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# INSTALLATION RESTORATION PROGRAM

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Final  
**DECISION DOCUMENT**  
**UST SITE 1**

117th Refueling Wing  
Alabama Air National Guard  
Birmingham Airport  
Birmingham, Alabama

January 1997



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INSTALLATION RESTORATION PROGRAM

DECISION DOCUMENT  
SITE UST 1

226TH COMBAT INFORMATION SYSTEMS GROUP  
MARTIN AIR NATIONAL GUARD STATION  
GADSDEN AIRPORT  
GADSDEN, ALABAMA

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Under Contract No. DE-AC05-84OR21400

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## ACRONYMS

AANG	Alabama Air National Guard
ADEM	Alabama Department of Environmental Management
ANG	Air National Guard
ANGS	Air National Guard Station
ANGRC	Air National Guard Readiness Center
DOD	Department of Defense
DOE	Department of Energy
HAZWRAP	Hazardous Waste Remedial Actions Program
IRP	Installation Restoration Program
NFAR	No Further Action Required
NGB	National Guard Bureau
PA/SI	Preliminary Assessment/Site Investigation
ppb	parts per billion
ppm	parts per million
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SI	Site Investigation
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbon
UST	Underground Storage Tank

## EXECUTIVE SUMMARY

As part of the Installation Restoration Program (IRP), the Air National Guard Readiness Center (ANGRC), previously known as the National Guard Bureau (NGB), and the Alabama Air National Guard (AANG) requested field observation and sampling during the removal of Underground Storage Tank (UST) 1. The investigation was initiated to determine the presence or absence of contamination and the risk to public health and environment, if any, associated with past operations at this site.

This document was prepared to review the available data, to evaluate alternative actions, to make recommendations concerning future action, and to fulfill the requirements and objectives of the National Environmental Policy Act.

UST 1 was removed in November 1989. Soils that were stained were removed from the tank pit. The tank was observed to be in good condition. No holes or corrosion that interfered with tank operation were observed.

The results of laboratory analysis of samples collected from the soil adjacent to the tank indicate that the remaining soil contains detectable levels of total petroleum hydrocarbons. However, the compounds are below the Alabama Department of Environmental Management's (ADEM's) corrective action limit of 100 parts per million (ppm).

It is recommended that UST 1 be removed from further IRP consideration and that no further action be required.

## 1. INTRODUCTION

The objectives of the Decision Document are to present the history of Underground Storage Tank (UST) 1 at Martin Air National Guard Station (ANGS), Gadsden, Alabama, to discuss observations made while excavating the tank, to identify and evaluate control measures, and to present conclusions and decisions about the disposition of the UST site. Decisions are based on regulations set forth in the site investigation (SI) work plan dated November 1989.

Figure 1 shows the general location of the Alabama Air National Guard (AANG) facility. Evaluations are based on criteria set forth in Site Investigation Work Plan, Alabama Air National Guard (CH2M HILL, Inc., November 1989).

## 2. BACKGROUND

### 2.1 PROGRAM BACKGROUND

The Air National Guard Readiness Center (ANGRC), through the Air National Guard (ANG), initiated an Installation Restoration Program (IRP) in response to the policies of the Department of Defense (DOD). The IRP was developed as a phased program for identifying and addressing environmental contamination caused by past practices at ANG installations.

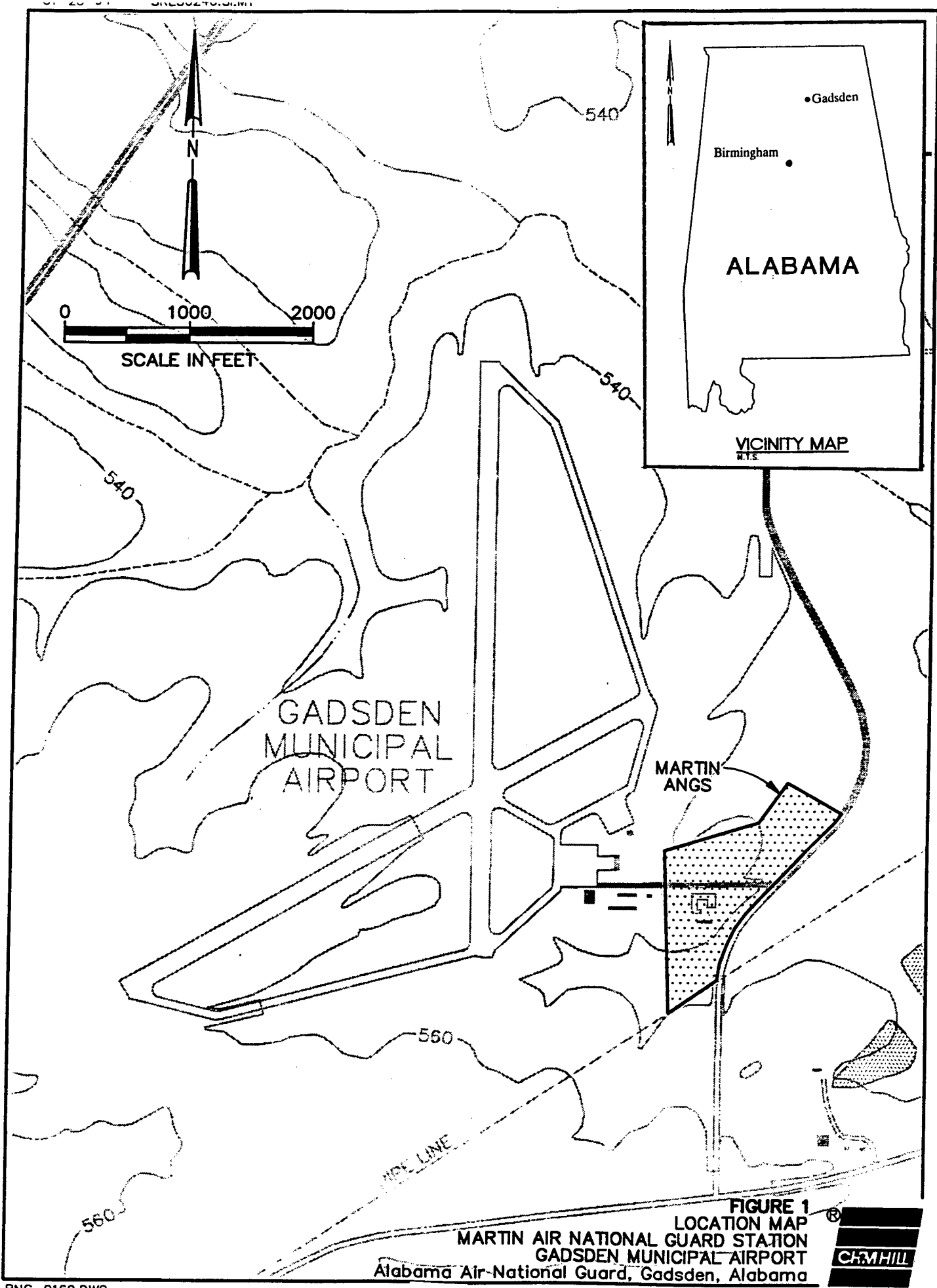
The ANGRC entered into an interagency agreement with the Department of Energy (DOE), under which the DOE will provide technical assistance for implementing the IRP. The Hazardous Waste Remedial Actions Program (HAZWRAP), as a DOE contractor, is responsible for managing this effort under the interagency agreement.

The IRP, along with other national hazardous waste cleanup programs, follows the terminology and procedures of the National Contingency Plan:

- PA/SI Preliminary Assessment/Site Investigation
- RI/FS Remedial Investigation/Feasibility Study
- RD/RA Remedial Design/Remedial Action

This Decision Document is written to provide the basis for the decision not to do any further work.





**FIGURE 1**  
**LOCATION MAP**  
**MARTIN AIR NATIONAL GUARD STATION**  
**GADSDEN MUNICIPAL AIRPORT**  
 Alabama Air-National Guard, Gadsden, Alabama



## 2.2 SITE DESCRIPTION

The 226th Combat Information Systems Group is located next to and east of the Gadsden Airport, Gadsden, Alabama. This ANG installation has been active at its present location since 1938. Through the years, the base has had several missions. Both past and present operations have involved the use of USTs for containment of heating fuels, diesel fuels, and jet propulsion fuels.

UST 1 was a 2,000-gallon fuel storage tank located next to Building 1 in the parking area. Tank age could not be determined from base records, but the estimated last use was in 1976. The tank, suspected to have contained gasoline, was removed. Figure 2 presents the UST 1 site map.

## 2.3 ENVIRONMENTAL SETTING

### 2.3.1 Geology

The bedrock beneath the Base consists of the Ketona Dolomite and Knox Group. A mottled-colored cherty clay residuum, resulting from the dissolution of the bedrock, overlies dolomites of these units and averages 30 feet in thickness over the base. Some areas of the Base have visible outcrops of dolomite and chert boulders which are isolated in the clay residuum; chert float can be seen at the surface base-wide.

The residual cherty clays are generally homogeneous, although slight changes in the amount of chert, plasticity and stiffness are present. Dolomitic sand lenses are gravelly clays are present, generally occurring at the contact of clay and bedrock.

### 2.3.2 Hydrogeology

The uppermost aquifer at the Base is the Knox aquifer. The top of the aquifer is the saturated permeable interface between the residual clay and the bedrock. The clay materials above the bedrock are also generally saturated at shallow depths, 10 to 15 feet below land surface. These clays generally do not yield significant quantities of water.

The direction of groundwater flow in both the clay residuum and the Knox is to the south; a downward vertical component exists in the clay residuum. Data from slug testing of monitoring wells completed in the clay indicate an average hydraulic conductivity of  $9.02E-4$  ft/day. Because of the low permeabilities exhibited by the residual clays, lateral transport is inhibited.

### 2.3.3 Water Utilization

Drinking water in the Birmingham is provided by city/county utilities from surface water sources. The municipal water source nearest the Base is the Cahaba River, located approximately 20 miles to the east. Residences adjacent to the Base have been served by the municipal water system for about 60 years.

## 2.4 TANK REMOVAL OBSERVATIONS

A program to evaluate abandoned USTs at AANG facilities included identifying abandoned tank locations, sampling tank contents, preparing tank removal plans and specifications, removing tanks and contaminated soil, and evaluating investigation-derived wastes after the removal effort was complete.

After the tank was removed in November 1989, soil samples were taken from the bottom one-third of the excavation from each of the four side walls, the pit bottom, and the spoil pile generated during the process. These laboratory soil samples were analyzed for total petroleum hydrocarbon (TPH -EPA Method 9071), total lead (EPA Method 7421), and ignitability (EPA Method 846[1C]).

UST 1 appeared to be in good condition upon removal; no holes or corrosion were found. Soil staining was observed during the excavation and these soils were removed. The soils encountered were red to orange clayey sand overlying a gray clay. Water was encountered at a depth of 4 feet in the tank pit.

Alabama Department of Environmental Management (ADEM) guidance for remediation of soils at UST sites set forth in the work plan was 100 parts per million (ppm) TPH for soil samples.

Total lead concentrations of 5 mg/kg also were considered a remedial action criteria. If total lead concentrations were below 5 mg/kg, then no action would be required. If the total lead concentrations were higher than the 5 mg/kg limit, then a toxicity characteristic leaching procedure (TCLP) lead analysis would be required to determine if the soils must be managed as a hazardous waste.

ADEM criteria led to the following soil disposition criteria:

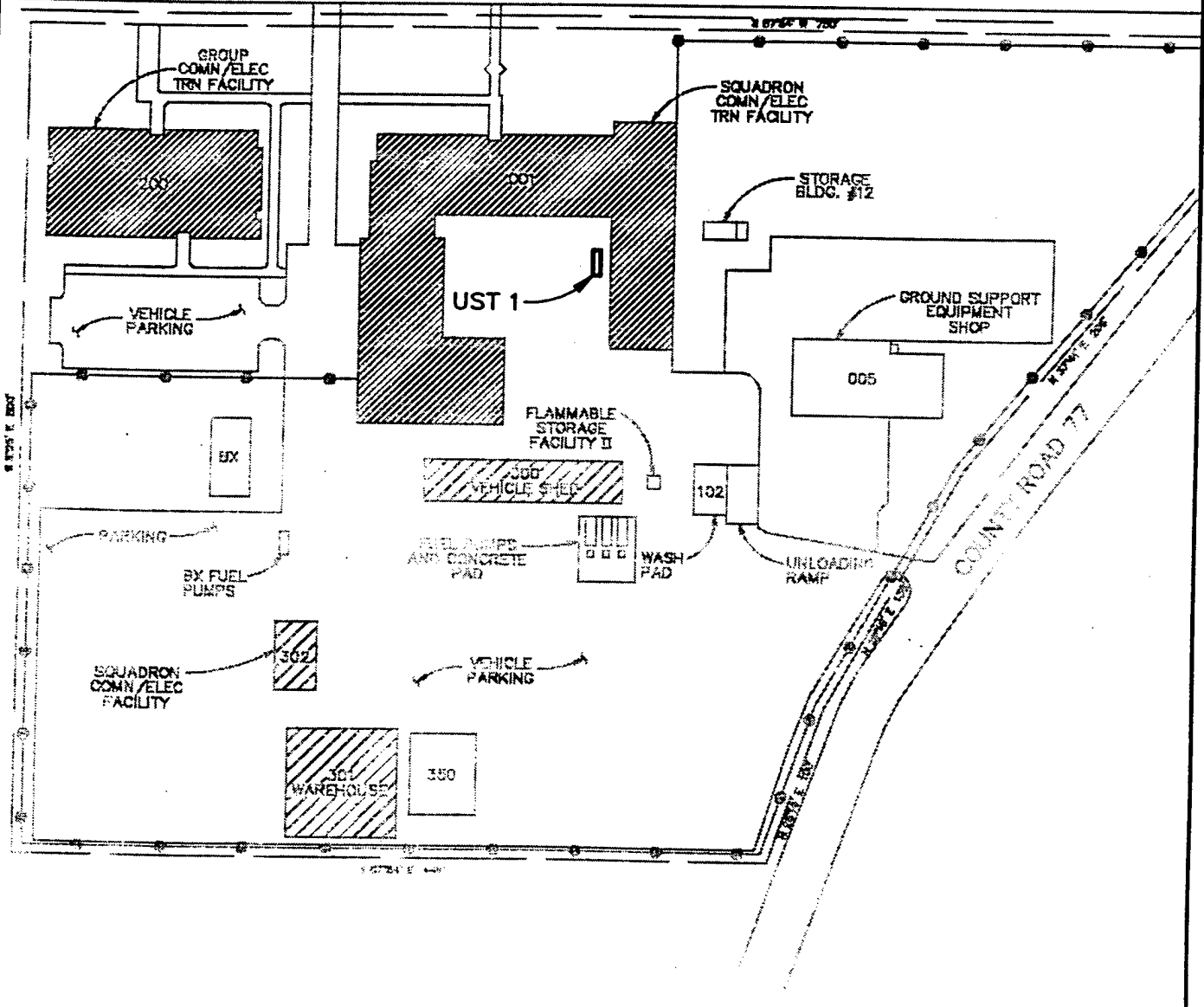
- Visually stained soil was removed to the soil staging area for remediation by aeration.
- Soils containing less than 5 mg/kg lead and less than 100 ppm TPH (analytically) were used as general fill material on the AANG grounds.
- Soils containing more than 100 ppm TPH were aerated onsite in aeration beds until TPH levels were below the 100 ppm TPH limit.



SCALE IN FEET  
(SOURCE: ANG 5/88)

BOUNDARY FENCE  
AROUND ADDED  
PROPERTY

AIRPORT ROAD



**FIGURE 2**  
**UST 1 SITE MAP**  
Martin Air National Guard, Gadsden, Alabama



Laboratory analyses indicate that the soil may contain detectable levels of fuel component organic compounds. Table 2.1 shows the results of the TPH analyses conducted at the laboratory.

In addition to the TPH analyses, the pit bottom sample was analyzed for total lead and found to contain a lead concentration of 17.6 mg/kg. A subsequent analysis for TCLP lead resulted in a value of 100  $\mu\text{g/L}$ . Also, the spoil pile was analyzed for ignitability and was found to be non-ignitable.

None of the soils resulted in TPH concentrations greater than the 100 ppm TPH limit and, therefore, the soils were not remediated. The limit of TPH found in the soil was below the remedial criteria and the TCLP lead levels were below regulatory limits; thus, soils remained onsite to be used as general fill on the AANG property.

The remaining soils at the UST 1 site contained detectable levels of fuel component organic compounds. The compounds detected at the site are approximately 6 to 10 feet below the ground surface and do not present an exposure risk at ground surface unless excavated and exposed.

Soil Sample Location	TPH Concentration (ppm)
UST North Wall	<2.2
UST South Wall	<2.1
UST East Wall	<2.1
UST West Wall	4.9
UST Spoil Pile	40.6
UST Pit Bottom	2.1

### 3. CONTROL MEASURES

Control measures are addressed in this section of the Decision Document to consider the potential for adverse effects that could be caused by contaminants at the UST 1 site.

#### 3.1 SCREENING

Potential control measures used to manage the UST 1 site were screened to develop a technically feasible and reliable solution regarding the status of the former UST 1 site. The following criteria were used to identify and screen potential control measures for the former tank site:

- Known characteristics of the UST 1 site
- ADEM remedial criteria
- Technical feasibility of the control measure to safeguard human health and the environment

#### 3.2 IDENTIFICATION

The following control measures were identified as possible alternatives using the screening criteria to meet the objectives of the IRP:

- Recommend remedial investigation (RI)
- No further action required (NFAR)

#### 3.3 EVALUATION

The soils at UST 1 that were removed contained TPH levels indicative of fuel components that were a direct result of materials contained in UST 1 or by actions involved in the operations of UST 1. The soils remaining in the former UST 1 location indicate that a minor amount of petroleum-contaminated media exists (see Table 2.1). A pit bottom sample had a total lead concentration of 17.6 mg/kg; subsequent TCLP lead analysis resulted in a value of 100  $\mu\text{g/l}$ .

A remedial investigation is not warranted because the data collected do not indicate a level of contamination to support such an investigation.

### 4. CONCLUSIONS

Past operations at the UST 1 site led to this investigation because of possible soil and water contamination. Analytical results from soil samples obtained during this investigation indicate that the soil contains fuel component organic compounds. Soils within the excavation pit were found to have TPH concentrations lower than ADEM's corrective action limit of 100 ppm and total lead concentrations were below regulatory limits.

It is recommended that this UST 1 site be removed from further IRP consideration and that no further action be taken.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**DAVID C. VAN GASBECK**  
Chief, Environmental Division  
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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Alabama Department of Environmental Management**