



FIRE DEPARTMENT

CITY OF BURBANK  
311 ORANGE GROVE AVENUE, BURBANK CALIFORNIA 91502-1221  
(818) 238-3473  
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## **REMOVAL OF UNDERGROUND STORAGE TANKS CONTAINING HAZARDOUS MATERIALS**

### **I. INTRODUCTION**

- A. PURPOSE:** *The purpose of this document is to provide a regulatory guide for the removal of underground storage tanks containing hazardous materials.*
- B. SCOPE:** *This guide shall apply to all individuals, companies, and corporations that remove underground storage tanks.*
- C. AUTHOR:** *The Fire Marshal of the City of Burbank and the underground tank unit of the Fire Prevention Bureau are responsible for the origin and maintenance of this document.*
- D. AUTHORITY:**
- 1. State Health and Safety Code*
  - 2. City of Burbank Municipal Code*

### **II. RESPONSIBILITY**

- A. Individuals, companies, and corporations** that remove or exercise control over underground tanks regulated by the City of Burbank Municipal Code shall be responsible for compliance with all applicable regulations.
- B. The underground tank unit of the Fire Prevention Bureau** shall issue permits and verify compliance with applicable regulation.

### **III. POLICY**

Before an underground tank regulated by this Department can be removed or abandoned, the person responsible for the tank must apply for a permit and obtain all necessary approved permit(s) / license(s) prior to the commencement of work. Such additional requirements not otherwise mentioned herein, may include but are not limited to: State of California, Division of Occupational Safety and Health Trenching / Excavation Permit; valid Crane Certification; South Coast Air Quality Management District rules; and City of Burbank Fire Department regulation.

**REMOVAL OF UNDERGROUND STORAGE TANKS  
CONTAINING HAZARDOUS MATERIALS (Continued)**

**IV. PROCEDURE FOR OBTAINING  
BURBANK FIRE DEPARTMENT PERMITS**

- A.1. Obtain City of Burbank Business License from the Building Department, Community Services Building, 150 North Third.
2. Apply to the Bureau of Fire Prevention, 311 East Orange Grove Avenue for approval and the issuance of necessary Fire Department permits. NOTE: You will need to provide all other necessary permits at this time including City of Burbank Business License and State of California Contractors License Number, type and expiration date; EPA generator Identification number from the State of California, Department of Health Services.

**V. REMOVAL PROCEDURE**

- A. The Burbank Fire Department approves two separate methods for the removal and transportation of underground storage tanks:

**METHOD #1:** Tank is removed from the ground and transported before being cleaned. In this method, the tank must be “manifested” and transported as a “hazardous waste” and must be removed to a recognized TSD facility by a Licensed Hazardous Waste transporter, subject to all applicable governmental regulations.

**METHOD #2:** The tank is cleaned “on-site”, “certificated” by a certified Marine Chemist (or similarly qualified person) as clean, vapor free, and “safe for hot work”, the cleaned tank(s) can then be transported (with their respective certifications) for materials recycling or salvage.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

**All UST removals must comply with all applicable provisions of Title 22, CCR 67383, Management of Tanks, SCAQMD Rule 1149, all local codes and ordinances in addition to this procedure.**

### **A. METHOD #1      “TANK IS REMOVED AND TRANSPORTED BEFORE BEING CLEANED”**

**NOTE:** It is mandatory that a properly calibrated flammable / combustible gas analyzer and oxygen meter be on the job site from start to finish. Calibration of the unit must be within the last three months with approved sticker or tag on the unit.

1. No on-site work shall commence until all necessary permits have been obtained and are evident at the site. **Tank owners must obtain the generator's U.S. EPA Identification Number. Any hazardous waste removed from the site must be transported under manifest by a registered transporter using certified containers and subject to all applicable governmental regulations.**
2. Identify the size and location of the tank. When available and obtainable, plot plans or site drawings can be obtained either from the owners or from Burbank Fire Department, Building Division or Engineering Division records.
3. Notify the Fire Department and/or any other governmental inspectors having jurisdiction **48 hours in advance** of proceeding with tank removal to obtain proper clearance to proceed with work and arrange for required inspections.
4. Prior to large equipment moving to the tank location, observe ingress and egress clearances including any overhead wiring and other possible obstructions relative to safety of persons and equipment.
5. All tanks shall be checked for flammability and oxygen content using a flammable / combustible gas analyzer and oxygen meter. Log the time, LEL (Lower Explosive Limit), and oxygen percentage on job paperwork. If contents are unknown, a sample shall be drawn and subjected to analysis for identification of chemical constituents. **Only personnel properly instructed in the use of such meter shall perform this operation.**
6. All electricity, supply lines and related systems, and equipment known to be associated with the tank shall be “Locked Out” or disconnected. Barriers, colored tape and signs shall be installed and any source of ignition shall not be permitted within **50 feet** of the excavation. Signs shall be prominently displayed at the job site stating **NO SMOKING OR OPEN FLAME.**

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

7. Remove all possible remaining liquid via the use of an appropriate vacuum truck and hose(s). **Observe grounding and bonding procedures.** The liquid, if hazardous, must be transported to an appropriate reclaiming, recycling or TSD facility. **Manifesting procedures must be followed.**
8. Disconnect all piping other than fill pipe and vent pipes. Cap all unused openings.
9. **With the Burbank Fire Department inspector on site to witness the procedure,** place a minimum of 15 pounds of *crushed* dry ice (carbon dioxide) per 1,000 gallon capacity of the tank through the fill pipe. Cap fill pipe and dissipate the vapors per S.C.A.Q.M.D. requirements (Rule 1149) through the vent pipe for a minimum of two hours or until the inspector is satisfied that the oxygen level is at or below 5%.
10. Saw cut concrete or asphalt pavement if necessary to minimize the amount of surface cover removed to accommodate the tank removal.
11. Break out and remove asphalt pavement, concrete slabs, etc. and dispose of in a lawful manner in an approved disposal area.
12. Complete the excavation necessary to remove the tank.
13. Disconnect all piping from the tank and loosely plug all tank openings allowing for venting of vapors.
14. If necessary, add more dry ice following steps of item #9 above.
15. Record the tank numbers and furnish same to the Burbank Fire Department inspector on site.
16. **After approval of the Burbank Fire Department inspector has been obtained,** complete removal of the underground tank. Tank shall be removed by *crane* only unless contractor at time of permit application can show the inspector that another piece of equipment is acceptable and safe.
17. If the tank is to be removed and transported as hazardous waste, place on a flat bed trailer or other appropriate equipment and transport immediately to the recognized TSD facility under a **hazardous waste manifest.**

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

#### **18. POST REMOVAL PROCEDURES**

##### **A FIRE INSPECTOR SHALL WITNESS THE COLLECTION OF SOIL TEST SAMPLES.**

- a. Soil samples shall be obtained as indicated on the closure application sample point chart.
- b. Soil sampling shall be performed by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California. A technician trained and experienced in taking soil samples who is working under the direct on-site supervision of one of the aforementioned professionals shall be deemed qualified to take soil samples.
- c. Soil samples shall be analyzed by a state-certified laboratory for all products that have been stored in the underground tank. If the product or products are known to degrade or transform to other substances in the soil environment, the analysis shall include these degradation and/or transformation substances.
- d. Soil samples SHALL be collected a minimum of 4 feet into the natural soil, NOT backfill materials.
- e. If a tank is of 1,000 gallon capacity or less, a single soil sample shall be taken from the center of the tank, unless otherwise stated on the permit.
- f. Tanks of greater capacity than 1,000 gallons shall have samples taken from under the both ends of the tank, unless otherwise stated on the permit.

#### **19. LABORATORY METHODS**

This section describes the laboratory analytical tests to be applied to soil samples derived from the drilling and sampling activities.

The analytical methods and the associated chemical constituents are as follows:

- a. EPA Test Method 418.1 for total recoverable petroleum hydrocarbons related to waste oils, as requested;
- b. DHS – modified EPA Test Method 8015 (diesel) and (gasoline) for total petroleum hydrocarbons related to motor fuel constituents;

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

- c. EPA Extraction method 5030 must be used for EPA Test Method 8021 for volatile organic compounds associated with motor fuels;
  - d. EPA Test Method 8260 B for oxygenated hydrocarbons used in fuels, chlorinated solvents and miscellaneous volatile organic compounds (use EPA Extraction method 5030);
  - e. EPA Test Method 8010 for Halogenated Volatile Organic;
  - f. Other EPA analytical methods may apply.
20. If soil test samples indicate that no contamination is detected, skip to step #22 after receiving approval from the Burbank Fire Department Underground Tank Unit.
21. Plans for the site characterization of a facility shall be submitted to the Fire Department for clearance no later than 30 days before the commencement of such operations. Other agencies having jurisdiction shall also be notified. These agencies include, but are not limited to, the following: the California Regional Water Quality Control Board, the Los Angeles County Fire Department, Hazardous Waste Control Programs; and the South Coast Air Quality Management District.
- a. Site characterization shall require as a minimum, the following:
    - (1) **PLOT PLAN**  
Plot Plan showing exploratory (test) boring locations.
    - (2) **SAMPLE PROTOCOL**  
Sample analysis results, date of sampling, and chain-of-custody documentation.
    - (3) **NUMBER AND LOCATION OF TEST BORINGS**  
Test borings external to the tanks are required to establish the lateral and vertical extent of contamination.
    - (4) **TEST BORINGS – SINGLE TANK SITE**  
A minimum of three (3) test borings shall be required, at least one (1) each located on opposite sides of the major axis of the tank and one (1) down gradient of the tank.

Additionally, in cases where groundwater sampling is required and groundwater gradient is known, one (1) test boring on the down gradient side of the tank shall be required.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

(5) **TEST BORINGS – MULTIPLE TANK SITE**

The appropriate number and location of the test borings for multiple tanks will vary depending upon the tank configuration. As a minimum, borings shall be placed at 20-foot intervals around the perimeter of the tank cluster. The actual number and location of borings for multiple tanks shall be evaluated on a case-by-case basis. Tanks separated by twenty (20) feet or more shall be considered single tanks for the purpose of test boring location and number.

(6) **TEST BORING CONSTRUCTION STANDARDS**

All drilling tools shall be thoroughly cleaned immediately before a boring is started.

All borings will be required to a depth of 50 feet for each single tank or multiple tank cluster.

Drilling with a hollow-stem, continuous-flight auger is preferable. If conditions do not permit the use of an auger, an air rotary drill with casing hammer may be used.

Drilling fluid additives shall be limited to inorganic, non-hazardous materials. All additives used and the depth in which they are used shall be accurately recorded in the boring log.

All borings that are not used for subsequent vadose or groundwater monitoring shall be sealed from the ground surface to the bottom of the boring with bentonite grout or slurry.

(7) **SOIL SAMPLING**

Soil samples shall be obtained at depths of 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50 feet below grade level, unless directed otherwise. All soil samples shall be undisturbed (intact).

A Shelby tube or a modified California sampler shall be utilized for obtaining all soil samples. All soil samplers shall be cleaned before each sample is obtained.

Soil samples shall be capped immediately with Teflon or aluminum. Soil samples shall not be extruded in the field but are to be obtained, prepared, preserved, stored, transported, and analyzed by methods that are appropriate for the objectives of the investigation and that will safeguard sample integrity.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

#### **(8) GROUNDWATER SAMPLING**

If groundwater is encountered in a test boring, a groundwater sample must be obtained.

Borings shall not extend through laterally extensive clay layers that are below the water table and are at least five (5) feet thick. In these situations, the boring shall be terminated one (1) foot into the clay layer.

A groundwater monitoring well construction or destruction permit must be obtained from the Los Angeles County Department of Health Services.

Water sampling shall be accomplished with a Teflon or stainless steel bailer, or submersible pump. Teflon shall be used for pump tubing. All water samplers shall be cleaned before each sample is obtained.

All groundwater-monitoring wells shall be appropriately developed until the discharge water contains less than **10 PPM** settleable solids (usually after four [4] well volumes).

#### **(9) LABORATORY ANALYSIS**

All samples shall be analyzed by a State of California Department of Health Services Certified Laboratory for the type of analysis to be performed. Samples shall be analyzed using appropriate EPA methods. If EPA methods are not available, other suitable methods may be used.

Samples shall be analyzed for one or more of the most persistent constituents that have been stored in the underground storage tank. If the use of the tank has historically changed, then analysis shall be for at least one (1) constituent from each period of use. If the hazardous material is known to degrade or transform to other substances in the soil environment, the analysis shall include these degradation and/or transformation constituents.

If the nature of all constituents ever stored in the tank cannot be determined, then the analysis of samples shall include a complete priority pollutant scan in which all peaks detected are identified. Such a scan shall include volatile organic, base/neutral extractables, acid extractables, pesticides, PCB's, heavy metal, and cyanide. If specific groups of constituents can be accurately documented to never have been stored in the tank, analysis for these groups may be eliminated.

- b. Site Safety and Health Plan (SSHP) if applicable shall be submitted.



## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #1 (Continued)**

22. Excavation shall be backfilled under the supervision of an accredited soils laboratory engaged by contractor. Only non-expansive soils will be permitted to be used for backfill purposes. Existing soil can be used only if it satisfies this stipulation and is approved by the soils laboratory; otherwise, the material shall be removed and properly disposed of, and non-expansive material shall be imported for backfill.
23. Fill must be placed in level, loose layers and six inches in thickness, moistened near optimum moisture, and properly compacted. Succeeding layers of fill shall be similarly placed and compacted during the placement of the backfill. The upper portion of the excavation sidewalls shall be broken down (benched) to provide a transition between the compacted fill and adjoining ground.
24. If asphalt pavement is not to be replaced, the excavated area shall be smoothly graded to provide a clear, even surface. All excess materials shall be removed and the area shall be left in a broom clean condition.
25. If asphalt pavement is to be replaced, backfill shall be placed and compacted to sub-grade elevation after which paving section shall be installed providing a neat and smooth transition with existing pavement surfaces and area shall be properly broom cleaned.
26. The contractor shall furnish certified compaction report from the soils laboratory acknowledging that a minimum of 90% of maximum density has been obtained. A copy of the compaction report shall also be forwarded to the Building Department in addition to the two copies furnished to the owner.
27. Should the excavation be left open, security fencing of the site shall be maintained in accordance with Section 107 CFC. **Note: only tanks certified as non-hazardous will be allowed to remain exposed overnight.**
28. The contractor shall schedule his work so that it can be completed between the hours of 9:00am and 5:00pm, Monday through Friday. If it becomes necessary for the work to extend beyond these time limitations, the contractor will be charged an hourly fee equal to the inspector's hourly rate based on time and one half. This fee shall be for a minimum of four (4) hours based on the above rate.

**NOTE:** Compliance with Fire Department requirements does not preclude the necessity for complying with the regulations and requirements of other authorities and licensing agencies. For additional information, please contact the Fire Prevention Bureau, Monday through Friday, from 8:00am to 5:00pm at (818) 238-3473.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

**All UST removals must comply with all applicable provisions of Title 22 CCR Sec 67383, Management of Tanks, SCAQMD Rule 1149, all local codes and ordinances in addition to this procedure.**

### **B. METHOD #2 “CLEANING TANK ON-SITE”**

**NOTE:** It is mandatory that a properly calibrated flammable / combustible gas analyzer and oxygen meter be on the job site from start to finish. Calibration of the unit must be within the last three months with approved sticker or tag on the unit.

1. No on-site work shall commence until all necessary permits have been obtained and are evident at the site. **Tank owners must obtain the generator's U.S. EPA Identification Number. Any hazardous waste removed from the site must be transported under manifest by a registered transporter using certified containers and subject to all applicable governmental regulations.**
2. Identify the size and location of the tank. When available and obtainable, plot plans or site drawings can be obtained either from the owners or from Burbank Fire Department, Building Division or Engineering Division records.
3. Notify the Fire Department and/or any other governmental inspectors having jurisdiction **48 hours in advance** of proceeding with tank removal to obtain proper clearance to proceed with work and arrange for required inspections.
4. Prior to large equipment moving to the tank location, observe ingress and egress clearances including any overhead wiring and other possible obstructions relative to safety of persons and equipment.
5. All tanks shall be checked for flammability and oxygen content using a flammable / combustible gas analyzer and oxygen meter. Log the time, LEL (Lower Explosive Limit), and oxygen percentage on job paperwork. If contents are unknown, a sample shall be drawn and subjected to analysis for identification of chemical constituents. **Only personnel properly instructed in the use of such meter shall perform this operation.**
6. All electricity, supply lines and related systems, and equipment known to be associated with the tank shall be “Locked Out” or disconnected. Barriers, colored tape and signs shall be installed and any source of ignition shall not be permitted within **50 feet** of the excavation. Signs shall be prominently displayed at the job site stating **NO SMOKING OR OPEN FLAME.**
7. Remove all possible remaining liquid via the use of an appropriate vacuum truck and hose(s). **Observe grounding and bonding procedures.** The liquid, if hazardous, must be transported to an appropriate reclaiming, recycling or TSD facility. **Manifesting procedures must be followed.**

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

8. **With the Burbank Fire Department inspector on site to witness the procedure**, place a minimum of 15 pounds of **crushed** dry ice (carbon dioxide) per 1,000 gallon capacity of the tank through the fill pipe. Cap fill pipe and dissipate the vapors per S.C.A.Q.M.D. requirements (Rule 1149) through the vent pipe for a minimum of two hours or until the inspector is satisfied that the oxygen level is at or below 5%.
9. Saw cut asphalt pavement if necessary to minimize the amount of asphalt removed to accommodate the tank removal.
10. Break out and remove asphalt pavement, concrete slabs, etc. and dispose of in a lawful manner in an approved disposal area.
11. Uncover the underground tank completely. This will allow the inspector and marine chemist to inspect the complete tank. Disconnect all associated piping, electrical lines, and in-tank pumps, taking safety precautions to disconnect said piping from tank intact.
12. Degassing per S.C.A.Q.M.D. requirements (Rule 1149) of the tank shall begin whenever the product is found within its explosive range. Continue degassing until readings are at or below 5% of the LEL of the contents of the tank. **Electrical bonding is required.** Log the time and readings on job records.
13. Install vacuum truck equipment **following bonding procedures**. If necessary, evacuate the atmosphere from the tank as described in #12 above. Continuous air purging may be necessary.
14. Begin water blasting the tank interior using a minimum of 2,000 p.s.i. of water and detergent if necessary. Loose scale, sludge and rinse water are to be removed and deposited in the vacuum truck. When the sludge and other debris have been removed, and the LEL reading is 0%, the washing may cease. **NOTE:** Other cleaning methods as per NFPA #326 may be permitted at the fire inspector's discretion. **Grounding and Bonding procedures shall be followed.**
15. Should there be no installed manhole in the tank, a pneumatic cold cutting tool shall be used to cut the manhole at the appropriate location. Use an approved non-sparking tool. The minimum sized hole will be 24" x 24". Confined space safety procedures shall be followed. LEL readings **shall** be logged before any cutting begins.
16. All interior rinse water and sludge, if hazardous, shall be manifested and transported to a fully approved and permitted TSD facility by a licensed hazardous waste transporter, subject to all applicable governmental regulations.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

17. Complete the excavation necessary to remove the tank.
18. Record the tank numbers and furnish same to the Burbank Fire Department inspector on site.
19. A certified marine chemist or similarly qualified person (see 22CCR 67383.3) shall inspect the tank and issue a certificate stating that the **“TANK IS SAFE FOR HOT WORK”**. The chemist or other qualified person shall apply an identification number and the date that corresponds to the “certification” with a can of spray paint to the tank exterior. The certification must be kept with the tank. This can be accomplished by affixing the certificate to the tank with tape or by other means. Log this certification in the job paperwork.
20. **After approval of Burbank Fire Department inspector has been obtained**, complete removal of underground tank. Tank shall be removed by **crane** only unless the contractor, at time of permit application, can show the inspector that another piece of equipment is acceptable and safe.
21. Load and secure the tank on appropriate transporting equipment and remove from the premises. The cleansed tank may be transported with respective certification for materials recycling or salvage.
22. Should additional soil or hazardous debris require removal, it **shall** be done in a safe manner, **manifested** and transported in certified containers and received at the appropriate facility.
23. **POST REMOVAL PROCEDURES**

#### **A FIRE INSPECTOR SHALL WITNESS THE COLLECTION OF SOIL TEST SAMPLES.**

- a. Soil samples shall be obtained as indicated on the closure application sample point chart.
- b. Soil sampling shall be performed by a professional geologist, civil engineer, or engineering geologist who is registered or certified by the State of California. A technician trained and experienced in taking soil samples who is working under the direct on-site supervision of one of the aforementioned professionals shall be deemed qualified to take soil samples.
- c. Soil samples shall be analyzed by a state-certified laboratory for all products that have been stored in the underground tank. If the product or products are known to degrade or

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

transform to other substances in the soil environment, the analysis shall include these degradation and/or transformation substances.

- d. Soil samples SHALL be collected a minimum of 4 feet into the natural soil, NOT backfill materials.
- e. If a tank is of 1,000 gallon capacity or less, a single soil sample shall be taken from the center of the tank, unless otherwise stated on the permit.
- f. Tanks of greater capacity than 1,000 gallons shall have samples taken from under the both ends of the tank, unless otherwise stated on the permit.

#### **24. LABORATORY METHODS**

This section describes the laboratory analytical tests to be applied to soil samples derived from the drilling and sampling activities.

The analytical methods and the associated chemical constituents are as follows:

- a. EPA Test Method 418.1 for total recoverable petroleum hydrocarbons related to waste oils;
  - b. DHS – modified EPA Test Method 8015 (diesel) and (gasoline) for total petroleum hydrocarbons related to motor fuel constituents;
  - c. Extraction Method 5030 must be used for EPA Test Method 8021 for volatile organic compounds associated with diesel fuel;
  - d. EPA Test Method 8260B for gasoline constituents, fuel oxygenates chlorinated solvents and miscellaneous volatile organic compounds (use EPA Extraction Method 5030);
  - e. EPA Test Method 8010 for Halogenated Volatile Organic;
  - f. Other EPA analytical methods may apply.
25. If soil test samples indicate that no contamination is detected, skip to step #22 after receiving approval from the Burbank Fire Department Underground Tank Unit.
26. Plans for the site characterization of a facility shall be submitted to the Fire Department for clearance no later than 30 days before the commencement of such operations. Other agencies having jurisdiction shall also be notified. These agencies include, but are not

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

limited to, the following: the California Regional Water Quality Control Board, the Los Angeles County Fire Department, Hazardous Waste Control Programs; and the South Coast Air Quality Management District.

a. Site characterization shall require as a minimum, the following:

(1) **PLOT PLAN**

Plot Plan showing exploratory (test) boring locations.

(2) **SAMPLE PROTOCOL**

Sample analysis results, date of sampling, and chain-of-custody documentation.

(3) **NUMBER AND LOCATION OF TEST BORINGS**

Test borings external to the tanks are required to establish the lateral and vertical extent of contamination.

(4) **TEST BORINGS – SINGLE TANK SITE**

A minimum of three (3) test borings shall be required, at least one (1) each located on opposite sides of the major axis of the tank and one (1) down gradient of the tank.

Additionally, in cases where groundwater sampling is required and groundwater gradient is known, one (1) test boring on the down gradient side of the tank shall be required.

(5) **TEST BORINGS – MULTIPLE TANK SITE**

The appropriate number and location of the test borings for multiple tanks will vary depending upon the tank configuration. As a minimum, borings shall be placed at 20-foot intervals around the perimeter of the tank cluster. The actual number and location of borings for multiple tanks shall be evaluated on a case-by-case basis. Tanks separated by twenty (20) feet or more shall be considered single tanks for the purpose of test boring location and number.

(6) **TEST BORING CONSTRUCTION STANDARDS**

All drilling tools shall be thoroughly cleaned immediately before a boring is started.

All borings will be required to a depth of 50 feet for each single tank or multiple tank cluster, unless directed otherwise.

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

Drilling with a hollow-stem, continuous-flight auger is preferable. If conditions do not permit the use of an auger, an air rotary drill with casing hammer or direct push technology may be used.

Drilling fluid additives shall be limited to inorganic, non-hazardous materials. All additives used and the depth in which they are used shall be accurately recorded in the boring log.

All borings that are not used for subsequent vadose or groundwater monitoring shall be sealed from the ground surface to the bottom of the boring with bentonite grout or slurry.

#### **(7) SOIL SAMPLING**

Soil samples shall be obtained at depths of 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50 feet below grade level. All soil samples shall be undisturbed (intact).

A Shelby tube or a modified California sampler shall be utilized for obtaining all soil samples. All soil samplers shall be cleaned before each sample is obtained.

Soil samples shall be capped immediately with Teflon or aluminum. Soil samples shall not be extruded in the field but are to be obtained, prepared, preserved, stored, transported, and analyzed by methods that are appropriate for the objectives of the investigation and that will safeguard sample integrity.

#### **(8) GROUNDWATER SAMPLING**

If groundwater is encountered in a test boring, a groundwater sample must be obtained.

Borings shall not extend through laterally extensive clay layers that are below the water table and are at least five (5) feet thick. In these situations, the boring shall be terminated one (1) foot into the clay layer.

A groundwater monitoring well construction or destruction permit must be obtained from the Los Angeles County Department of Health Services.

Water sampling shall be accomplished with a Teflon or stainless steel bailer, or submersible pump. Teflon shall be used for pump tubing. All water samplers shall be cleaned before each sample is obtained.

All groundwater-monitoring wells shall be appropriately developed until the discharge water contains less than **10 PPM** settleable solids (usually after four [4] well volumes).

## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

#### **(9) LABORATORY ANALYSIS**

All samples shall be analyzed by a State of California Department of Health Services Certified Laboratory for the type of analysis to be performed. Samples shall be analyzed using appropriate EPA methods. If EPA methods are not available, other suitable methods may be used.

Samples shall be analyzed for one or more of the most persistent constituents that have been stored in the underground storage tank. If the use of the tank has historically changed, then analysis shall be for at least one (1) constituent from each period of use. If the hazardous material is known to degrade or transform to other substances in the soil environment, the analysis shall include these degradation and/or transformation constituents.

If the nature of all constituents ever stored in the tank cannot be determined, then the analysis of samples shall include a complete priority pollutant scan in which all peaks detected are identified. Such a scan shall include volatile organic, base/neutral extractables, acid extractables, pesticides, PCB's, heavy metal, and cyanide. If specific groups of constituents can be accurately documented to never have been stored in the tank, analysis for these groups may be eliminated.

- b. Site Safety and Health Plan (SSHP) if applicable shall be submitted.
27. Excavation shall be backfilled under the supervision of an accredited soils laboratory engaged by contractor. Only non-expansive soils will be permitted to be used for backfill purposes. Existing soil can be used only if it satisfies this stipulation and is approved by the soils laboratory; otherwise, the material shall be removed and properly disposed of, and non-expansive material shall be imported for backfill.
  28. Fill must be placed in level, loose layers and six inches in thickness, moistened near optimum moisture, and properly compacted. Succeeding layers of fill shall be similarly placed and compacted during the placement of the backfill. The upper portion of the excavation sidewalls shall be broken down (benched) to provide a transition between the compacted fill and adjoining ground.
  29. If asphalt pavement is not to be replaced, the excavated area shall be smoothly graded to provide a clear, even surface. All excess materials shall be removed and the area shall be left in a broom clean condition.



## ***UNDERGROUND STORAGE TANK REMOVAL PROCEDURE***

### **METHOD #2 (Continued)**

30. If asphalt pavement is to be replaced, backfill shall be placed and compacted to sub-grade elevation after which paving section shall be installed providing a neat and smooth transition with existing pavement surfaces and area shall be properly broom cleaned.
31. The contractor shall furnish certified compaction report from the soils laboratory acknowledging that a minimum of 90% of maximum density has been obtained. A copy of the compaction report shall also be forwarded to the Building Department in addition to the two copies furnished to the owner.
32. Should the excavation be left open, security fencing of the site shall be maintained in accordance with Section 107 CFC. **Note: Only tanks certified as non-hazardous will be allowed to remain exposed overnight.**
33. The contractor shall schedule his work so that it can be completed between the hours of 9:00am and 5:00pm, Monday through Friday. If it becomes necessary for the work to extend beyond these time limitations, the contractor will be charged an hourly fee equal to the inspector's hourly rate based on time and one half. This fee shall be for a minimum of four (4) hours based on the above rate.

**NOTE:** Compliance with Fire Department requirements does not preclude the necessity for complying with the regulations and requirements of other authorities and licensing agencies. For additional information, please contact the Fire Prevention Bureau, Monday through Friday, from 8:00am to 5:00pm at (818) 238-3473.