

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

UNDERGROUND STORAGE TANKS PERMANENT CLOSURE GUIDANCE DOCUMENT



Waste Programs Division UST Division & Support Section

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This document outlines the underground storage tank (UST) permanent closure and change-in-service (CIS) procedures so that human health, safety and the environment are adequately protected and to ensure that state and federal closure and CIS regulations are followed. An associated document titled the *UST Permanent Closure Assessment Report Form* establishes a consistent format for the submission of technical data collected during permanent closure and CIS activities. UST permanent closure and CIS processes are defined by Arizona Revised Statutes (A.R.S.) Title 49, Chapter 6, Article 1, Section 49-1008, and the Arizona Administrative Code (A.A.C.) Title 18, Chapter 12, Article 2, Sections R18-12-271 through 274.

Definitions & General Overview

The permanent closure of an UST system involves removing the UST from the ground or filling the UST with an inert solid material. CIS is defined as changing the use of an UST system from the storage of a regulated substance to the storage of a non-regulated substance. Both activities must be performed or supervised by an individual who has been certified by ADEQ as an UST Service Provider in the category of decommissioning. A listing of individuals certified by ADEQ as UST Service Providers can be found by clicking on the following link – [UST Service Provider Listing](#)

To permanently close or undergo a CIS to an UST system, all of the following steps shall be performed:

- Drain and flush back into the UST any remaining regulated substances from piping and any other ancillary equipment;
- Empty and clean (triple rinse) the UST by removing all liquids and accumulated residues;
- If the UST is being permanently closed in place, the UST must be completely filled with inert solid materials.

Notification Requirements

ADEQ must be notified, in writing, of the intent to permanently close an UST system or undergo a CIS at least thirty (30) days prior to the date of permanent closure or CIS. The ‘intent to close’ letter must include:

- The UST system owner's name, address and telephone number;
- The facility name and facility address;
- Size of and product stored in each UST to be permanently closed;
- The estimated date of permanent closure or CIS; and
- If an UST system is undergoing a CIS, identify the regulated substance currently or last stored before the CIS and the non-regulated substance that will be stored after the CIS.

Please be advised that upon review of the ‘intent to close’ letter, ADEQ may require additional information to be submitted. After the receipt of an ‘intent to close’ letter, ADEQ will issue a ‘closure procedures’ letter which will be valid for a period of six months. If permanent closure or CIS is not accomplished within the six month period, ADEQ requires another ‘intent to close’ letter be submitted.

Upon receipt of the ADEQ ‘closure procedures’ letter, the UST owner or contractor must coordinate the closure activity with the designated fire authority that has jurisdiction for the area at which the UST is located. Contacts should be made according to the following:

Fire Authority	Coverage Areas	Telephone Number
State Fire Marshal	Statewide except the areas referenced below	602.364.1003
Phoenix Fire Department	City of Phoenix	602.262.6771
Tucson Fire Department	City of Tucson	520.791.4512

UST Registration Requirements

If during the permanent closure of a regulated UST system, an unregistered, previously unknown UST system is discovered, it is not required that ADEQ be notified at the time of discovery. Instead, the permanent closure activities should proceed as scheduled with the closure of the newly discovered UST system, if the UST owner or volunteer chooses to do so. The registration of the newly discovered UST can be documented in the *UST Permanent Closure Assessment Report Form* and *UST Notification for Underground Storage Tanks Form* that must be submitted thirty (30) days after permanent closure or CIS activities.

Sampling Requirements

At the time of permanent closure and/or before a CIS, a closure site assessment must be performed for determination if a release has occurred. The assessment shall document the environmental condition of the UST site and the presence or absence of any contamination resulting from UST operation at the site through laboratory analysis performed on samples of native soil, and of water if encountered during the UST permanent closure assessment.

Specific locations for the required sampling shall be determined by the location where contamination would most likely occur. The presence of stained soils, odors, vapors, free product, or other evidence indicating that a release may have occurred. Obtaining samples must be accomplished as follows:

- If water is not present in the excavation at the time an UST is removed, a required minimum of two distinct soil samples shall be taken from native soils beneath each UST that has a capacity to hold more than 550 gallons. Samples shall be collected in native soil two or three feet below the base of the UST excavation. The samples shall be taken from beneath each end of each UST. In cases where the fill pipe is located above the center of the UST, an additional sample shall be taken from beneath the center of the UST. If the capacity of the UST is 550 gallons or less, one (1) sample shall be taken from native soils beneath the center of the UST. In excavation areas that appear to have had a release, ADEQ highly recommends the collection of additional soil samples below the initial set of samples so that it may be possible to fully characterize the release(s).
 - If water is present above the floor of the excavation at the time an UST is removed, distinct samples of native soils shall be taken from the walls of the excavation at the soil-water interface at both ends of the UST excavation. If a sheen or free product is present on the water, the water sampling should be completed. Further UST characterization must be accomplished in accordance with all applicable state, federal, county and local regulations. All water samples must be analyzed in accordance with Arizona Administrative Code Title 9, Chapter 14, Article 6.
 - If an UST is being closed in or if an UST is undergoing a CIS, a minimum of two (2) distinct soil samples must be taken from native soils as close as practicable to locations directly beneath each UST that has a capacity to hold more than 550 gallons. The samples must be taken from beneath each end of each UST. In cases where the fill pipe is located in the center of the UST, an additional sample must be taken from beneath the center of the UST. If the capacity of the UST is 550 gallons or less, one sample must be taken from native soils as close as is practicable to a location directly beneath the center of the UST. If water is encountered during assessment activities, a sample of the water shall be collected for analysis. For USTs being closed in place, ADEQ recommends that sampling be completed prior to filling with an inert solid material.
 - If native soil cannot be sampled due to large clast size (i.e. cobbles, boulders) or induration (granite, stiff clay, etc.) or, if the excavation zone is constructed in bedrock, samples must be taken of the excavation backfill material located beneath the UST in same manner as described above. If the backfill material cannot be sampled, contact ADEQ for further instruction.
 - If a concrete slab is encountered under a tank, collect native soil samples by either:
 - Digging about two feet into the native soil and collecting soil samples at each of the four corners of the slab, or
 - Removing the concrete slab, and digging about two feet into the native soil under the slab to collect soil samples.
- Note – The concrete slab does not have to be removed as part of the tank closure. If there are cracks in the concrete slab that appear to have gone through the entire thickness of the slab, a sufficient number of samples should be collected to adequately assess the native soil beneath the slab cracks. These concrete slab crack soil sample would be in addition to the four corner soil samples referenced above. It may be necessary to core the concrete slab to gain access to the native soil.
- Before undergoing a CIS or after UST system related piping has been permanently closed (i.e., flushed then capped and closed in place or removed from the ground), distinct soil samples must also be collected every twenty (20) linear feet beneath the piping in native soils. In addition, distinct soil samples must also be collected from native soils beneath elbows, joints, fittings, dispensers, ancillary equipment and areas of corrosion. The sampling requirements of this paragraph need not be met if the dispensers and all subsequent product piping are being removed from the ground and are located directly above the UST being removed.
 - Excavated, Stockpiled Soils: Native soils that are excavated should be stockpiled in a manner to prevent the migration of any contaminants into the air, soil or water. Discrete samples of excavated soils must be collected to determine if the soil is a special waste (A.R.S. §49-851 et seq.).

All samples must be collected and analyzed in accordance with the Sampling Guidelines set forth in Attachment A & B of this document.

Release Reporting

If at any time during the closure or CIS activity contamination is discovered or believed to exist, ADEQ must be notified within twenty four (24) hours of discovery. The release or suspected release should be reported by calling ADEQ at 602.771.4289 or toll-free in the State of Arizona at 800.234.5677, ext. 7714289.

Documentation Requirements

Within thirty (30) days after permanent closure or a CIS, the following documents must be submitted to ADEQ:

- The completed *UST Permanent Closure Assessment Report Form*;
- A revised *Notification for Underground Storage Tanks Form* reflecting the updated status of the permanently closed or CIS USTs;
- Copies of the laboratory analytical results which also includes laboratory Quality Assurance/Quality Control (QA/QC) information and a legible chain-of-custody provided by the lab (refer to ASTM Standard D 4840-99 for chain-of-custody procedures);
- Copies of any photographs taken during the closure, CIS activity and/or site characterization along with a photo log identifying the date, time and subject of each picture;
- A site plan prepared to scale, that accurately depicts the locations of all pertinent site features, (i.e. USTs, piping, ancillary equipment, excavation zone(s), sampling locations, etc). ADEQ recommends that areas of contamination, location of stockpiled petroleum-contaminated soil, buildings, and cross streets be included on the site map indicated above

ADEQ recommends that the following be submitted with the documents referenced above:

- A copy of the fire authority's on-site Closure Report and the tank removal permit;
- A certificate of UST destruction; and
- A certificate of liquid rinsate disposal

Document Submittal Information

The aforementioned documents can be submitted by email to nmg@azdeq.gov or by mail to:

Arizona Department of Environmental Quality
UST-DS Section, UST Coordination Unit
Attention: Nick Giuntoli
1110 West Washington Street
Phoenix, Arizona 85007

ATTACHMENT A - SAMPLING GUIDELINES

The following guidelines apply to all soil samples collected at the time of permanent closure of the UST and/or system components:

- It is recommended that the UST owner hire a qualified environmental professional with appropriate Arizona technical registration (P.E., R.G. or Certified Remediation Specialist) to assure that the soil samples are collected in the appropriate locations and collected in the appropriate manner. Any interpretation of subsurface conditions requires the stamp of an Arizona registrant on the submitted document. The Arizona Board of Technical Registration (BTR) can be contacted to verify technical registration requirements and identify those person that are actively registered by click on the following link [BTR Professional Registrants Search](#)
- ADEQ requires further investigation at locations where the concentration of regulated petroleum substances exceeds the minimum reporting limits. ADEQ recommends that an additional soil sample be collected below the primary sample at the time of permanent closure of the UST and/or system components to assist the UST owner in characterizing any releases during the same field event. This additional data may be used by ADEQ to evaluate if the release can be closed without additional samples being required from the UST owner during a second field event.
- All sampling equipment must be decontaminated using the procedures set forth by the American Society for Testing and Materials (ASTM) Standard D 5088-90. In addition, all soil samples must be obtained with minimal loss of volatile regulated substances and in accordance with ASTM Standard D 4547-91 and ASTM Standard D 4700-91. The Department may approve, prior to obtaining samples, other procedures for sampling which have been determined by the Department to result in analytical data representative of the concentrations and compositions of any regulated substances actually present in the soil.
- All soil samples must be collected and preserved using methanol extraction according to EPA Method 5035 or by using an EnCore™ or TerraCore™ subcorer without methanol extraction. The samples should be taken from undisturbed soils or from the backhoe or trackhoe bucket immediately after the soil is lifted from the bottom of the excavation. The upper few inches in the bucket should be scraped aside so that fresh material near the center of the bucket may be sampled. If the material in the bucket contains too many cobbles, that soil interval is inappropriate for laboratory analysis for VOCs.
- Discrete samples of the stockpiled excavated soil must be collected using the same method as identified above.
- The sample must be labeled immediately, placed in a sealable plastic bag, and put in a cooler on ice as set forth in ASTM Standard D 4547 and ASTM Standard D 4700-91. "Blue ice" should not be used unless required for shipping purposes.
- Field measurements and the lithologic description should be conducted with the remainder of the recovered sample. ASTM Standard D 2488 or a comparable standard must be used when classifying soil lithology.
- Compositing soil samples are not acceptable.

ATTACHMENT B – ANALYTICAL METHODS

Be advised that a laboratory must be licensed by the Arizona Department of Health Services (ADHS) to perform the analytical test methods that are approved in accordance with A.A.C. Title 9, Chapter 14, Article 6. A list of environmental laboratories and the analytical test methods they are certified for is available by contacting the ADHS Laboratory Licensure Section at 602.364.0720.

The regulated substance stored in an UST over its lifetime dictates what laboratory analyses are recommended. The table below shows the recommended analytical tests based on the regulated substance stored. This table is designed to illustrate what test methods satisfy the UST closure requirements to stay consistent within the UST Program.

For UST systems containing petroleum-based substances, all soil samples must be analyzed for VOCs and PAHs. Organic lead and/or metals analysis is identified as needed in the table below.

A sample suspected of having mixed petroleum products may require more than one of the tests in the referenced table.

ADEQ requires further investigation at locations where the concentration of regulated petroleum substances exceeds the minimum reporting limits.

Check the ADEQ webpage for the most recent analytical methods, field procedures and laboratory requirements at : [UST Program Analytical Data Information](#)

Test Method	Analysis and Test Methods for Soil or Groundwater			
	VOCs	PAHs	Tetra ethyl lead (organic lead)	Metals (RCRA 8)
	8260B plus TICs ¹	8310 or 8270C SIM	California HML-939M or equivalent ³	6000/7000 Series
Unleaded Gasoline includes all Oxygenated Gasoline using either MTBE or Ethanol	•	•		
Regular (Leaded) Gasoline	•	•	•	
Diesel & Biodiesel	•	•		
Jet Fuel	•	•		
Aviation Gas	•	•	•	
Used Oil	•	•		•
New Oil & Heating Oil	•	•		
Kerosene	•	•		
Solvents	•			
Hazardous Substance ²				
Unknown	•	•	•	•

If a soil sample contains concentrations of VOCs and/or PAHs greater than the minimum reporting limit, contact ADEQ at 602.771.4289 to report a suspected release.

¹EPA Method 8260 B Volatile Organic Compounds- the entire list is to be reported by the laboratory including the tentatively identified compounds (TICs) in the ADEQ UST Program Analytical Data Information Sheet.

²Analyze for compounds specific to the hazardous substance(s) released.

³If an UST system storing gasoline was put into service prior to 1996, the soil and/or groundwater samples must be analyzed for Tetra ethyl lead.