APPENDIX B

ADEM UST CLOSURE SITE ASSESSMENT GUIDANCE MANUAL - SECTION III

Alabama Department of Environmental Management

UST CLOSURE SITE ASSESSMENTS

GUIDANCE MANUAL - SECTION III

MAY 1995

SECTION III

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III.1 INTRODUCTION

Effective December 22, 1988, federal and state regulations require compliance with the following if a regulated Underground Storage Tank (UST) is to be permanently closed.

1. At least 30 days before beginning permanent closure, owners or operators must notify the Department of their intent to permanently close.

2. Owners or operators must empty and clean tank(s) by removing all liquids and accumulated sludges. To permanently close a tank, it must be either removed from the ground or filled with an inert solid material. Examples of an inert solid material include sand, concrete and foams classified as inert. If foams are used, additional measures should be taken to properly ballast the tank, such as partial filling with sand or concrete, where there is a possibility of a high water table. The notification referenced in Item 1. above should indicate whether the tank will be removed or filled with an inert solid. If a tank is to be filled with an inert solid, the type of inert solid should be identified. Additionally, all lines, manways and/or other connections must be capped or closed.

3. Before permanent closure is completed, owners or operators must measure for the presence of a release where contamination is most likely to be present at the UST site. **THE DISCOVERY OF PETROLEUM CONTAMINATION DURING CLOSURE SUCH AS PETROLEUM CONTAMINATED SOILS, DISSOLVED PRODUCT IN THE GROUNDWATER, OR FREE PRODUCT ON THE GROUNDWATER MUST BE REPORTED WITHIN 24 HOURS OF DISCOVERY. THE ENCLOSED UST CLOSURE SITE ASSESSMENT REPORT FORM NO. 1133 MUST BE SUBMITTED TO THE DEPARTMENT WITHIN 45 DAYS OF INITIATING CLOSURE AT THE FOLLOWING ADDRESS:**

Alabama Department of Environmental Management
Groundwater Branch
Post Office Box 301463
Montgomery, Alabama 36130-1463

FAILURE TO PROVIDE PROPER RELEASE NOTIFICATION, OR FAILURE TO SUBMIT THE CLOSURE SITE ASSESSMENT IN THE SPECIFIED TIME PERIOD IS A VIOLATION OF DEPARTMENT REGULATIONS AND MAY RESULT IN LOSS OF ALABAMA TANK TRUST FUND COVERAGE.

4. Guidelines for performing the site assessment are enclosed. The site assessment must be performed in accordance with acceptable geologic practices by a geologist or an Alabama registered professional engineer experienced in

hydrogeological investigations. A geologist or engineer must be present on site during closure site assessment activities.

5. Site assessment requirements may be waived if a properly designed vapor monitoring or groundwater monitoring release detection system was routinely used and properly operating at the time of closure and indicates no release has occurred.

6. Owners or operators must maintain records for at least 3 years following closure that are capable of demonstrating compliance with Items 1. through 5. above.

7. Owners or operators must submit the following information to fulfill the current closure site assessment requirements:

- Form 1133 with attached information
- A UST Release Fact Sheet (if a release has occurred)
- UST Site Classification System Checklist (if a release has occurred)
- UST Release Report Form (if a release has occurred)

8. Any questions concerning these requirements should be directed to the ADEM Groundwater Branch at 334/270-5655.

III.2 GENERAL INFORMATION

III.2.1 What Regulations Govern a Tank Closure?

Specific requirements for closure notification, required closure practices, and which UST systems must undertake a closure assessment are outlined in ADEM Admin. Code R. 335-6-15-.37 through .40. ADEM Admin. Code R. 335-6-15-.26(2) through (6) contains the requirements for conducting the closure site assessment when the closure involves a removal of tanks. When an in-place closure occurs, the requirements of ADEM Admin. Code R. 335-6-15-.26(1) and (3) through (6) are valid.

III.2.2 Who Conducts A Closure Site Assessment?

The following information defines the Department's requirements for the type of personnel categories who are determined to be qualified to conduct various aspects of a closure site assessment. This information clarifies the requirements of ADEM Admin. Code R. 335-6-15-.26(6) for closure site assessments.

Required Personnel for Conducting Closure Site Assessments By Tank Removal:

Sampling of soils on tank walls/bottom/soil piles:
Sampling must be performed by personnel who are experienced in the proper procedures for soils sampling, handling and preservation.

Oversight of soils sampling, handling and preservation activities, and description of soil samples:
Performed by a Geologist **experienced** in hydrogeologic investigations or performed by an Engineer **experienced** in hydrogeologic investigations. The Geologist or Engineer must be present onsite during sampling operations.

Interpretation of Closure Data:
Interpretations performed by a Geologist experienced in hydrogeologic investigations or an Alabama Registered Professional Engineer experienced in hydrogeologic investigations.

Report Preparation:
Report prepared and signed by a Geologist experienced in hydrogeologic investigations or an Alabama Registered Professional Engineer experienced in hydrogeologic investigations.

Required Personnel for Conducting In-Place Closure Site Assessments:

Oversight of drilling activities, oversight of soils sampling, handling and preservation activities, description of soil samples:
Performed by a Geologist experienced in hydrogeologic investigations or performed by an Engineer experienced in hydrogeologic investigations. The Geologist or Engineer must be present onsite during drilling and sampling operations.

Soils and Groundwater Sampling:
Performed by personnel experienced in the proper sampling, handling and preservation of soil and groundwater samples. Work is either performed by a Geologist experienced in hydrogeologic investigations or an Engineer experienced in hydrogeologic investigations, or work is performed by experienced personnel while being overseen by Geologist or Engineer who is onsite during actual sampling activities.

Excavated Soil Sampling:
Sampling must be performed by personnel who are experienced in the proper procedures for soils sampling, handling and preservation.

Interpretation of Closure Data:
Interpretations must be performed by a Geologist experienced in hydrogeologic investigations or an Alabama Registered Professional Engineer experienced in hydrogeologic investigations.

Report Preparation:
Report prepared and signed by a Geologist experienced in hydrogeologic investigations or an Alabama Registered Professional Engineer experienced in hydrogeologic investigations.

III.2.3 When to Submit A Closure Site Assessment Report?

Closure site assessments are required to be submitted to the Department within 45 days of initiating closure, or within 45 days of release confirmation if a release has occurred. Failure to submit this required report within the regulatory time frame, places an owner/operator in violation of the Chapter 15 regulations and could result in the loss of Alabama Tank Trust Fund eligibility.

III.2.4 Where to Submit A Closure Site Assessment Report?

Closure site assessment reports should be submitted to the appropriate UST/UIC Compliance Section Project Manager who manages the county in which the site is located as shown in Appendix G. The Department's address is located in Section I of this Guidance Manual. The UST/UIC Compliance Section Staff conducts the initial reviews and if a release is indicated, the report is referred to the UST Corrective Action Staff for further review and/or enforcement.

III.3 ADEM GUIDELINES FOR PERFORMING A SITE ASSESSMENT FOR AN UST CLOSURE

Where applicable, an UST owner or operator can perform either of the following two types of site assessments identified in Items III.3.1 or III.3.2. below to comply with UST closure requirements. Excavated soil or soil boring cuttings should be handled in accordance with guidance in Item III.4 and Appendix B of this Section.

III.3.1 TANK CLOSURE BY REMOVAL

A. The following procedures may be used in satisfying closure site assessment requirements when the tank excavation pit and/or piping trenches are completely open and available for representative sample collection. Any standing water should be removed and properly managed prior to taking soil samples. If personnel are to enter an excavation to collect soil samples, OSHA requirements should be complied with. Copies of the these requirements may be obtained from:

OSHA
2047 Canyon Road
Todd Mall
Birmingham, Alabama 35126
Phone: (205)731-1534

1. Soil samples shall be collected from the sides and base of the tank excavation pit and the bottom of the piping trenches. At least one sample shall be collected from each side of the excavation pit and at least one sample from the excavation pit base for every tank that was present in the excavation. In cases where multiple tanks are located in one excavation pit and/or the excavation pit is large, side samples shall be taken every 25 feet. Side samples shall be collected from the lowest one-third of the tank diameter. One sample per 10 lineal feet shall be collected from the base of piping trenches. Samples from the tank excavation pit side, base, and piping trenches shall be representative of the area being sampled. **Where the groundwater elevation is above the level where soil samples are normally required to be taken, soil samples are not required to be taken below the groundwater.** Instead, soil samples should be taken just above the groundwater elevation from excavation pit walls and excavated soil piles as appropriate. Also, groundwater samples must always be taken when groundwater is above the level where soil samples are normally taken. **Excavation pit water samples may be taken to determine the appropriate method of properly handling the water only, and do not meet the requirement for groundwater sampling.**

2. Sampling Requirements:

OPTION 1- TPH Option:

Analyze soil samples for the presence of Total Petroleum Hydrocarbons in accordance with the methods listed in Item III below. Where applicable, soils should be analyzed for lead in accordance with the methods listed in Item III.3.3 below.

OPTION 2 - BTEX and/or PAH Option

Analyze soil samples for the presence of Benzene, Ethylbenzene, Toluene and Total Xylenes, and/or PAH constituents in accordance with the methods listed in Item III.3.3 below. Where applicable, soils should be analyzed for lead in accordance with the methods listed in Item III.3.3 below.

3. Determine the elevation of the groundwater table. Information on the elevation of the groundwater table may be obtained from a boring located adjacent to the tank pit or from a nearby location. The base of the excavation pit may be extended downward to obtain groundwater information. **If approved by the Department prior to use**, groundwater elevation data may be obtained from topographical features which provide surface indication of the groundwater table. This data must be substantiated by literature values.

4. Sampling Results:

OPTION 1 - TPH Option

(a) Where the analytical results of all the required soil samples taken from the tank excavation pit and/or piping trench have a Total Petroleum Hydrocarbon concentration of less than or equal to 10 ppm, the Department may consider the investigation to be complete and no further action will be required at that time.

(b) Where the analytical results of all the required soil samples taken from the tank excavation pit and/or piping trench have a Total Petroleum Hydrocarbon concentration of less than or equal to 100 ppm **and** where the seasonal high groundwater table is 5 feet or greater below the bottom of the tank excavation pit and/or piping trench, the Department may consider the investigation to be complete and no further action will be required at that time.

(c) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench have a Total Petroleum Hydrocarbon concentration of greater than 10 ppm **and** where the seasonal high groundwater table is less than 5 feet below the bottom of the tank excavation pit and/or piping trench or where standing water in the excavation pit or piping trench is indicative of the groundwater table elevation, groundwater samples must be collected at a minimum of one up-gradient and three down-gradient locations just outside the tank perimeter of the excavation unless directed to do otherwise by the Department. Groundwater samples shall be analyzed for the parameters identified in Item III. below according to the type of product released.

(d) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench have a Total Petroleum Hydrocarbon concentration of greater than 100 ppm **and** where the seasonal high groundwater table is 5 feet or greater below the bottom of the tank excavation pit and/or piping trench, the Department will not require groundwater samples during the closure

assessment. However, the Department may require further assessment at a later date which could include groundwater sampling.

OPTION 2 - BTEX and/or PAH Option

(a) Where the analytical results of all the required soil samples taken from the tank excavation and/or piping trench are below detection limits for the constituents of concern, the Department may consider the investigation to be complete and no further action will be required at that time.

(b) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench exceed detection limits **and** where the seasonal high groundwater table is less than 5 feet below the bottom of the tank excavation pit and/or piping trench or where standing water in the excavation pit or piping trench is indicative of the groundwater table elevation, groundwater samples must be collected at a minimum of one up-gradient and three down-gradient locations just outside the tank perimeter of the excavation unless directed to do otherwise by the Department. Groundwater samples shall be analyzed for the parameters identified in Item III.3.3 below according to the type of product released.

(c) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench exceed the detection limits **and** where the seasonal high groundwater table is 5 feet or greater below the bottom of the tank excavation pit and/or piping trench, the Department will not require groundwater samples during the closure assessment. However, the Department may require further assessment at a later date which could include groundwater sampling.

5. Subject to the results of the closure site assessment, the Department may require additional investigative and/or corrective actions.

III.3.2. TANK CLOSURE WITHOUT REMOVAL (CLOSED IN-PLACE)

A. The following procedures may be used in satisfying closure site assessment requirements when the tank excavation pit and/or piping trench is **not** completely open and available for representative sample collection.

1. Soil samples shall be collected from just outside the perimeter of the original tank excavation through use of soil borings. At least one sample shall be collected from each side and in close proximity of the original tank excavation. In cases where the original tank excavation is large, samples shall be taken at least every 25 feet around the perimeter. Within each boring, samples shall be taken at a depth approximately even with the depth of the lowest one-third of the tank diameter and at a depth approximately five feet below the base of the tank. One sample per 10 lineal feet shall be collected from a depth of approximately 1 foot below the base of the piping. Soil sampling shall be representative of the area and depths which most likely have been affected by a release. **Where the groundwater elevation is above the levels where soil samples are normally required to be taken, soil samples are not required to be taken below the groundwater, unless specified by the Department.** Instead, soil samples should be taken just above the groundwater table from soil borings and excavated soil piles as appropriate. Also, groundwater samples must always be taken when groundwater is above the level where soil samples are normally taken.

2. Sampling Requirements:

OPTION 1- TPH Option:

Analyze soil samples for the presence of Total Petroleum Hydrocarbons in accordance with the methods listed in Item III.3.3 below. Where applicable, soils should be analyzed for lead in accordance with the methods listed in Item III.3.3 below.

OPTION 2 - BTEX and/or PAH Option

Analyze soil samples for the presence of Benzene, Ethylbenzene, Toluene and Total Xylenes, and/or PAH constituents in accordance with the methods listed in Item III.3.3 below. Where applicable, soils should be analyzed for lead in accordance with the methods listed in Item III.3.3 below.

3. Determine the elevation of the groundwater table. Information on the elevation of the groundwater table may be obtained from a boring located

adjacent to the tank pit or from a nearby location. **If approved by the Department prior to use,** groundwater table elevation data may be obtained from topographical features which provide surface indication of the water table. This data must be substantiated by literature values. At least one groundwater sample shall be obtained from the boring used to determine the groundwater table. Groundwater samples shall be analyzed for parameters identified in item III.3.3 below according to the type of product released.

4. Sampling Results:

OPTION 1 - TPH Option

(a) Where the analytical results of all the required soil samples taken from around the tank and/or piping have a Total Petroleum Hydrocarbon concentration of less than or equal to 10 ppm, the Department may consider the investigation to be complete and no further action will be required at that time.

(b) Where the analytical results of all the required soil samples taken from around the tank and/or piping have a Total Petroleum Hydrocarbon concentration of less than or equal to 100 ppm **and** where the seasonal high groundwater table is 5 feet or greater below the bottom of the tank or piping the Department may consider the investigation to be complete and no further action will be required at that time.

(c) Where the analytical results of any or all of the required soil samples taken from around the tank and/or piping have a Total Petroleum Hydrocarbon concentration of greater than 10 ppm **and** where the seasonal high groundwater table is less than 5 feet below the bottom of the tank and/or piping, groundwater samples must be collected at a minimum of one up-gradient and three down-gradient locations just outside the perimeter of the original tank excavation unless directed to do otherwise by the Department. Groundwater samples shall be analyzed for the parameters identified in item III.3.3 below according to the type of product released.

OPTION 2 - BTEX and/or PAH Option

(a) Where the analytical results of all the required soil samples taken from the tank excavation and/or piping trench are below detection limits for the constituents of concern, the Department may consider the investigation to be complete and no further action will be required at that time.

(b) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench exceed detection limits **and** where the seasonal high groundwater table is less than 5 feet below the bottom of the tank excavation pit and/or piping trench or where standing water in the excavation pit or piping trench is indicative of the groundwater table elevation, groundwater samples must be collected at a minimum of one up-gradient and three down-gradient locations just outside the tank perimeter of the excavation unless directed to do otherwise by the Department. Groundwater samples shall be analyzed for the parameters identified in Item III.3.3 below according to the type of product released.

(c) Where the analytical results of any or all of the required soil samples taken from the tank excavation pit and/or piping trench exceed the detection limits **and** where the seasonal high groundwater table is 5 feet or greater below the bottom of the tank excavation pit and/or piping trench, the Department will not require groundwater samples during the closure assessment. However , the Department may require further assessment at a later date which could include groundwater sampling.

5. Subject to the results of the closure site assessment, the Department may require additional investigative and/or corrective actions.

III.3.3 ANALYTICAL METHODS AND PARAMETERS

The following parameters and methods should be utilized for the specific product type and media:

PRODUCT	SOIL	METHOD	GROUNDWATER	METHOD
Gasoline Analytical Group	TPH Option	Standard Method 5520 E & F or EPA 9071 or EPA 418.1 I.R. or SW-846 4030	Benzene, Ethylbenzene, Toluene & Total Xylenes	EPA 602 or 624; or SW-846 8020
	BTEX Option	SW-846 8020		
Kerosense Analytical Group	TPH	Standard Method 5520 E & F or EPA 9071 or EPA 418.1 I.R. or SW-846 4030	Benzene, Ethylbenzene, Toluene & Total Xylenes	EPA 602 or 624; or SW-846 8020
			PAH	EPA 610 or 625; or SW-846 8310 or 8100
	PAH Option	SW-846 8310 or 8100		
Waste Oil Analytical Group	TPH	Standard Method 5520 E & F or EPA 9071 or EPA 418.1 I.R.	Benzene, Ethylbenzene, Toluene & Total Xylenes	EPA 602 or 624; or SW-846 8020
			PAH	EPA 610 or 625; or SW-846 8310 or 8100
	Lead	EPA Method 239.2; or SW-846 7420 or 7421	Lead	EPA Method 239.2 or SW-846 7420 or 7421
			Volatiles	EPA Method 601; or SW-846 8010

When leaded fuel products or waste oil are suspected to have impacted soils and/or groundwater, lead samples must be taken and analyzed using EPA Method 239.2 or SW-846 Method 7420 or 7421.

Equivalent methods may be approved by the Department on a case by case basis.

III.4 MANAGEMENT OF CONTAMINATED SOILS

Requirements for the proper management of petroleum contaminated soils are located in Appendix B of this section. Removal of soils with a TPH $\geq$ 10 off the site of origin is prohibited unless approval is first granted by the Department's Land Division or the Groundwater Branch UST Program staff. Removal of soils to an offsite location without Departmental approval may be determined to constitute an unpermitted landfill which violates ADEM regulations. Soils with TPH values less than 10 ppm are considered not regulated and do not require approval for removal.

The Department currently requires that when soil is excavated, that within ninety (90) days of excavation, a soil management plan and/or report should be submitted to the Department documenting how the tank owner or operator plans to manage the contaminated soils. This requirement is generally issued after the Department has reviewed the closure site assessment reports.

The ADEM Solid Waste Branch pre-approves all soil being disposed of at permitted landfills. Pre-approval of the disposal activity must be coordinated with Solid Waste Branch Staff. A copy of the pre-approval form is located in Appendix A of Section X.

Petroleum contaminated soils on the site of origin or at another approved site which contains TPH concentrations which $\geq$100 ppm TPH must be properly managed. Proper management includes the following, at a minimum:

- All soils must be bermed with material which will prevent excessive surface water runoff from the soil piles;

- All soils must be covered during rain events so that excessive runoff will not occur. Soils undergoing treatment by aeration must be properly managed to provide for the addition and removal of a cover material to prevent excessive runoff;

- All soils must be placed on an impermeable base to prevent contaminated material from coming into contact with non-contaminated media;

- A site where soils are exposed to stormwater may be subject to obtaining an NPDES stormwater runoff permit.

As indicated in the "Guidelines for the Disposal of Non-Hazardous Petroleum Contaminated Wastes", soils with TPH concentrations less than 100 ppm can be spread in a thin layer on the site of origin.

Owners of soils which are not properly managed may be subject to further Departmental enforcement actions and the costs for managing the soils will not be covered under the Tank Trust Fund.

APPENDIX A

AIR DIVISION MEMORANDUM

January 28, 1991

MEMORANDUM

TO: Interested Parties

FROM: Ronald W. Gore, Chief
Engineering Branch
Air Division

SUBJECT: Air Pollution Aspects of Remediation of Soils Contaminated with Petroleum Products - NOTE: This supersedes Air Division Memoranda dated August 17, 1990 and March 1, 1990, on the Same Subject.

Historically, soil from Underground Storage Tank (UST) contamination incidents has been primarily decontaminated by some sort of aeration of the soil. This aeration can be natural (by spreading and drying) or by forced air ventilation with pipes, fans, etc. In either case, the petroleum contamination is merely transferred from soil to atmosphere by volatilization.

The purpose of this memorandum is to outline the procedures and requirements of the Air Division for minimizing organic vapor emissions when remediation of soils contaminated with petroleum products is necessary. This guidance applies to projects in all areas of the State except Jefferson County. The Jefferson County Health Department Air Pollution Control Program should be contacted to determine requirements in that county.

Another method of devolatilizing soil is heating, usually in a rotary dryer such as those used by asphalt plants. Since the temperature realized in these dryers is usually 400° F or less, the petroleum vapors are not oxidized, but are emitted to the atmosphere. Only by adding a downstream afterburner capable of high temperature and residence time can these vapors be properly oxidized.

Other methods of decontamination, such as disposal in a hazardous waste landfill or bioremediation, which have little or no potential for vapor emissions, are not within the purview of the Air Division. Use of these methods is subject to the approval of the Land Division and the UST section of ADEM.

The Air Division has consulted with ADEM's UST Section to develop the following guidelines for the purpose of minimizing vapor emissions during soil remediation.

A contaminated site that has the potential to emit more than 2,000 lbs of volatile organic compounds (VOC) will be expected to utilize a method that minimizes emissions. The Air Division has recently issued Air Permits to several portable thermal dryers which incorporate appropriate vapor and dust control equipment. These dryers, along with other types of remediation techniques, such as forced aeration or soil venting with vapor control equipment, will be presumptive devolatilization methods for this size and type of project. All projects must receive prior approval from the Air Division and the UST Section of ADEM before any method is utilized.

To determine whether a site has potential to emit more than 2,000 lbs of VOCs, the following method shall be used. For sites at which the contaminated soil has been excavated, five grab samples shall be composited to one sample for each 20 cubic yards of soil and a Total Petroleum Hydrocarbon (TPH) test shall be conducted to determine the concentration of contaminate in the soil. For sites at which the contaminated soil remains in the ground (in-situ) a TPH test shall be conducted at soil borings representing a specific quantity of soil to determine the concentration of contaminate on the soil. The formula below shall be used to calculate potential VOC emissions from that estimated quantity of soil for both excavated and in-situ sites. The resulting emissions from the specific quantity of soil shall be added to calculate potential VOC emissions.

$a \times b \times .002 = c$

a = concentration of TPH in sample (ppm)
b = quantity of soil represented by sample (cyds)
c = potential VOC emissions (lbs)

Example

Sample 1 showed a TPH concentration of 500 ppm and represents 20 cyds
Sample 2 showed a TPH concentration of 300 ppm and represents 20 cyds
Sample 3 showed a TPH concentration of 1000 ppm and represents 20 cyds

a ppm x b cyds x .002 = c lbs VOC emissions

Sample 1: 500 ppm x 20 cyds x .002 = 20 lbs VOC emissions
Sample 2: 300 ppm x 20 cyds x .002 = 12 lbs VOC emissions
Sample 3: 1000 ppm x 20 cyds x .002 = 40 lbs VOC emissions

Total Potential Emissions: 72 lbs VOC emissions

Because this is less than the limit of 2000 lbs, it would not be required that a remediation method which minimizes air emissions be utilized.

Please call ADEM - Air Division at 334/271-7861 in Montgomery if you have any questions or comments concerning these guidelines.

FOR ADEM OFFICE USE ONLY

TO: _____ FROM: _____

Air Division — UST Compliance Section

MEMORANDUM

January 28, 1991

ADEM UST CLOSURE
TOTAL POTENTIAL VOC EMISSIONS CALCULATIONS

FACILITY I.D. NO.: _____

DATE OF THIS REPORT: _____

INCIDENT NO. (If applicable). UST __ __-___-___

UST OWNER:

FACILITY COUNTY: _____

ADDRESS: _____

FACILITY NAME: _____

LOCATION: _____

CONTACT NAME: _____

CONTACT PHONE #: _____

ADDRESS: _____

Name of Consultant who performed calculations: _____

Consultant's Phone Number: _____

	a	ppm x	b	cyds x .002 =	c	lbs. VOC emissions
Sample 1		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 2		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 3		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 4		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 5		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 6		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 7		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 8		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 9		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 10		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 11		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 12		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 13		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 14		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 15		ppm x		cyds x .002 =		lbs. VOC emissions

TOTAL POTENTIAL EMISSIONS = [ ] lbs. VOC emissions

*** NOTE - If more samples are taken than indicated on this form, please attach additional pages as necessary.**

This form must be completed and submitted with the ADEM UST Closure Site Assessment Report Form.

APPENDIX B

GUIDELINES FOR THE DISPOSAL OF NON-HAZARDOUS PETROLEUM CONTAMINATED WASTES

GUIDELINES FOR THE DISPOSAL OF NON-HAZARDOUS PETROLEUM CONTAMINATED WASTES

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION 13 - SOLID WASTE PROGRAM

LAND DIVISION

(334)270-5643

Revised May 10, 1995

NOTE: *These guidelines do not address the requirements for the removal of underground storage tanks. Contact the UST* [*1] *Compliance Section at (334)270-5655.*

A. Soils which have been contaminated with petroleum material resulting from a spill should be reported to the Field Operations Division [*2] of ADEM. To report spills occurring after normal office hours or on holidays, contact Field Operations through the Department of Public Safety's 24 hour phone at (334)242-4378. Representatives of the Field Operation Division are not responsible for clean-up activity but are available to provide technical assistance to the parties involved.

B. Contaminated material which must be removed from the point of generation must be disposed of in a permitted solid waste disposal facility following ADEM (Solid Waste Branch) approval, or transported to an approved treatment [*3] facility for proper treatment and final disposition.

C. Excavated soils, except for those classified as small quantities [*4], or other wastes which are not known to be contaminated with a petroleum material, but are suspected (ex. - from a service station), should be handled as if they were, until laboratory analysis (limits listed below) confirms that no contamination is present. **(NOTE: ALL EXCAVATED WASTES FROM UST SITES MUST BE SAMPLED REGARDLESS OF THE TPH [*5], LEAD ANALYSIS, OR FIELD SCREENING METHOD CONDUCTED ON SOILS WITHIN THE EXCAVATION.)** Sampling and analysis of wastes must be conducted by qualified personnel trained in this field.

D. Any volume of soil with a TPH concentration of less than (<) [*6] 10 ppm is not considered contaminated and thus is not regulated by Division 13 of the ADEM Administrative Code.

E. Where 100 kilograms (220 lbs) or greater (≥)[*6] of Petroleum Product or Waste must be disposed of, and the petroleum product released was either a used, heavy[*13] petroleum material or contained lead, analyses must be performed to determine if the Petroleum Contaminated Waste (PCW)[*8] is a hazardous waste or one needing special disposal (used heavy - TCLP[*9] ; leaded gas - total lead (EPA Method 239.2 or other approved SW-846 method) or TCLP for lead). (NOTE: TOTAL LEAD MAY BE USED AS A SCREENING METHOD BUT TCLP MUST BE UTILIZED IF TOTAL LEAD IS 100 PPM OR GREATER).

F. PETROLEUM CONTAMINATED WASTES SAMPLING & ANALYTICAL REQUIREMENTS[*10] :

CLASS	TPH SAMPLING AND ANALYTICAL REQUIREMENTS	LEAD AND HAZARDOUS WASTE ANALYTICAL REQUIREMENTS
a. **Light**[*11]	5 grab samples composited to 1 sample for each 20 cubic yds	1 grab sample for each 20 cubic yards composited to 1 sample per incident
	Standard Method 5520 E&F, or EPA Method 9071, or EPA Method 418.1 IR or SW-846 4030	Total lead (EPA Method 239.2 or other approved SW-846 Method for lead) or TCLP for lead when total lead is 100 ppm or greater
b. **Medium**[*12]	Same as for Light	Not Required
c. **Heavy**[*13] **Used**	Same as for Light	5 grab samples composited to 1 sample for each 100 cubic yds; TCLP test if TPH > 100 ppm
Virgin	Same as for Light	Not Required
d. **Mixed**	Handled on a case-by-case basis	
e. **Absorbent**[*14]	NONE	NONE

G. CONCENTRATION LIMITS
(Exclusive of small quantities*4)

CLASS	TPH	LEAD CONC. TOTAL OR HW*15	MANAGEMENT OPTIONS
a(1) Light	<100 ppm	<100 ppm Totals or <5 ppm TCLP	For UST sites, place back in excavation, if > 5 feet to groundwater or apply in a thin layer on-site with UST program approval
a(2) Light	<250 ppm	As above	Manage at a permitted Solid Waste Disposal Facility (sanitary landfill or landfill) with Land Division approval.
a(3) Light	≥ 250 ppm	As above	Treat*3 to level in a(1) or a(2) to reduce TPH
a(4) Light	NA	≥100 ppm Total	Perform TCLP for lead - if ≥ 5 ppm disposal at hazardous waste disposal facility. If < 5 ppm, see a(2) or a(3) above.
b(1) Medium	< 100 ppm	NA	For UST sites, place back in excavation if ≥ 5 feet to groundwater or apply in a thin layer on-site with UST program approval.
b(2) Medium	<500 ppm	NA	Manage at a permitted Solid Waste Disposal Facility up to 300 cubic yds per incident with Land Division approval

CLASS	TPH	LEAD CONC. TOTAL OR HW*15	MANAGEMENT OPTIONS
b(3) Medium	≥ 500 ppm	NA	Treat to reduce TPH to levels in b(1) or b(2) or see item H.
Heavy			
c(1) Used	< 3,000 ppm	TCLP analysis if TPH > 100 ppm and Certified Non-hazardous	Manage at a permitted Solid Waste Disposal Facility up to 300 cubic yds per incident with Land Division approval If ≥ 300 cubic yds (see item H)
c(2) Used	≥ 3,000 ppm	Same as above	Manage at select disposal facilities up to 300 cubic yds per incident with Land Division approval. If ≥ 300 cubic yds (see item H)
c(3) Used	NA	TCLP Hazardous Waste	Manage as a hazardous waste. Contact RCRA Compliance Branch at 334-271-7726
c(4) Virgin	< 3,000 ppm	NA	Manage at a permitted disposal facility up to 300 cubic yards per incident with Land Division approval
c(5) Virgin	≥ 3,000 ppm	NA	Manage at select disposal facilities up to 300 cubic yds per incident with Land Division approval
d. Mixed	Handled on a case-by-case basis		

CLASS	TPH	LEAD CONC. TOTAL OR HW*15	MANAGEMENT OPTIONS
e. Absorbent	NONE	NONE	Manage at a permitted disposal facility with Land Division approval. No free liquids may exist at time of disposal. No strong petroleum odor may exist.

H. MANAGEMENT OPTIONS

(1) Utilize a treatment method contained in "(*3)" below.

(2) Quantities of medium or heavy PCW > 300 cubic yds may be accepted at select disposal facilities with prior approval from ADEM (Solid Waste Branch) and the landfill operator. If the landfill permittee will not accept the excavated soil, other means of treatment and/or processing will be necessary to make the waste suitable for disposal.

(3) Any petroleum contaminated waste in which the original product did not have a flash point < 140 degrees Fahrenheit or would not otherwise be classified as a light petroleum product may be disposed of at a permitted solid waste disposal facility with Departmental approval which has been synthetically lined according to Division 13 requirements. Used, heavy petroleum material such as waste oil, is still subject to TCLP analysis.

(4) Other management options may exist - Prior approval must be obtained from the Department.

I. All regulated amounts and concentrations of petroleum contaminated wastes removed from the point of generation shall be disposed of in an ADEM approved land disposal facility unless otherwise approved by the Department. Solid Waste Disposal Facilities may only accept waste for disposal from their designated service areas without special approval from the Department.

J. All waste to be disposed of in a solid waste disposal facility must be treated, solidified or otherwise managed so that the material will be dry enough to be

considered bladeable by landfill personnel and contain no "free liquids" as defined by Method 9095 (Paint Filter Liquids Test).

K. When an accident occurs, such as a wreck, and a petroleum product is spilled onto land or waters of the State and the petroleum product is absorbed with an absorbent*14, the absorbent material containing the product may be disposed of at an ADEM approved land disposal facility on a case-by-case basis (see "e" above within item G).

L. All requests for disposal must be accompanied with a completed Solid/Hazardous Waste Determination Form with any required analysis included.

LIST OF ABBREVIATIONS

*1 **UST:** Underground Storage Tank Program (ADEM - Groundwater Branch - UST Corrective Action Unit.

*2 **Field Operations Division:** Birmingham Office (205)942-6168; Decatur Office (205)353-1713; Mobile Office (334)479-2336; Montgomery Office (334)260-2700.

*3 **Treatment:** For treatment such as air-drying, mechanical dryer, or incineration (contact Air Division 334-271-7861); for Bio-remediation sites other than those areas immediately adjacent to removed underground storage tanks, (contact Engineering Services Branch - Land Division 334-271-7726).

*4 **Small Quantities:**

Light:	When volume is known, < 25 gallons per incident Unknown volume, < 5 cubic yds of soil per incident Plus petroleum smell mostly eliminated
Medium:	When volume is known, < 25 gallons per incident Unknown volume, < 5 cubic yds of soil per incident Plus no free liquids
Heavy:	When volume is known, < 25 gallons per incident Unknown volume, < 5 cubic yds of soil per incident
Mixed:	Used and Virgin Combination of above

*5 **TPH:** Total Petroleum Hydrocarbons

*6 <: less than
≤: less than or equal to

*7 >: greater than
≥: greater than or equal to

*8 **Petroleum Contaminated Waste (PCW):** includes, but not limited to, soils, sludges, tank bottoms, tanks, absorbent pads, absorbent boom materials, tank residual liquids.

*9 **TCLP:** Toxicity Characteristic Leaching Procedure

*10 **Analytical Requirements:** A standard TPH analysis must be used for determining the petroleum content of excavated soils. However, soils Field Screening Methods may be used as a tool to help determine if the limits of petroleum contamination have been reached.

*11 **Light:** Light weight petroleum product which in its original state has a flashpoint < 140 degrees Fahrenheit. Such material includes but is not limited to gasoline.

*12 **Medium:** Medium weight petroleum product which has in its original state a flashpoint of 140 degrees Fahrenheit or greater and is normally used as a motor fuel. Such material includes but is not limited to Kerosene, Diesel, and JP-4.

*13 **Heavy:** Heavy weight petroleum product which has in its original state a flashpoint of 140 degrees Fahrenheit or greater and is normally used as lubricating material, a boiler fuel, or is considered crude oil. Such material includes but is not limited to hydraulic oil, engine oil, lube grease, Fuel Oil No. 6, Residual Fuel Oil, Bunker Fuel Oil, and tar.

*14 **Absorbent:** A material specifically designed for absorbing petroleum spills on an emergency basis. Such material includes, but is not limited to absorbent pads and booms, and is commercially available for purchase.

*15 **HW:** Hazardous Waste

Original 12/1/91
Revised 5/10/95

ADEM ADMINISTRATIVE CODE

RULE 335-13-4-.26 (3)

NOVEMBER 1993

335-13-4-.26 **Requirements for Management and Disposal of Special Waste.**

Requirements for the management an disposal of special waste at a landfill unit permitted by the Department shall meet the following requirements. Certain requirements may be modified by the Department as deemed necessary to comply with the Act and this Division. Waste types for which specific rules and regulations under this Division have not been developed shall be managed and disposed of in a manner as determined by the Department to be consistent with the intent of the Act and this Division. Generators of a special waste may be required by the Department to provide an analysis and certification that the waste is nonhazardous or treated medical waste.

(3) Disposal requirements for petroleum contaminated waste. Any person who disposes of petroleum contaminated waste shall comply with the following practices:

(a) Petroleum contaminated waste must be disposed of in a permitted facility with groundwater monitoring wells.

(b) Prior to disposal at a MSWLF, C/DLF or ILF, the following conditions must be met:

1. Written certification from generator that petroleum contaminated waste is non-hazardous supported by TPH analysis and TCLP analysis, where applicable.

   (i.) TPH analysis will be required for all petroleum contaminated waste certifications.

   (ii.) TCLP is required on used heavy petroleum contaminated waste or as determined by the Department.

   (iii.) No TCLP will be required for petroleum contaminated waste containing less than 100 TPH.

   (iv.) TPH and TCLP sampling frequency will be determined by the Department.

2. The petroleum contaminated waste must be solidified to a bladeable consistency and certified to contain no free liquids as defined by method 9095 (Paint Filter Liquid Test).

3. TPH contaminated waste acceptable for disposal in an unlined, or clay lined, permitted landfill unit shall not exceed the following TPH and Total Lead limits. Written approval from ADEM must be obtained before petroleum contaminated waste is disposed of.

PETROLEUM CONTAMINANT	TPH (MAXIMUMS)	LEAD ANALYSIS
Light (gasoline & similar weights)	< 250 ppm	< 100 total (or certification < 5.0 TCLP statement that product is unleaded)
Medium (diesel & similar weights)	< 500 ppm	Not Required
Heavy (motor oil & similar weights)	< 3,000 ppm	Used - TCLP required Virgin - No TCLP required

4. Any petroleum contaminated waste in which the original product did not have a flash point < 140 degrees Fahrenheit or would not otherwise be classified as a light petroleum product may be disposed of at a permitted landfill unit with Departmental approval which has been synthetically lined according to Division 13 requirements. Used, heavy petroleum materials such as waste oil, is still subject to TCLP analysis.

(c) Petroleum contaminated waste with a TPH of less than 10 ppm is considered noncontaminated and is not regulated by the ADEM.

(d) Petroleum contaminated waste from UST removals with a TPH greater than 10 ppm but less than 100 ppm may be disposed of on site under the following conditions:

1. The distance from land surface to existing groundwater must be 5 feet or more.
2. The soil is placed back in the excavation from which it was removed or spread in a thin layer on site. On site disposal requires the approval of the ADEM UST Section.

(e) Petroleum contaminated waste that exceeds the established TPH limits for disposal at a permitted landfill unit must be remediated to acceptable levels by aeration, bioremediation, thermal treatment or other Department approved remediation method.

APPENDIX C

ADEM UST CLOSURE SITE ASSESSMENT FORM

FORM 1133

ADEM UST CLOSURE
SITE ASSESSMENT REPORT

(Use a Separate form for a group of tanks in each tank pit)

FACILITY I.D. NO.: _____

DATE OF THIS REPORT: _____

INCIDENT NO. (If applicable). UST__ __-___-___

UST OWNER:

FACILITY COUNTY: _____

ADDRESS: _____

FACILITY NAME: _____

CONTACT NAME: _____

LOCATION: _____

CONTACT PHONE #: _____

ADDRESS: _____

NAME OF CONTRACTOR USED TO CLOSE (REMOVE) TANK: _____

NAME OF CONSULTANT CONDUCTING ASSESSMENT: _____

NAME OF LABORATORY USED: _____

PRIOR TO BEGINNING CLOSURE, THE CONTRACTOR SHOULD BECOME FAMILIAR WITH ALL CLOSURE PROCEDURES IN AMERICAN PETROLEUM INSTITUTE (API) BULLETIN 1604, "REMOVAL AND DISPOSAL OF USED UNDERGROUND PETROLEUM STORAGE TANKS" AND API BULLETIN 2015 "CLEANING PETROLEUM STORAGE TANKS" THESE API BULLETINS ARE AVAILABLE FROM ADEM UPON REQUEST.

NUMBER OF TANKS CLOSED: _____

NUMBER OF TANKS REMAINING AT SITE: _____

CLOSURE DATE: _____

UNIQUE TANK #:					
TANK SIZE:					
TANK CAPACITY:					
TANK AGE:					
DATE TANK LAST USED:					
SUBSTANCE STORED:					
TYPE OF PRODUCT PIPING: (Pressurized/Suction)					
FARM TANK:	☐	☐	☐	☐	☐
HEATING OIL TANK:	☐	☐	☐	☐	☐

COMPLETE THE FOLLOWING SECTIONS AS APPROPRIATE BASED ON THE TYPE OF CLOSURE CONDUCTED:

1. TANK CLOSURE BY REMOVAL:

a. Attach site maps showing the general location of the facility.

b. Attach plan and sectional views of the excavation and include the following:

1. All appropriate excavation dimensions.
2. All soil sample locations and depths using an appropriate method of identification.
3. Location of areas of visible contamination.
4. Former location of tank(s), including depth, with tank Identification Number.

c. Is the groundwater more than 5 feet below the bottom of the excavation? YES ☐ NO ☐

If no, provide the depth from the ground surface to the groundwater table. Feet: _____

Indicate method used to determine water table depth:

	YES	NO
1. Excavation extended 5 feet below base of pit:	☐	☐
2. Boring or monitoring well:	☐	☐
3. Topographic features (Method must be approved by ADEM prior to use):	☐	☐

d. Was there a notable odor found in the excavation? YES ☐ NO ☐

If yes,

(1) The odor strength was (mild) (strong) (other) describe: _____

(2) The odor indicates what type of product: (gasoline)(diesel) (waste oil) (kerosene) (other) describe: _____

e. Was there water in the excavation? YES ☐ NO ☐

If yes, how was it handled?

	YES	NO
1. One time discharge to sanitary sewer with local approval?	☐	☐
2. Hauled to facility capable of treating constituents of petroleum products in water?	☐	☐
3. Hauled to local POTW with local approval?	☐	☐
4. Treated on-site with NPDES approved discharge?	☐	☐
5. Other? Explain: _____	☐	☐

f. Was free product found in the excavation? YES ☐ NO ☐

If yes,

1. How was free product handled? Describe: _____
2. What was the measured thickness of free product? _____

g. Were visible holes noted in the tank(s)? YES ☐ NO ☐

If yes,
Indicate which tanks(s) by the Unique Tank Number: _____

Also, describe the location(s) and provide general description as to the size and number of holes for above noted tanks, (Example: 3 square feet of pinholes or 3 inch diameter hole):

_____

_____

_____

_____

h. Describe the soil type and thickness of all soil layers encountered in the excavation:

_____

_____

_____

_____

i. Was the excavation backfilled? YES ☐ NO ☐

If yes, provide the date of backfilling: _____

DO NOT BACKFILL WITH MATERIAL THAT HAS OR POTENTIALLY HAS A TPH OF GREATER THAN 100 PPM!

2. TANK CLOSURE WITHOUT REMOVAL:

a. Attach site maps showing the general location of the facility.

b. Attach plan and sectional views of the site and include the following:

1. Location of the tank(s) including depth,
2. Location of tank(s) with respect to other tanks, if applicable,
3. Soil boring locations and depth at which soil samples were taken,
4. Boring logs.

c. Is the groundwater more than 5 feet below the bottom of the tank? YES ☐ NO ☐

If no, provide the depth from the ground surface to the groundwater table. Feet: _____

Indicate method used to determine water table depth: YES NO

1. Boring or monitoring well: ☐ ☐
2. Topographic features (Method must be approved by ADEM prior to use): ☐ ☐

d. Was there a notable odor found in the bore holes? YES ☐ NO ☐

If yes,
(1) The odor strength was (mild) (strong) (other) describe: _____

(2) The odor indicates what type of product: (gasoline) (diesel) (waste oil) (kerosene) (other) describe: _____

e. Was free product found in the bore holes? YES ☐ NO ☐

If yes,
1. How was free product handled? Describe: _____

2. What was the measured thickness of free product? _____

f. Describe the soil type and thickness of all soil layers encountered in the bore holes and provide boring logs:

_____

g. Specify the inert solid material used to fill the tank(s):

_____

h. Provide the date the tank(s) were filled: _____

i. Were the bore holes properly sealed with bentonite/soil? YES ☐ NO ☐
If yes, provide the date: _____

3. PRODUCT PIPING CLOSURE BY REMOVAL:

a. Attach site maps showing the general location of the facility.

b. If the piping was longer than 10 feet, attach plan and sectional views of the piping trench and include the following:

1. All appropriate excavation dimensions and length of piping,
2. All soil sample locations and depths using an appropriate method of identification.
3. Location of areas of visible contamination.

c. Was the piping purged of product prior to closure? YES ☐ NO ☐
If yes, was the product properly disposed of? ☐ ☐

d. Is the groundwater more than 5 feet below the bottom of the piping trench? YES ☐ NO ☐

If no, provide the depth from the ground surface to the groundwater table. Feet: _____

Indicate method used to determine water table depth:

	YES	NO
1. Excavation extended 5 feet below base of trench:	☐	☐
2. Boring or monitoring well:	☐	☐
3. Topographic features (Method must be approved by ADEM prior to use):	☐	☐

e. Was there a notable odor found in the piping trench? YES ☐ NO ☐

If yes,

(1) The odor strength was (mild) (strong) (other) describe: _____

(2) The odor indicates what type of product: (gasoline) (diesel) (waste oil) (kerosene) (other) describe: _____

f. Was there water in the piping trench? YES ☐ NO ☐

If yes, how was it handled?

	YES	NO
1. One time discharge to sanitary sewer with local approval?	☐	☐
2. Hauled to facility capable of treating constituents of petroleum products in water?	☐	☐
3. Hauled to local POTW with local approval?	☐	☐
4. Treated on-site with NPDES approved discharge?	☐	☐
5. Other? Explain:		

_____

_____

_____

g. Was free product found in the piping trench? YES ☐ NO ☐

If yes,

1. How was free product handled? Describe: _____

2. What was the measured thickness of free product? _____

h. Were visible holes noted in the piping? YES ☐ NO ☐

If yes, indicate the location(s) and provide a general description as to the size and number of holes:

_____

_____

i. Describe the soil type and thickness of all soil layers encountered in the piping trench:

_____

_____

_____

_____

j. Was the piping trench backfilled? YES ☐ NO ☐

If yes, provide the date of backfilling: _____

DO NOT BACKFILL WITH MATERIAL THAT HAS OR POTENTIALLY HAS A TPH OF GREATER THAN 100 PPM!

4. PRODUCT PIPING CLOSURE WITHOUT REMOVAL

a. Attach site maps showing the general location of the facility.

b. Attach plan and sectional views of the site and include the following:

1. Location of the piping including depth,
2. Location of piping with respect to tank(s), if applicable.
3. Soil boring locations and depth at which soil samples were taken,
4. Boring logs.

c. Was the piping purged of product prior to closure? YES ☐ NO ☐
If yes, was product properly disposed of? ☐ ☐

d. Was the piping capped? YES ☐ NO ☐

e. Is the groundwater more than 5 feet below the bottom of the excavation? YES ☐ NO ☐

If no, provide the depth from the ground surface to the groundwater table. Feet: _____

Indicate method used to determine water table depth:
1. Boring or monitoring well: YES ☐ NO ☐
2. Topographic features (Method must be approved by Dept. prior to use): ☐ ☐

f. Was there a notable odor found in the bore holes? YES ☐ NO ☐

If yes,
(1) The odor strength was (mild) (strong) (other) describe: _____

(2) The odor indicates what type of product: (gasoline) (diesel) (waste oil) (kerosene) (other) describe: _____

g. Was free product found in the bore holes? YES ☐ NO ☐

If yes,
1. How was free product handled? Describe: _____
2. What was the measured thickness of free product? _____

h. Describe the soil type and thickness of all soil layers encountered in the bore holes and provide boring logs:

_____

_____

_____

_____

i. Were the bore holes properly sealed with bentonite/soil? YES ☐ NO ☐
If yes, provide the date: _____

5. GROUNDWATER SAMPLING (If required by attached closure guidelines):

a. Indicate the following on the plan and section views required by Section 1.b., 2.b, 3.b, or 4.b. above:

1. The location and depth of the 1 up-gradient and 3 down-gradient borings or monitoring wells. (Monitoring wells in lieu of borings are not required, but may be desirable in certain situations.)

2. The most probable direction of groundwater flow. State basis for determining direction:

_____

_____

_____

b. Was a monitoring well used? YES ☐ NO ☐

If yes, attach a schematic drawing of the well(s) and all boring logs.

6. LABORATORY DATA

a. Attach the original chain of custody record **(copies are not acceptable)** for each sample which includes at least the following:

1. Sample identification number,
2. Date and time sample was taken,
3. Name and title of person collecting sample (see certification requirement on page 10 of this form),
4. Type of sample (soil or water),
5. Type of sample container,
6. Method of preservation,
7. Date and time sample was relinquished,
8. Person relinquishing sample,
9. Date and time sample was received by lab,
10. Person receiving sample at lab.

b. Attach the original laboratory data sheet **(copies are not acceptable)** which includes at least the following:

A sample identification number which can be cross referenced with the soil sample locations indicated on the plan and sectional views required by Section 1.b., 2.b., 3.b., or 4.b. above,
The sample analytical results with appropriate units,
The method used to analyze each sample,
The date and time the sample was analyzed,
The person analyzing the sample.

7. EXCAVATED SOIL

ALL EXCAVATED SOIL REQUIRES ANALYSIS PRIOR TO DISPOSAL. TANK CLOSURE SAMPLES FROM THE EXCAVATION MAY NOT BE REPRESENTATIVE OF THE LEVEL OF CONTAMINATION IN THE EXCAVATED SOIL.

For safety and other considerations, it is recommended that open pits and piping trenches should be backfilled as soon as possible with clean backfill. **Soils which have TPH levels greater than 100 ppm or soils for which the level of contamination has not been determined shall not be returned to the excavation pit(s) or piping trenches.** Soils having TPH levels between 10 and 100 ppm can only be returned to the excavation pit or piping trench if the groundwater is greater than 5 feet from the base of the pit or piping trench.

a. If tank was closed by removal, provide an estimate of the volume of soil removed: _____ cubic yds

b. Attach the "Total Potential VOC Emissions Calculations" for soil removed.

c. Indicate current method and location of soil management and/or treatment prior to final disposal:

_____
_____
_____
_____

d. Check the method of soil disposal used or to be used:

- ☐ Return to the excavation pit only when TPH is less than or equal to 100 ppm and depth of groundwater is greater than 5 feet from the base of the pit.
- ☐ Spread in a thin layer (6" or less) on site only when TPH is less than or equal to 100 ppm
- ☐ Disposal in a landfill (See attached "Guidelines for the Disposal of Non-Hazardous Petroleum Contaminated Wastes").
- ☐ Incineration.
- ☐ Thermal volatilization.
- ☐ Recycling facility
- ☐ Other _____

e. If soil was disposed of prior to the submittal of this form, indicate the final destination and attach copies of invoices, receipts, and "certificate of burn" (if soil was incinerated):

_____
_____
_____

8. TANK CLEANING

	YES	NO
a. The tank(s) were cleaned in accordance with American Petroleum Institute (API) Bulletin 2015-"Cleaning Petroleum Storage Tanks"?	☐	☐

If no, describe how tank(s) were cleaned:

_____
_____
_____

b. Provide an estimate of the volume of sludge removed from the tank: _____ Gallons

c. Indicate the final destination of the sludge and attach invoices or receipts:

_____
_____
_____

This form should be completed and returned, along with any other pertinent information, to the following address:

The Alabama Department of Environmental Management
Groundwater Branch
Post Office Box 301463
Montgomery, AL 36130-1463
(334) 270-5655

INCOMPLETE FORMS WILL BE RETURNED FOR CORRECTION.

Name of person taking soil and/or groundwater samples: _____

Company: _____

Telephone Number: _____

I certify under penalty of law that I have obtained representative soil and/or groundwater samples using accepted sampling procedures.

Signature: _____ Date: _____

I certify under penalty of law that I have performed this closure site assessment in accordance with accepted geological practices; I am either a geologist or an Alabama registered professional engineer; I am experienced in hydrogeological investigations; and the information I have submitted, to the best of my knowledge and belief, is true, accurate, and complete.

Signature of Geologist: _____ Date: _____

Signature of Alabama Registered Professional Engineer: _____

Date: _____

Alabama P.E. Registration Number: _____

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Signature of Tank Owner: _____ Date: _____

FOR ADEM USE ONLY

Reviewed By: _____ Date: _____

COMMENTS:

FORM 1133
5/8/95

Attachments: UST Closure Guidelines

FOR ADEM OFFICE USE ONLY

TO: _____ FROM: _____
Air Division — UST Compliance Section

MEMORANDUM

January 28, 1991

ADEM UST CLOSURE
TOTAL POTENTIAL VOC EMISSIONS CALCULATIONS

FACILITY I.D. NO.: _____

DATE OF THIS REPORT: _____

INCIDENT NO. (If applicable). UST__ __-___-___

UST OWNER:

FACILITY COUNTY: _____

ADDRESS: _____

FACILITY NAME: _____

LOCATION: _____

CONTACT NAME: _____

CONTACT PHONE #: _____

ADDRESS: _____

Name of Consultant who performed calculations: _____

Consultant's Phone Number: _____

	a	ppm x	b	cyds x .002 =	c	lbs. VOC emissions
Sample 1		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 2		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 3		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 4		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 5		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 6		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 7		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 8		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 9		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 10		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 11		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 12		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 13		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 14		ppm x		cyds x .002 =		lbs. VOC emissions
Sample 15		ppm x		cyds x .002 =		lbs. VOC emissions

TOTAL POTENTIAL EMISSIONS = _____ lbs. VOC emissions

*** NOTE - If more samples are taken than indicated on this form, please attach additional pages as necessary. This form must be completed and submitted with the ADEM UST Closure Site Assessment Report Form.**

APPENDIX D

UST RELEASE REPORT FORM

For ADEM Use Only
UST INCIDENT NO.: _____-____-___
Report Received by: _____

UST RELEASE REPORT

RELEASE REPORT INFORMATION

RELEASE REPORTED BY: _____
PHONE NO.: _____
DATE RELEASE REPORTED: _____

SITE INFORMATION

SITE NAME: _____
SITE STREET ADDRESS: _____
CITY: _____ COUNTY: _____ ZIP: _____

FACILITY I.D. No.: _ _ _ _ _ _ - _ _ _ _ - _ _ _ _ _ _ _

FACILITY OWNER INFORMATION

OWNER/OPERATOR NAME: _____
OWNER/OPERATOR STREET ADDRESS: _____
CITY: _____ COUNTY: _____ ZIP: _____
OWNER/OPERATOR PHONE NO.: _____

DESCRIPTION OF RELEASE

DATE OF DISCOVERY OF RELEASE: _____

SUBSTANCE RELEASED: { } Gasoline { } Diesel { } Waste Oil
{ } Kerosene { } Other _____

ESTIMATED AMOUNT OF SUBSTANCE RELEASED: _____

HOW WAS RELEASE DISCOVERED? { } During closure { } Tank Tightness Test
{ } Line Tightness Test { } Line Leak Detector { } Vapor Monitoring
{ } Vapors Detected { } Environmental Audit { } Citizen Complaint
{ } Groundwater Monitoring { } Inventory Loss/Gain

{ } Statistical Reconciliation { } Other (Please Describe)
{ } Unexplained Loss _____
{ } Inconclusive _____

CAUSE OF RELEASE: { } Overfill { } Spill { } Tank Leak { } Line Leak
{ } Other: _____

TYPE OF PIPING: { } Pressurized { } Suction

ATTACH OTHER COMMENTS AS NECESSARY

REPORTING OF RELEASES REQUIRED WITHIN 24 HOURS OF DISCOVERY

REPORT BY PHONE (2 05) 270-5655 REPORT BY FAX (205) 271-7950 or (205) 270-5612

REPORT BY OVERNIGHT MAIL : ADEM GROUNDWATER BRANCH
1751 CONGRESSMAN DICKINSON DRIVE
MONTGOMERY, ALABAMA 36130

APPDENDIX E

UST RELEASE FACT SHEET

UST RELEASE FACT SHEET

GENERAL INFORMATION:

SITE NAME: _____

ADDRESS: _____

FACILITY I.D. NO.: _ _ _ _ _ _ - _ _ _ _ - _ _ _ _ _ _ _

UST INCIDENT NO.: _ _ _ _ _ _ - _ _ _ - _ _

RESULTS OF EXPOSURE ASSESSMENT:

How many private drinking water wells are located within 1,000 ft. of site?	
How many public water supply wells are located within 1 mile of the site?	
Have any drinking water supply wells been impacted by contamination from this release?	
Is there an imminent threat of contamination to any drinking water wells?	{ } Yes { } No
Have vapors or contaminated groundwater posed a threat to the public?	{ } Yes { } No
Are any underground utilities impacted or imminently threatened by the release?	{ } Yes { } No
Have surface waters been impacted by the release?	{ } Yes { } No
Is there an imminent threat of contamination to surface waters?	{ } Yes { } No
What is the type of surrounding population?	

CONTAMINATION DESCRIPTION:

Type of contamination at site: { } Gasoline, { } Diesel, { } Waste Oil
{ } Kerosene, { } Other _____

Free product present in wells? { } Yes { } No Maximum thickness measured:

Maximum TPH concentrations measured in soil:

Maximum BTEX or PAH concentrations measured in groundwater:

APPENDIX F

UST SITE CLASSIFICATION FORM

ADEM GROUNDWATER BRANCH

UST SITE CLASSIFICATION SYSTEM

CHECKLIST

Please read all of the following statements and mark either yes or no if the statement applies to your site. If you have conducted a Preliminary or Secondary Investigation, all questions should be answered. Closure site assessment reports may not provide you with all the necessary information, but answer the statements with the knowledge obtained during the closure site assessment.

SITE NAME: _____
SITE ADDRESS: _____

FACILITY I.D. NO.: _____
UST INCIDENT NO.: _____

OWNER NAME: _____
OWNER ADDRESS: _____

NAME & ADDRESS OF PERSON COMPLETING THIS FORM: _____

CLASSIFICATION	*DESCRIPTION*	*YES*	*NO*
CLASS A	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
A.1	Vapor concentrations at or approaching explosive levels that could cause health effects, are present in a residence or building.	☐	☐
A.2	Vapor concentrations at or approaching explosive levels are present in subsurface utility system(s), but no buildings or residences are impacted.	☐	☐
CLASS B	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
B.1	An active public water supply well, public water supply line, or public surface water intake is impacted or immediately threatened.	☐	☐
B.2	An active domestic water supply well, domestic water supply line or domestic surface water intake is impacted or immediately threatened.	☐	☐
B.3	The release is located within a designated Wellhead Protection Area I.	☐	☐
CLASS C	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
C.1	Ambient vapor/particulate concentrations exceed concentrations of concern from an acute exposure, or safety viewpoint.	☐	☐
C.2	Free product is present on the groundwater, at ground surface, on surface water bodies, in utilities other than water supply lines, or in surface water runoff.	☐	☐

CLASSIFICATION	*DESCRIPTION*	*YES*	*NO*
CLASS D	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
D.1	There is a potential for explosive levels, or concentrations of vapors that could cause acute effects, to accumulate in a residence or other building.	☐	☐
D.2	A non-potable water supply well is impacted or immediately threatened.	☐	☐
D.3	Shallow contaminated surface soils are open to public access, and dwellings, parks, playgrounds, day care centers, schools or similar use facilities are within 500 feet of those soils.	☐	☐
CLASS E	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
E.1	A sensitive habitat or sensitive resources (sport fish, economically important species, threatened and endangered species, etc.) are impacted and affected.	☐	☐
CLASS F	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
F.1	Groundwater is impacted and a public well is located within 1 mile of the site.	☐	☐
F.2	Groundwater is impacted and a domestic well is located within 1,000 feet of the site.	☐	☐
F.3	Contaminated soils and/or groundwater are located within designated Wellhead Protection Areas (Areas II or III).	☐	☐
CLASS G	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
G.1	Contaminated soils and/or groundwater are located within areas vulnerable to contamination from surface sources.	☐	☐
CLASS H	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
H.1	Impacted surface water, stormwater or groundwater discharges within 500 feet of a surface water body used for human drinking water, whole body water-contact sports, or habitat to a protected or listed endangered plant and animal species.	☐	☐
CLASS I	LONG TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
I.1.	Site has contaminated soils and/or groundwater but does not meet any of the above mentioned criteria.	☐	☐

ADDITIONAL COMMENTS:

Complete the classification evaluation questions listed above. Upon completion, determine the highest rank of the site (A.1 is the highest rank) based on the statements answered with a yes.

Enter the determined classification ranking:	

ADEM GROUNDWATER BRANCH
SITE CLASSIFICATION CHECKLIST
(5/8/95)