure no damage occurs to existing structures, their appurtenances, monitoring wells, or utilities that may be effected by work activities. Any damage to utilities [monitoring wells] resulting from the Contractors operations shall be repaired at no expense to the government. Except where banks are cut back on stable slopes, excavations shall be sheeted, braced, and shored, as necessary to prevent caving or sliding, to provide protection for workmen and the work, and to provide protection for existing buildings and structures. Sheeting, shoring, and bracing shall be designed and built to withstand all loads from soil pressure, structures, and construction loads, preventing damage to any existing buildings and structures which could be caused by settlement or movement of the soil. The contractor shall coordinate with the facility to locate underground utilities prior to beginning construction. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without coordinating with the Contracting Officer's Representative (COR).

3.2.1.2. Burning and Use of Explosives. Use of explosives or burning debris shall not be allowed.

3.2.1.3. Plan of Operations. The Contractor shall develop, implement, maintain, and supervise a comprehensive Plan of Operations for those tasks listed in Paragraph 1.13.1.: General Site Information. The contractor shall also include scheduling, operational sequencing, and a spill prevention and spill control plan as part of the Plan of Operations. Procedures shall be based on the guidance provided in these specifications and actual site conditions. The Contractor shall submit the Plan of Operations to the Contracting Officer's representative for approval within [30] [___] days

after notice to proceed, prior to commencing operations.

3.2.1.4. Safety Guidelines. Contractor personnel working [inside and] in the general vicinity of the tank shall be trained and thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work. The contractor shall utilize proper personal protection and safety equipment during work in and around the tank as specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE.

3.2.2. Surface Preparation.

3.2.2.1. Road and Parking Lot Closings, and Digging Permits. The contractor shall obtain the necessary permits required by the installation to do excavation within the facility boundary. The contractor shall notify the [Directorate of Engineering and Housing] [Base Civil Engineer] a minimum of [14] [__] calendar days prior to beginning work in the effected areas. Excavation areas as well as work near roadways shall be marked in accordance with the requirements specified in the Safety and Health Requirements Manual (EM 385-1-1).

****

NOTE: This information is necessary for the facility to reroute traffic, and notify the appropriate personnel that alternate parking locations must be used for a period of time. Digging or other excavation permits are required to allow the DEH, or BCE to determine if utilities are present in the area that require marking or other precautions be taken.

****

3.2.2.2. Clearing. Sufficient surface areas as [shown on the drawings] [as required and directed by] [the Contracting Officer's Representative] shall be cleared of surface obstacles, trees, stumps, pavement, or concrete prior to commencing operations. Concrete or asphalt pavement shall be broken and removed with the resulting debris disposed [off government property] [at the location shown on the drawings]. [Chain link fence shall be [removed and salvaged for reuse] [disposed of off-site]].

3.2.2.3. Topsoil. Uncontaminated topsoil shall be stripped and stockpiled separately for reuse [at the location shown]

[at a location approved by the Contracting Officer's Representative] [if it meets the requirements of clean fill].

3.2.3. Sampling and Analysis. The contractor shall [not] be responsible for performing the necessary analyses of the indicated tank(s) [liquid contents], [residues] [and soils [and groundwater] within the excavation zone] to determine if the aforementioned materials must be characterized as [hazardous] [special] wastes. [The results of previous chemical analyses of tank contents are presented in Table _____.] [The contractor shall be responsible for additional waste characterization testing required by the treatment, storage, disposal facility, which conforms to all State and Federal regulatory requirements, in excess of the [requirements specified] [data included] in Table _____] [in SECTION: CHEMICAL DATA QUALITY MANAGEMENT].
****

NOTE: Due to the limited cost of these individual projects, a large number of tank removal projects should be expected to be performed by small local or disadvantaged contractors with limited resources. In an effort to ensure complex regulatory requirements are expeditiously met at a minimal cost, each construction district is encouraged to perform sampling and analysis with in house forces to ensure the customer is given the best value for his dollar.

For additional information regarding characteristic testing refer to 40 CFR 261 as amended.

Coordinate with state regulators prior to establishing the number or type of samples and at what locations they are to be taken. Several states have preset procedures that must be adhered to, so contact the appropriate regulators, it may save you time, money and some embarrassment. Also determine what the requirements are to accomplish a clean closure, including any information regarding maximum volume of soil that can be removed from each site or maximum concentrations of contaminants that can remain in place within the context of the applicable regulations.

NOTE: Coordinate with the customer regarding their

desires concerning designers discussions with the regulators, and if any unique requirements exist. Some MACOMS require the Project/Program Manager either be responsible for all coordination or be included on all contacts with the regulators.

****

3.2.4. Tank Location Verification.

3.2.4.1. Tank Location [and Contents] Verification. The contractor shall be responsible for performing the [_____] investigations necessary to verify the tank location, dimensions, [construction materials], and ancillary equipment requiring removal for the tanks [summarized in Table ___ and] [not] shown on the drawings. [Investigations performed shall be accomplished at no additional cost to the government].

****

NOTE: Delete the blank or add specific methods such as metal detection, ground penetrating radar, magnetometry or other methods as well as location surveys using USGS or state plane coordinate system to locate the tanks. More information on geophysical techniques can be found in the following publications:

EM 1110-1-1802 Geophysical Exploration 31 May 1989 Geophysical Techniques for Sensing Buried Waste and Waste Migration. U.S. Environmental Protection Agency.

Edit out those items not applicable to the work.

****

3.2.5. Tank Contents Verification.

3.2.5.1. Sampling. The contractor shall [not] be responsible for sampling tank residues, [and liquids]. [If the data contained in Table ____ is not adequate, additional sampling [and analysis] to the extent required by the approved [off-site] [permitted treatment, storage or disposal (TSD)] facility receiving the [waste] material shall be the responsibility of the contractor [the government]. The [contractor] [government] [state inspector] shall be respon-sible for sampling the soils beneath the tank [and soil

stockpiles] to confirm the presence or absence of contamination [as directed by the [state representative] through the COR]. Meeting all regulatory requirements, including manifesting shall be the responsibility of the contractor.]

****

NOTE: If the contents have been properly characterized or already removed and disposed of delete the non-applicable portions of the specification.

If sampling and/or analysis is to be accomplished by the government, the applicable parameters to be quantified must be identified in the specification to enable the contractors TSD facility to ascertain if additional analysis is and can be reflected in the bid.

Coordinate with the state or local regulators regarding availability of personnel to oversee operations, and edit the spec accordingly.

Identify TSD facilities appropriate to accept the wastes generated by this project. Also ensure that bid acceptance is subject to the bidders having a signed letter of acceptance from a permitted TSD attached to the bid, otherwise the bid should be declared non-responsive.

****

3.2.5.2. Analysis. Tank contents shall be tested for [the parameters listed in Table ___] [_____] by the [government] [contractor]. [All characteristic analyses shall be done in conformance with [40 CFR Section 261.20 through 261.24, the applicable state regulations, [_____] and] [SECTION: CHEMICAL DATA QUALITY MANAGEMENT]].

****

NOTE: Reference the appropriate chemical analysis section of the specifications if different than the one referenced.

List the appropriate state regulations following the reference to characteristic testing in 40 CFR 261. If dealing with listed wastes reference all

analytical requirements to the Chemical Data Quality Management Specification.

Either list the parameters in the text or in tabular form. Include the applicable analytical methods to be used, EPA SW 846 series, or other approved methods if a CDQM spec is not provided for petroleum tanks.

****

3.2.5.3. Characterization. [Prior to removing any of the tank contents,] The Contractor shall have the waste characterized to determine if the tank contents must be disposed [as a] [hazardous] [special] waste, [in a special manner] based on [local], state, and federal disposal regulations. [Chemical analyses shall be performed in accordance with SPECIFICATION SECTION: CHEMICAL DATA QUALITY MANAGEMENT.] The contractor's [hazardous] [special] waste contents determination and accompanying test results [for each phase present in the individual tanks] shall be submitted to the COR before removing the waste off the installation]. [If the sampling and analyses are done by the Government the Contractor shall be responsible for any additional requirements identified by the disposal facility.] [The following analyses will be performed by the government:

a. _____
b. _____
c. _____

Disposal of tank contents shall be accomplished in accordance with the requirements specified in Paragraph 3.9.: DISPOSAL REQUIREMENTS, [SPECIFICATION SECTION: _____.]

****

NOTE: "in a special manner" - Some states require that petroleum contaminated soils (special wastes) be disposed of in specially designated landfills. Coordinate with the appropriate state officials.

If a separate specification section dealing with waste disposal is already a part of the contract documents, delete the reference to paragraph 3.9 and

add the appropriate reference.

Chemical Data Quality Management should reflect the most cost effective analyses and CDQM requirements. Fully evaluate the CDQM requirements prior to editing the specification to ensure needless expense is not incurred. Refer to ER-1110-1-263 Chemical Data Quality Management, and EM-1110-CDQM for Petroleum Storage Tank Remediation Projects Under DERP, for information.

Analyses should match the contents of the tank. In certain instances where the tanks are known to have contained listed wastes, the appropriate analyses should be performed to ensure proper precautions, handling, and disposal occurs.

See note 2 following paragraph 3.2.5.1.
****

3.3. PREPARING TANKS FOR REMOVAL.

3.3.1. Tank Deactivation Operations. The Contractor shall develop, implement, maintain, and supervise as part of the Plan of Operations, a comprehensive plan for tank removal and related operations as specified in Paragraph 3.2.1.3.: Plan of Operations. The Plan of Operations shall be based on work experience, on the guidance provided in this specification, and on the latest version of the guidance referenced herein after.

****
NOTE: Tanks shall not be abandoned in place unless a waiver is granted in accordance with AR 200-1 for Army projects, LEE HQ U.S. Air Force for Air Force Projects, and HQ USACE policy dated 31 July 1990, for Formerly Used Defense Sites. Waivers shall be obtained prior to advertising the removal project. Exceptions will be granted when requested in writing on a case by case basis. Absence of contamination must still be verified prior to closure and prior to obtaining a waiver.

Edit out those items in brackets not applicable to

the project.
****

a. API-1604. Removal and Disposal of Used Underground Storage Tanks.
b. API-2Ol5A. A Guide for Controlling the Lead Hazard Associated with Tank Entry and Cleaning.
c. API RP 2003. Protection Against Ignitions Arising out of Static, Lightning and Stray Currents.
d. API Publ-22l7. Guidelines for Confined Space Work in the Petroleum Industry.
e. API Pub1-2219. Safe Operating Guidelines for Vacuum Trucks in Petroleum Service.

3.3.2. Removal of Tank Liquid Residue, and Contaminated Water.
****

NOTE: Tank Liquid Residue may be removed by various methods or by a combination of methods, depending on the construction of the tank, the number and size of shell openings, and the characteristics of the residue.
****

3.3.2.1. General. The Contractor shall identify the methods he intended to be employed for residue, liquid, and contaminated water removal and storage in the Plan of Operations.

3.3.2.2. Operations. The Contractor's operations shall comply with all Federal, State, and local regulations and permit requirements pertaining to water, air, solid waste, erosion and noise pollution.

3.3.2.3. Removal and Storage. Tank liquids, residues, and contaminated water shall be contained, and stored on-site, [_____]. [Contaminated Water shall be treated on-site in accordance with the requirements identified in Paragraph 3.3.3.: Contaminated Water.] Residue, liquids [and contaminated water], analyzed and segregated to the greatest extent possible by the [government] [contractor] prior to being transported to the designated [[treatment, storage and disposal (TSD) facility] [landfill] submitted with the contractors bid] [location indicated on the drawings] and

disposed of by the [government] [contractor] in accordance with applicable federal and state hazardous waste disposal regulations. [Liquids remaining in tanks shall be recycled to the greatest degree practicable.] Federal disposal regulations are contained in the Code of Federal Regulations (40 CFR Parts 260-268), and the following state regulations, [_____]. The contractor shall be responsible for obtaining all required permits at no additional cost to the government. The contractor shall provide approved containers, vehicles, equipment, labor, signs, labels and manifests, necessary for accomplishment of the work including materials necessary for cleaning up spills that could occur from tank removal operations included in the contractors Plan of Operations. The Contractor shall be responsible for reporting spills related to project activities to the National Response Center (NRC) and to the Installation Environmental Coordinator through the Contracting Officer's Representative (COR). The contractor shall take immediate containment and cleanup actions necessary to minimize the effect of the spill.
****

NOTE: If the Defense Reutilization and Marketing Office (DRMO) is unwilling to take the wastes delete reference to delivery to somewhere on the facility. Coordinate with the DRMO early in the design stage to ensure their capabilities are used to the maximum benefit of the government.
The bid documents must have a letter of waste acceptance attached thereto to be considered a responsive bid. Coordinate with the state regulatory personnel, and paragraph 3.2.5.1, designer notes.

Coordinate with the installation regarding discharges of petroleum contaminated water to the sanitary sewer. Many times these installations are at or near the discharge standards for various constituents found in petroleum contaminated water, and will require pretreatment or hauling the waste off site for disposal. If the user discharges to a municipal treatment facility ensure that the water discharged will not pose similar problems to the municipality or exceed individual constituent limits placed on the installation by the municipality.

Include the references to the appropriate state

regulations in the blank provided, following the federal references.

The contractor should simultaneously notify the NRC, and COR/Installation. Coordinate with the installation to ensure this contract conforms with previously approved procedures.

****

3.3.3. Contaminated water.

3.3.3.1. General. Contaminated water treated on-site, shall be analyzed for pH, BETX [and] Total Lead, [and _____] in accordance with SECTION: CHEMICAL DATA QUALITY MANAGEMENT. Sampling and analysis must be performed prior to discharge [to the base sanitary sewer] [and] [for every [_____] [50,000] gallons of liquid treated.] Analyses for contaminated water to be taken to an off-site treatment facility, shall conform to the requirements of the treatment facility with documentation of all analysis performed furnished to the COR in accordance with Paragraph 3.9.6: RECORDS. Following removal of [contaminated groundwater [and] [free product]] pumpable amounts of [liquids] [_____] remaining in the tank(s), the liquids shall be contained, stored on-site, and analyzed [prior to being transported to the approved treatment, storage and disposal facility] [and disposed of by the contractor in accordance with applicable federal and state disposal regulations.] The contractor shall provide approved containers, vehicles, equipment, labor, signs, labels and manifests, necessary for accomplishment of the work.

[3.3.3.2. Treatment. Contaminated water shall be treated [on-site] [off-site] [by] [oil water separation] [_____] [filtering] [and] [activated carbon] or other means at the Contractor's option. The Contractor shall submit the proposed plan to treat the tank contents if done on-site in the Plan of Operations. Temporary storage and treatment equipment will be installed [in the general vicinity of the tanks] at a location approved by the Contracting Officer's Representative. Treated effluent shall be sampled and analyzed before discharge [to the base sanitary sewer]. [Treated effluent shall have a pH between 6 and 9. The Contractor shall be responsible for pH adjustment, if necessary.] Contaminant concentrations in the treated effluent shall be below the following concentrations:

Contaminant	Concentration (micrograms/liter)
Lead	50 [____]
Benzene	5 [____]
Xylene	10,000 [____]
Toluene	2,000 [____]
Ethylbenzene	700 [____]
[_____]	[_____]]

****

NOTE: Refer to notes following Paragraph 3.3.2.3.

****

3.4. TANK EXCAVATION REMOVAL AND CLEANING.

3.4.1. General. The contractor shall excavate, remove, [and clean] the [interior] [and] [exterior] of the tank and all ancillary tank equipment as specified herein. All [residue] [contaminated] [soil] [and] [liquids] [and water] resulting from cleaning operations shall be collected and disposed of [off-site] at the [approved TSDF submitted with the contract bid] [location shown on the drawings] in accordance with [Paragraph 3.9: DISPOSAL REQUIREMENTS] [SPECIFICATION SECTION: _____]. [Contaminated water to be treated on-site shall conform to the requirements of Paragraph 3.3.3.: Contaminated Water.]

3.4.2. Excavation.

3.4.2.1. Exploratory Excavations. Exploratory trenches shall be excavated as necessary to determine the tank location, limits and the location of ancillary equipment.

3.4.2.2. Tank Excavation. Following the completion of the requirements of Paragraph 3.4.3.1.: Preparation for removal, the Contractor shall excavate around the perimeter of the tank in a manner that will limit the amount of potentially contaminated soil that could be mixed with previously uncontaminated soil. The Contractor shall keep contaminated soil segregated in separate stockpiles. The Contractor shall maintain an excavation around the tank of sufficient size to allow the workers ample room to complete the work, but shall also protect the workers from sliding or cave-ins. Sheeting, bracing or shoring shall be installed in the absence of adequate trench side slopes. Safety in and around the

excavation shall conform to the requirements given in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. The Contractor shall divert surface water to prevent direct entry into the excavation. The Contractor shall propose methods for control of surface water [and ground water] in the Plan of Operations Paragraph 3.2.1.3.. [Dewatering of the excavation will be limited to that necessary to assure adequate access to the tank and piping and to assure a safe excavation. The Contractor will provide all labor and equipment necessary to perform the necessary dewatering. Dewatering will result in the production of [potentially] contaminated water and/or free product. Handling contaminated water and any free product shall be in accordance with Paragraph 3.3.3.: Contaminated Water. Free product shall be recovered by the Contractor only as part of necessary dewatering.]

3.4.2.3. Stockpiles. Uncontaminated excavated soil from tank removal activities shall be stockpiled and used for backfill in the tank excavation prior to using borrow material. After the tank has been removed, the soil at the bottom and around the perimeter of the excavation shall be visually inspected for staining or other evidence of leakage. Soil found to be contaminated as specified in Paragraph 3.8.: SOIL TESTING AND ANALYSIS shall be removed and stockpiled for sampling. The [COR] [state of _____ inspector] shall determine the extent of the contaminated soil to be removed from each site [but shall not exceed __ cubic yards per site]. Uncontaminated soil shall be stockpiled separately from the contaminated soil, a safe distance away from, but adjacent to, the excavation in accordance with the requirements identified in EM 385-1-1. Contaminated soil shall be placed on an impermeable geomembrane a minimum of [30] [__] mils thick, and covered with a [10] [__] mil sheet of geomembrane [as detailed on the drawings]. The geomembrane shall be placed such that the stockpiled soil does not come into contact with surface water run-off. The [10] [__] mil geomembrane cover shall 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 stockpile. Sampling and analysis shall be accomplished in accordance with the requirements specified in Paragraph 3.8.: SOIL TESTING AND ANALYSIS.

3.4.3. Removal.

3.4.3.1. Preparation for Removal.

3.4.3.1.1. Piping and Ancillary Equipment Removal. [Drain product piping back into the tank], [Remove residual liquids trapped in the product lines], [and disconnect the piping from the tank]. Remove and cap all tank ancillary equipment connections, and piping in the excavation zone, except those connections necessary to vapor free (purge) the tank. The contractor shall take special precautions to ensure no spillage of the pipe contents occurs, as specified in the Plan of Operations, and as required in Paragraph 3.9.3.: Spill Responsibility.

3.4.3.1.2. Residue [and] Liquids [and Contaminated Water]. Remove residue [and] [liquids] [and Contaminated Water] from the tank as specified in Paragraph 3.3.2: Removal of Tank Contents. [Tank residue, liquids and contaminated water contents are as indicated in Table __.] [The tank residue, liquids and contaminated water have been previously removed by [the government] [others]]. Refer to SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE for health and safety requirements during cleaning and sampling operations.

3.4.3.1.3. Purging. Prior to excavating in the vicinity of the tank, it shall be purged in accordance with the requirements of [SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE] [SECTION 3.3 OF API Publication 1604 using a minimum of 3 pounds of dry ice per 100 gallons of tank volume]. Purging methods utilizing liquids as the purging medium shall not be allowed. Specific methods proposed shall be described in the Contractors Plan of Operations. The tank atmosphere shall be continuously monitored for combustible vapors, [and _____]. Monitoring requirements shall be as required as specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE.

****

NOTE: Coordinate explosive limits with health effects, especially BTEX (benzene, toluene, ethylbenzene, xylene) containing compounds. The current OSHA standard for Benzene is 1 ppm. Considering gasoline is 1% - 2% benzene, 50 ppm total petroleum hydrocarbons could result in exceeding the 1 ppm action level for benzene. Special emphasis should be given to operations such as purging, cleaning and cutting tanks to ensure action

levels are not exceeded. Coordinate with your health and safety specialists.

****

3.4.3.2. Removal from the Excavation. Following completion of the requirements of Paragraph 3.4.3.1: Preparation for Removal, the tanks shall be removed from the excavation the exterior of the tanks shall be cleaned to remove excess material, and inspected for signs of corrosion, structural damage, or leakage. All materials coming into contact with the tank, or in the vicinity of the excavation such as shovels, slings and tools shall be of the non-sparking type as specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. After removal from the excavation the tank shall be placed on a level surface [adjacent to the tank excavation] [at a location approved by the COR] [at the location shown on the drawings] and secured with wood blocks to prevent movement. All perforations in the tanks shall be plugged using boiler plugs except one single 1/8" vent hole to prevent the tank from being subjected to differential pressures prior to transporting the tank [to the temporary storage area shown on the drawings where it shall be cut into sections] [to a state approved tank disposal area] [to the Defense Reutilization and Marketing Office (DRMO)] [_____].

****

NOTE: Some states require tanks be disposed of at special facilities, coordinate with the applicable state agencies.

3.4.3.3. Backfilling. The tank area and any other excavations made to facilitate the tank removal shall be backfilled in accordance with [Paragraph 1.1.6.: Backfill] [SECTION: EXCAVATION TRENCHING AND BACKFILLING FOR [BUILDINGS] [UTILITIES]] only after the requirements of Paragraph 3.8.: SOIL TESTING AND ANALYSIS, are met. [Stockpiled material subjected to chemical confirmation testing shall be used as backfill if it is found to [conform to the requirements of clean fill] [contain less than [100] [____] ppm of total recoverable petroleum hydrocarbons (TRPH)] [_____]. The contractor shall backfill the excavation within [48] [____] hours after [receipt of verification samples indicate] [the bottom of the tank excavation is determined to have soil contamination levels below the state standards of [100] [____] ppm TRPH] [or as directed by the [state inspector] [COR]].

****

NOTE: Coordinate with the IA regarding the maximum contaminant levels allowable to enable the site to be classified as a clean closure, and if waste from one stockpile can be used as backfill for another. Coordinate with the user concerning their preferences in regard to leaving excavations open pending lab results, state inspectors evaluations, road closures and other factors. Lab turnaround time plays a critical role in the duration that an excavation is left open, coordinate times with paragraph 1.13.2 and refer to the notes following that paragraph .

NOTE: If additional constituents require analyses to meet state closure requirements such as Benzyne, Toluene, Xylene, and Ethylbenzene, include the appropriate limits in this paragraph. Also include these limits in the definition for clean fill.

****

3.5. TANK AND ANCILLARY EQUIPMENT DISPOSAL. After the tank, piping, and ancillary equipment have been removed in accordance with Paragraph 3.4.3: Removal [and _____], the tank exterior shall be cleaned as specified in Paragraph 3.7.1: Tank Exterior Cleaning, and cut into sections using the procedures specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE, and Paragraph 3.7: TANK CLEANING. After being cut into sections, the tanks shall be cleaned as specified in

Paragraph 3.7: TANK CLEANING. Tank and piping sections shall be disposed of [in a state approved off-site disposal facility] [or] [in a salvage yard] [at the Defense Reutilization and Marketing Office (DRMO)] [at the location shown on the drawings]. The tank shall be cut into sections prior to being taken [off government property] [from the tank removal site]. The Contractor shall not sell the tank intact. [While being temporarily stored, prior to being cut into sections, the tank shall be marked in accordance with the labeling requirements [given in API 1604] [indicated below]. [Disposal shall conform to the requirements of [Paragraph 3.9.: DISPOSAL REQUIREMENTS.] [SECTION: _____]. Ancillary equipment shall be disposed of at [an approved off-site disposal facility.] [a salvage yard.] [at the DRMO.] Piping shall be disconnected from the tank and [removed] [grouted full of a portland cement and water slurry consisting of 6 gallons of clean water per 94 pound sack of portland cement, thoroughly mixed and free of lumps] unless otherwise indicated.

****

NOTE: Add any special state regulatory requirements in the bracketed space provided.

Either leave the API reference in or add the following marking information specific to the tank removed:

TANK HAS CONTAINED (UN)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

Specify that the label shall be painted on the tank in legible letters a minimum of 2" high. The specific former contents shall be listed on the tank. Piping should be removed unless the tank location, or other factors make removal impractical.

Federal regulations classify the piping connected to the UST as a part of the UST, and should therefore require it's removal.

****

3.6. TEMPORARY STORAGE. After the tank exterior and ancillary equipment is cleaned in accordance with Paragraph 3.7.: TANK CLEANING, and prior to being cut into sections, the tank shall be labeled in accordance with Paragraph 3.5, placed on blocks, and temporarily stored [on a flat area adjacent to the excavation] [at the location indicated on the drawings] [in the area of the existing tank site]. [Tanks or ancillary equipment shall not be stored on site.].

****

NOTE: Add more specific instructions to Paragraph 3.6. if necessary.

The specific methods to be used for cleaning should be included in the contractors Plan of Operations.

****

3.7. TANK CLEANING.

3.7.1. Tank Exterior Cleaning. Uncontaminated soil shall be removed from the tank exterior to eliminate soil deposition on roadways during transportation to a temporary storage area, ensure markings will adhere to the tank surface, and simplify tank cutting. Soil shall be removed using non-sparking tools. Soil removal shall be accomplished on a paved area adjacent to the tank removal site if available. Uncontaminated oil removed from the tank exterior shall [either] be recovered [and used as backfill in the former tank excavation] [and] [or] [disposed of in accordance with the requirements specified in Paragraph 3.9.: DISPOSAL REQUIREMENTS]. Stained, discolored, or material screened as indicated in Paragraph 3.8.1.: General., and found to be contaminated, shall be removed from the exterior of the tank shall be accomplished [on a paved surface] adjacent to the tank excavation. Contaminated soil removed shall be collected on a 30 mil impermeable geomembrane and stockpiled with other contaminated soil removed from the excavation.

3.7.2. Tank Interior Cleaning. The tank interior shall be cleaned using a high pressure (greater than 500 psi) low

volume (less than 2 gpm) water spray [or steam cleaned] until all loose scale and residue is removed, and contamination [in the form of a sheen] is no longer visible in the effluent stream. All contaminated water resulting from cleaning operations shall be [collected and stored on site] [discharged to the installation sanitary sewer] [after passing through an oil water separator] [handled in accordance with Paragraph 3.3.3.: Contaminated Water]. Cleaning shall be accomplished in a manner that eliminates the need for personnel to enter the tank to the greatest extent possible. Cleaning shall be done using specially designed tank cleaning equipment which allows the tank to be cleaned prior to cutting into sections without requiring personnel to enter the tank. If the contractor intends to use less specialized equipment, the tanks shall be partially dissected to overcome confined space entry hazards. This can be accomplished by either cutting them lengthwise approximately six inches above the mid-height of the tank, or by removing the end walls. In either case, the cutting operation shall be accomplished using nonsparking or non-heat producing equipment. Non-sparking or non-heat producing equipment shall conform to the requirements specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. Tank cleaning and cutting methods shall be submitted as part of the contractors Plan of Operations. Waste streams resulting from UST cleaning shall be collected for proper disposal as specified in Paragraph 3.9.: DISPOSAL REQUIREMENTS. [Contaminated water treatment shall conform to the requirements given in Paragraph 3.3.3.: Contaminated Water.]
****

Coordinate with the state implementing agency regarding cleaning and disposal requirements for USTs. Often the state fire inspectors office has been tasked with program implementation, hence NFPA standards may be used to a greater degree than in situations which another office of state government has been tasked with enforcing the UST regulations. Coordinate with the appropriate regulators to ascertain what "clean" is, regarding tank interiors:

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) PUBLICATIONS:

30 Flammable and Combustible Liquids Codes

327 Standard Procedure for Cleaning or Safeguarding Small Tanks and Containers

329 Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids

AMERICAN PETROLEUM INSTITUTE (API):

2015 Cleaning Petroleum Storage Tanks

Number.

If contamination is expected, the state may request to be present on site to oversee contaminated soil excavation and supervise sampling efforts. (See notes following Paragraphs 1.8.3. and 3.2.3.) If USACE labs are expected to perform analysis, coordinate with them early on to verify they have the equipment to perform the analysis, as well as have the manpower available to meet turn around times. Also ensure that funding for any lab work is coordinated in advance, and funds are at the lab prior to sample shipment.

Add applicable requirements for Backfilling the excavation in this section or revise the reference to the appropriate section of the specifications.

Coordinate with regulators regarding the number of verification samples to be required. If no number is specified use a minimum of two samples at the bottom of the tank excavation zone, one below the fill line and one in the center of the tank excavation, other locations with the highest instrument readings, or where contamination is most likely to occur.

****

3.8.2. Soil Sampling.

3.8.2.1. General. A minimum of [2] [__] grab [composite] samples shall be taken from the area directly below the invert of the tank. [[__] Additional samples shall be collected and combined with the soil remaining from the other [__] grab samples forming a single composite sample.] The actual sample locations and rationale behind them shall be discussed in the [Plan of Operations]. [Submitted in accordance with the requirements specified in SECTION: CHEMICAL DATA QUALITY MANAGEMENT.] [A sample shall be obtained from each of the four walls of each tank excavation [at 2 [__] foot vertical intervals] [at approximately 2/3 of the total depth of the excavation] [and composited]]. [Samples shall be obtained from the pits using a backhoe [with a shelby tube attached to the bucket]]. Personnel shall not be allowed into the excavation area unless suitable safety requirements addressed in SECTION:

HEALTH SAFETY AND EMERGENCY RESPONSE are met. Sample preservation and analytical procedures shall conform with the requirements specified in SECTION: CHEMICAL DATA QUALITY MANAGEMENT. Safety precautions for working in and around open excavations shall conform to the requirements specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. Once the [absence of] contamination is verified [to be within specified regulatory limits], the excavation shall be backfilled in accordance with [SECTION: EXCAVATION, TRENCHING AND BACKFILLING] [Paragraph 1.13.3.: Backfill]. [Minimum verification sampling shall be as specified in SECTION: CHEMICAL DATA QUALITY MANAGEMENT.]
****

NOTE: If the state has an individual on site to oversee sampling and excavation operations, the following paragraph may be substituted:
[The COR [in consultation with the representative from the State Department of _____] will direct the Contractor on the number and location of all samples for analysis.] [Sample preservation and analytical procedures shall conform with the requirements specified in SECTION: CHEMICAL DATA QUALITY MANAGEMENT.] [The government shall be responsible for sample handling and chemical analysis]. [The excavation shall not be backfilled until [directed by the Contracting Officers Representative in consultation with the representative from the State Department of _____] the absence of contamination has been verified.] Safety precautions for working in and around open excavations shall conform to the requirements specified in SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. Once the absence of contamination is verified, the excavation shall be backfilled in accordance with [SECTION: EXCAVATION, TRENCHING AND BACKFILLING] [Paragraph: BACKFILL].
[A minimum of two [___] verification samples per tank shall be required at opposite ends of the excavation directly below the tank bottom.]
[Chemical parameters requiring analysis shall [include those items listed in Table ___.] [be as indicated in SECTION: CHEMICAL DATA QUALITY MANAGEMENT. "Once the [absence of] contamination is verified [to be within specified regulatory limits], the excavation shall be backfilled in accordance

with [SECTION:
EXCAVATION, TRENCHING AND BACKFILLING] [Paragraph
1.13.3.: Backfill]." verification shall be
accomplished in accordance with the requirements
identified by the implementing agency (IA) whether
that verification is done by a state inspector or
lab analysis confirmation. Verification sampling is
encouraged for all tank closures irregardless of IA
sampling and analysis requirements to ensure that
the closures are accomplished within the IA
guidelines, and for installation records.
****
..
L) !) !) !) !) !) !)
) R

3.8.2.2. Stockpiled Material Sampling. Stockpiled material
which is visibly stained [the meter readings exceed [_____]]
[and] [the soil has an obvious petroleum odor] otherwise
contaminated [or as required by the [state of [_____]
or other] implementing agency] shall be sampled for [total
recoverable petroleum hydrocarbons (TRPH), benzene, toluene,
ethylbenze, xylene (BTEX) [toxicity characteristic leaching
procedure (TCLP)] [in accordance with SECTION: CHEMICAL DATA
QUALITY MANAGEMENT] [the following constituents:

a.

b.

c.

]

[to ensure the limits identified [in Paragraph 1.4.8.: Clean
Fill] are not exceeded prior to placing the material back into
the excavation]. Sampling locations, number and specific
procedures shall be as [specified in SECTION: CHEMICAL DATA
QUALITY MANAGEMENT] [required by the [state of
_____] [implementing agency]] and the disposal
facility [_____]. Copies of all
test results shall be provided to the COR in accordance with
Paragraph 3.9.6.: Records.
****
NOTE: Coordinate with the implementing agency on
the number and types of tests required for the
stockpiled soil. If unique stockpile segregation
procedures are required by the implementing agency,

include them in the body of the specification in Paragraph 3.4.2.3.: Stockpiles, and coordinate with notes following Paragraph 3.8.1.: General, under the major heading SOIL TESTING AND ANALYSIS. Coordinate with contaminated water sampling and analyses requirements to ensure consistency.

List the constituents that require analyses, and if needed include the analytical method to be employed if not covered elsewhere in the specifications.

If sampling procedures are known and well defined include them in the specification.

****

3.9. DISPOSAL REQUIREMENTS.

3.9.1. General. The contractor shall provide all services necessary for the disposal of hazardous [or special classified] wastes in accordance with all local, State, and Federal Environmental Protection Agency (EPA) solid and hazardous waste laws and regulations, specifically Resource Conservation and Recovery Act (RCRA), and conditions specified herein. These services shall include all necessary personnel, labor, transportation, packaging, detailed analyses (if required for disposal, manifesting or completing waste profile sheets), equipment, and reports. Mere acceptance of the [hazardous] waste at a properly permitted [Treatment, Storage, or Disposal (TSD)] facility does not meet the definition of final treatment/disposal for this work. The contractor shall obtain a Certificate of Waste Disposal from the disposal facility to prove that the final treatment/disposal of all waste has been accomplished at an EPA/State approved facility for each waste accepted. The certificate of disposal shall be submitted to the COR in accordance with Paragraph 3.9.6: Records. [The tanks removed shall be disposed of at one of the following state approved facilities:

a.
b.
c.

..
) !) !) !) !) !) !) R

****

NOTE: List approved facilities in the area of the project.

Coordinate with the state implementing agency regarding tank disposal requirements at approved facilities.
****

[Tanks disposed of in this manner shall be manifested [as required by the State of _____] to document delivery and acceptance at the disposal facility. Manifesting shall be done in accordance with the requirements of Paragraph 3.9.6: Records, and Paragraph 3.9.7.: [Hazardous] [Special] Waste Manifests.]

3.9.2. Transportation of Wastes. The Contractor or the Contractor's agent shall provide transportation in accordance with Department of Transportation (DOT) Hazardous Material Regulations 49 CFR 100-199, and 40 CFR 263. The Contractor shall also comply with State and local requirements, including obtaining all necessary permits, licenses, and approvals. The contractor shall show evidence that licensed [hazardous] waste transporter is being used and that the disposal facility meets the requirements given in Paragraph 3.9.8: Documentation of Treatment or Disposal, to the (COR) as part of the Plan of Operations.

3.9.3. Spill Responsibility. The contractor shall be solely responsible for any and all spills or leaks during the performance of this contract which occur as a result of or are contributed to by the actions of its employees or subcontractors. The contractor shall cleanup such spills or leaks to the satisfaction of the government and in a manner that complies with applicable federal, state, and local laws and regulations. The cleanup shall be at no additional cost to the government. The contractor shall be responsible for reporting spills related to project activities to the National Response Center (NRC) and to the installation environmental coordinator through the COR.
****

NOTE: Special attention shall be given to operations concerning draining and cutting piping or tanks. The contractor shall include preventative measures to be employed to prevent spills and leaks in the Plan of Operations.
****

3.9.3.1. Contractor Reporting Requirements. The contractor

shall report all spills or leaks, regardless of their quantity, to the installation environmental coordinator through the COR immediately following their discovery. A written follow-up shall be submitted to the COR not later than 7 days after the initial report. The written report shall be in narrative form and as a minimum include the following:

3.9.3.1.1. Description of the material spilled (including identity, quantity, and manifest number).

3.9.3.1.2. Whether amount spilled is EPA/State reportable and when and to whom it was reported.

3.9.3.1.3. Exact time and location of spill, including description of the area involved.

3.9.3.1.4. Containment procedures initiated.
3.9.3.1.5. Summary of any communications Contractor has with press or government officials other than COR.

3.9.3.1.6. Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.

3.9.4. Safety. The contractor shall perform all operations in a prudent, safe and professional manner. At a minimum, the contractor's personnel and equipment shall comply with applicable state, federal, local and installation laws, safety regulations and procedures, and the contractor shall ensure that its employees and subcontractors perform in a safe manner. The Contractor shall ensure that all personnel involved in handling and packaging the [hazardous] [special] waste be trained for the level of expertise required for the proper performance of the task and shall have a workable knowledge about general first aid procedures and spills. Personal protective equipment shall be provided by the contractor and shall be appropriate to ensure safe handling of the [hazardous] [special] waste in accordance with SECTION: HEALTH SAFETY AND EMERGENCY RESPONSE. The contractor shall agree that his personnel and equipment are subject to safety inspections by government personnel while on federal property.

3.9.5. Salvage Rights. The contractor shall retain the rights to salvage value of wastes, so long as the requirements of 40 CFR 266, or the applicable state requirements are met.

Tanks shall be disposed of as indicated in Paragraph 3.5: TANK AND ANCILLARY EQUIPMENT DISPOSAL.

3.9.6. Records. The contractor shall maintain a current record 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 SECTION: _____]. Transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of
transporter(s) and the disposal or reclamation facility, shall also be recorded and available for the COR's inspection, as well as the following information documenting services performed as a minimum:

a. Two copies of a cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of this specification.

b. The original and one copy of all manifests, if not previously provided.

c. Two copies of all analysis performed for disposal, if not previously provided to the COR.

d. Two copies of all waste analyses or waste profile sheets, if not previously provided to the COR.

e. Two copies of all certifications of final treatment/disposal signed by the responsible disposal facility official. Following contract close out, the records shall become the property of the government.

3.9.7. [Hazardous] [Special] Waste Manifests. The Contractor shall utilize [a state of _____ approved manifest system in conformance with the requirements identified in 40 CFR 263], [the U.S. EPA approved manifest system] so that the wastes can be tracked from generation to ultimate disposal. [Manifests are not required for [non-hazardous] [or special] wastes which include _____.] The manifests must comply with all of the provisions of the transportation and disposal regulations. The contractor shall be responsible for preparing manifests. The [Installation Commander] [Contracting Officer] or designated representative must sign the generator portion of the manifest. The appropriate copy (original) of each signed manifest shall be submitted to the COR [and Installation Commander] at the time each waste shipment leaves the site. Prior to transportation of the [special] [hazardous] waste, the contractor shall comply

with all of the established pretransport requirements. The wastes must be transported by a certified [special] [hazardous] waste hauler (i.e., the hauler must have a U.S. EPA or appropriate state [special] [hazardous] waste identification number) in approved containers. All transporters must sign the appropriate portions of the manifest and must comply with all of the provisions established in the Resource Conservation and Recovery Act (RCRA) and DOT regulations.

****

NOTE: The generator portion of the manifest on Formerly Used Defense Sites (FUDS) shall be signed by the Contracting Officer's Representative. Manifests at active installations shall be signed by the installation commander or his authorized representative. Delete reference to federal regulations if state has Resource Conservation and Recovery Act (RCRA) authorization, add applicable state regulations. Coordinate with the states to determine if non hazardous wastes such as petroleum contaminated soils require manifesting.

NOTE: If both types of waste require disposal, edit the paragraph accordingly.

PCBs, PCB contaminated soil and waste oil is regulated under Toxic Substances Control Act (TSCA), and manifested accordingly. Revise the above paragraph references to reflect these requirements as necessary for wastes containing PCBs.

****

3.9.8. Documentation of Treatment or Disposal. The wastes shall be taken to a treatment, storage or disposal facility which has EPA or appropriate state permits and [hazardous] [or special] waste identification numbers and complies with all of the provisions of the disposal regulations. Documentation of acceptance of [hazardous] [or special] materials by a facility legally permitted to treat or dispose of those materials shall be furnished to the COR not later than [5] [__] working days following the delivery of those materials to the facility. A statement of agreement from the proposed treatment, storage or disposal facility and certified transporters to accept [hazardous] [or special] wastes shall be furnished to the COR not less than 14 days before transporting any wastes. If the contractor selects a different facility than is identified in

the bid, and in the Plan of Operations, the contractor shall provide documentation for approval to certify that the facility is authorized and meets the standards specified [in 40 CFR 264].

3.9.9. Government Assistance. The government will [not furnish any equipment or personnel to assist the contractor in the performance of this work] [be responsible for performance of the following duties:
_____.]

****

NOTE: List applicable items such as sampling and analysis, as appropriate.

****

3.9.10. Hours of Operation. The Contractor shall perform the pickup of hazardous wastes resulting from tank and soil removal activities during normal hours of operation.

3.9.11. Packaging and Marking. The Contractor shall package, mark, label, and load all items in such a manner that all applicable federal, state and local regulations are met. If items must be repackaged for proper shipment, the Contractor shall perform such repackaging and furnish all required materials. When repackaging is necessary, the Contractor shall be responsible for the disposal of the original container and packaging in a manner that complies with all applicable federal, state and local regulations. The Contractor shall ensure that the appropriate placards are affixed to each vehicle prior to leaving the [government premises] [formerly used defense site work area].

3.9.12. Contractor's Representative. The Contractor shall provide the name and telephone number of at least one responsible individual and an alternate, who will serve to respond to operational problems and/or emergencies on a 24-hour basis. The contractor shall agree that notice to his designated representative shall constitute notice to the contractor and shall agree to be bound by any commitments or representations made by the representative.

3.9.13. Public Affairs. The Contractor shall immediately direct all news inquiries concerning this work to the COR.

3.9.14. Transportation Numbers. The Contractor shall submit

a list of transporters along with their addresses and EPA identification (ID) numbers and indicate exactly which items will be transported with each carrier and where those items will be transported. Any changes to the list shall have prior written approval from the COR.

3.10. TANK CLOSURE REPORTS. For each UST site opened, the Contractor shall prepare a Tank Closure Report which will be submitted to the Contracting Officer's Representative and the Installation Environmental Coordinator within 14 days of completing work at each site. The Contractor shall maintain a current record of all waste determinations, including appropriate results of analyses performed, substances and detailed sample locations (records of sample locations must be in enough detail for closure applications), reasoning behind sample locations, the time of collection, and other pertinent data. Transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of transporter(s) and the disposal or reclamation facility, shall also be recorded and available for the Contracting Officers inspection. Tank Closure Reports shall include the following information as a minimum:

a. A cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of this specification.

b. A narrative report describing what was encountered at each site, including:

- condition of the UST
- any visible evidence of leaks or stained soils
- results of vapor monitoring readings
- actions taken including quantities of materials treated or removed
- reasons for selecting sample locations
- reasons for backfilling site
- whether or not groundwater encountered

c. Copies of all analyses performed for disposal.

d. Copies of all waste analyses or waste profile sheets.

e. Copies of all certifications of final disposal signed by the responsible disposal facility official.

f. Information on who sampled, analyzed, transported, and accepted all wastes encountered.

g. Copies of all analysis performed for verification. All analysis shall give the identification number of the sample used. Sample identification numbers shall correspond to those provided on the one-line drawings.

h. Scaled one-line drawings showing tank locations, excavated areas, areas of contamination, underground utilities within 50 feet, sample locations, and sample identification numbers.

i. Progress Photographs. The Contractor shall use a wide angle lens to take a minimum of 4 views of the site showing such things as the location of each tank, entrance/exit road, and any other notable site condition before work begins. After work has been started at the site, the Contractor shall photographically record activities at each work location daily. Photographs shall be 3 in. x 5 in. and shall include:

(1) Soil removal, handling, and sampling;

(2) Unanticipated events such as discovery of additional contaminated areas.

(3) Soil stockpile area;

(4) Tank;

(5) Site or task-specific employee respiratory and personal protection; and

(6) Fill placement and grading.

(7) Post construction photographs. After completion of work at each site, the contractor shall take a minimum of four (4) views of the site using a wide angle lens. Prints shall illustrate the condition and location of work and the state of

progress. The photographs shall be mounted and enclosed back-to-back in a double face plastic sleeve punched to fit standard three ring binders. Each color print shall show an information box, 1-1 1/2 in. x 3-1/2 in.. The information box for the 3 in. x 5 in. photographs shall be scaled down accordingly, or taped to the bottom of the photo. The box shall be typewritten and arranged as follows:

Project No. Contract No.

Location
Contractor/Photographer:

Photograph No. Date/Time:

Description

Direction of View

****

NOTE: Subtitle C tank closures shall be done in accordance with previously prepared closure plans and 40 CFR 264.197. Reference notes following Paragraph 1.8.3.

****

ADDITIONAL NOTES

NOTE A: For additional information on the use of all CEGS, see CEGS-01000 CEGS GENERAL NOTES.

NOTE B: Additional notes are for the purpose of providing guidance to the specifier on the use of this guide specification. Notes in the text normally provide editorial type guidance, and notes at the end of the text normally provide guidance of a broader nature. Additional notes should be used only when necessary to provide guidance not otherwise available in technical manuals or other documents.

NOTE C: Compliance with the guidance provided in this document will make the task of preparing CEGS

easier and will result in a CEGS which will be compatible with others in the SPECSINTACT system. SECTION 01020 CEGS TEMPLATE may be used as a starting point for preparing CEGS or project specification sections for work not covered by guide specifications.

NOTE D: The following information is provided for further guidance:

a. Avoid cross reference to other sections and other paragraphs; however, when necessary form should be:

SECTION 01234 MISCELLANEOUS paragraph "NUTS AND BOLTS"

b. Standard GPO proofreading marks should be used when marking text for typing changes.

c. GPO style manual should be used as a guide to spelling, punctuation, and other style of writing matters.

NOTE E: The following information should be shown on the project drawings:

a. Overall installation plan with tanks, borrow area, disposal area, stockpile areas, special security areas, and access routes identified.

b. Individual as-built site plans of tank locations with unique site features, utilities and topography identified. If these are not available, use photographs (properly screened) to give the bidders an idea of the areas they will be working in, also show utilities in the areas using base master plan information.

c. Provide limits of pavement removal, fence removal, and identify the location of ancillary equipment to be removed.

APPENDIX

Examples of Bidding Schedules, Measurement and Payment

Specifications, Summary of Work Specifications

Examples of Data Tables

Corrective Action Information
- Flowcharts Explaining Release Reporting, Investigation, and Confirmation; Corrective Action Requirements given in 40 CFR 280, Subparts E and F
- Closure Requirements for RCRA Subtitle C tanks
- List of Agencies Designated to Receive Notifications
- Excerpts from EPA Publication "MUSTS FOR USTS"

Army Regulation 200-1 Paragraph 5-7. Underground Storage Tanks (USTS)

30 May 90 Policy Letter from HQ, USAF and Attachment 1, Subject: Air Force Underground Storage Tank (UST) Management Strategy

POLICY GUIDANCE FOR UNDERGROUND STORAGE TANKS (USTS) ON FORMERLY USED DEFENSE SITES (FUDS), dated 31 July 1990

20 Dec 90 Memorandum from CEMP-RT, Subject: Chemical Data Quality Management for Petroleum Storage Tank Remediation Projects (cover page and index of manual attached)

Memorandum, Subject: Variance in the Requirements for Laboratory Validation When the Project Involves Only Construction for the Removal of Underground Storage Tanks (UST).