

UST EXCAVATED SOIL AND PCS GUIDANCE

The purpose of this document is to provide guidance for understanding Arizona Department of Environmental Quality (ADEQ) Underground Storage Tank (UST) Program requirements and recommendations for the handling, sampling, and classification of excavated soil and petroleum contaminated soil (PCS).

UST SITES AND PETROLEUM CONTAMINATED SOIL (PCS)

UST owners and operators conducting UST closure or change-in-service must sample excavated soil. This requirement applies regardless of whether the soil will be disposed of offsite. Excavated soil is considered solid waste and is subject to solid waste regulations. For more information about the Solid Waste Program and PCS, visit azdeq.gov/special-waste-pcs.

During UST closure or change-in-service, owners and operators of a regulated UST facility must comply with applicable state requirements.¹ Soil samples must be collected for laboratory analysis, including from stockpiled excavated soil, in accordance with solid waste regulations and best management practices for PCS.²

EXCAVATED SOIL HANDLING REQUIREMENTS

The following ADEQ recommendations outline practices for managing and containing PCS removed during UST activities:

- Stockpile excavated soil on visqueen, berming the pile, and managing access to limit exposure to people and weather until a proper waste determination is made based on analytical results.
- Dispose of excavated soil offsite at an appropriately licensed facility rather than returning it to the excavation area. If soil is not removed from the site, it must meet requirements for temporary treatment or accumulation.³
- Operators should segregate soil that appears contaminated based on visual observations, odor, or field instrument readings.
- Operators should identify appropriate disposal facilities before beginning work to confirm acceptance criteria and waste characterization sampling.

EXCAVATION AND STOCKPILE SAMPLING REQUIREMENTS

Sampling requirements vary by site conditions and the nature of excavated material. UST owners, operators and their environmental consultants are responsible for identifying and documenting those conditions.

- If areas of higher contamination are observed, operators should separate those materials and collect samples independently to determine appropriate handling, treatment, or disposal.
- ADEQ recommends collecting samples from 2 to 3 feet below the surface of stockpiles. Environmental consultants should determine the number of samples needed to ensure they are representative. Laboratories may composite up to two samples per analysis, when appropriate.
- Samples from separate stockpiles should not be composited together.
- General sampling guidance includes:
 - 1 to 50 cubic yards: minimum one sample
 - More than 50 cubic yards: minimum of two samples per 100 cubic yards
- If operators plan to return soil to the excavation, ADEQ recommends collecting additional samples to document that contaminated soil is not reintroduced.
- Any party returning PCS to the excavation site must meet all notification, investigation, and remediation requirements, including completing site characterization within 120 days.⁴

APPLICABLE ANALYTICAL METHODS

UST owners and operators should consider the type of product stored in the UST(s) over its operational life and use analytical methods appropriate for each chemical of concern.⁵

- Analytical concentrations determine whether soil is classified as non-regulated, PCS, solid waste PCS, or hazardous waste.
- Disposal facilities may have additional sampling requirements. Operators should ensure sampling aligns with facility-specific acceptance criteria.
- See the relevant additional guidance below at azdeq.gov/ust/resources
 - [UST Analytical Data Information](#)
 - [UST Permanent Closure and Change-In-Service Guidance Document](#)

DETERMINATION OF PCS APPLICABILITY

UST owners and operators determine whether PCS requirements apply based on analytical results from excavated soil. If contaminant levels are below residential soil remediation levels, the soil is considered exempt from PCS requirements as solid waste, provided applicable conditions are met.⁶

Sampling and analysis determine whether soil is:

- | | |
|-----------------|-------------------|
| ● Non-regulated | ● Solid waste PCS |
| ● PCS | ● Hazardous Waste |

To determine whether excavated material is exempt (except for the requirements), the owner or operator must classify the material based on analytical results.³

CLASSIFICATION OF EXCAVATED SOIL MATERIALS

Excavated materials must be classified based on analytical results and site conditions.

Categories include:

- Non-regulated soil: Soil that is not hazardous waste, not PCS, and does not pose an environmental nuisance.⁷
- PCS: Soil containing petroleum contaminants above specific thresholds.³
- Solid waste PCS: Soil contaminated with petroleum that does not meet PCS thresholds but is still regulated.

Contaminant (mg/kg)	Solid Waste PCS (R18-13-1601(13))	PCS (R18-13-1601(8))
Benzene	$0.65 \leq [X] < 1.4$	≥ 1.4
Toluene	≥ 650	≥ 650
Ethylbenzene	≥ 400	≥ 400
Total Xylenes	$270 \leq [X] < 420$	≥ 420
Anthracene	$22,000 \leq [X] < 240,000$	$\geq 240,000$
Benz(A)anthracene	$6.9 \leq [X] < 21$	≥ 21
Benzo(A)pyrene	$0.69 \leq [X] < 2.1$	≥ 2.1
Benzo(B)fluoranthene	$6.9 \leq [X] < 21$	≥ 21
Benzo(K)fluoranthene	$69 \leq [X] < 210$	≥ 210
Chrysene	$680 \leq [X] < 2,000$	$\geq 2,000$
Dibenz(A,H)anthracene	$0.69 \leq [X] < 2.1$	≥ 2.1
Fluoranthene	$2,300 \leq [X] < 22,000$	$\geq 22,000$
Fluorene	$2,700 \leq [X] < 26,000$	$\geq 26,000$
Indenopyrene	$6.9 \leq [X] < 21$	≥ 21
Naphthalene	$56 \leq [X] < 190$	≥ 190
Pyrene	$2,300 \leq [X] < 29,000$	$\geq 29,000$

MANAGEMENT OF PEA GRAVEL AND NON-SOIL MATERIALS

Operators should segregate excavated materials by type, including soil, gravel, and debris. Additional segregation should occur based on evidence of contamination. Environmental consultants should document site conditions, including photographs.

If excavated material consists of pea gravel or larger ($\frac{3}{8}$ inch or greater), operators must document it. ADEQ does not currently require analytical sampling of pea gravel.



If staining or other signs of contamination are present, operators must dispose of the material at an appropriately permitted facility with required documentation. Contaminated gravel should not be returned to the excavation.

For questions regarding the UST Program, contact the UST hotline at (602) 771-2000, or email askust@azdeq.gov.

REFERENCES

1. Arizona Revised Statutes (A.R.S.) 49-1008; Arizona Administrative Code (A.A.C.) R18-12-271; A.A.C. R18-12-272
2. A.R.S. Title 49, Chapter 4, Article 9; A.A.C. R18-13, Article 16
3. A.A.C. R18-13-1602(C); R18-13-1610; R18-13-1612; R18-13-1603
4. A.A.C. R18-13-1604(C).
5. A.A.C. R-18-12-280(A),
6. A.R.S. 49-701.02
7. A.R.S. 49-141 through 49-144; A.A.C. R18-13-1601