Used Oil UST Closure and Release Sampling Standard Operating Procedures

SOP WST-2017-01

State of Idaho
Department of Environmental Quality

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1 Title and Approval Page

Title: Used Oil UST Closure and Release Sampling Standard Operating Procedures

Region/Division: Waste Management and Remediation Division

Version Number: 1

Date: May 1, 2017

Approval Signatures

Note: This SOP becomes effective on the date of the last approval signature.

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3 Procedures

3.1 Purpose

This standard operating procedure (SOP) is being provided as a supplemental document to aid Department of Environmental Quality (DEQ) staff during the decision process of what sampling needs to be conducted by an owner, operator or facility during an Underground Storage Tank (UST) closure, change-in-service (UST will be no longer store a regulated substance), or a petroleum release assessment from any petroleum storage tank (PST) that contained used oil.

3.2 Applicability/Scope

This procedure is to be followed for instances where an UST closure, UST change-in-service, or a petroleum release assessment is necessary for any PST that contained used oil.

3.3 Summary of Procedure

Sampling and analysis at used oil UST sites and any PST that contained used oil should address both the potential for hazardous waste generation and the potential environmental risks posed by contaminated media. This SOP identifies the necessary sampling and cleanup activities to address used oil constituents.

3.4 Definitions

Petroleum Storage Tank (PST) System means any one (1) or combination of storage tanks or other containers, including pipes connected thereto, dispensing equipment, and other connected ancillary equipment, and stationary or mobile equipment, that contains petroleum or a mixture of petroleum with de minimis quantities of other regulated substances.

Underground storage tank (UST) means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground.

Used oil means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities. Examples of used oil include, but are not limited to, motor oils, metal cutting oils, and hydraulic fluids. Used oil that will be recycled is subject to management under the used oil regulations in IDAPA 58.01.05.015 [40 CFR § 279], which are less stringent than the hazardous waste requirements.

Waste oil means oil that is discarded, disposed, or spilled before or after use and is not suited for recycling. Waste oil and used oil contaminated-materials that are destined for disposal are solid wastes and must be characterized to determine if they are a hazardous waste.

3.5 Personnel Qualifications/Responsibilities

DEQ staff utilizing this procedure must have experience in UST closure and change-in-use requirements, as well as petroleum release investigations and assessments typical of an Analyst 3 or 4.

3.6 SOP Preparation

3.6.1 Hazardous Waste Considerations

Used oil USTs with a capacity greater than 110 gallons are regulated by IDAPA 58.01.07. Petroleum releases, whether from an UST or other petroleum storage tank (PST), are regulated by IDAPA 58.01.02.851 and 852 (Water Quality Standards) as well as IDAPA 58.01.24 (Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites). Any release of used oil, including releases from regulated USTs, may also be subject to the hazardous waste requirements of RCRA Subtitle C as found within the Idaho Hazardous Waste Management Act (HWMA) and IDAPA 58.01.05 et seq. (Rules and Standards for Hazardous Waste).

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 in the 40 CFR § 279 regulations. 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.

There are two ways a waste may be regulated as hazardous waste. First, those wastes that exhibit one or more generic, hazardous properties are known as characteristic wastes. The four hazardous waste characteristics are: ignitability, corrosivity, reactivity, and toxicity. The other way a waste may be regulated as hazardous is if it appears on any of four lists of specific waste streams or chemicals that are known to present a threat to human health or the environment. The four lists each cover different types of hazardous wastes and are designated as the F-, K-, P-, and U-lists.

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]. If the media exhibits any of the hazardous characteristics and/or is determined to contain a listed waste, it may be regulated under the Rules and Standards for Hazardous Waste.

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). Used oil from a motor is known to collect heavy metals during operation of an engine. These contaminants can be toxic to human health and harmful to the environment. Media

contaminated with used motor oil would also have the potential to contain these heavy metals. Other contaminants of used oil can include constituents of gasoline and diesel (e.g., benzene, toluene, ethyl benzene, xylene (BTEX) and naphthalene as well as polycyclic aromatic hydrocarbons (PAHs)) and solvents (e.g., tetrachloroethylene and trichloroethylene).

3.6.2 Required Sampling and Analysis

Used oil USTs must be sampled at the time of UST closure or change-in-service. Sampling is also required at any PST site where a suspected or confirmed release has occurred. Sampling and analysis should address both the potential for hazardous waste generation and the environmental risks posed by any contaminated media. The following protocol addresses both of these concerns.

Assessments for used oil UST closure, change-in-service, or release sampling must include petroleum constituents, total metals and halogenated solvents. When analyzing contaminated soils and ground water for used oil releases, the analytical methods identified in Table 1 must be used. Site-specific conditions may warrant modifications of the sampling and analytical requirements listed in Table 1, in which case DEQ may require modifications to this protocol.

To minimize potential losses during sample collection and to obtain representative samples, EPA Method 5035 must be used by third parties when sampling soils for volatile organic compounds (VOCs) analyzed by method 8260. When reporting detections, the entire suite of chemicals per analytical method in Table 1 must be reported.

If ground water is encountered in an excavation during used oil UST closure activities, additional soil samples should be taken from the soil/ground water interface and analyzed for the soil constituents in Table 1.

Used oil UST closure, change-in-service, or release assessments may require installation of ground water monitoring wells to determine impact to the ground water. If monitoring wells are installed to investigate extent of contamination from a used oil UST release, water samples should be collected and analyzed for the constituents in Table 1.

Table 1. 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

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 Table 2, then the TCLP analysis

does not need to be conducted. If the total metal concentrations exceed the Rule of 20 limit, a metal TCLP analysis must be conducted, unless the soil will be managed as hazardous waste.

Table 2. Used Oil Tank 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

If a metal sample fails a TCLP analysis for any of the metals in Table 2, the material is considered a hazardous waste and the DEQ must be notified so that a determination on how to treat or dispose of the contaminated material can be made. 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.

3.6.3 Cleanup Requirements

If the material is determined to meet the definition of a hazardous waste, the DEQ Hazardous Waste Program will determine 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:

1. Petroleum constituents are compared to residential use screening levels from the Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites (IDAPA 58.01.24); http://adminrules.idaho.gov/rules/current/58/0124.pdf, and the Petroleum Risk Evaluation Manual (2012 or more recent version); http://www.deq.idaho.gov/waste-mgmt-remediation/remediation-activities/risk-evaluation-manuals.aspx.

2. Metal constituents are compared to background concentrations or applicable EPA Regional Screening Levels (2016 or more recent version); https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

3. Solvent constituents are compared to the applicable EPA Regional Screening Levels (2016 or more recent version); https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

3.7 Criteria, Checklists, or Other Applicable Standards

This SOP is to be used in conjunction with program Quality Assurance Project Plans (QAPPs) and associated checklists, as well as SOPs supporting those QAPPs. Some examples of currently implemented QAPPs and SOPs include the following:

- Third-Party Petroleum Storage Tank Release Investigation and UST Closure and Change-in-Service Quality Assurance Project Plan (TRIM 2016BAF15) and associated checklists (TRIM2016BAF2, 2016BAF3, 2016BAF4 and 2016BAF5).
- Data Review and Verification of Third-Party Petroleum Release Investigation and Underground Storage Tank Closure and Change-in-Service Data Submittals (TRIM 2016BAF17).
- Data Validation of Third-Party Petroleum Release Investigation and Underground Storage Tank Closure and Change-in-Service Data Submittals (TRIM 2016BAF16).
- Third-Party Petroleum Assessment and Corrective Action Quality Assurance Project Plan (TRIM 2016BAF19) and associated checklists (TRIM2016BAF6, 2016BAF7, 2016BAF8, 2016BAF9 and 2016BAF10)
- Data Review and Verification of Third-Party Petroleum Data Submittals (TRIM 2016BAF20).
- Data Validation of Third-Party Petroleum Data Submittals (TRIM 2016BAF21).

4 Records Management

4.1.1 Frequency of SOP Review

When procedures, protocol, or activities change, the SOP should be modified, reviewed, and approved in the same manner as the original document. This SOP will be reviewed at least every five years to ensure that the policies and procedures remain current and appropriate.

4.1.2 Document Control

The TRIM record number of this SOP is 2016BAF23.

SOPs shall be placed in TRIM. Save the working draft SOP in TRIM to establish the TRIM record number. Once the SOP is approved, create a new *version* in TRIM to establish the version

control feature. See the *Instructions for Preparing DEQ Standard Operating Procedures* for creating a document version (TRIM number 2015AEC1).

Modifications

Substantive modifications are changes to procedures, protocol, or activities. After the SOP undergoes substantive changes, create a new version (retains original TRIM record number; updates version number) in TRIM.

All new versions shall be signed by the author, project or program manager, and division or regional administrator.

Minor modifications are typos or limited editing changes that do not alter procedures, protocol, or activities). Minor changes can be edited and saved while in TRIM. These document modifications are saved under the current TRIM record/version number.

Individuals using the SOPs should know the version number, especially when evidentiary records are involved and when the activity is being reviewed. Ensure copies of current SOPs are available in the work areas of the individuals performing the activity.

4.1.3 Document Storage and Availability

DEQ uses Hewlett Packard's TRIM software for managing agency documents. TRIM is a database for creating, entering, storing, locating, and accessing electronic documents.

4.1.4 Retention

DEQ maintains SOP versions in TRIM. Superseded versions are maintained so that inadvertent use is prevented, but documents are available for historical data review.

5 Quality Assurance and Quality Control

QA/QC verifies the quality and consistency of the work. Quality control steps and provisions for submittals reviewed under this SOP are identified in program QAPPs (see section 3.7).

6 References

EPA Regional Screening Levels (2016 or more recent version). https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016

IDAPA 58.01.24. Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites. http://adminrules.idaho.gov/rules/current/58/0124.pdf

IDAPA 58.01.02. Water Quality Standards. http://adminrules.idaho.gov/rules/current/58/0102.pdf

IDAPA 58.01.05 Rules and Standards for Hazardous Waste https://adminrules.idaho.gov/rules/current/58/index.html

7 Attachments

None associated with this SOP.