GUIDELINES FOR THE PERMANENT CLOSURE OF UNDERGROUND STORAGE TANK SYSTEMS

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
REGULATED STORAGE TANKS PROGRAM
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SECTION 1 - GENERAL

1.1 INTRODUCTION

The purpose of this document is to provide guidance that explains the requirements regarding the permanent closure of petroleum underground storage tank (UST) systems.

This document does not specifically address the closure of USTs which contain or have contained a hazardous substance. Prior to permanently closing hazardous substance USTs, owners/operators must submit a closure plan to the Regulated Storage Tanks (RST) Program for review and approval. The plan shall specify, in detail, the proposed sampling plan, proposed analyses, and any other measures necessary to conduct an adequate closure. Closure plan guidelines can be obtained by contacting any district field office or the North Little Rock central office.

The UST regulations require that when a UST is permanently closed, the site must be assessed for the presence of a release where contamination is most likely to be present. The sampling requirements in this guide are only the minimum necessary and are not intended to substitute for the specific conditions that may apply to an individual site. Additional sampling may be justified whenever obvious areas of contamination are found.

Reporting the presence of free product and/or petroleum saturated soil that would indicate a release has occurred is covered in Appendix B.

No closure report will be accepted as complete without the minimum sampling data that is described herein.

Questions regarding this document should be directed to the Regulated Storage Tanks Program district field office responsible for the county in which the UST is located or the Regulated Storage Tanks Program central office in North Little Rock. A district map listing the inspectors and their districts can be obtained by contacting the Regulated Storage Tanks Program at (501) 682-0999.

SECTION 2 - REPORTING REQUIREMENTS

2.1 TANK REGISTRATION

All USTs storing a regulated substance on or after January 1, 1974, if not already registered, must be registered and all annual tank fees paid in full prior to permanent closure. USTs may be registered by submittal of a "Notification For Underground Storage Tanks" form which may be obtained by contacting any district field office or the North Little Rock office. Notification forms submitted for registration must be signed by the owner and dated.

Note: UST systems taken out of service and emptied of all contents prior to January 1, 1974, will be deemed as non-regulated only upon receipt of a written statement from the owner describing when the system was taken out of service.

2.2 NOTICE TO PERMANENTLY CLOSE UST SYSTEM(S)

The owner of the UST system or his/her representative must submit the original "30-day Notice For UST Permanent Closure" form at least 30 days prior to closing underground storage tanks and/or piping. All forms submitted must be complete and accurate. Registration status of all USTs scheduled for closure will be checked upon receipt of the notice. If it is determined that the USTs scheduled for closure have not been previously registered, then the owner will be provided with a notification form for registration purposes. Contractors should check with the district field inspector to verify tank registration and to verify if the inspector has received the 30-day notice form prior to beginning any closure work.

2.3 UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT

The owner of the UST system or his/her representative must submit the closure report within 20 days of completing the closure. The UST closure report includes: 1) amended notification form; 2) contractor's closure report; 3) copies of all analytical results of any and all samples; 4) valid chain-of-custody; and 5) a site diagram. If the closure involves the removal of piping only, then the closure report shall include all of the above except for an amended notification. In addition, if the closure involves the disposal of contaminated soils and/or groundwater, a copy of the waste manifests must be included in the submittal. Failure to submit all of the documentation necessary to complete the closure will result in a delay in processing the closure report.

2.4 SITE DIAGRAM

A site diagram must be included with the UST closure report. The site diagram must contain the following:

* general site layout
* tank locations, sizes, and contents of USTs
* locations of all fuel lines
* locations of all dispenser islands
* dimensions of the excavation
* depth of the excavation
* sample locations
* nearby structures and properties adjacent to the site
* arrow indicating north

2.5 SAMPLE CHAIN-OF-CUSTODY RECORD

A chain-of-custody record must accompany the sample from the time of sample collection to delivery to the laboratory. The possession or custody of samples must be traceable from the time of collection until the time the samples are submitted to the laboratory for analysis.

If chain-of-custody procedures are not followed, the integrity of the sample is compromised and the analysis is invalid. A chain-of-custody record must be completed for all samples that will be analyzed by the laboratory. This record must be completed in the field at the time of sampling. Correct chain-of-custody must continue when the samples are transferred to the laboratory or to the person responsible for the delivery of the samples to the laboratory. Upon transfer of the samples, each person handling the samples must sign, date and note the time each person received the samples. Each chain-of-custody record must include the following:

* sample identification
* name and address of the site
* date and time of sample collection
* location and depth of sample(s)
* number of samples
* analysis to be performed
* appropriate places for signatures of sampler and person(s) assuming custody of samples

A completed chain-of-custody record must be submitted for all samples and included with the UST closure report.

SECTION 3 - SAMPLING PROCEDURES

3.1 SAMPLING REQUIREMENTS

Soil and/or groundwater samples must be collected at the time of permanent closure to determine if a release has occurred. The importance of good sampling procedures is critical to the assessment of a site during closure. Since gasoline and some other petroleum products consist largely of volatile organic compounds, special care in collecting samples is required. Special precautions must be taken to be certain that samples collected from each site are representative of the soil and/or groundwater at that location and that the sample is neither altered nor contaminated by the sampling and handling procedure.

All samples must be placed in proper containers immediately upon collection, properly packaged and labeled with the following minimum information:

* facility name
* sample location
* date and time samples were collected
* depth samples were collected
* person collecting samples
* analytical test(s) required

All samples must be placed on ice immediately after collection and shipped to an ADEQ-certified laboratory within 24 hours of collection.

3.2 SOIL SAMPLE COLLECTION PROCEDURES

Depending upon the purpose for the collection of the sample, soil samples may be taken either from an excavation, a borehole or a waste pile. In every case the object is to collect a sample representative of the in situ conditions. This includes the retention of volatiles present in the soil. Every effort should be made to ensure that these materials are not lost.

There are a variety of tools available for collecting soil samples. Hand-held tools include shovels, bucket augers, trowels, and hollow T-shaft push tubes. Always thoroughly clean tools between samplings to prevent cross contamination.

Soil samples should be collected in clean half-pint (250 ml) wide-mouth glass jars with teflon-lined sealing caps. Exposure of the sample to air and warmth must be minimized.

The following procedures should also be followed:

- The volume of the soil sample should be at least eight (8) ounces and should always fill the jar to capacity to avoid air spaces ("head space") within or above the sample. This provides an adequate amount of soil for all known methods for BTEX, TPH-GRO and TPH-DRO.
- Just prior to collecting the sample, a minimum of three or, preferably, six inches of soil should be rapidly removed from the immediate surface where the sample is to be collected. If sampling from a core sample, the immediate surface (about one-quarter inch) of core should be discarded. Most standard coring procedures are acceptable for sample collection. Data obtained from samples collected from air-rotary cuttings are not acceptable.
- Use a clean stainless steel trowel, scoop or gloved hands to handle the soil.
- The sample must be placed into the jar with a minimum of disturbance.
- The threads of the jar should be cleaned carefully with a disposable wipe and the jar sealed with the teflon-lined cap.
- The container should be properly labeled as described in section 3.1 and the appropriate chain-of-custody form completed as described in section 2.5.

If soil samples cannot be safely collected from an open excavation, a backhoe may be used to remove a bucket of soil from each of the sample areas. The soil is brought rapidly to the surface where samples are to be immediately taken from the soil in the bucket according to the directions above.

After sample containers are sealed, they should immediately be placed on ice and maintained at a temperature of 39 to 43 degrees Fahrenheit (4 to 6 degrees Celsius) until they are prepared for analysis by the laboratory. Samples must be analyzed within 14 days of collection.

3.3 GROUNDWATER SAMPLE COLLECTION PROCEDURES

Groundwater samples can be collected from borings or from open excavations. Samples should be collected in vials or containers specifically designed to prevent loss of volatile constituents from the sample. Sample containers should be pre-labeled before any sample collection begins. The laboratory can provide instructions about the type and size of containers to be used and the number of samples to be collected for each sampling point.

The following general instructions are given for collecting groundwater samples for BTEX analysis:

- 40 ml glass vials with teflon-lined septum caps should be used for sample collection.
- Samples must be taken with a device designed to minimize the loss of volatile components. A bailer with a sampling port is an acceptable sampling device.

* Water must be transferred to the sampling container with as little agitation as possible and immediately sealed with a teflon-lined cap. No headspace may be present in the sample container once the container has been capped. Verify no headspace by inverting the vial and tapping it gently to check for air bubbles. If air bubbles are present, a new sample must be collected. As a rule of thumb, it is best to gently pour the last few drops into the vial so that surface tension holds the water in a "convex meniscus." The cap is then placed on the vial and some overflow is lost, but air space in the vial is eliminated.
* Immediately store samples on ice, complete a chain-of-custody form as described in section 2.5 and ship samples to the laboratory within 24 hours of collection.

The following general instructions are given for collecting groundwater samples for TPH-DRO analysis:

* A quart (1,000 ml) glass jar with a teflon-lined cap should be used for sample collection.
* If a bailer is used for sample collection, transfer the sample from the bailer to the container and completely fill container to the top.
* Immediately store samples on ice, complete a chain-of-custody form as described in section 2.5 and ship samples to the laboratory within 24 hours of collection.

3.4 UST BACKFILL MATERIAL

All excavated backfill material must be composite sampled unless it is disposed of in an approved landfill or the material is placed in a properly constructed treatment cell. If the backfill material is to be placed back into the excavation, then samples must be taken. A minimum of one composite sample, consisting of 4 grab samples, must be taken for each 50 cubic yards of soil. The samples must be collected at a point of at least one foot into the stockpile. The backfill samples must be analyzed for the same constituents as the tank excavation samples. Disposal options are described in section 6.1.

Note: All samples must be analyzed by an ADEQ-certified laboratory to be valid. A list of certified laboratories can be obtained by contacting any district field inspector or ADEQ Technical Services.

SECTION 4 - SAMPLING LOCATIONS FOR TANKS

4.1 GENERAL REQUIREMENTS

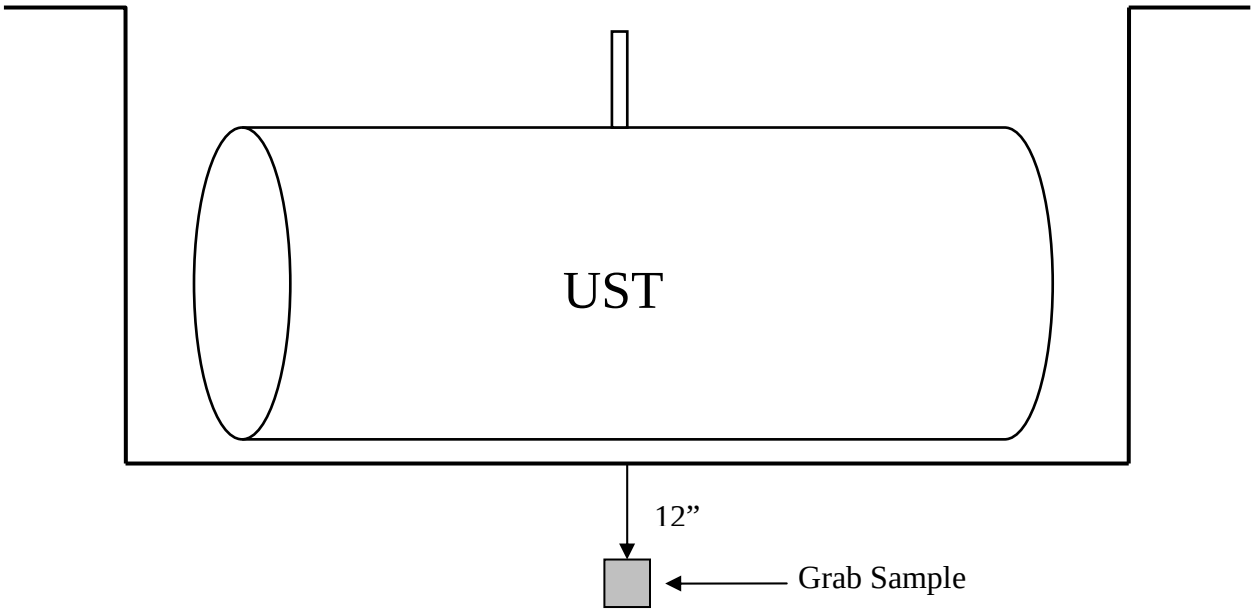
When conducting sampling at a tank removal, all backfill materials must be removed from the excavation prior to sampling. Whether sampling the sidewalls or the floor of an excavation, all samples must be collected from a depth of at least one foot into the native soil. No compositing of samples is allowed, and each sample that is collected must be analyzed separately.

After all backfill material has been removed from the excavation, it may be necessary to over-excavate the tankhold to ensure that all contamination has been removed. No more than two feet of native soil should be over-excavated from the tankhold prior to sampling.

After over-excavation has been conducted, samples must be collected from the bottom of the excavation where the highest level of contamination would likely exist (e.g., below the tank where the fill pipe was located or in a stratum more permeable than most of the surrounding soils.) At least one soil sample per tank should be taken in the location as shown in Figure 1.

Figure 1

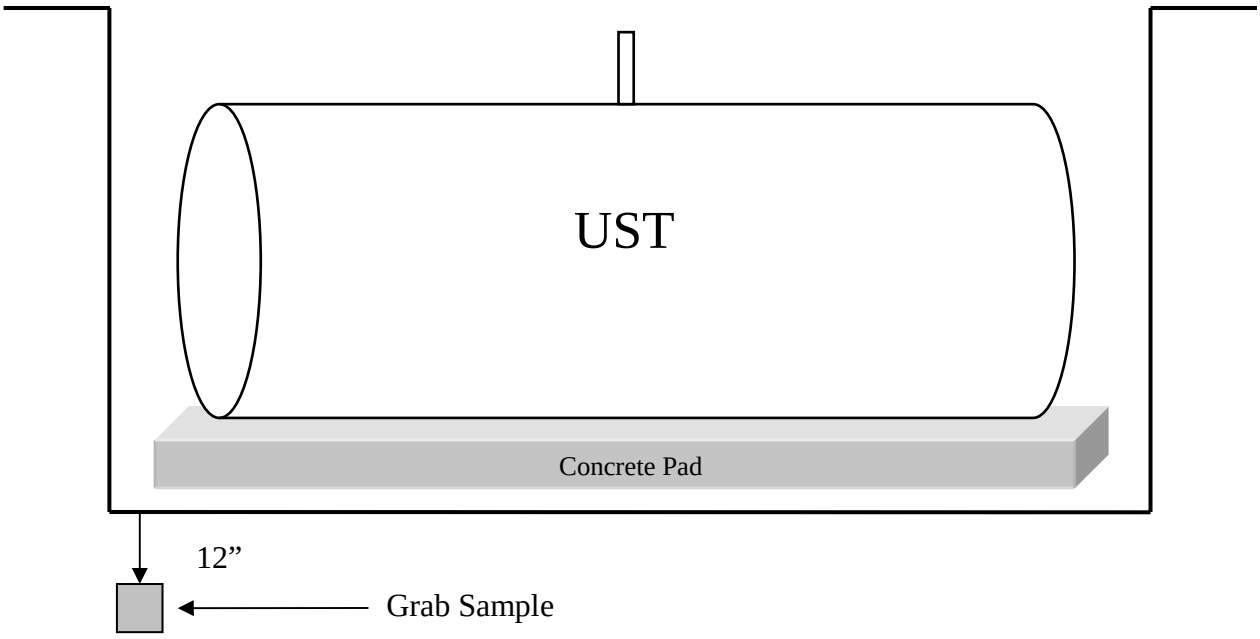
Soil Sample Location For USTs



If the UST is resting on a concrete pad and the pad is to be left in the ground, then it must be cleaned and examined for cracks and petroleum staining. If the pad is level, a soil sample must be taken from either end of the pad, one foot into the native soil as shown in Figure 2. If the pad is tilted, then the sample must be taken from the down gradient side, one foot into the native soil and where petroleum staining is heaviest.

Figure 2

Soil Sample Location For UST Resting On A Concrete Pad



If the UST is resting on bedrock, then the bedrock must be examined for fractures and petroleum staining after all backfill material has been removed. If bedrock prevents the collection of soil samples from the bottom of the tank pit excavation, then samples must be taken from the sidewalls.

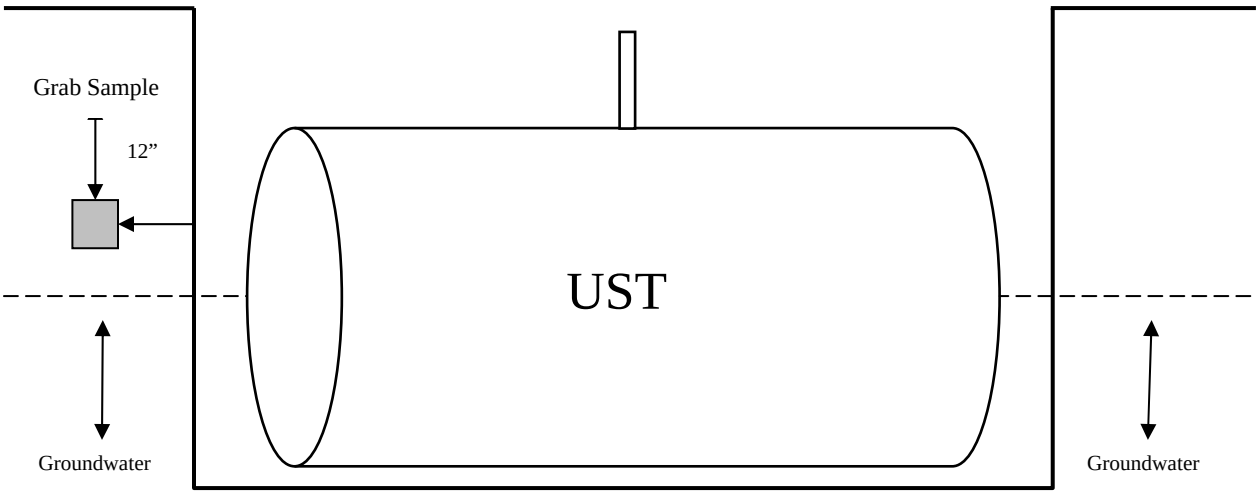
If water is encountered in the tank excavation, it must be removed to determine whether groundwater or trapped surface water has been encountered. For UST closures, groundwater is defined as the first saturated zone or water bearing unit capable of any measurable recharge within 24 hours.

If the tank excavation recharges with groundwater, a grab sample of the water in the excavation must be collected and analyzed. Water removed from the excavation must be disposed of properly as described in section 6.2.

In addition to collecting a water sample, a soil sample must be taken from the wall of the excavation most likely to be contaminated and immediately above the groundwater surface as shown is Figure 3.

Figure 3

Soil Sample Location For UST When Groundwater is Encountered



4.2 CLOSURE IN PLACE OR CHANGE IN SERVICE

Borings are utilized to locate and define the extent of contamination when excavation activities have not been initiated or when complete excavation of all contaminated soils is not possible. Core materials should be logged and examined carefully to characterize the backfill material. Samples are normally collected at two to four foot intervals where contamination is evident or in soil strata most likely to be contaminated. Unless groundwater is encountered in the boring, the soil sample shall be taken from the bottom of a borehole which extends at least two feet below the bottom of the tank, as near to the tank as possible, on the fill pipe end.

If "true" groundwater (refer to section 4.1) is encountered during soil boring activities, then a groundwater sample must be taken in addition to a soil sample. The soil sample should be collected within approximately four to six inches above the surface of the groundwater.

Tanks closed in place must be cleaned and filled with an inert material such as sand, concrete, grout or a "foam" material approved for such purposes. All tank sludges removed during the cleaning process must be properly disposed of as described in section 6.3.

A change in service is when the contents of the tank are changed from a regulated substance (e.g., gasoline) to an unregulated substance (e.g., water.) In order to accomplish a change in service, the same notification and sampling requirements for the permanent closure of a UST system must be followed. Sampling must be conducted in the same manner as tank closure in place and the interior of the tank properly cleaned. In addition, owners/operators must notify the Regulated Storage Tanks Program of the change in service by submittal of a "Notification for Underground Storage Tanks" form which indicates what unregulated substance is presently stored in the tank.

Note: Sample results must be submitted to the Regulated Storage Tanks Program for review and approval **prior** to closing tanks in place by filling with an inert material.

SECTION 5 - SAMPLING LOCATIONS FOR PIPING

5.1 GENERAL REQUIREMENTS

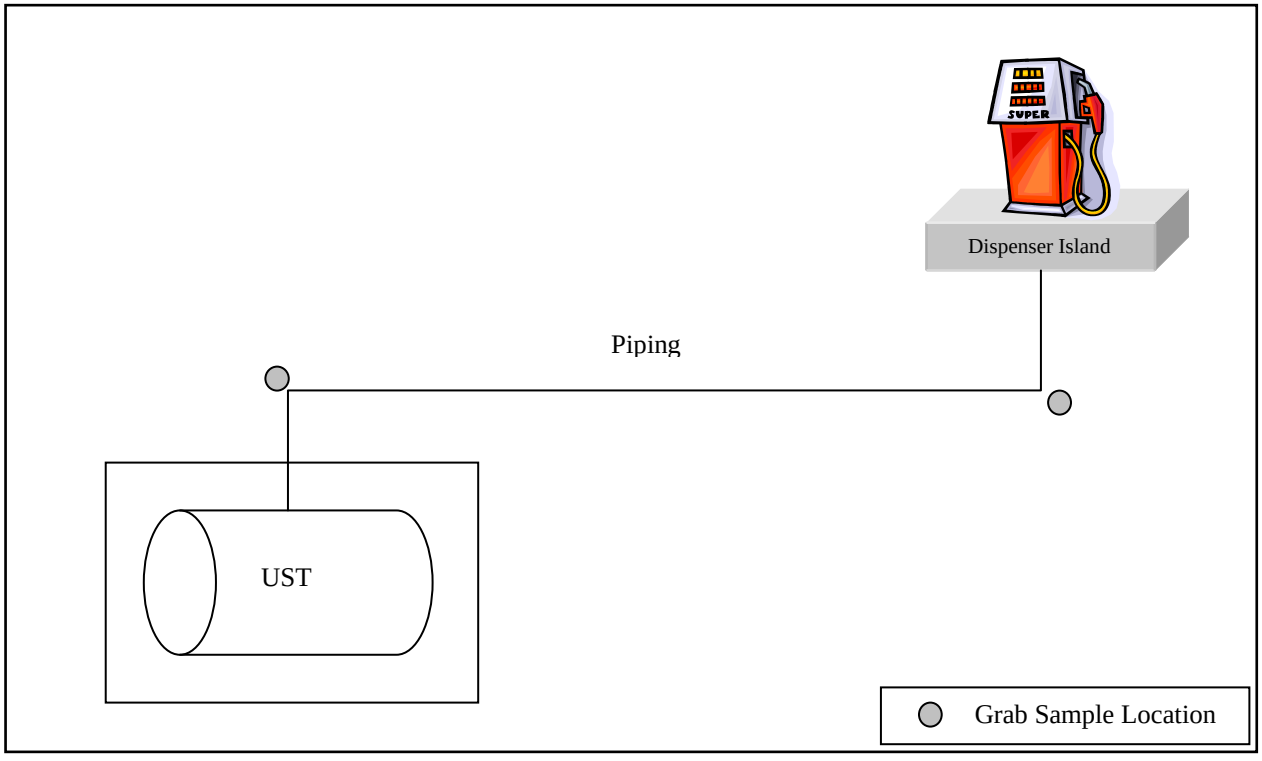
When performing a UST system closure, all piping must be removed from the ground or grouted with a concrete slurry if the piping is closed in place. When closing the piping in place, the goal is to render the piping unusable. Therefore, provided the piping is no longer usable, filling of all voids in the piping is not necessary.

5.2 PIPING TRENCHES

Sampling is required whenever a piping trench is taken out of service. When piping is removed, samples must be collected at each point where piping changes direction as shown in Figure 4. During removal of piping, sampling along a straight run of piping is not required unless contamination is encountered.

Figure 4

Sampling Locations When Piping Is Removed

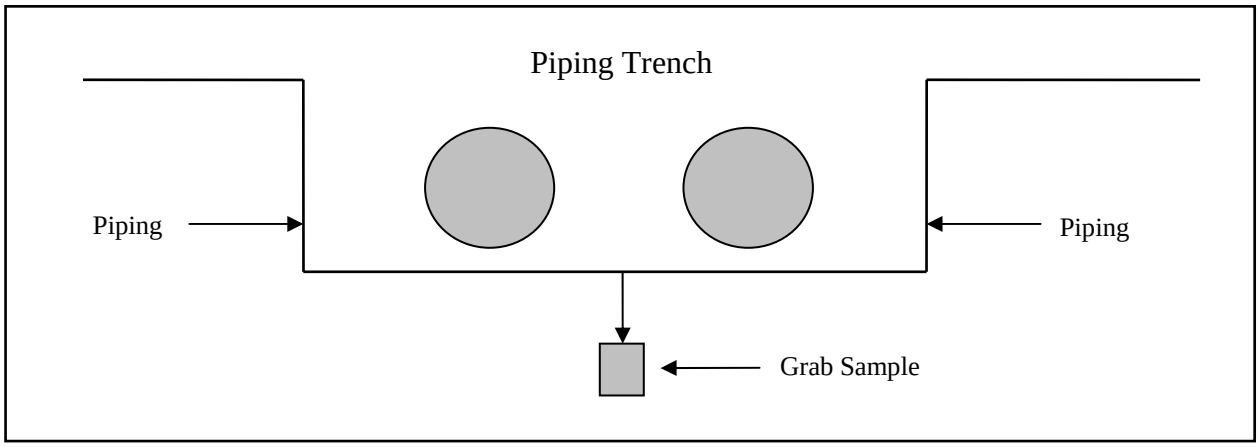


Prior to beginning any sampling activity, all backfill material must be removed from the piping trench excavation. Backfill material must be characterized properly as described in section 3.4.

Soil samples must be collected at a depth of one foot below the piping trench and into native soil as shown in figure 5. If bedrock is encountered at the floor of the excavation, then a soil sample must be taken from the wall of the excavation trench and one foot into native soil.

Figure 5

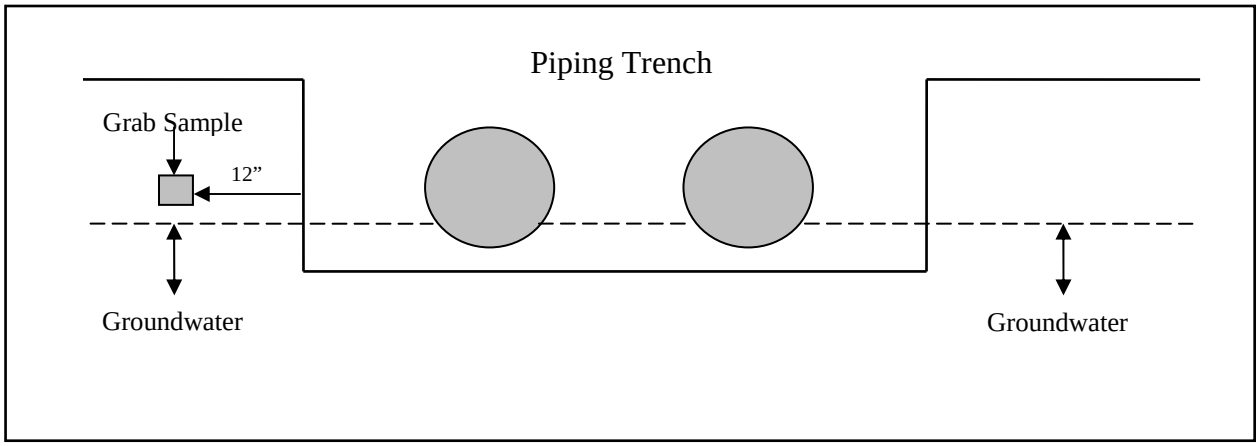
Sampling From Floor Of Piping Trench



If "true" groundwater (refer to section 4.1) is encountered during piping removal, then a groundwater sample must be taken in addition to a soil sample. A soil sample must be taken from the wall of the excavation trench immediately above the groundwater surface and one foot into native soil as shown in Figure 6.

Figure 6

Sampling From Sidewalls When Groundwater Is Encountered

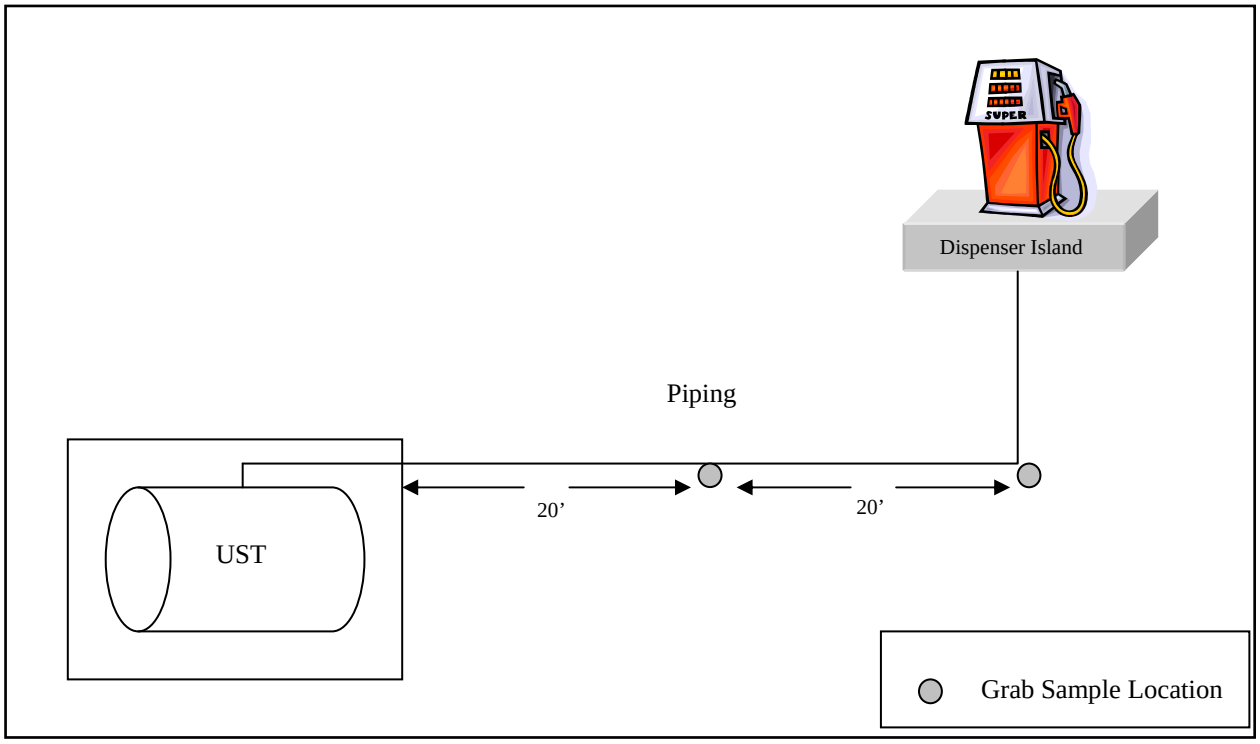


Prior to closing piping in place, all product must be removed from the piping. Samples must be collected where piping changes direction, if known, and approximately every 20 feet along a straight run of piping as shown in Figure 7. Unless groundwater is encountered in the boring, the soil sample must be collected from the borehole which extends at least one foot below the piping trench or as close to the piping trench as possible and into native soil.

If "true" groundwater (refer to section 4.1) is encountered during in place closure, a groundwater sample must be collected from the boring.

Figure 7

Sampling Location When Piping Is Closed In Place



If bedrock is encountered during the in place closure of piping, then a soil sample must be collected at the soil/bedrock contact.

If a change in service to the UST system is conducted (changing from storage of a regulated substance to a non-regulated substance), then samples must be collected from the piping trench. Sampling requirements for a change in service must be conducted in the same manner as removal or closure in place.

Note: Sample results must be submitted to the Regulated Storage Tanks Program for review and approval **prior** to closing piping in place.

5.3 DISPENSER ISLANDS

Soil samples must be taken below each island in which a dispenser is or was located. The number of samples required depends on the length of the dispenser island. An island is considered to be any dispenser or series of dispensers that are oriented in a straight line.

5.3.1 REMOVAL OF DISPENSER ISLANDS

Prior to beginning any sampling activities, all backfill materials must be removed from the excavation. If no contamination of the sidewalls is apparent, then a soil sample or samples must be collected at a depth of one foot below the piping trench and into native soil. The number and location of samples required is as follows:

a. Single dispenser island or island $\leq$ 20 ft. in length - 1 sample in the center of the length. (**Figure 8**)

b. Dispenser island > 20 ft. $\leq$ 50 ft. in length - 2 samples spaced at equal distances apart. (**Figure 9**)

c. Dispenser island > 50 ft. $\leq$ 80 ft. in length - 3 samples spaced at equal distances apart. (**Figure 10**)

Figure 8

Single Dispenser Island or Island $\leq$ 20 Feet In Length

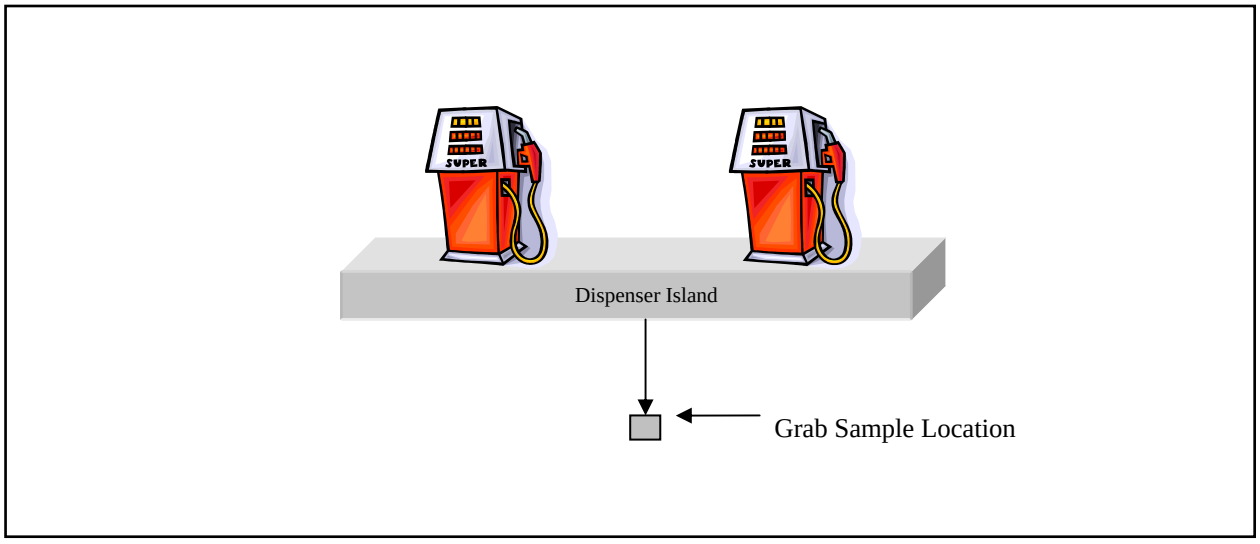


Figure 9

Dispenser Islands > 20 and ≤ 50 Feet In Length

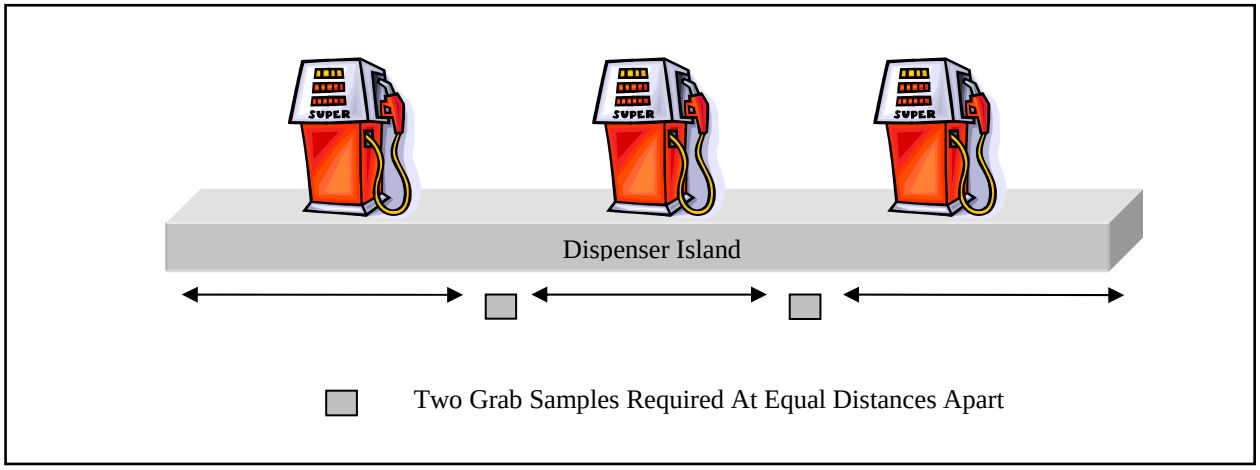
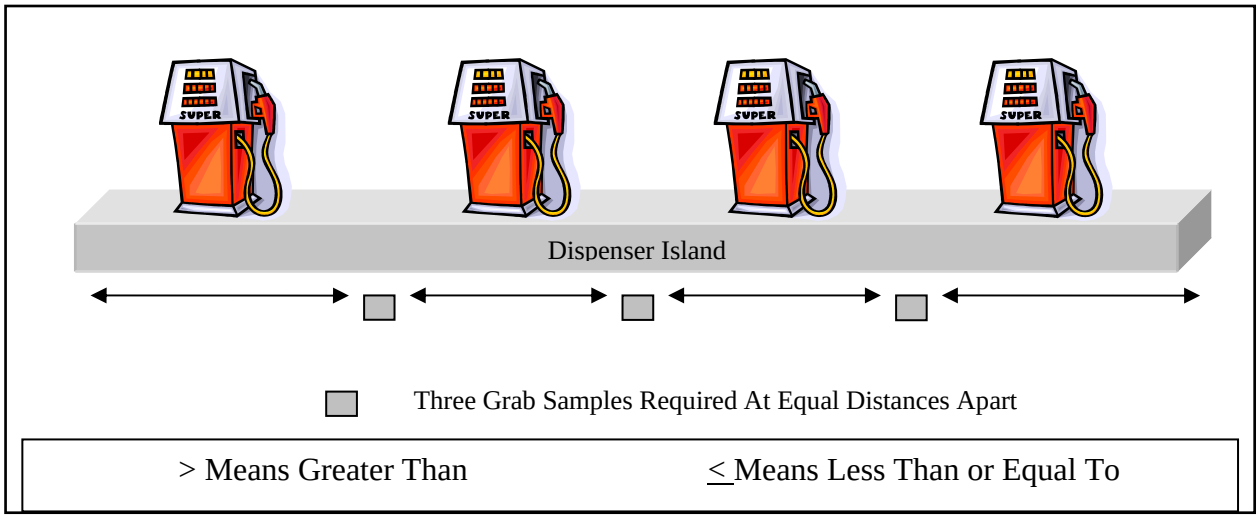


Figure 10

Dispenser Islands > 50 and ≤ 80 Feet In Length



If “true” groundwater is encountered during the removal of dispenser islands and piping, then a groundwater sample must be taken in addition to a soil sample. A soil sample must be taken from the wall of the excavation trench immediately above the groundwater surface and one foot into native soil

5.3.2 DISPENSER ISLAND CLOSURE IN PLACE

Prior to closing dispenser islands in place, soil borings must be conducted along the length of the island. Borings should be placed in the same area as the sample locations that are required for dispenser island removal. The required numbers of samples for closure in place are the same as those that are required for dispenser island removal. Unless groundwater is encountered in the boring, the soil sample must be collected from the bottom of a borehole which extends at least one foot below the piping trench or as close to the piping trench as possible and into native soil.

If "true" groundwater (refer to section 4.1) is encountered during soil boring activities, then a groundwater sample must be collected. Soil sampling must be conducted from those borings that do not have groundwater.

If bedrock is encountered during soil boring activities, then a soil sample must be collected at the soil/bedrock contact.

Note: Sample results must be submitted to the Regulated Storage Tanks Division for review and approval **prior** to closing dispenser islands in place.

SECTION 6 - DISPOSAL OF CONTAMINATED MEDIA

6.1 SOIL OPTIONS

Typically, all backfill material is contaminated and should be handled as such until laboratory analysis proves otherwise. Refer to section 3.4 for sampling requirements of backfill material. The following are the options allowed for handling the backfill material.

a. Dispose of in an approved landfill.

   All "special wastes" (petroleum contaminated soils) may be disposed of in an approved landfill. Contact the landfill for requirements prior to disposal.

b. Stockpile on site and await the laboratory results of sampling.

   All backfill material should be placed on and covered with an impervious material (plastic sheeting). If the analytical results of the backfill material are below the action levels of the RST Program, the backfill material may be placed back into the excavation. If the results are above RST Program action levels, your options are described in paragraphs a or d of this section.

c. Sample the backfill material and return it to the excavation.

The backfill material may be returned to the excavation with the understanding that the backfill material may have to be re-excavated if the analytical results are above the action levels of the RST Program. If the results are above action levels, your options are described in paragraphs a or d of this section.

d. Aerate or treat the backfill material on site.

If the analytical results indicate concentrations above action levels of the RST Program and the owner does not want to dispose of the backfill material in an approved landfill, the backfill material may be aerated or treated on site. To aerate or treat the backfill material, place the material on an impervious material (plastic sheeting) and spread the backfill material approximately one foot thick. Construct a berm around the backfill material that will retain any rainwater and prevent any contamination from spreading. Cover the soil on rainy days; uncover the soil on sunny days allowing for proper aeration. Disc or till the backfill material periodically. It may be necessary to treat the soil with fertilizer, for example, rather than rely on aeration especially for soil contaminated with diesel or waste oil. Soil should remain staged no longer than six months prior to sampling and/or disposal.

6.2 WATER OPTIONS

Petroleum contaminated water encountered outside the UST, whether perched or "true" groundwater, must be removed and disposed of properly. There are three options for the disposal of petroleum contaminated water encountered outside the UST, including: 1) disposal at a Publicly Owned Treatment Works (POTW) facility; 2) discharge under general permit limits; and 3) handled as a recyclable material.

a. Disposal at a POTW facility.

A POTW facility may accept petroleum contaminated water; however, they are not required to accept the discharge. Written permission to discharge petroleum contaminated water must be obtained from the treatment facility before the water is discharged.

b. Discharge under general permit limits.

Petroleum contaminated water cannot be discharged to the environment unless the owner/operator or contractor obtains an NPDES discharge permit from the Arkansas Department of Environmental Quality. An NPDES discharge permit is not required if the petroleum contaminated water is discharged into a sanitary sewer or hauled directly to a POTW facility with written permission.

c. Handled as a recyclable material.

Petroleum contaminated water may be removed and handled as a recyclable material by shipping to a refinery for re-work as a petroleum product. Petroleum contaminated water handled as a recyclable material must be shipped according to DOT regulations and documented by appropriate receipts from the receiving facility.

6.3 TANK CONTENTS

Below are options for the disposal of material removed from the inside of USTs.

a. Recovered product.

Product removed from the UST may be returned to the distribution system for re-use. Product that is not returned to the distribution system must be disposed of as a hazardous waste or handled as a recyclable material. Product disposed of as a hazardous waste must be properly labeled, manifested and shipped to a permitted Treatment, Storage, and Disposal (TSD) facility by a licensed hazardous waste transporter. Product handled as a recyclable material must be documented by appropriate receipts from the receiving facility. However the material is containerized, proper labeling and placarding must be followed according to DOT regulations.

b. Disposal of petroleum contaminated water.

There are four options for the disposal or handling of petroleum contaminated water, including: 1) disposal at a POTW facility; 2) discharge under general permit limits; 3) disposal at a permitted TSD facility; and 4) handled as a recyclable material.

1. Disposal at a POTW facility.

A POTW facility may accept petroleum contaminated water; however, they are not required to accept the discharge. Written permission to discharge petroleum contaminated water must be obtained from the treatment facility before the water is discharged.

2. Discharge under general permit limits.

Petroleum contaminated water cannot be discharged to the environment unless the owner/operator or contractor obtains an NPDES discharge permit from the Arkansas Department of Environmental Quality. An NPDES discharge permit is not required if the petroleum contaminated water is discharged into a sanitary sewer or hauled directly to a POTW facility with written permission.

3. Disposal at a TSD facility.

   Petroleum contaminated water must be transported by a licensed hazardous waste transporter for disposal at a permitted TSD facility. Although the petroleum contaminated water may not exhibit any hazardous waste characteristics, it must be disposed of as a hazardous waste if other options as listed are not available.

4. Handled as a recyclable material.

   Petroleum contaminated water may be removed and handled as a recyclable material by shipping to a refinery for re-work as a petroleum product. Petroleum contaminated water handled as a recyclable material must be shipped according to DOT regulations and documented by appropriate receipts from the receiving facility.

c. Disposal of petroleum sludge.

   Petroleum sludge that has accumulated in a UST must be disposed of as a hazardous waste or handled as a recyclable material. If disposed of as a hazardous waste, the material must be transported by a licensed hazardous waste transporter to a permitted TSD facility. If handled as a recyclable material, the material must be documented by appropriate receipts from the receiving facility. However the material is containerized, proper labeling and placarding must be followed according to DOT regulations.

Note: Any other soil/water disposal option not mentioned must be pre-approved by ADEQ.

SECTION 7 - TANK DISPOSAL

7.1 TANK DISPOSAL

A removed UST must be emptied and cleaned using industry-recommended procedures. Once cleaned, USTs may be disposed of as a solid waste at an acceptable facility or recycled. Examples of recycling include scrapping and salvaging. Disposal of USTs, whether as a solid waste or by recycling, must be conducted in accordance with industry-recommended procedures. The fate of USTs must be documented and included with the closure report.

SECTION 8 - SAMPLE ANALYSIS

8.1 TANKS

Samples must be analyzed for the product last stored in the UST. If evidence of a leak from a previously stored product is found or it is known that a tank stored a different substance at one time, then the samples must be analyzed for that substance also. For example, all of the tanks have stored diesel for the past several years, but it is known that one of the tanks was once used to store gasoline. Then, all samples collected from the tank excavation would have to be analyzed for BTEX, TPH-GRO and TPH-DRO.

If both diesel and gasoline tanks are in the same excavation, then all samples collected from the excavation must be analyzed for BTEX, TPH-GRO and TPH-DRO.

8.2 DISPENSER ISLAND & PIPING

Samples must be analyzed for the products last transferred in the piping. If evidence of a leak from a previously stored product is found or it is known that the piping transferred a different substance at one time, then the samples must be analyzed for that substance also.

If both diesel and gasoline piping are in the same trench/dispenser island, all samples collected from the piping trench/dispenser island must be analyzed for BTEX, TPH-GRO and TPH-DRO.

MINIMUM REQUIRED SAMPLE ANALYSES (TANKS & PIPING)

Product Stored	Sample Media	Analysis
Gasoline	Soil/Water	BTEX*, TPH-GRO**
Diesel, Jet Fuel, Kerosene, Used Oil	Soil/Water	TPH-DRO***
Hazardous or Other Substance	Soil/Water	****

* BTEX – The analysis for Benzene, Toluene, Ethylbenzene and Xylene
** TPH-GRO – The analysis for Total Petroleum Hydrocarbons-Gasoline Range Organics
*** TPH-DRO – The analysis for Total Petroleum Hydrocarbons-Diesel Range Organics
**** Analyze by approved method for the substance stored or primary constituent

APPENDIX A

Aquifer -	Underground body of sand or gravel which contains groundwater.
Backfill -	All of the material which was placed in the excavation when the tank system was installed. In UST systems installed after 1988, the backfill material is normally easy to determine since tank systems were required to be backfilled with clean sand or gravel and these materials are easily differentiated from the native soil.
BTEX -	Benzene, Toluene, Ethylbenzene, and Xylene - the four major components of gasoline.
Convex Meniscus -	Curved or rounded like the outside of a circle.
DOT -	Department of Transportation
DRO -	Diesel Range Organics
GRO -	Gasoline Range Organics
Groundwater -	For the purpose of UST closures, it is the naturally occurring water that seeps into the excavation from the aquifer.
Headspace -	The air space between the sample and the top of the closed container.
NPDES -	Federal National Pollutant Discharge Elimination System regulations pertaining to discharge permits for surface waters.
Perched Groundwater -	Unconfined groundwater separated from an underlying main body of groundwater by an unsaturated zone.
POTW -	Publicly Owned Treatment Works
Septum Cap -	A sample container cap that has a membrane for extracting water with a syringe.
Teflon Lined -	A synthetic liner used to line the sides and caps of sample containers to prevent samples from sticking.
TPH -	Total Petroleum Hydrocarbons
TSD -	Treatment, Storage, Disposal
Volatile Organic Compounds -	Chemicals which readily vaporize under normal atmospheric conditions.

APPENDIX B

ADEQ

A R K A N S A S
Department of Environmental Quality

Revised and Effective as of August 1, 2002

DISCOVERY AND REPORTING OF A RELEASE DURING UNDERGROUND STORAGE TANK CLOSURE

The Regulated Storage Tanks Division has received several questions about when to report a leak during a routine closure. Since trust fund eligibility of costs may hinge on whether or not a leak was reported and when, clarification in this area is important. The purpose of this bulletin is to provide a clearer understanding for both the contractors and owners/operators of when such a report should be filed.

If, at any time during closure, a level of contamination is encountered (i.e., free product or saturated soil) significant enough to indicate a release from the UST system has occurred, this should be reported to ADEQ within 24 hours of the discovery. Determination of eligible costs will be made from that point.

When a contractor's closure report is received and reviewed by the Department and the level of contamination indicated by the sample results warrant further assessment/remediation, a leak report will be generated by RST Division staff, and eligible costs from that point will be reviewed. However, this does not preclude the owner/operator from being subject to fines and penalties for non-compliance with the release reporting requirements as stated in 40 CFR 280.50.

No costs associated with routine elective tank closure work will be covered under the trust fund, nor will they apply toward the corrective action deductible. Examples or such work are:

1. Site preparation (uncovering tanks and lines, product/sludge removal from tank, etc.);
2. Excavation/disposal of the tank, piping system and backfill;
3. Required sampling of the tank excavation;
4. Backfilling of the excavation; and
5. Replacement of surface material (asphalt cap, concrete drive, etc.).

The costs of any other work performed during the six critical junctures of a routine elective closure as outlined by Arkansas Regulation No. 12, Chapter Five, Section 12.502(E), will not be considered eligible for trust fund coverage or application toward the deductible.

REVISED 8/01/02
Closure_Bulletin: 7/19/93

APPENDIX C

“Closure of Underground Petroleum Storage Tanks,” American Petroleum Institute Recommended Practice 1604, 1220 L Street, Northwest, Washington, D.C. 20005-4070, (202) 682-8000.

“Safe Entry and Cleaning of Petroleum Storage Tanks,” American Petroleum Institute Publication 2015.

“Interior Lining of Underground Storage Tanks,” American Petroleum Institute Publication 1631.

“Criteria for a Recommended Standard ...Working in Confined Space,” The National Institute for Occupational Safety and Health, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.