

Arizona Tank Closure, Assessment and Response

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Agenda

- > Closure
- > Assessment
- > Response

Exceptions to the UST State and Federal Regulations

- > USTs storing *heating oil* used on the premises where it is stored;
- > USTs of 1,100 gallons or less capacity holding motor fuel used for noncommercial purposes on *farms*;
- > USTs on or above the floor of underground areas, such as basements or tunnels; and
- > USTs of 110 gallons or smaller.

Types of Closures



UST Closure

- > Temporary Closure
- > Permanent Closure
 1. Removal of UST system from ground.
 2. Closing in the ground by filling with an inert solid material, such as sand.
 3. Change-in-Service from storage of a regulated to a non-regulated substance.



Notification for Underground Storage Tanks Form

- > Arizona Revised Statutes (A.R.S.), Title 49, Chapter 6, Section 49-1002 requires owners of underground storage tanks (USTs) to notify the Arizona Department of Environmental Quality (ADEQ) of their USTs on forms prescribed by the Department. The Notification Form is designed to serve two purposes:
 - 1) To register USTs located at a specific facility, and
 - 2) To inform ADEQ of any changes (amendments) at an UST facility (e.g. installation, closure, method of release detection, change in ownership, etc.).
- > Owners and operators of USTs are required to notify ADEQ of all changes at a facility within thirty (30) days of that change.
(<http://www.azdeq.gov/environ/waste/ust/download/notif.pdf>)



ADEQ Certified Tank Service Work

The Arizona Department of Environmental Quality, Underground Storage Tank Program established a Tank Service Provider Certification Program in order to ensure that work performed on underground storage tank systems (USTs) is done in accordance with Arizona Revised Statutes (A.R.S.) Title 49, Chapter 5 and the rules promulgated thereunder. The areas of work affected is defined under Arizona Administrative Code (A.A.C.) R18-12-803 as 'Categories of Certification' and include the areas of installation and retrofit, cathodic protection testing, interior lining, tightness testing and decommissioning.

<http://www.azdeq.gov/environ/waste/ust/icu/download/list.pdf>



Temporary Closure

- A UST owner or operator may temporarily close their UST for up to 12 months by completing the following requirements.
- > Submit a notification form to ADEQ within 30 days of temporary closure
 - > Maintain leak detection on UST systems containing product and continue to monitor and maintain any corrosion protection system
 - > Maintain corrosion protection system
 - > Leave vent lines open
 - > Cap and secure all other lines, pumps, manways and ancillary equipment
 - > Temporary closure for 12-month period



UST CLOSURE (A.R.S. § 49-1008)

Owners and operators must notify ADEQ within 30 days of their intent to permanently or temporarily close the UST. Additionally, they must use a person certified by ADEQ to perform the tank closure. Permanent UST closure involves a process resulting in removing or closing a UST in place, as well as sampling of native materials (soil and/or water) to indicate if a release has occurred – Assessment.

If Temporary Closure is Desired Beyond 12 Months

- > **Option A** - You may request an extension of Temporary Closure, for which the following procedures must be followed:
 1. Perform a *Site Assessment* (if required) prior to the extension request. (*Certain UST systems are exempt from performing a site assessment. Contact the UST section for further details*).
 2. Contact ADEQ at least 30 days prior to the end of the initial temporary closure date.
 3. Submit a Notification Form requesting extension of temporary closure and include the site assessment results (if required).
- > **Option B** – Permanently Close the UST System.



Permanent UST Closure

1. Notify ADEQ in writing of your intent to close the UST at least 30 days prior to the closure date.
2. ADEQ will assign a closure number.
3. Coordinate with the appropriate fire authority and ADEQ for the date and time of actual closure.
4. Use a tank service provider certified by ADEQ to decommission the UST.
5. Perform a site assessment.



Permanent UST Closure - Continued

6. Submit the Notification Form and the site assessment report within 30 days of the permanent closure date.

For details, refer to the Permanent Closure Guidance Document at ADEQ's website or contact the UST call line at (800) 234-5677 or (602) 771-4339.



NOTE: Whenever possible, the intent-to-close letter should include the name and the ADHS license number of the laboratory that will be performing the analytical testing. Soil samples which are to be analyzed for the possible presence of volatile regulated substances may be subject to either:

- 1) Extraction within 72 hours of collection, unless site-specific pre-approval to extend the time to 120 hours has been granted by the Department; or
- 2) Extraction using methanol immersion; or
- 3) The use of purge-and-trap modified adapters. If an extension to the extraction holding time is necessary, the request should be made in the intent to close letter.



After receiving the intent to close letter, ADEQ will issue a closure number to the UST owner/operator and a copy to the consultant/contractor retained by the owner/operator. This number will be valid for six months only. If closure or CIS is not accomplished within the six month period, ADEQ requires another intent to close letter be submitted.

Pre-Closure Assessment - Continued

Contact the Appropriate Fire Authority - After receipt of the ADEQ closure number, the UST owner/operator must coordinate the permanent tank closure activity with the appropriate fire authority that has jurisdiction for the area in which the UST is located.

Pre-Closure Assessment - Continued

	Authority Responsible for UST Closure	Coverage Areas	Telephone Number
1	State Fire Marshal	Statewide except the following cities:	602-364-1003
2	Phoenix Fire Department	City of Phoenix	602-262-6771
3	Tucson Fire Department	City of Tucson	520-791-4512
4	Arizona Department of Environmental Quality	City of Glendale, Mesa, Scottsdale and Tempe	602-771-4315

UST System Removal (Tank Pull)

- > The petroleum product UST is pumped out of the tank.
- > The tank(s) are prepared for removal and made inert.
- > The concrete and overburden is removed from the tank(s) and product piping.



Assessment

When Should Soil Samples Be Collected?

At the time of closure and/or before a CIS, soil samples must be taken at the locations in which contamination is observed or is most likely to occur. (ADEQ recommends that soil samples be collected as soon as practicable following the removal of any portion of the UST system, but no later than four hours after removal.)

Sampling Beneath the UST:

1. If water is not present in the excavation at the time an UST is removed, a minimum of two (2) distinct soil samples should be taken from native soils beneath each tank end that has a capacity to hold more than 550 gallons and a sample should be collected beneath the fill pipe if the fill pipe is in the center of the tank.

(Most samples tend to be collected in native soil two or three feet below the base of the tank basin.)

Sampling Beneath the UST (Continued):

2. If water is present above the floor of the excavation at the time an UST is removed, representative samples of native soils should be taken from the walls of the excavation at the soil-water interface at both ends of the tank along with a sample of the water present in the excavation. If there is a sheen or free product on the water, the sampling requirements of this paragraph do not have to be met, but further investigation must be accomplished in accordance with all applicable state, federal, county and local regulations.

Sampling Beneath the UST (Continued):

3. If an UST is being closed in place by filling it with an inert solid material 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 tank that has a capacity to hold more than 550 gallons. The samples must be taken from beneath each end of each tank. Samples are usually collected with a drill rig and a split-spoon sampler.

Sampling Beneath the UST (Continued):

4. If native soil cannot be sampled due to 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 in 1. If the backfill material cannot be sampled, contact ADEQ for further instruction.

Sampling Beneath the UST (Continued):

5. Distinct soil samples must also be collected from native soils beneath: elbows, joints, fittings, dispensers, ancillary equipment and areas of corrosion.

When closing piping (i.e., flushed, then capped and closed in place or removed from the ground), distinct soil samples must be collected every twenty (20) linear feet beneath the piping in native soils.

Sampling Beneath the UST (Continued):

6. Additional Soil Sampling: In areas that appear to have had a release, it is highly recommended that the UST owners/operators consider collecting additional soil samples below the first set of samples. By doing this, it may be possible to fully characterize the release before leaving the facility.

Sampling Beneath the UST (Continued):

7. 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.).



**UNDERGROUND STORAGE TANK SYSTEM
PERMANENT CLOSURE GUIDANCE DOCUMENT**

Analysis and Test Method? (Table A - ADEQ Sampling Guideline)

Table I

Product Stored in the UST	Type of Analysis and Test Methods				
	Petroleum Hydrocarbons ^a	BTEX	VOCs	PAHs	Metals ^b
Test Method →	8015AZ	8021B/8260	8260	8310	
Products					
Gasoline/Oxygenated Gasoline/Ethanol blended Gasoline	X	X			
Diesel/Biodiesel	X			X	
Jet Fuel	X	X			
Used Oil	X		X	X	X
New oil/Heating Oil	X			X	
Kerosene	X			X	
Solvents ^c			X		
Hazardous Substance ^d	See Below				
Unknown	X		X	X	X

BTEX = Benzene, toluene, ethylbenzene, xylenes ♦ VOCs = Volatile organic compounds ♦ PAHs = polyaromatic hydrocarbons

^a You may use the 8015AZ test method as a screening tool. If a soil sample contains concentrations of hydrocarbons greater than the laboratory reporting limit, contact ADEQ at (602) 771- 4289 and report a suspected release.

^b Metals to be analyzed are: arsenic, cadmium, chromium (total), lead and mercury. Use EPA methods 6000 and 7000 series for the analyses. Make a due diligent effort to obtain the background levels of the metals analyzed for comparison.

^c Contact ADEQ UST call line at (602) 771-4192 or an analytical laboratory for guidance on appropriate test methods for particular semi-volatile solvents of concern.

^d Analyze for compounds specific to the hazardous substance released.

Water Analysis: All water samples must be analyzed in accordance with the Arizona Administrative Code Title 9, Chapter 14, Article 6.

Sampling Beneath the UST (Continued):

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

UNDERGROUND STORAGE TANK (UST) PERMANENT CLOSURE ASSESSMENT REPORT FORM

1. FACILITY NAME: _____ FACILITY ID No. _____

2a. ADEQ Closure No. _____ 2b. Fire Authority Closure Permit No. _____

3. LOCATION OF TANK(S)

Street Address (P.O. Box NOT acceptable)

City State Zip Code

County

Legal Location (Township, Range, Section, Quarter,
Quarter, Quarter)

4. OWNERSHIP OF TANK(S)

Owner Name

Contact Person Job Title

Mailing Address

City State Zip Code

Telephone Number (include area code)

5. CONTRACTOR, LABORATORY AND CONSULTANT INFORMATION

Contractor		Phone No.:
Certified Individual		ADEQ Certification No.:
ROC License No.		Type of License: A B-1 B-2 L-57 L-5 Other _____
Laboratory Name		ADHS License No.:
Laboratory Contact Name		Contact Phone No.:
Consultant Name		Contact Phone No.:

6. SITE INFORMATION

- a. Number of active tanks* at facility prior to closure or change-in-service (CIS): _____
(* Do not include previously closed tanks)
- b. Number of tanks being closed or undergoing a CIS: _____
- c. Will new tanks be installed? Yes No
If yes, how many: _____ When? _____
- d. Depth to groundwater (if known):
Source: _____ Date: _____

7. SITE PREPARATION

- a. Date and time tank(s) emptied of all product and accumulated sludge:
Date: _____ Time: _____
- b. Date and time of inerting or purging:
Date: _____ Time: _____
- c. Method of inerting or purging: _____

- d. Date of closure or change-in-service:
Date: _____

8. INERT SOLID MATERIAL USED TO CLOSE TANK IN-PLACE

Not Applicable - Tank(s) Excavated Not Applicable – Change In Service (CIS)

Sand Foam Concrete Other: _____

9. DIMENSION OF TANK EXCAVATION(S) (measurements in feet)

Not Applicable - CIS or in-place closure

<p><u>Excavation I</u></p> <p>Length _____ Width _____ Depth _____</p> <p><u>Excavation III</u></p> <p>Length _____ Width _____ Depth _____</p>	<p><u>Excavation II</u></p> <p>Length _____ Width _____ Depth _____</p> <p><u>Excavation IV</u></p> <p>Length _____ Width _____ Depth _____</p>
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10. TANK INFORMATION

Table I - Tank(s) undergoing permanent closure

Tank ID No.	Size (gallons)	Material of Construction	Contents Stored	Holes in Tank (yes or no)	Holes in Piping (yes or no)	Proposed unregulated [%] substance

[%] Complete only if the tank is undergoing a CIS

11. VISUAL EXCAVATION ASSESSMENT

Did the following conditions exist at the excavation site?

Stained Soil: Yes No Water in Excavation: Yes No

Petroleum Odor in Soil: Yes No Sheen or Free Product on Water: Yes No

Free Product in Excavation: Yes No Evidence of Spill and/or Overfill: Yes No

NOTE: If at any time during the closure or CIS activity, contamination is discovered or believed to have existed, ADEQ must be notified within twenty-four (24) hours of discovery. The release or suspected release should be reported by calling the ADEQ call line at 1-800-234-5677, extension 771-4289

12. SOIL INVESTIGATION PROCEDURES

NOTE: Ensure that all soil sampling equipment has been decontaminated prior to sampling.

- a. Were all soil samples collected by pushing or driving clean sleeves, constructed of an inert material, into the soil contained in the backhoe or trackhoe bucket per the *sampling guidelines* in the *Underground Storage Tank Permanent Closure Guidance Document*? Yes No

If no, describe why not and alternative mode used: _____

- b. Describe how sleeves were sealed and labeled: _____

- c. Were all soil samples preserved at approximately 4 degrees Centigrade prior to delivery to the laboratory?

Yes No

- d. Do field investigations indicate contamination? Yes No
If yes, what was the methodology used and where were the hot spots located? _____

- e. Estimated volume of excavated soil (cubic yards): _____

NOTE: Excavated soil should be tested to determine if it is petroleum-contaminated soil (PCS) that must be disposed properly.

13. SITE MAP (To be provided as an attachment to this report form and prepared to scale)

- a. Are all tanks, dispensers and associated piping shown on the site map? Yes No

If no, describe why not: _____

- b. Are the length, width, depth and location of pipe unions and areas of corrosion for each piping run (trench) shown on the map? Yes No

If no, describe why not: _____

- c. Are all excavations and stockpiles, including stockpiled Petroleum Contaminated Soil (PCS), shown on the map? Yes No

If no, describe why not: _____

- d. Are all sampling locations and areas of contamination shown on map? Yes No

If no, describe why not: _____

- e. Are all cross streets and major structures (i.e. buildings) near the excavation zone(s) shown on map?

Yes No

If no, describe why not: _____

14. LABORATORY RESULTS

- a. Submit the laboratory analytical results in Table II and Table III (if applicable) following the Sampling Guidelines outlined in the *UST Permanent Closure Guidance Document*.
- b. Identify all samples (including stockpile samples), location of each sample, depth of each sample, soil lithology of each sample and analytical test results of each sample in the table below.
- c. Laboratory Reporting Limits: Indicate reporting limits for range(s) of compounds separately. If non-detected, do not write non-detect or "ND." List the numerical reporting limit, for example, "<0.25 mg/kg".

15. FIRE MARSHALL REPORT

Please include a copy of the Fire Marshall's inspection report. Have you included the Fire Marshall's Report?

- Yes No

If not, please explain _____

16. Attachment Checklist:

- Site Map (labeled with information requested under #13)
- Laboratory analytical results (as requested under #14)
- Chain of Custody Form
- Laboratory QA/QC information
- Photographs taken during closure
- Copy of Fire Marshal's Report
- Revised Notification Form
- Other documents attached:

Table II - Soil Analytical Results

Name of Chemicals sampled & corresponding analytical methods				TPH Method 8015AZ ¹	Benzene	Toluene	Ethyl-Benzene	Xylenes	VOCs ²	PAHs ²	Metals
					Method 8021 or 8260				Method 8260	Method 8310	Method See ³
Laboratory Reporting Limits(mg/kg)											
Sample ID #	Location of sample	Depth (bgs)	Soil Type	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)	mg/kg (ppm)

mg/kg = milligram per kilogram, bgs = below ground surface, ppm = parts per million

- d. Provide copies of the laboratory results, including Quality Assurance/Quality Control (QA/QC) information and an original, legible chain-of-custody as an attachment to this report form. Refer to ASTM Standard D 4840-88 for chain-of-custody procedures.
- e. Holding time (hours): _____ NOTE: Soil samples to be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) or other Volatile Organic Compounds (VOCs) should be extracted within 72 hours of collection. ADEQ may extend the 72 hour limit to 120 hours with site-specific pre-approval. ADEQ may not consider samples exceeding the extraction holding time as valid and may require additional sampling.
- f. If an extension to the holding time has been granted by ADEQ, furnish below the date of extension and the name of the person that granted extension:

Date: _____

ADEQ Authorized Representative: _____

17. THE SPACE BELOW IS PROVIDED FOR ADDITIONAL COMMENTS:

¹Provide a break-down of reporting limits and concentrations of total petroleum hydrocarbons (TPH) as follows: gasoline range, diesel range and oil range.

²If VOCs, PAHs or Metals are detected, use an X to identify the appropriate sample and use Table III to provide analytical data.

³Use EPA 6000/7000 series Test Methods

18. UST PERMANENT CLOSURE ASSESSMENT REPORT PREPARED BY:

Signature: _____

Date: _____

Name Printed: _____

Company Name: _____

Position Title: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____

Fax Number: _____

Where registration is required by the Board of Technical Registration, please affix seal below:

19. QUESTIONS:

ADEQ would appreciate receiving the consultant's response to the following question: "In your professional opinion, has there been a release of a regulated substance at this site?"

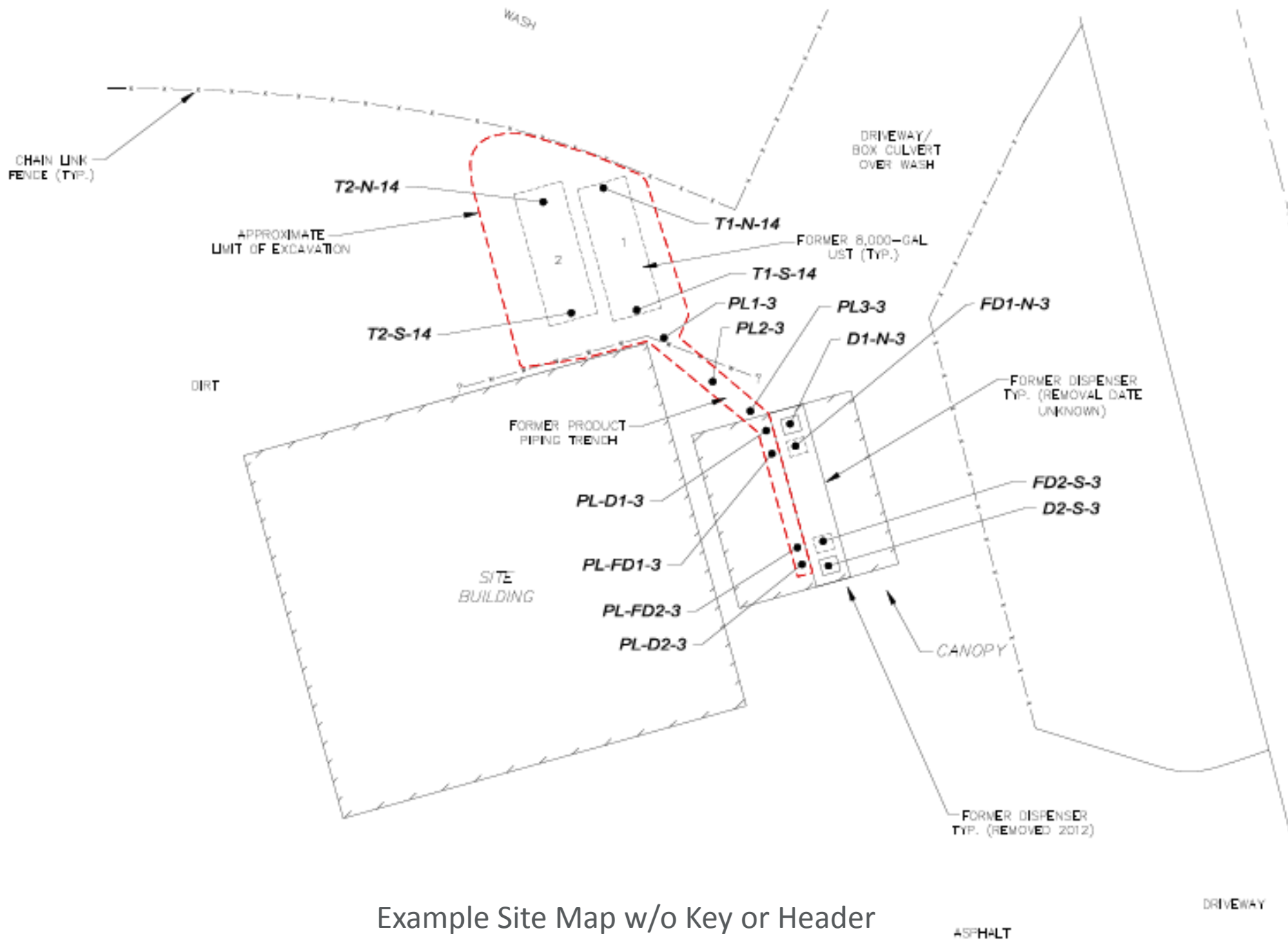
Yes No Needs further assessment

20. **VOC, PAH and METAL RESULTS** (Complete only if applicable)

- a. Use Table III to identify the concentrations of the VOCs, PAHs and Metals detected for each applicable sample.
- b. In cases where a compound is detected in some but not all samples, list the numerical reporting limit for each sample in which the compound was not detected to indicate that. Do not write “non-detect” or “ND” only.
- c. Holding time (hours): _____

Table III

VOCs , PAHs and Metals Detected	Laboratory Reporting Limit mg/kg (ppm)	Concentration in mg/kg (ppm)							
		Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID



Example Site Map w/o Key or Header



UST Release Notification Requirements

UST owners and operators are required to notify ADEQ within 24 hours of a release or suspected release of an underground storage tank. Please call:

(602) 771-4289

(800) 234-5677 - Toll Free

Once a release is confirmed, the owner or operator has the responsibility of investigating and, if necessary, cleaning up the contaminated soil and/or groundwater from the leaking UST (LUST) site. ADEQ calls these activities "corrective actions."

Confirmed Release Status Report

An owner or operator shall submit a written report, on a department provided form, within 14 calendar days after the release confirmation date . The report shall include:

- > The nature of the release.
- > The regulated substance released.
- > The estimated quantity of the regulated substance released.
- > The estimated period of time over which the release occurred.

Confirmed Release Status Report - Continued

- > A copy of the results of any tightness test performed to confirm the release.
- > Laboratory analytical results of samples demonstrating the release confirmation.
- > The initial response and corrective action taken as of the date of the report.
- > Anticipated corrective actions to be taken within the first 90 days after the release confirmation date [excerpt from A.A.C. R18-12-260(C)].



Initial Response

An owner or operator shall initiate initial response actions within 24 hours of release confirmation to prevent further release and identify and mitigate fire, explosion, and vapor hazards [excerpt from A.A.C. R18-12-261(A)].

References

Hazardous and Solid Wastes Amendments of 1984, P.L. 98-616, 98 Stat. 3224, November 8, 1984.

U.S. Environmental Protection Agency (EPA), Washington, DC. "Operation and maintenance of corrosion protection." *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST).* Code of Federal Regulations, 40 C.F.R. 280.31.

EPA (2010). "FY 2009 Annual Report On The Underground Storage Tank Program." Document no. EPA-510-R-10-001.

EPA. "Definitions." *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST).* Code of Federal Regulations, 40 C.F.R. 280.12.

EPA (1988). "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)." *Federal Register*, 53 F.R. 37194, 1988-09-23. 40 CFR Part 280.

<http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49>

http://www.azsos.gov/public_services/Title_18/18-12.htm



Questions?

A level of experience that creates confidence

Cardno ATC Tempe has specialized experience in the following areas:

- > Geotechnical Engineering
- > Materials Testing and Inspection
- > Environmental Consulting
- > Due Diligence (Phase I & II Investigations)
- > Asbestos, Lead and Mold Consulting
- > Industrial Hygiene

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