

MONTANA DEPT. OF ENVIRONMENTAL QUALITY (MDEQ)
SUMMARY OF UNDERGROUND STORAGE TANK SYSTEMS (UST)* CLOSURE
REQUIREMENTS

Pursuant to Administrative rules of Montana (ARM) ARM 17.56.701
through 17.56.705, 17.56.1401 through 17.56.1426, & 17.56.1301
through 17.56.1307

*UST definition includes underground piping connected to aboveground storage tanks.

TEMPORARY CLOSURE/ (i.e. Inactive) (Tank and/or underground piping empty and not being used, but permanently closed)

- * Annual tank registration fees must be paid.
- * Corrosion protection must be maintained.
- * Release detection must continue, unless the underground storage tank (UST) system is empty.
- * Inactive tanks must be emptied of product (to less than 1 inch).
- * When an UST system is temporarily closed for 3 - 12 months:
 - a. Empty UST system (to less than 1 inch),
 - b. Leave vent lines open and functioning,
 - c. Cap and secure all other lines, pumps, and ancillary equipment.
- * Close UST system permanently if temporarily closed more than 12 months and corrosion protection system is not providing adequate levels of protection.

PERMANENT CLOSURE (UST system has been properly removed or closed in-place - A closure permit and site assessment is required for all UST closures)

- * Apply for a permit from DEQ at least 30 days before scheduling closure work.
- * Obtain the services of a licensed installer/remover to conduct closure.
- * Notify local fire department and obtain approval for proper closure safety techniques, including inerting or purging the tank. Licensee must obtain all applicable local permits.
- * After permit is issued, cleaning and/or closure procedures must follow requirement of references in ARM 17.56.702, and all special permit conditions.
- * Tank and all piping (including vent lines) must be removed from the ground; all related appurtenances not to be used further must also be removed. **DEQ will accept closure in-place ONLY if adequate justification is provided (by an engineer, architect, etc.) showing that removal would compromise the load of a desirable structure. All USTs closed in-place must be opened and cleaned internally prior to being completely filled with an appropriate inert solid material (ARM 17.56.702).**

SITE ASSESSMENT

- * **Soil samples must be collected as soon as possible after tank/piping removal, and in accordance with all permit conditions. Each UST closure permit will specify the appropriate and required sampling parameters. Sampling parameters must be followed during the removal project. If closure permit sampling parameters are not followed, the department will require resampling of the tank/pipe excavation.**
- * Collect soil samples at least 1 to 2 feet below the tank, product piping, vent piping, and dispensers.
- * For each tank over 600 gallons, collect at least two (2) soil samples, one from beneath each end of the tank or at suspected worst-case locations.
- * For each tank 600 gallons or less, a minimum of one soil sample must be collected beneath the center of the tank.
- * For piping removals, collect soil samples below piping at fittings but not to exceed 20-foot intervals. Up to 5 pipe trench samples may be blended into one composite sample for analysis if authorized by DEQ. **Soils that exhibit petroleum staining or odor MUST NOT be composited (combined) with other soil samples. In the case of evident petroleum staining or odor, collect a discreet soil sample and note the sample location on the site map to be provided to DEQ.**

- * Collect one soil sample 1-2 feet below each dispenser not located directly over the tank. Dispenser samples from common islands may be blended into one composite sample for analysis if authorized by DEQ.
- * **In the case of known contamination areas and/or evident petroleum staining or odor, collect at least one discreet soil sample and note the sample location on the site map to be provided to DEQ.**
- * For in-place closures, soil samples must be collected below or adjacent to tank and piping, 1-2 feet below the bottom of the tank or piping, using borings or excavations.
- * If contaminated soil is removed from the excavation site, at least one composite sample of contaminated soil must be collected for analysis.
- * If groundwater is encountered in the excavation, collect soil samples from the soil/water interface. If a sheen or free product is visible on the water, contact DEQ immediately.
- * Field hydrocarbon vapor analyzers may be used as screening tools; however, only laboratory analysis of samples will be accepted by DEQ to confirm the absence of contamination.
- * If contamination is discovered, the owner/operator must begin corrective action in accordance with ARM Sub-Chapters 5 and 6 and report the release to DEQ within 24 hours at (406) 444-1420 or 1-800-457-0568.

SPECIAL REQUIREMENTS: Soil sampling locations must be clearly recorded and identified. **Record the depth below ground level for each soil sample.** All **SOIL SAMPLES** must be collected directly into laboratory approved jars and immediately refrigerated (i.e. cooled to $4 \pm 2^{\circ}$ C). VPH (Volatile Petroleum Hydrocarbons) analysis targets gasoline-range volatile hydrocarbons in soil. **If VPH samples are not preserved with methanol, they must be refrigerated and received by the laboratory within 48 hours.** Soil samples must completely fill the sample container, eliminating all air space and voids. Soil samples intended for VPH analysis should be refrigerated and delivered to the laboratory within 48 hours of collection. Alternatively, samples may be preserved with methanol and refrigerated, provided that laboratory analysis occurs within 28 days. When utilizing methanol for preservation in the field, it is necessary to submit an additional sample without methanol to accurately assess moisture content. Samples that fall outside authorized holding times will be presumed void and resampling will be required. Follow the sampling holding times listed below. Soil samples that are not properly collected, handled, or stored, or arrive at the lab with issues such as lack of refrigeration, missing preservative, excessive air space, or wrong containers will be considered void and require resampling of the tank or pipe excavation. All **WATER SAMPLES** intended for volatile constituent analysis must be collected directly into 40 ml VOA vials, ensuring that no air bubbles are present. For aqueous VPH sampling, three 40 ml vials are required per sampling area. Immediately following collection, all water samples must be chemically preserved in accordance with departmental guidelines and extracted within 14 days of the collection date. Any water samples not handled according to these procedures will be considered invalid, and resampling will be necessary.

Individuals conducting underground storage tank assessments for the department are required to follow the sampling protocols outlined in the tables below (Soil Samples & Aqueous Samples). The tables outline the appropriate sampling and preservation protocol for each method specified.

–SOIL SAMPLES- VPH/EPH Sampling and Preservation Protocol

Parameter	Analytical Method	Sample Container/Preservation	Holding Time
VPH	Montana Method VPH	60 mL or 40 mL VOA vials or 4 oz wide mouth jar. Collect at least 10 g of soil, cool to $4 \pm 2^{\circ}$ C. Must be preserved at the lab in methanol within 48 hours of collection. or	28 Days to analysis from collection.

		<p>Methanol preservation in the field. 1 mL methanol for every g soil, +/- 25%; lab can provide appropriate vials with methanol for easy collection; cool to 4 ±2° C.</p> <p>If preserving with methanol in the field, a sample containing no methanol must also be submitted for determining moisture percentage.</p>	<p>If collecting in the field without methanol, lab preservation in methanol w/in 48 hours and 28 days to analysis from collection.</p>
EPH Screen	Montana Method EPH	4-oz wide-mouth amber glass jar, cool to 4±2° C	<p>Extracted within 14 days of collection.</p> <p>Analyzed within 40 days of extraction.</p>
EPH Fractionation with or without PAH's	Montana Method EPH (PAHs: 8270))	One 4-oz glass jar, cool to (4 ± 2) °C	Following EPH Screen 14-day to extraction, 40 days to analysis.

To preserve **aqueous samples** using the VPH method, three 40 milliliter vials are required. VPH samples help detect volatile petroleum hydrocarbons (such as gasoline-range compounds) in surface water or groundwater. All VPH water samples should be preserved by adding hydrochloric acid (HCl) until the pH falls below 2, then placed on ice right away. These chilled, preserved samples must be analyzed by a laboratory within 14 days of collection. EPH (Extractable Petroleum Hydrocarbons) screening is used to identify petroleum-range organics—typically diesel-range and heavier—in surface or groundwater. The aqueous EPH procedure calls for two 1-liter amber glass bottles. Samples should be preserved with a 1:1 solution of HCl (or an alternative acid permitted by the method) to lower the pH below 2, and then immediately kept on ice. Like VPH samples, EPH samples must be analyzed in a laboratory within 14 days of sampling.

–AQUEOUS SAMPLES- VPH/EPH Sampling and Preservation Protocol

Parameter	Analytical Method	Sample Container/Preservation	Holding Time
VPH	Montana Method VPH	Three 40-mL VOC vials with zero headspace, acidify with HCl to pH <2; cool to 4±2° C.	14 days to analysis
EPH Screen	Montana Method EPH	Two 1-L amber glass bottle, acidify with 1:1 HCl (or alternate acids, as allowed by method) to pH <2; cool to 4±2° C	14 days to extraction. 40 days to analysis following extraction.
EPH	Montana Method EPH	1-Liter amber glass bottle. Acidify with 1:1 HCl (or alternate acids, as allowed by method) to pH <2; cool to 4±2° C	14 days to EPH Screen extraction, 40 days to analysis following extraction.

