

**LOS ANGELES FIRE DEPARTMENT  
UNDERGROUND STORAGE TANK PROGRAM  
ABANDONMENT OF UNDERGROUND STORAGE TANKS**



**FPB REQUIREMENT NO. 41  
REQUIREMENTS FOR APPLYING FOR A DIVISION 5 PERMIT TO ABANDON  
AN UNDERGROUND TANK**

A Division 5 Permit issued by the Fire Department is required when abandoning an underground tank in the City of Los Angeles.

**Apply at the Bureau of Fire Prevention, Environmental/Plan Check Unit located at 221 North Figueroa Street, 15<sup>th</sup> floor, room #1500.**

**When applying for a Division 5 Permit, submit the following items:**

- 1. A completed application with check for permit fees.**
2. Proof of tank registration from the Data Management Unit, at (213) 978-3680.
- 3. Three sets of plot plans**
  - A. Three sets of scaled plot plans, 11x17.**
  - B. Show location of underground storage tank(s) dispensers and piping on property**
  - C. Indicate property lines, streets, and structures (include dimension), for tanks, i.e.: Tank #1 15' W. of Elm, 20' N. of Main.
  - D. Specify Tank(s) size, contents, and monitoring status.
  - E. Indicate boring location(s) for samples. .
  - F. To leave the tank(s) and piping in place justification must be provided to the Fire Department by a :
    - 1. Structural Engineer's Stability Report**
    2. Site Assessment
    - 3. Soil sample analysis reports shall be submitted before a permit to abandon in place is issued**
- F. P. B. REQUIREMENT NO. 41 Rev. **7 /01/06**
4. Los Angeles City Business Tax Registration Certificate - The contractor who is removing the tank(s) shall have a proper Los Angeles City Business Tax Registration Certificate.  
For City Business Tax Certificate, apply at the Office of Finance, **located at 201 North Figueroa Street, Room 300, Los Angeles, and CA. 90012.**
5. Applicable type State of California Contractor's License.

Refer to State of California State Water Resources Control Board **LG-48-5** licensing for installation and removal of underground storage tanks.

- \*General Engineering Contractor A
- \*General Building Contractor B
- \*Plumbing Contractor C-36
- \*Limited Specialty Contractor C-61-D.40
- \*Hazardous Waste Contractor

\* Call the Contractors State License Board at (916) 366-5206 for further information.

6. Environmental Protection Agency (EPA) Hazardous Waste Site Generator's Identification Number, provided by the site owner.  
Call the State Department of Health Services at **(916) 324-1826** to obtain the identification number.
7. The owner and contractor are responsible for obtaining any additional permits or licenses that are applicable to the abandonment of an underground tank, **“ A grading permit is required from the Building Department's grading section”**.
8. If the contents of the tank(s) are unknown, a sample shall be drawn and analyzed. A copy of the report shall be provided to the Fire Department, delineating the contents of the tank.  
NOTE: Fire Department Plan Check personnel shall make a notation on the Division 5 Permit application that the owner and contractor does possess the above described licenses and identification number. The copy of the identification analysis will be included in the Division 5 permit folder, if applicable.

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#### METHODS FOR TANK ABANDONMENT

An underground tank may be abandoned either by removing it from the ground, or in unusual cases by filling it in place with an approved fill mixture. Filling the tank in place will only be allowed if there is no physically practical means of abandoning the tank(s) by removal. Requirements for abandoning an underground tank(s) by removal are addressed on Pages 2 through 8. Requirements for abandoning in place are addressed on Pages 8 through 10.

#### ABANDONMENT BY REMOVAL

##### I. PREPARING UNDERGROUND TANKS FOR REMOVAL

1. No on-site work shall begin until all the requirements on Page 1 for a Division 5 Permit have been met, and the approved permit issued.
2. If the tank is not empty, remove the product at this time. If the product is:

Flammable or combustible - a Division 5 Permit must be obtained to transfer the product from the underground tank to a tank truck. Apply for this permit at the **Bureau of Fire Prevention, Engineering Unit** located at **201 North Figueroa Street, 3<sup>rd</sup> floor, and counter #24.**

Hazardous Waste - any hazardous waste removed from the site shall be manifested and transported to a licensed hazardous waste disposal site or a licensed treatment, storage, and disposal facility (TSDF) by a licensed hazardous waste transporter, subject to all applicable government regulations.

If only residue remains in the tank, remove it utilizing an appropriate vacuum truck and hose. The residue is hazardous waste, and must be manifested and transported to a licensed hazardous waste disposal site or a licensed TSDF by a licensed hazardous waste transporter, subject to all applicable government regulations.

3. Electric lines, piping, and other tank appurtenances shall be isolated or disconnected. All vent piping shall be left intact until the tank is exposed and ready to be removed. Barriers and signs shall be installed where necessary, and any source of ignition shall be at least 25 feet away from the excavation. Signs shall state "NO SMOKING OR OPEN FLAMES."
4. Prior to excavation place a minimum of 20 pounds of dry ice per 1,000 gallons capacity into the tank at least TWO HOURS PRIOR to any further work being performed. If dry ice is to be inserted into the fill opening, remove the fill line drop tube and/or sleeve from the interior of tank prior to inserting ice.
5. Begin the excavation work in cooperation with the owner and all concerned government agencies. Expose the tank and associated piping.
6. Disconnect and remove all associated piping, electrical lines, and in-tank pumps, but leave on site.

**NOTE: NO CUTTING TORCH, OPEN FLAME, OR SPARK PRODUCING EQUIPMENT SHALL BE USED ON THE TANKS OR PIPING.**

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7. Call the Underground Tank Enforcement Unit Inspector at least TWO WEEKS prior to start of work. Arrange a mutually agreed upon appointment date and time with the district Fire Inspector to be on-site to witness the abandonment.

Underground Tank Enforcement Unit: (213) 978-3710

## **II. REMOVAL OF UNDERGROUND STORAGE TANK(S) AS HAZARDOUS WASTE**

A Fire Inspector shall witness steps 1 through 7.

1. Check the tank for an explosive atmosphere utilizing a combustible gas indicator. If the atmosphere inside the tank is found to be above 20

percent of the lower explosive limits (LEL), the tank SHALL be reinerted. The LEL shall be brought down to or below 20 percent. Reinert the tank with a minimum of 20 pounds of dry ice per 1,000 gallons of capacity.

2. Lift the tank from the excavation and inspect for signs of leakage then secure it on an appropriate transport vehicle with its openings at the top. Underground storage tanks shall be removed intact. Tanks SHALL NOT be punctured or crushed on-site.
3. All tank identifications shall remain on the tank. Do not remove the Underwriter's Laboratory tag or any other identification from the tank.
4. Plug all tank openings with a pliable material, i.e., paper, cloth, or rags.
5. The licensed hazardous waste transporter shall prepare a Uniform Hazardous Waste Manifest and transport the tank to a licensed hazardous waste disposal site, subject to all applicable government regulations. The Fire Inspector witnessing the abandonment shall be given a copy of the manifest, and shall be given the address as to where the tank will be transported.
6. When this operation is finished, the Fire Inspector shall have the following items in the completed Division 5 folder:
  - Division 5 Permit application
  - Division 5 Permit
  - One set of plans
  - A copy of the Hazardous Waste Manifest for the tank(s)
  - FPB 66
  - If the contents of the tank were unknown, a copy of the analysis report shall be included
  - Tank Time Survey FPB Form 66A
  - Soil analysis results from state certified lab with chain of custody
7. Soil samples shall be obtained from beneath the tank, piping, spoils pile, and underneath dispensers. Refer to soil sampling Page 7.

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III. REMOVAL OF UNDERGROUND STORAGE TANKS CERTIFIED CLEAN  
"ON SITE"

NOTE: It is mandatory that a properly calibrated combustible gas indicator be on the job site during this entire operation.

1. Check the tank for an explosive atmosphere utilizing a combustible gas indicator.
2. Air purging of the tank shall be initiated whenever the atmosphere inside the tank is above 20 percent of the lower explosive limits (LEL) and shall continue until the readings are at or below 5 or 700 ppm (AQMD).

NOTE: Air purging, vacuuming, and high pressure water rinsing equipment SHALL be bonded and grounded to prevent the

accumulation of static electricity. Metal underground tanks shall be bonded to the above described equipment. When working on fiberglass tanks the equipment shall be grounded. The following requirements shall apply to bonding and grounding devices:

Bonding and grounding devices shall be stranded wire not smaller than 8 AWG (American Wire Gauge) with appropriate connections at each end.

A secure metal to metal contact shall be made between the tank and equipment or the equipment and ground.

When grounding equipment, secure the end of the grounding device that is not attached to the equipment to an adequate ground, i.e., metal water pipe, metal drainage or sewer pipe which originates or terminates in the soil. If a ground (as described above) is not available, a metal rod driven into the soil to a depth no less than 3 feet shall serve as a ground.

The bonding and grounding device shall be connected to the following equipment as described:

Air Purging Equipment - Connect the device to the appliance where the air is discharged, i.e., at the venturi cone.

Vacuuming Equipment - The device shall be connected to the equipment where the liquid is being discharged, i.e., the vacuum truck.

High Pressure Water Rinsing Equipment - The device shall be connected to the appliance where the water is discharged, i.e., the wand or nozzle.

3. If there is no installed manway on the tank, a cold cutting tool shall be used to cut a manway. Only nonsparking tools shall be used. The dimensions of the manway shall not be less than 24" X 24" at the appropriate location to facilitate cleaning and visual inspection of the tank interior. Large tanks may require multiple man ways, as all interior areas of the tank must be visible for inspection.
4. High pressure water rinse the tank interior using a minimum of 2,000 psi and detergent if necessary (other cleaning methods as per NFPA Standard 327 may be allowed). Loose scale, sludge, and rinse water shall be removed by the vacuum truck. When the sludge and other debris have been removed and the LEL is zero percent throughout the tank, the washing may cease.

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5. All interior rinse water and sludge shall be manifested and transported to a licensed hazardous waste disposal site or licensed TSDF by a licensed hazardous waste transporter, subject to all applicable governmental regulations. A copy of this manifest will be provided to the Fire Inspector witnessing the abandonment.
6. Certification that the underground tank is clean\* shall be made by one of the following:
  - A. Certified Industrial Hygienist
  - B. Certified Safety Professional

- C. Certified Marine Chemist
- D. A technician working under the direct supervision of one of the above-referenced individuals.

\* The term clean shall mean that all visible deposits, sludge or other foreign materials have been removed from the inside of the tank, and that no flammable hazard or vapors exist.

A copy of the "Clean Certificate" shall be provided to the Fire Inspector.

NOTE: A Certified Marine Chemist certifies tanks for "Hot Work". If "Hot Work" will be done on the tank at the destination it will be transported to, the certification that the tank is clean and vapor free should be performed by a Certified Marine Chemist.

- 7. Division 5 Permit number and the letters LAFD shall be painted on the tank.

If the tank was certified clean and vapor free by a Certified Marine Chemist and "Hot Work" will be done on the tank at the destination it will be transported to, the Marine Chemist shall paint his certification number on tank under the Division 5 Permit number and LAFD letters. No other number shall be affixed to the tank.

- 8. All tank identifications shall remain on the tank. Do not remove the Underwriters Laboratory tag or any other identification from the tank.

A FIRE INSPECTOR SHALL WITNESS THE FOLLOWING:

- 9. Remove the clean tank from the excavation. The Fire Inspector shall inspect the tanks for signs of leakage. Load and secure the tank on an appropriate transporting vehicle and remove from the premises. The cleansed tank may be transported with its respective certifications for material recycling, disposal, or salvage. The Fire Inspector shall record the destination to which the tank is to be transported.

- 10. The collection of soil samples as described below.

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#### IV. POST REMOVAL PROCEDURES

- 1. Soil samples shall be obtained from beneath the tank and piping, underneath dispensers and spoils pile.
- 2. 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 the taking of soil samples who is working under the supervision of one of the aforementioned professionals shall be deemed qualified to take soil samples, provided they carry a letter certifying their training and experience.
- 3. Soil samples shall be analyzed by a California State certified chemical laboratory for all products that have been stored in the underground

tank. If the product or products is suspected to alter their chemical structure while in the soil, the analysis shall include these new substances.

4. Soil samples SHALL be collected from natural soil, NOT backfill material, where the bottom of the tank rested in the excavation. Take the soil samples two feet into the natural soil.
5. If tank is less than 1,000 gallons capacity, a single soil sample shall be taken from under the center of the tank.
6. Tanks of greater capacity than 1,000 gallons shall have samples taken from the ends of the tanks. In no case shall samples be taken more than 20 feet apart.
7. Soil sample locations from beneath piping shall be no greater than 20 feet apart starting at dispenser pit.
8. All excavated soil (from the unearthing of an underground storage tank) must be retained on site and covered, until determination of contamination and disposal has been made. Soil may be removed only with approval from the Chief.
9. When the soil samples are analyzed, a report of the results shall be sent to the Fire Inspector who witnessed the removal. The report shall comply with the "UST Site Assessment – Report General Guidelines" and must contain a statement verifying that the licensed professional in responsible charge supervised or personally conducted all work associated with the project within the purview of the professional as defined in the Professional Engineers Act or the Registered Geologists Act of the California Code of Regulations, the wet ink signature (in blue ink) and seal of the professional, including the expiration date of the license. The Fire Inspector present during the removal shall provide the soil sample collector with a business card, and inform them to send the complete soil report to their attention at the address on the business card within 30 days.
10. Soil samples shall be collected from underneath the dispenser pit.

**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, contact the Bureau of Fire Prevention, Underground Tank Unit, Monday through Friday, 7 a.m. to 5 p.m., at 213-978-3700.

Filling a tank in place will only be considered if there is no practical means of abandoning the tank by removal, such as a tank located beneath a building. The following procedure shall be used:

**No on-site tank work shall be initiated until, all the requirements set forth on Page 1 for a Division 5 Permit and Items Number 1 and 2 below have been met, and the approved permit issued.**

Prior to the issuance of a permit:

1. Soil samples shall be obtained from beneath the tank and piping. A site investigation will be performed and an assessment done.
2. 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 the taking of soil samples who is working under the supervision of one of the aforementioned professionals may be deemed qualified to take soil samples, provided they carry a letter certifying their training and experience.
3. Collect and analyze soil samples in accordance with Section 2645, Article 4, Subchapter 16, Title 23, Waters, California Code of Regulations. The analysis shall be performed by a State certified laboratory. A copy must be provided to the Fire Department when applying for a Division 5 Permit to abandon an underground tank by filling.

**4. EXCEPTION: Where it is not possible or practical to obtain soils samples, the contents of the tank shall be sampled, verified and analyzed in accordance with item# 3, and a tank integrity test shall be performed to verify any possible leakage.**

5. If the tank's product has not been previously removed, remove it at this time. If the product is:
  - A. Flammable or combustible - A Division 5 Permit must be obtained to transfer the product from the underground tank to a tank truck. Apply for this permit at the **Bureau of Fire Prevention, 201 North Figueroa Street, Room 300, counter # 24**
  - B. Hazardous Waste - Any hazardous waste removed from the site shall be manifested and transported to a licensed hazardous waste disposal site or a licensed treatment, storage, and disposal facility (TSDF) by a licensed hazardous waste transporter, subject to all applicable government regulation.

If only residue remains in the tank, remove it utilizing an appropriate vacuum truck and hose. The residue shall be considered a hazardous waste. It must be manifested and transported to a licensed hazardous waste disposal site or a licensed TSDF by a

licensed hazardous waste transporter, subject to all applicable government regulations.

6. All electric lines, piping, and appurtenances associated with the tank shall be isolated or disconnected. Where possible, remove the tank vent lines at ground level. All segments of pipe which remain attached to the tank shall have any open ends plugged with a pliable material. Barriers and signs shall be installed where necessary. Any source of ignition shall be at least 25 feet away from the tank. Signs shall state "NO SMOKING OR OPEN FLAMES."

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NOTE: NO CUTTING TORCH, OPEN FLAME, OR SPARK PRODUCING EQUIPMENT SHALL BE USED ON THE TANKS OR PIPING.

7. On tanks equipped with fill pipes extending below the tank top, remove the piping which extends into the tank.
8. Call Underground Tank Enforcement Unit at least TWO WEEKS prior to start of work. Arrange a mutually agreed upon appointment date and time for the Fire Inspector to be on-site to witness the abandonment.
9. The tank interior shall be washed and made as liquid and deposit free as possible. The tank shall be washed in accordance with the instructions provided by the Fire Department when the Division 5 Permit was issued.

10. LOS ANGELES FIRE DEPARTMENT LIST OF APPROVED MIXTURES USED TO ABANDON UNDERGROUND ATMOSPHERIC TANKS

BASED ON SAND WEIGHT

12 oz. of water-wetting agent\*

16 oz. of air-entraining agent

31.2 gals. of water

1 ton of sand

BASED ON SAND VOLUME

18 oz. of water—wetting agent\*

94 lbs. of Portland Cement

1.5 sacks of Portland Cement

47 gals. of water

1 Cu. yard of sand

\* This requires use of a wetting agent in order to achieve a mixture, as dry as possible, which will still flow.

METHOD OF MIXING:

It is recommended that drum revolutions of 6-10 RPM be used after the air-entraining agent is added. Approximately 60 revolutions are required to properly loosen the material. Periodic drum reversal to aid flow of material may be necessary.

11. The equipment used to move the fill mixture into the tank shall be positive displacement pump of the type and design used for hydraulically moving concrete.
12. Attach the pump hose connection to the tank fill pipe by means of the pipe threads or a suitable adaptor.

13. Attach drain hoses to the tank vents by tight fitting or threaded connections. The drain hoses shall terminate in containers provide for the specific purpose of collecting any residual liquids, which are forced out of the tank during the filling operation. Any liquids collected shall be manifested and transported to a licensed hazardous waste transporter, subject to all applicable government regulations. A copy of the manifest shall be provided to the Fire Inspector witnessing the tank abandonment.
14. Pump the fill mixture into the tank until it flows out of the vent lines. The Fire Inspector shall determine that the tank is full and shall direct any other operations required to properly complete the abandonment procedure. If the piping is physically impractical to remove, as determined by the Fire Inspector, fill the piping with the approved fill mixture in a like manner.

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15. Any underground tank monitoring well that is no longer required, shall be destroyed or filled so it will not produce water or act as a means for groundwater contamination.
16. When this operation is finished, the Fire Inspector shall have the following items in the completed Division 5 Permit folder:
  - Division 5 Permit application
  - Division 5 Permit
  - One set of plans
  - Copy of the Hazardous Waste Manifest for the cleaning solution and residue
  - Copy of the "Clean Certificate"
  - Copy of the soils analysis report with chain of custody
  - Tank Time Survey
  - If the contents of the tank were unknown, a copy of the analysis report shall be included.
  - Copy(s) of slurry receipts

**NOTE: The L.A.F.D does not have a temporary abandonment policy, any tank(s) that have not been in service for a period of 90 days shall be permanently abandoned by the one of the above approved methods.**

**If you require additional information from the Los Angeles Fire Department, Please contact the Environmental Unit Plan Check at 213-482-7115.**