401 KAR 42:070

CLOSURE OUTLINE

ENERGY AND ENVIRONMENT CABINET
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
300 SOWER BLVD, SECOND FLOOR
FRANKFORT, KENTUCKY 40601
502-564-5981

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CLOSURE OUTLINE

INTRODUCTION

This outline identifies requirements for permanent closure or change in service of underground storage tank (UST) systems, including protocols for sampling soil and/or water to assess UST facilities in accordance with 401 KAR 42:070.

The requirements for notification and for submission of information to the Underground Storage Tank Branch are applicable to every permanent closure or change in service of a regulated UST system. The cabinet reserves the right to require additional information or sampling in order to clarify permanent closure documentation.

When an individual piping run is replaced within the same trench and the associated underground storage tank is not permanently closed, the requirements of this outline shall not be required, however a Notice of Intent to Install Underground Storage Tank or Piping (DEP8044) shall be submitted in accordance with 401 KAR 42:020. In these cases, suspected or confirmed releases shall be reported in accordance with 401 KAR 42:050.

When an owner/operator performs permanent closure (removal or closure-in-place without replacement within the same trench) for any portion of an individual piping run, the requirements of this outline shall apply for that portion.

If the assessment performed as part of permanent closure or change in service indicates that site investigation activities will be necessary, as determined by the cabinet through an evaluation of submitted information and site-specific conditions, the cabinet shall issue a written directive to initiate the site investigation process.

If free product is encountered outside of the excavation zone, with the exception of free product discovered in borings, monitoring or recovery wells or during over-excavation activities, refer to the Release Response and Initial Abatement Requirements Outline.

An owner or operator seeking reimbursement under 401 KAR 42:250 (for disposal or treatment of contaminated soil and/or water) shall comply with the requirements in 401 KAR 42:316, and 42:340 (eligible company or partnership, and laboratory certification). An owner or operator seeking reimbursement under 401 KAR 42:330 (for any permanent closure activities) shall comply with the requirements in 42:340 (laboratory certification).

A suspected or confirmed release shall be reported immediately to the Environmental Response Team at (800) 928-2380, or (502) 564-2380. The Incident Number assigned to the release report shall be included in the Closure Assessment Report.

For definitions of terms used within this outline, refer to 401 KAR 42:005.

The following documents are incorporated by reference in 401 KAR 42:070 and shall be utilized when meeting the requirements of this outline:

- American Petroleum Institute Recommended Practice 1604, "Closure of Underground Petroleum Storage Tanks", (Reaffirmed 2001); and
- American Petroleum Institute Publication 2015, "Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks", (August 2001).

1.0 UST SYSTEMS

1.1 Regulated Petroleum UST Systems

This document shall be used in conjunction with the Classification Outline, incorporated by reference in 401 KAR 42:080, which specifies actions and screening levels in soil and groundwater for permanent closure of regulated petroleum UST systems.

Requirements for additional documentation of closure activities (beyond those presented in this document) are presented in the Classification Outline.

1.2 Regulated Non-Petroleum UST Systems

UST facilities with regulated non-petroleum UST systems shall conduct soil and water sampling in accordance with Sections 3.0 and 4.0 of this outline. Section 5.0 shall be followed for sample analysis requirements although, as indicated in Tables A and B, the UST Branch shall be contacted for required methods, detection limits, and screening levels for soil and groundwater.

1.3 UST Systems Not Regulated under 401 KAR Chapter 42

Closure requirements for UST systems that are not regulated under 401 KAR Chapter 42 may be obtained by contacting the Superfund Branch or the Hazardous Waste Branch at (502) 564-6716.

2.0 PERMANENT CLOSURE (or CHANGE IN SERVICE) PROCESS

The permanent closure process records all activities associated with the permanent closure of regulated UST systems and requires the submission of specific documentation to the UST Branch. Required forms, appendices, and addenda submitted shall be complete and accurate, and all information submitted shall comply with the following requirements:

- Include the Agency Interest number on each document submitted. If the number is unknown, contact the UST Branch, Administrative Section, at (502) 564-5981; and

- Submit an original of each required document. An original signature shall be included on all Department for Environmental Protection (DEP) forms.

2.1 Notice of Intent

The permanent closure process shall begin with the submission of a completed Notice of Intent (NOI) to Permanently Close UST System (DEP7114) to the Division of Waste Management regional office serving the county where the UST system will be permanently closed. This form shall be submitted a minimum of two weeks (14 calendar days) prior to the permanent closure of a UST system(s). The NOI shall only be valid for twelve (12) months following signature by the owner/operator or their authorized representative. Owners/operators failing to submit this form prior to permanent closure will not be eligible for reimbursement in accordance with 401 KAR 42:250.

A listing of the Division of Waste Management regional offices may be obtained by contacting the Field Operations Branch at (502) 564-6716 or at http://waste.ky.gov/ust.

2.2 Regional Office Inspection

The owner/operator shall notify the appropriate regional office at least two weeks (14 calendar days) prior to permanent closure to afford a cabinet representative the opportunity to be present during permanent closure activities. Owners/operators failing to notify the regional office prior to permanent closure shall not be eligible for reimbursement in accordance with 401 KAR 42:250.

2.3 UST Systems Tank Removal Contractor Certification Program

Effective April 1, 1991, in accordance with 815 KAR 30:060, permanent closure of any UST system shall be performed by a certified underground petroleum storage tank removal contractor. The State Fire Marshal's (SFM) office administers this certification program. Anyone performing removal or closure-in-place of a UST system shall be certified by the SFM program, and proof of certification shall be supplied, upon request, to Division of Waste Management (DWM) representatives. The contractor's name, company name, and SFM certification number shall be indicated on the Closure Assessment Report (DEP8055).

For more information or for a list of certified underground storage tank removal contractors, contact the SFM office at (502) 573-0364.

2.4 Closure Assessment Report (CAR)

A completed and signed Closure Assessment Report (DEP8055) shall be submitted to the UST Branch within ninety (90) days following the permanent closure of a UST system. The CAR shall be signed by a Professional Engineer (P.E.) licensed with the Kentucky Board of Licensure for Professional Engineers and Land Surveyors, or a Professional Geologist (P.G.) registered with the Kentucky Board of Registration for Professional Geologists. The CAR shall include the following:

- A narrative description of permanent closure activities (e.g., tank removal, sample collection, description of water encountered, etc.);
- a site map (see Section 2.5);
- photographs of permanent closure activities (including any water encountered within the excavation zone;
- photographs of domestic-use wells, domestic-use springs, and/or domestic-use cisterns located within 300-meter radius of the excavation zone;
- a narrative description of observations (petroleum sheen, petroleum odors, ecological impacts), from an environmentally sensitive feature, within a 50-meter radius, in the area most likely impacted by a potential release from the UST system;
- a completed and signed Classification Guide (DEP8056), as applicable;
- analytical data sheets and chains of custody (see Section 5.0);
- receipts/manifests for disposal or treatment (see Section 6.0);
- if “Optional Soil Removal Outside of the Excavation Zone” is performed, see Section 6 of this outline for reporting requirements;
- if tanks are closed in place provide soil boring logs; and
- the tank numbers listed on the CAR (DEP8055) shall coincide with the tank numbers listed on the UST Facility Registration form.

2.5 Site Map

Provide a detailed site-specific map. The site map shall illustrate tank and piping locations, all sampling locations, depth of all tank pits, optional soil removal (if applicable), property boundaries, adjacent properties, any other pertinent features at the site, and indicate any areas where future sampling would be prohibited. The map shall also include approximate locations of all overhead and underground utility lines (to scale, indicating the type of service of each line). The map shall be to scale and include a north arrow and legend. The map shall depict environmentally sensitive features within 50 meters of the excavation zone and shall indicate flow direction, if applicable. The map shall also depict domestic-use well, domestic-use springs, and/or domestic-use cisterns within 300 meters of the excavation zone, as identified through UST system classification in accordance with the Classification Outline.

2.6 Evacuation of Tank Contents

Tank contents shall be removed until the tank is “empty” as defined in 401 KAR 42:005 prior to excavation activities or closure in place. Spillage from the tank(s) shall be reported in the Closure Assessment Report. For proper management of tank contents and residual tank materials, see Section 7.0 of this outline.

3.0 SOIL SAMPLE COLLECTION REQUIREMENTS

Sampling shall be conducted in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (United States (US) Environmental Protection Agency (EPA) Publication SW-846 (US EPA SW-846)) to ensure that a representative sample is collected. Soil samples shall be collected with a corer, a trowel, or a similar instrument (preferably made of stainless steel). If safety conditions warrant, samples may be obtained from a backhoe bucket. Recognized methods, in accordance with US EPA Standard Operating Procedures, shall be followed for decontamination of all sampling equipment. For information about the Standard Operating Procedures, contact the US EPA, Region IV, Science and Ecosystem Support Division, 980 College Station Road, Athens, Georgia 30605 or call 706-355-8500.

The following steps shall be followed for collection of soil samples from the tank pit and piping trench areas:

1. All preparations for soil sampling shall be made prior to excavation activities.

2. When removing the tank(s) or piping, backfill material associated with the UST system shall be excavated. Once all backfill material has been removed to the original limits of the tank pit and/or piping trench, excavation activities shall then cease and initial soil samples shall be collected.

3. Sampling locations within the excavated areas shall not be exposed for more than 4 hours prior to sample collection. Soil samples shall be collected in accordance with Sections 3.1, 3.2, and 3.3.

4. Soil samples shall be properly preserved. Provide a summary of sample collection, handling, and preservation.

3.1 Soil Sampling: Tank or Piping Removed from the Ground

The following subsections outline the procedures for the collection of representative samples from the tank pit and piping trench areas of UST systems to be removed from the ground. Refer to Section 3.0 for sampling procedures. Figure A illustrates locations for sample collection as discussed in the following three (3) subsections. If soil samples cannot be collected as described, see Section 3.4 for deviations from sampling requirements. Tank pits or piping trenches excavated into bedrock (e.g., blasted, hoe-rammed, etc.) shall be reported in the CAR narrative, and any available soils shall be sampled accordingly. Further assessment shall be directed in writing by the cabinet, if necessary, in accordance with the Site Investigation Outline.

3.1.1 Tank Pit Walls

Each 10.60-meter (thirty-five (35) feet) section of each tank pit wall shall be sampled in the following manner:

- Grid each 10.60-meter (thirty-five (35) feet) section the soil portion of the tank pit wall as shown in Figure A;
- Collect one (1) composite soil sample for laboratory analysis consisting of a grab sample from each of the four (4) quadrants of the 10.60–meter (thirty-five (35) feet) section;
- Grab samples shall be collected where contamination is most likely to be present; and

- A minimum of one sample shall be collected from each tank pit wall. If a tank pit wall is greater than 10.60 meters in length, a separate composite soil sample shall be collected from each section (up to 10.60 meters) exceeding the initial 10.60 meters (thirty-five (35) feet).

3.1.2 Tank Pit Bottom

Each 10.60-meter (thirty-five (35) feet) section of the tank pit bottom shall be sampled in the following manner:

- Grid each 10.60-meter (thirty-five (35) feet) section of the tank pit bottom as shown in Figure A;
- Collect one (1) composite soil sample for laboratory analysis consisting of a grab sample from each of the four (4) quadrants of the 10.60–meter (thirty-five (35) feet) section;
- Grab samples shall be collected where contamination is most likely to be present; and
- A minimum of one sample shall be collected from the tank pit bottom. If a tank pit bottom is greater than 10.60 meters in length, a separate composite soil sample shall be collected from each section (up to 10.60 meters) exceeding the initial 10.60 meters (thirty-five (35) feet).

If bedrock is encountered in the excavation zone and a bottom sample cannot be collected, this shall be noted in the CAR narrative and a composite sample from the base of each tank pit wall shall be collected at the soil/bedrock interface and combined into a single sample for analysis. Submit photographs of the bedrock encountered in the tank pit.

NOTE: See Class B, Section 1.1 of the Classification Outline for the collection requirements of soil samples for grain size analysis.

3.1.3 Piping Trench

Each 10.60-meter (thirty-five (35) feet) section of the piping trench shall be sampled in the following manner:

- Grid each 10.60-meter (thirty-five (35) feet) section of the piping trench as shown in Figure A. The area under the dispenser island is considered to be part of the piping trench and soil under the dispenser pad shall be assessed (the dispenser pad may have to be removed for required sampling); and
- Grab samples shall be collected where contamination is most likely to be present; and
- A minimum of one sample shall be collected from the piping trench. If the piping trench is greater than 10.60 meters (thirty-five (35) feet) section in length, a separate composite soil sample shall be collected from each section (up to 10.60 meters) exceeding the initial 10.60 meters (thirty-five (35) feet). If applicable, the absence of a piping trench shall be explained in the narrative submitted with the report.

3.2 Soil Sampling: Tank or Piping Closed in Place

The following subsections outline procedures for the collection of representative samples from the tank pit and piping trench areas of UST systems to be closed in place or for the resampling of tank pit and piping trench areas of previously closed UST systems that cannot be re-excavated. Figures B and C illustrate locations for sample collection as discussed in the following two (2) subsections. Boring logs shall be submitted for each boring advanced for closed-in-place sampling. If water is encountered in any boring, include a note in the narrative and refer to Section 4.1 for additional assessment

requirements. If soil samples cannot be collected as described, see Section 3.4 for deviations from sampling requirements.

Tank pits or piping trenches excavated into bedrock (e.g., blasted, hoe-rammed, etc.) shall be reported in the CAR narrative, and any available soils shall be sampled accordingly. Further assessment shall be directed in writing by the cabinet, if necessary, in accordance with the Site Investigation Outline.

3.2.1 Tank Pit Area

The following procedures shall be followed to assess the tank pit area. Figure B illustrates boring locations if one (1) UST system is to be closed in place. Figure C illustrates boring locations if more than one (1) tank is to be closed in place.

- Perform soil borings outside of, and as close as possible to, the original limits of the tank pit at the ends and sides of each tank as shown in Figures B and C;

- Advance borings to a depth of at least 1 meter below the bottom of the tank.

- Continuous soil collection and continuous soil screening is required at each soil boring location. A soil sample shall be collected from within every two (2) feet and field screened with a properly calibrated field screening instrument, [e.g. PID (photoionization detector) or FID (flame ionization detector)]. The soil sample from each boring with the highest field screening reading shall be submitted for laboratory analysis. If field screening does not indicate the presence of contamination within a boring, a soil sample from the termination depth of the boring shall be submitted for laboratory analysis. Proper calibration of the field screening instrument shall be documented in the Closure Assessment Report narrative.

- Drilling shall cease if bedrock is encountered prior to reaching the required depth, and the sampling required above shall be performed.

3.2.2 Piping Trench Area

Each 10.60-meter (thirty-five (35) feet) section of the piping trench shall be sampled in the following manner:

- Divide the piping trench length into 10.60-meter (thirty-five (35) feet) sections. The area under the dispenser island is considered to be part of the piping trench and soil under the dispenser pad shall be assessed; and

- Collect one (1) composite soil sample consisting of grab samples from the boring locations as illustrated in Figure B, for each 10.60-meter (thirty-five (35) feet) section. Samples shall be collected as close as possible to the piping, and borings shall extend at least 1 meter below the bottom of the piping trench. Drilling shall cease if bedrock is encountered prior to reaching the required depth. In each sample collection location, sample(s) shall be collected from areas where contamination is most likely to be present.

- A minimum of one sample shall be collected from the piping trench. If the piping trench is greater than 10.60 meters in length, a separate composite soil sample shall be collected from each section (up to 10.60 meters) exceeding the initial 10.60 meters (thirty-five (35) feet). If applicable, the absence of a piping trench shall be explained in the narrative submitted with the report.

3.3 Sampling and Management of Excavated Backfill Material

Once all material has been removed from the excavation zone, samples shall be collected from the excavated backfill material.

Excavated backfill material generated during the removal of the tank(s) or piping shall be placed on, and covered, with plastic. Measures shall be taken to prevent any surface runoff from entering or washing away the excavated backfill material (e.g., berms, straw bales, etc.). If the excavated backfill material is to be returned to the pit while awaiting laboratory analytical results, the pit shall be lined with plastic.

At least one (1) composite sample shall be collected from the excavated backfill material removed from the tank pit and/or piping trench excavation zone. If the excavated backfill material is to be used for unrestricted off-site use, the material shall be sampled and analytical results shall be below the screening levels for all constituents listed in Soil Table C of the Classification Outline. If the excavated backfill material is to be treated, a petroleum contaminated soil treatment facility permit is required. For additional information, contact the Solid Waste Branch, Division of Waste Management, 300 Sower Blvd, Second Floor, Frankfort, KY 40601, or call (502) 564-6716.

The excavated backfill material shall be sampled in the following manner:

- Divide the excavated backfill material into at least four (4) equal sections; and

- Collect one (1) composite soil sample consisting of a grab sample taken at least one (1) foot into the interior of each of the four (4) sections of each pile. Within each section the sample shall be collected from areas where contamination is most likely to be present.

Additional sampling as prescribed by the cabinet shall be performed if the excavated backfill material is improperly stored, if any degradation of plastic or runoff barriers occurs prior to disposal or treatment at a permitted facility, or if any evidence of contamination is observed (e.g., fumes, odors, free product, etc.) peripheral to the excavated backfill material.

Open pit management and safety is the responsibility of the tank owner/operator during tank removal activities (or any site activity that involves soil removal).

Excavated backfill material shall be properly disposed or treated at a permitted facility in accordance with Section 7.6 of this outline.

Those facilities seeking reimbursement from the PSTEAF for the disposal or treatment at a permitted facility of contaminated excavated backfill material shall confirm, through laboratory analysis, that contamination above screening levels is present.

Those facilities **not** seeking reimbursement from the PSTEAF for disposal or treatment at a permitted facility shall not be required to perform additional sampling and analysis of excavated backfill material, beyond that required by the permitted disposal or treatment facility.

Eligible reimbursement, in accordance with 401 KAR 42:250, shall only include those costs related to the transportation, disposal/treatment at a permitted facility and replacement (with clean material) of backfill contaminated above screening levels, as verified through laboratory analysis, for facilities that do not otherwise qualify for reimbursement under 401 KAR 42:330 (SOTRA).

3.4 Deviations from Sampling Requirements (Alternative Sampling Plan)

If soil samples cannot be collected in locations as described in Sections 3.1, 3.2, or 3.3 an alternative sampling plan proposal shall be submitted to the UST Branch. The alternative sampling plan shall include the following information:

- an explanation as to why the standard sampling requirements cannot be followed;

- a scaled schematic or drawing of proposed sampling points; and
- any other information supporting the proposed alternative sampling plan.

Prior written approval from the UST Branch shall be obtained before the proposed alternative sampling plan is implemented.

4.0 WATER SAMPLE COLLECTION REQUIREMENTS

For water samples collected during permanent closure activities, all sample analyses and chain-of- custody (COC) documentation shall be submitted as an appendix within the CAR. All water samples shall be collected, handled, and preserved in a manner that reduces the loss of VOC (volatile organic compound) contamination and that follows SW-846 and Section 5 of this outline. A trip blank shall accompany all water samples collected for BTEX analysis and the trip blank analysis shall be included as an appendix within the CAR. Trip blanks are not required for water samples collected for PAH and dissolved lead analysis where BTEX analysis is not required.

4.1 Water or Free Product Encountered During Permanent Closure

Permanent closure through removal:

Once all backfill material from within the excavation zone has been removed, any water remaining in the excavation zone, that prevents the collection of soil samples in accordance with the requirements of Section 3, shall be sampled and analyzed for the appropriate constituents.

In addition, any accumulated water or free product observed within the excavation zone at the time of permanent closure, that has not absorbed into the backfill material, shall be removed as a single event (up to one pit volume) to observe whether groundwater recharge occurs during the remainder of the permanent closure process. If recharge occurs and accumulates within the excavation zone, an additional water sample shall be collected and analyzed. Any water or free product removed shall be properly disposed, recycled, or treated at a permitted facility, if necessary, as prescribed in Section 7.5 of this outline. Measures shall be taken to prevent rainwater or surface water from entering the excavation zone.

If the water was determined to meet the definition of groundwater as defined in 401 KAR 42:005, the narrative shall include a discussion on the basis of this determination (e.g., water was pumped from the tank pit or piping trench and recharge was observed).

A description of water encountered during permanent closure activities shall be included in the CAR narrative. The description shall include a physical description (turbidity, odor, sheen, etc.), an estimate of the volume encountered (in gallons), and photographs of the water.

If reimbursement for proper disposal or treatment of water at a permitted facility is sought, water shall be sampled and analyzed to verify that contamination exceeds applicable screening levels.

NOTE: Water encountered within the excavation zone that is absorbed into the backfill material shall be addressed through the proper management of the backfill material and described in the Closure Assessment Report narrative.

Permanent closure through closure-in-place:

If, during the performance of closure-in-place sampling, water is encountered in one or more closed-in-place borings, a water sample shall be collected in the water-bearing boring, determined by the P.E. or P.G. to be the most likely contaminated, and analyzed for the appropriate constituents. Water encountered in this closed-in-place boring shall be removed as a single event (up to one bore volume) to

observe whether groundwater recharge occurs during the remainder of the permanent closure process. If recharge occurs and accumulates within the boring, an additional water sample shall be collected and analyzed. Measures shall be taken to prevent rainwater or surface water from entering the closed-in- place borings.

4.2 Groundwater Sampling Requirements When Section 4.1 Is Not Completed

If water was encountered within the excavation zone, or borings installed for closure-in-place, and the requirements of Section 4.1 were not met, a water sample shall be collected from within the excavation zone, or an additional closed-in-place boring, and analyzed for the appropriate constituents. Additionally, a P.E. or P.G. must explain in the CAR narrative why Section 4.1 was not met in situations where water is encountered within the excavation zone or borings installed for closure-in-place. The process by which a water sample was collected from within the excavation zone or the additional closed-in-place boring shall be explained in the CAR narrative.

The costs incurred to meet the requirements outlined in this subsection are not reimbursable in accordance with 401 KAR 42:250 and 42:330.

4.3 Domestic-use well, domestic-use spring, domestic-use cistern sampling requirements

Water samples from domestic-use wells, domestic-use springs, or domestic-use cisterns identified within a 100-meter radius of the UST system shall be sampled and analyzed for all appropriate constituents (including MTBE) listed in Table B.

4.4 Point of Compliance Groundwater Assessment

If groundwater, as determined in accordance with 4.1 of this Section, is contaminated above the screening levels specified in Groundwater Table 1, the cabinet shall, if necessary, direct in writing, in accordance with Section 5.16 of the Site Investigation Outline, that a groundwater assessment at the Point of Compliance be performed.

Eligible reimbursement shall be made in accordance with 401 KAR 42:250.

5.0 SAMPLE ANALYSIS REQUIREMENTS

Methods for sample collection, sample preservation, chain of custody (COC), sampling equipment, decontamination procedures, sample containers, sample sizes, and maximum sample holding times shall be conducted in accordance with US EPA SW-846. All sample analyses with COC documentation shall be submitted to the UST Branch as an appendix within the CAR.

If more than one product was stored in a tank, samples shall be analyzed for all substances stored prior to permanent closure as identified in Table A and Table B.

5.1 Required Methods for Analysis of Soil Samples

For regulated petroleum UST systems, analytical methods selected for determining compliance with the screening levels specified in the Classification Outline shall be capable of accurately measuring the constituents at or below screening levels. The maximum acceptable reporting limit, specified in Table A, is not necessarily the required screening level for the particular constituent.

Refer to Section 1.2 for requirements associated with non-petroleum regulated UST system(s).

5.2 Required Methods for Analysis of Water Samples

For regulated petroleum UST systems, analytical methods selected for determining compliance with the screening levels specified in the Classification Outline shall be capable of accurately measuring the

constituents at or below screening levels. The maximum acceptable reporting limit, specified in Table B, is not necessarily the required screening level for the particular constituent. A trip blank, as defined in 401 KAR 42:005, shall accompany all water samples collected for BTEX analysis and the trip blank analysis shall be included with the laboratory analysis as an appendix within the CAR. Trip blanks are not required for water samples collected for PAH and dissolved lead analysis where BTEX analysis is not required.

Refer to Section 1.2 for requirements associated with non-petroleum regulated UST system(s).

5.3 Additional Requirements

5.3.1 Sample Containers, Preservatives, Holding Times

All samples collected shall be placed into appropriate containers, and requirements for preservation and holding times shall be followed. Table C is a limited summary of the appropriate containers, preservation techniques, and maximum holding times according to US EPA SW-846. Refer to SW-846 for additional information.

5.3.2 Laboratory Reports

All laboratory data sheets shall at a minimum indicate the:

- date of sample collection;
- date received by the laboratory;
- date analyzed;
- sample extraction date (if required);
- surrogate recovery percentages;
- US EPA SW-846 method number(s) used; and
- appropriate reporting limits.

All laboratory reports shall follow US EPA SW-846 requirements.

5.3.3 Chain of Custody (COC)

Provide chain-of-custody documentation that identifies who has had possession of the sample, the time of possession, and where the sample has been from the time of collection until the laboratory accepts it. The COC shall indicate the method of preservation and the temperature at which the samples were received by the laboratory. COC procedures shall be followed to ensure the validity of all samples. If the COC is not maintained (e.g., if someone leaves a sample unattended), then the integrity of the sample is compromised and may be rejected by the cabinet. The COC shall be maintained as indicated by US EPA SW-846 requirements and shall be attached to all analytical results submitted, and shall include the trip blank as required.

6.0 OPTIONAL SOIL REMOVAL OUTSIDE OF THE EXCAVATION ZONE

In order to expedite the closure process, owners/operators may, without written direction from the cabinet, remove contaminated soil outside of the excavation zone up to 300 cubic yards (450 tons) in accordance with the following procedures for each tank pit and associated piping trench. The optional soil removal outside of the excavation zone shall be completed within ninety (90) days from the date of permanent closure.

6.1 If analytical results indicate soil contamination above the Class A adjusted screening levels or Class B screening levels, upon completion of the initial sampling performed in accordance with Section 3.1 or Section 3.2, excavation of 300 cubic yards (450 tons) may proceed followed by sampling of the newly excavated wall, floor, or piping trench. Confirmatory samples shall be collected in accordance with Section 3.1.

6.2 Eligible reimbursement shall be made upon confirmation of the accurate classification of the UST system in accordance with 401 KAR 42:080, analytical results verifying the need for additional soil removal, and that optional soil removal at the time of closure was performed within ninety (90) days from the date of permanent closure. Reimbursement shall be limited to a total of 300 cubic yards (450 tons) for each UST facility. See 401 KAR 42:250, Section 9, and the Contractor Cost Outline for specific information regarding eligible reimbursement for optional soil removal outside of the excavation zone.

6.3 Information related to optional soil removal at the time of permanent closure shall be documented on Page 7 of the Closure Assessment Report. Additional documentation, submitted as an appendix to the Closure Assessment Report, shall include, but is not limited to, a narrative description of soil removal activities, an indication of the presence or absence of water, analytical results, chain of custody, a summary of weigh tickets for soil disposal or treated at a permitted facility that identifies the total tonnage disposed or treated (individual weigh tickets are not required with the technical report, but are required with the submittal of the claim for reimbursement), photographs, and a scaled map of the UST facility depicting the former UST system location and the optional soil removal area superimposed with confirmatory soil sample locations labeled.

6.4 Excavated material generated during optional soil removal activities shall be properly disposed or treated at a permitted facility in accordance with Section 7.6. Excavated material generated during optional soil removal activities that cannot be transported immediately to a permitted facility, shall be placed on, and covered, with plastic. Measures shall be taken to prevent any surface runoff from entering or washing away the excavated backfill material (e.g., berms, straw bales, etc.). Excavated material generated during optional soil removal activities does not have to be sampled or analyzed in order to be eligible for reimbursement for disposal or treatment at a permitted facility.

6.5 Open pit management and safety is the responsibility of the owner/operator.

NOTE: Water encountered during the optional soil removal activities outside of the excavation zone, which would require pumping to allow for further over-excavation, shall be removed as a single event (up to one (1) pit volume). Optional soil removal at the time of permanent closure shall cease upon encountering water that would require pumping more than one pit volume during a single event to allow for further over-excavation. If reimbursement for proper disposal or treatment of water at a permitted facility is sought, water shall be sampled and analyzed to verify that contamination exceeds applicable screening levels and shall be limited to a single event up to one (1) pit volume.

7.0 REQUIREMENTS FOR THE MANAGEMENT OF MATERIALS RESULTING FROM PERMANENT CLOSURE

This section presents documentation requirements for the management of various products and wastes that result from permanent closure activities. These products and wastes shall be handled and disposed, treated, or recycled properly in accordance with 401 KAR Chapters 30-49 as applicable. If wastes are hazardous, additional requirements pertaining to disposal, manifesting, registration, etc. shall be addressed in accordance with 401 KAR Chapters 30-44 as applicable. For more information contact the Hazardous Waste Branch, Division of Waste Management, 300 Sower Blvd, Second Floor, Frankfort, KY 40601, or call (502) 564-6716.

All disposal, treatment, or recycling documentation shall be submitted to the UST Branch as appendices within the CAR.

7.1 Tank Contents

All tank contents are considered a waste unless they are transported directly to a permitted recycling facility, or unless the contents removed are product which can be used without any processing or treatment. If the recycling facility can only accept a portion of the tank contents (e.g., product/water mixture) removed from the tank, all unaccepted tank contents (e.g., accumulated water, product/water mixture, and bottom sediments) not accepted by a permitted recycling facility shall be considered a waste and subject to hazardous waste determination. A listing of permitted recycling facilities may be obtained by contacting the Hazardous Waste Branch, Division of Waste Management, 300 Sower Blvd, Second Floor, Frankfort, KY 40601 or by calling (502) 564-6716. Note that recycling does not include processing the tank contents through an oil/water separator.

Documentation of the proper handling of the tank contents shall include a receipt from the recycling facility that contains the following information:

- the agency interest number(s) designating the location of the UST system from which tank contents were removed;
- a complete description of the tank contents submitted for recycling;
- the amount of tank contents (gallons or pounds) submitted (per tank) for recycling; and
- the complete name and location of the receiving facility and all permit numbers of the receiving facility in effect the date tank contents were received.

7.2 Residual Tank Materials

Owners and operators shall empty and properly clean a UST removed from the ground by removing all liquids and accumulated sludge, and shall complete the Certification of Properly Cleaned USTs, DEP 5039. The Certification of Properly Cleaned USTs shall be submitted with the Closure Assessment Report.

All residual tank materials are considered a waste and are subject to hazardous waste determination. The hazardous waste determination shall be conducted in accordance with 401 KAR 32:010, Section 2.

Hazardous wastes that are generated during permanent closure activities and removed from the site shall be managed at a permitted hazardous waste treatment, storage, or disposal (TSD) facility and, quantity dependent, shall be hauled by a registered hazardous waste transporter. Any site that generates hazardous waste during permanent closure activities shall register with the Hazardous Waste Branch of the Division of Waste Management and shall comply with the requirements of 401 KAR Chapter 32. For information about hazardous waste pretreatment requirements and accumulation time, certified hazardous waste transporters, permitted hazardous waste disposal facilities, and procedures for one-time generators contact the Hazardous Waste Branch, Division of Waste Management at 300 Sower Blvd, Second Floor, Frankfort, Kentucky 40601 or call (502) 564-6716.

If the materials are determined to be hazardous, documentation of proper transport and management shall include the following information:

- documentation of the hazardous waste determination conducted in accordance with 401 KAR 32:010, Section 2;
- a complete waste manifest (hazardous or non-hazardous as appropriate) including all required signatures and both the TSD's and generator's EPA ID numbers; and
- a receipt from the TSD which shall include the following information:

- the agency interest number designating the location of the UST system from which residual tank materials were removed;
- a complete description of the waste and the waste identification;
- the exact volume of the waste generated (volume determines generator status); and
- the complete name and location of the receiving facility and all permit numbers of the receiving facility in effect the date the residual tank materials were received.

If the materials are determined to be non-hazardous waste, documentation of proper management shall include the following information:

- documentation of the waste determination conducted in accordance with 401 KAR 32:010, Section 2, indicating the waste to be non-hazardous; and
- a complete non-hazardous waste manifest or receipt that contains the following details:
  - the agency interest number designating the location of the UST system from which residual tank materials were removed;
  - a complete description of the waste;
  - the volume of the waste generated; and
  - the complete name and location of the receiving facility and all permit numbers of the receiving facility in effect the date residual tank materials were received.

7.3 Cleaning Liquids and Cleaning Materials

Any liquid or solid material used to clean a UST system, whether relating to removal or closure in place, is considered a waste and subject to hazardous waste determination. Refer to Section 7.2 for general information on waste determination, transportation, and management.

7.4 Tank or Piping Disposal

Documentation of the disposal of a removed tank(s) or piping shall include the following information:

- If the tank(s) or piping is disposed of at a scrap metal company or a landfill, a receipt from the receiving facility shall be submitted. This receipt shall be signed by the receiving facility and shall include the receiving facility's name, address, and phone number, as well as the name of the site, the Agency Interest number, the location address, the number of tank(s) or piping, and the size of the tank(s) (if applicable);
- If the tank(s) or piping is not disposed of at a scrap metal company or a permitted landfill, a bill of sale from the individual or facility receiving the tank or piping shall be submitted. This bill of sale shall indicate that the individual or facility accepts responsibility for the tank or piping and acknowledges that its use will be in compliance with regulatory requirements. This document shall be signed by the individual or facility receiving the tank or piping and shall indicate the receiving individual or facility name, address, and telephone number, as well as the Agency Interest number of the site where the tank or piping was removed and a listing of all content(s) stored at any time in the tank(s). A suggested model of a bill of sale is included as Figure D.
- If the tank(s) is to be reused as an aboveground tank for storage of a flammable substance, a permit of approval from the State Fire Marshal's (SFM) office is required. Applications for this permit will be considered by the SFM if the tank manufacturer provides information confirming the structural integrity of the tank(s) for use as an aboveground storage tank. Contact the SFM at

(502) 573-0364 regarding the application for reuse of a UST as an aboveground storage tank; or

- If the tank(s) is to be reused for any other purpose, contact the SFM office at (502) 573-0364.
- For tanks closed in place, indicate the type of inert solid (e.g., sand, concrete) used to fill the tank after any emptying or cleaning.
- For piping closed in place, indicate that the piping has both ends capped after any emptying or cleaning.

In accordance with the American Petroleum Institute (API) Recommended Practice 1604, removed tanks shall not be used for drainage culverts or the subsequent storage of food or liquids intended for animal or human consumption.

7.5 Water Encountered in Excavation Zone

Water encountered in the excavation zone during removal of the tank(s) or piping, that is contaminated above screening levels, shall be properly disposed or treated in one (1) of the following manners:

- On-site treatment - If the treated water is to be discharged (e.g., storm sewer, drainage ditch, etc.) rather than taken to a registered facility, submit a copy of the one-time Kentucky Pollutant Discharge Elimination System (KPDES) water discharge permit obtained from the Kentucky Division of Water. For more information call the Division of Water at (502) 564-3410;
- Disposal or treatment at a permitted facility - Submit a receipt from the receiving facility; or
- Discharge into a sanitary sewer system - Submit a copy of the letter of approval or permit issued by the sewer district.

Any permit, receipt, or letter documenting the disposal or treatment of contaminated water shall include the amount of water disposed of or treated, Agency Interest number of the site from which the water originated, and any analytical results required.

Eligible reimbursement, in accordance with 401 KAR 42:250, shall only include those costs related to the transportation and disposal, treatment, or recycling of free product or water at a permitted facility, encountered during the permanent closure process, contaminated above screening levels, as verified through laboratory analysis, for facilities that do not otherwise qualify for reimbursement under 401 KAR 42:330 (SOTRA).

7.6 Management of Contaminated Excavated Material

Excavated material contaminated above screening levels generated during permanent closure activities shall be received by a permitted disposal facility or permitted treatment facility as soon as practicable.

NOTE: A petroleum contaminated soil treatment facility permit is required for a treatment facility to receive excavated material for the purpose of treatment. For additional information concerning petroleum contaminated soil treatment facility permits or to obtain a list of permitted disposal or treatment facilities in Kentucky, contact the Solid Waste Branch, Division of Waste Management, 300 Sower Blvd, Second Floor, Frankfort, Kentucky 40601, or call (502) 564-6716.

Excavated material treated at a permitted treatment facility shall not exceed the applicable screening levels established in accordance with the Classification Outline prior to reuse as backfill material.

If the excavated material is to be used for any un-restricted off-site purpose, it shall be sampled and analyzed to the levels specified in Soil Table C of the Classification Outline. Each soil sample shall be analyzed for BTEX, PAH, and Total Lead. If analysis indicates levels above those specified in Soil Table C of the Classification Outline, the material shall be disposed of or treated properly.

Submit documentation indicating the amount of excavated material accepted by a permitted disposal or treatment facility. A summary of weigh tickets for soil disposal or treatment shall be submitted to the cabinet that identifies the total tonnage disposed or treated. Individual weigh tickets are not required with the technical report, but are required with the submittal of the claim for reimbursement in accordance with 401 KAR 42:250.

Excavated material generated during the permanent closure of regulated UST systems containing substances other than petroleum products is subject to a hazardous waste determination.

See 401 KAR 42:250, Section 9, and the Contractor Cost Outline for specific information regarding eligible reimbursement.

8.0 OTHER CONSIDERATIONS

- Refer to the Classification Outline, which is incorporated by reference in 401 KAR 42:080 for additional information.
- The owner/operator/contractor/consultant bears the responsibility of exploring, identifying and addressing all potential safety hazards throughout the course of their work.

Table A

Analytical Requirements for Soil Samples

Product stored in UST system	Required Analysis	Acceptable Method	Maximum Acceptable Reporting Limit
Gasoline, Kerosene, or Jet Fuel	BTEX	Method SW-846 8240, 8260, 8020, 8021	B: <0.01 ppm T: <0.7 ppm E: <0.9 ppm X: <5 ppm
Diesel or regulated Heating Oil	PAH	Method SW-846 8100, 8270, or 8310	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm
Waste Oil	PAH Total Lead	Method SW-846 8100, 8270, or 8310 SW-846 7420, 7421, or 6010	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm Total Lead <400 ppm
New Oil	PAH	Method SW-846 8100, 8270, or 8310	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm
Other Petroleum or Non-Petroleum	Contact the UST Branch		

BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)
PAH: Polynuclear Aromatic Hydrocarbons
Ch: Screening level individually for Chrysene
B(a)A: Screening level individually for Benzo(a)anthracene
c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene
n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene and Pyrene
NAP: Naphthalene
ppm: parts per million (mg/kg)

Table B

Analytical Requirements for Water Samples

Product stored in UST system	Required Analysis	Acceptable Method	Maximum Acceptable Reporting Limit
Gasoline, Kerosene, or Jet Fuel	BTEX **	Method SW-846 8240, 8260, 8020, 8021	B: <0.005 ppm T: <0.94 ppm E: <0.47 ppm X: <5.89 ppm
Diesel or regulated Heating Oil	c PAH n PAH NAP	Method SW-846 8100, 8270, or 8310	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm
Waste Oil	PAH Dissolved Lead *	Method SW-846 8100, 8270, or 8310 SW-846 7420, 7421, or 6010	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm Dissolved Lead < 0.015 ppm
New Oil	c PAH n PAH NAP	Method SW-846 8100, 8270, or 8310	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm
MTBE sampling as required by the cabinet for domestic use water sources only	MTBE	Method 5030 in conjunction with SW-846 8240, 8260, 8020, 8021	MTBE: <0.05 ppm
Other Petroleum or Non-Petroleum	Contact the UST Branch		

BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)
PAH: Polynuclear Aromatic Hydrocarbons
c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene
n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene and Pyrene
NAP: Naphthalene
ppm: parts per million (mg/L)
***** Samples shall be filtered prior to acid preservation. See Table C.
****** Shall include a trip blank analysis

Table C

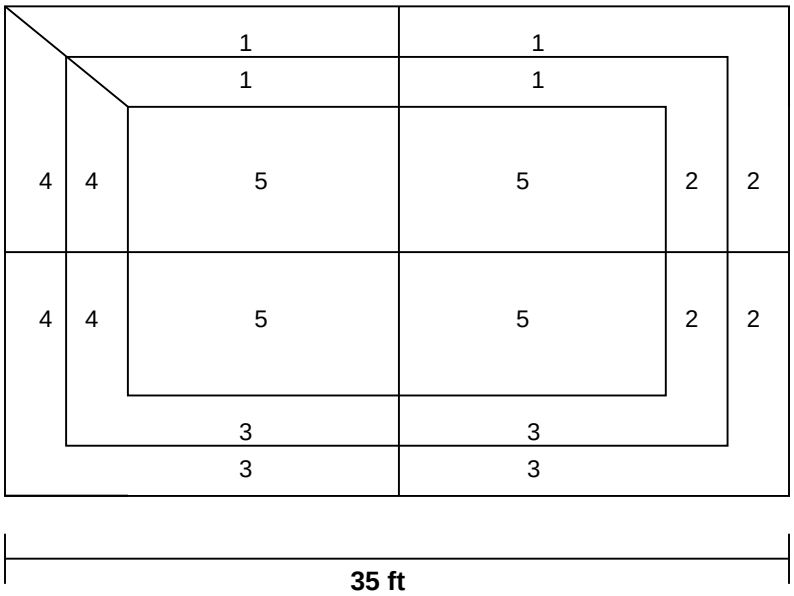
Appropriate Containers, Sample Sizes, Preservation Techniques and Maximum Holding Times *

Parameter	Container type	Sample Size	Preservation Method	Holding Times (Maximum)
Volatile Organics for Soil (BTEX)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days
Volatile Organics for Water (BTEX; MTBE)	Two (2) clear glass w/ Teflon-lined cap (VOA)	40 ml or 1oz.	Add four drops of HCl to ea., Cool to 4°C	14 days
Polynuclear Aromatic Hydrocarbons for Soil (PAH)	Wide-mouth glass w/ Teflon-lined cap	250 ml or 1oz.	Cool to 4°C	14 days until lab extraction 40 days after lab extraction
Polynuclear Aromatic Hydrocarbons for Water (PAH)	Amber glass w/ Teflon-lined cap	1 liter	Cool to 4°C	7 days until lab extraction 40 days after lab extraction
Total Lead for Soil	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	N/A	180 days
Dissolved Lead for Water (shall be filtered prior to acid preservation)	Plastic or glass	500 ml or 16 oz.	Cool to 4°C Add HNO3 after filtering until pH is less than 2	180 days
Volatile Organics for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days until lab extraction 14 days after lab extraction
Acid/Base/Neutral for Sludge(TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days (hold) 7 days until lab extraction 40 days after lab extraction
Metals for Sludge(TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	180 days until lab extraction 180 days after lab extraction
Mercury for Sludge(TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	28 days until lab extraction 28 days after lab extraction

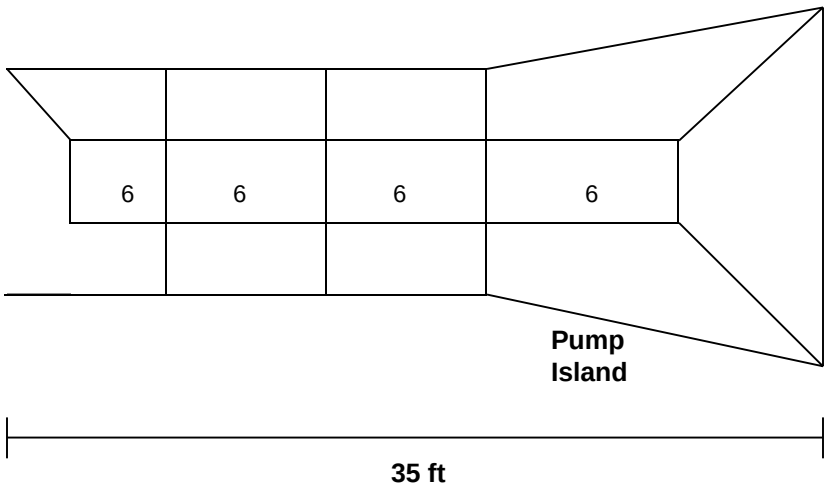
* FOR FURTHER INFORMATION REFER TO US EPA SW-846 PUBLICATION.

Figure A

Soil Sample Locations - Tank or Piping Removed from Ground



Tank Pit

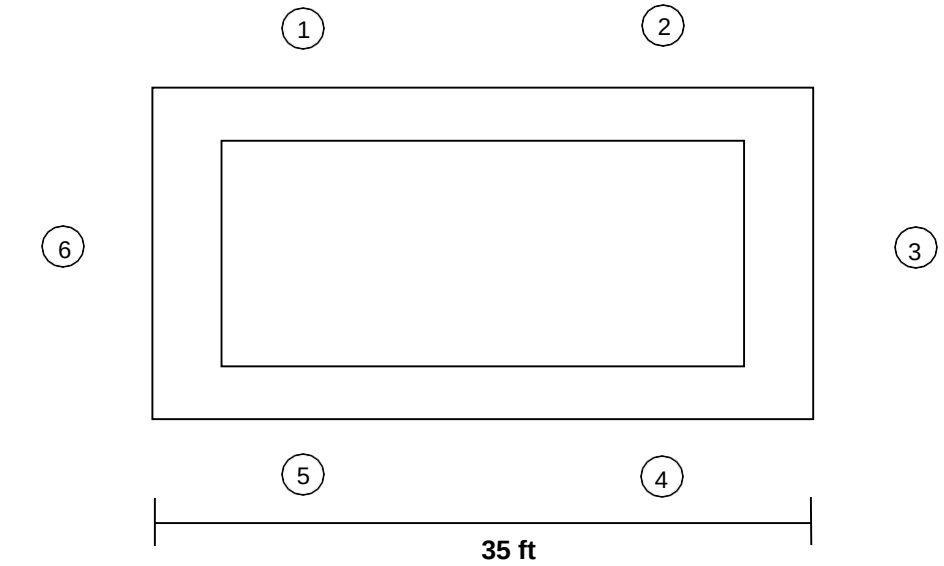


Piping Trench

1 - Grab sample location

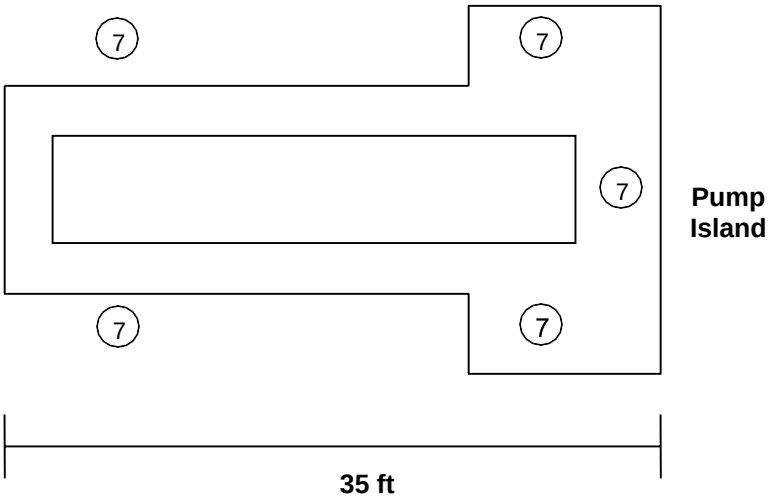
Figure B

Soil Sample Locations - Single Tank or Piping Closed in Place



Tank Pit

○ **Boring Location**



Piping Trench

○ **Boring Location**

Figure C

Soil Sample Locations - Multiple Tanks Closed in Place

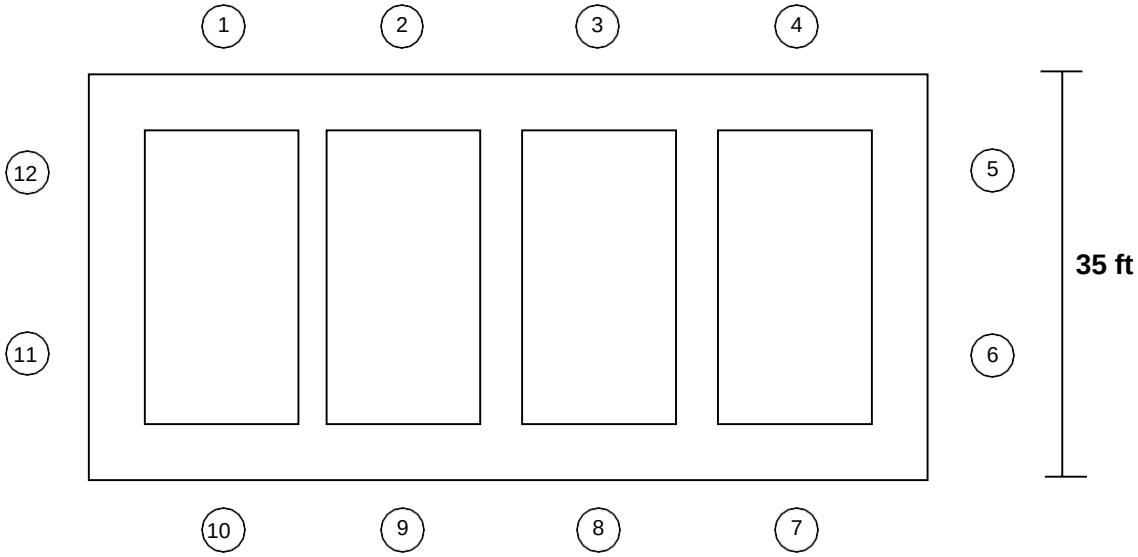


Figure D

Removed Underground Storage Tank(s) Bill of Sale

I_____acknowledge purchase of the following UST(s):

Tank #	Tank Size	Date Tank Removed	All Products Ever Stored in Tank(s)

The above referenced tank(s) was removed from the following site:

Name_____

Address_____

_____

Agency Interest #_____

The tank(s) will now be located at the following site:

Name_____

Address_____

_____

Phone#_____

The intended use for the tank(s) is:_____

As the new tank(s) owner, I understand that I assume responsibility for the tank(s) and acknowledge that its use will be in compliance with regulatory requirements. I also understand that in accordance with API Recommended Practice 1604, removed underground storage tank(s) must not be used for drainage culverts or the subsequent storage of food or liquids intended for animal or human consumption. I understand that I may become a generator of hazardous waste if and when any remaining residues are removed from the underground storage tank(s).

New Owner Signature_____Address_____

Printed Name_____

Date Signed_____Phone #_____