



Fact Sheet:

How DEQ Evaluates Sample Collection and Data Analysis for Used Oil UST Closures and Releases

As stated in Idaho Department of Environmental Quality (DEQ) Policy Statement PS16-01, “meeting the mission of the agency necessitates environmental decisions achieved through the use of high-quality data...” DEQ must adhere to its Quality Management Plan (QMP) to ensure quality data collection and analysis. The QMP meets federal requirements mandated by the US Environmental Protection Agency (EPA). Additionally, the QMP directs all DEQ programs involved in making decisions regarding environmental data to follow a quality assurance project plan (QAPP) and standard operating procedures. For data generated by external parties, DEQ is responsible for assessing the data and other available information received to determine if the data are of sufficient quantity, type, and quality before use in decision-making processes. DEQ uses the following document to evaluate sample collection and data analysis for used oil underground storage tank (UST) closures and releases:

- *Used Oil UST Closure and Release Sampling Standard Operating Procedures*, May 2017

This fact sheet is a condensed summary of the above document and informs the public about how DEQ staff evaluates sample collection and data analysis regarding used oil UST closures and releases. DEQ encourages anyone submitting data to DEQ to read the full document. It can be found at <http://www.deq.idaho.gov/waste-sample-collection>. This fact sheet and *Used Oil UST Closure and Release Sampling Standard Operating Procedures* only address used oil. This fact sheet should be used in conjunction with the fact sheets on *How DEQ Evaluates Sample Collection and Data Analysis for UST Closures and Release Investigations* and *How DEQ Evaluates Sample Collection and Data Analysis for Site Assessments and Corrective Actions*. How DEQ evaluates the sufficient quantity, type, and quality of data is discussed in the following documents:

- *Waste Management and Remediation Division Statewide Generic Quality Assurance Project Plan: Third-Party Petroleum Assessment and Corrective Action*, May 2017
- *Standard Operating Procedures for Waste Management and Remediation Division: Data Review and Verification of Third-Party Petroleum Data Submittals*, May 2017
- *Standard Operating Procedures for Waste Management and Remediation Division: Data Validation of Third-Party Petroleum Data Submittals*, May 2017
- *Waste Management and Remediation Division Statewide Generic Quality Assurance Project Plan: Third-Party Petroleum Storage Tank Release Investigation and UST Closure and Change-in-Service*, May 2017
- *Standard Operating Procedures for Waste Management and Remediation Division: Data Review and Verification of Third-Party Petroleum Release Investigation and Underground Storage Tank Closure and Change-in-Service Submittals*, May 2017

- *Standard Operating Procedures for Waste Management and Remediation Division: Data Validation of Third-Party Petroleum Release Investigation and Underground Storage Tank Closure and Change-in-Service Submittals, May 2017*

SAMPLING AND ANALYSIS

After receiving a site assessment report, DEQ will evaluate whether sampling procedures were conducted in a manner that provides quality data. DEQ will evaluate whether a sufficient number of samples were collected from appropriate locations and depths in order to identify and/or delineate a release. For used oil UST closures or releases, DEQ will evaluate if samples were collected for petroleum constituents, total metals, and halogenated solvents.

As specified by EPA Region 4 (www2.epa.gov/sites/production/files/2015-06/documents/Soil-Sampling.pdf), the method for collecting soil samples for volatile organic compound (VOC) analysis is EPA Method 5035A. This method significantly reduces the losses of chemical constituents by volatilization. Laboratories can supply the sampling equipment for Method 5035A, along with pre-weighed sampling containers containing the preservative. Soil moisture content is typically assessed at each sampling location by collecting a soil sample in a separate 2-ounce clear sample jar. This method allows the laboratory to calculate chemical concentrations on a dry weight basis.

If ground water is encountered in an excavation during used oil site assessment activities, DEQ will evaluate if soil samples were taken from the soil/ground water interface. Ground water monitoring wells may be necessary to determine ground water impacts. DEQ will evaluate if soil and water samples were collected and analyzed for the constituents in the following table.

Used Oil UST Analytical Parameters.

Media	Parameter	EPA Methodology
Soil	BTEX, PAHs	8260, 8270 SIM
	Solvents	8260, 8270
	Total metals	6010, 6020
	Mercury	7470
Water	BTEX, PAHs	8260, 8270 SIM
	Solvents	8260, 8270
	Total metals	6010, 6020
	Mercury	7470

Notes: BTEX = benzene, toluene, ethylbenzene, and xylene;
PAHs = polycyclic aromatic hydrocarbons, SIM = selective ion monitoring

USED OIL MAY BE A HAZARDOUS WASTE

Used oil USTs with a capacity greater than 110 gallons are regulated by the *Rules Regulating Underground Storage Tank Systems* (IDAPA 58.01.07). Petroleum releases, whether from an

UST or other petroleum storage tank (PST), are regulated by the *Water Quality Standards* (IDAPA 58.01.02.851 and 852) as well as the *Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites* (IDAPA 58.01.24). Any release of used oil, including releases from regulated USTs, may also be subject to the hazardous waste requirements of the *Resource Conservation and Recovery Act* (RCRA) Subtitle C as found within the *Idaho Hazardous Waste Management Act* (HWMA) and the *Rules and Standards for Hazardous Waste* (IDAPA 58.01.05).

If a used oil UST is closed or has a change-in-service, a site assessment is required under IDAPA 58.01.07 to determine if a release occurred. If a PST has a suspected release, a release investigation is required under IDAPA 58.01.02.851.03. Owners and operators must stop and contain any ongoing release, excavate all visibly contaminated soil and debris, and determine if free liquids are present in the waste. Any recovered liquid used oil should be containerized and managed in compliance with the applicable requirements for used oil per 40 CFR Part 279. All non-liquid waste should be placed in covered containers on tarps or heavy-gauge plastic and covered well to minimize human contact and further loss to the environment.

Potentially contaminated media (soil, surface water, ground water) is required to undergo a hazardous waste determination, pursuant to IDAPA 58.01.05.006 (40 CFR §262.11). Media may be regulated under the *Rules and Standards for Hazardous Waste* if it exhibits any of the hazardous characteristics (ignitability, corrosivity, reactivity, and toxicity) and/or is determined to contain a listed waste (F-, K-, P-, and U-lists).

The primary concern with a used oil release is the characteristic of toxicity. To determine toxicity, representative samples of the waste must be tested for eight toxic “heavy” metals and several organic analytes using a procedure called the Toxicity Characteristic Leaching Procedure (TCLP).

A cost-effective means of determining if a waste could exceed the TCLP regulatory limits is to first conduct a total metals analysis. If total metal concentrations are all below 20 times their respective TCLP regulatory limits (Rule of 20) identified in the table below, then the TCLP analysis is unnecessary. If the total metal concentrations exceed the Rule of 20 limit, a metal TCLP analysis is conducted, unless the soil will be managed as hazardous waste.

Used Oil TCLP Analysis for Metals.

Metal	TCLP Limit (mg/L)	Rule of 20 (mg/kg)
Arsenic	5	100
Barium	100	2,000
Cadmium	1	20
Chromium	5	100
Lead	5	100
Mercury	0.2	4
Selenium	1	20
Silver	5	100

Notes: mg/L = milligram per liter, mg/kg = milligram per kilogram

If a metal sample fails a TCLP analysis for any of the metals in the table above, the material is considered a hazardous waste and DEQ must be notified to determine how to treat or dispose of the contaminated material. The resulting hazardous waste becomes subject to the management requirements of RCRA Subtitle C and will be addressed by DEQ's hazardous waste staff.

If halogenated solvents are detected by EPA Method 8260, the soil is presumed to be hazardous waste unless the generator can demonstrate otherwise through process knowledge or additional chemical analysis.

The site owner or operator may wish to avoid the analytical expense of sampling to determine if the media is hazardous and simply declare and manage the material as a hazardous waste. However, disposal facilities may require analyses to determine if the waste meets their waste acceptance criteria, so check with your local disposal facility first.

CLEANUP

If the material is determined to meet the definition of a hazardous waste, the DEQ Hazardous Waste Program determines the appropriate cleanup requirements.

If the material does not meet hazardous waste criteria, then a risk-based cleanup approach may be appropriate. In these instances, the determination as to the significance of detected chemicals as a potential chemical of concern and the need to conduct further assessment or cleanup is made by comparison to the following:

- Petroleum constituents are compared to residential use screening levels from the *Idaho Risk Evaluation Manual for Petroleum Releases* (2018; IDAPA 58.01.24.008.02; <http://www.deq.idaho.gov/waste-mgmt-remediation/remediation-activities/risk-evaluation-manual/>).
- Metal constituents are compared to background concentrations or applicable EPA regional screening levels (2016 or more recent version; www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016).
- Solvent constituents are compared to the applicable EPA regional screening levels (2016 or more recent version; www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016).