
INSTALLATION RESTORATION PROGRAM

Final
DECISION DOCUMENT
UST SITE 380

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

January 1997



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INSTALLATION RESTORATION PROGRAM

DECISION DOCUMENT
SITE UST 380

117 AIR REFUELING WING
ALABAMA AIR NATIONAL GUARD
BIRMINGHAM AIRPORT
BIRMINGHAM, ALABAMA

Submitted to:

AIR NATIONAL GUARD READINESS CENTER
ANDREWS AIR FORCE BASE, MARYLAND

Modified and Submitted by:

HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
MARTIN MARIETTA ENERGY SYSTEMS, INC.
OAK RIDGE, TENNESSEE

for the
U.S. DEPARTMENT OF ENERGY
UNDER CONTRACT NO. DE-AC05-84OR21400

Prepared by:

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MONTGOMERY, ALABAMA

JANUARY 1997

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ACRONYMS

AANG	Alabama Air National Guard
ADEM	Alabama Department of Environmental Management
ANG	Air National Guard
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) 380. The investigation was begun 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 380 was removed in January 1991. No soil staining or fuel odor were observed during trenching around the tank for soil sampling. 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 next to the tank indicate that the remaining soil contains detectable levels of total petroleum hydrocarbon (TPH). Potential groundwater receptors are more than 1 mile away from the site.

The Alabama Department of Environmental Management (ADEM) issued a letter in May 1991 stating that it would not require further action at this site. Because ADEM's corrective action limits were met, it is recommended that UST 380 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) 380 at Birmingham's Alabama Air National Guard (AANG) facility, to discuss observations made while excavating the tank, to identify and evaluate control measures, and to present conclusions and decisions about the disposition of each 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 AANG facility. Figure 2 shows the specific location of UST 380 on the base. Evaluations are based on criteria set forth in the Site Investigation Work Plan, Alabama Air National Guard (CH2M HILL, Inc., November 1989).

2. BACKGROUND

2.1 PROGRAM BACKGROUND

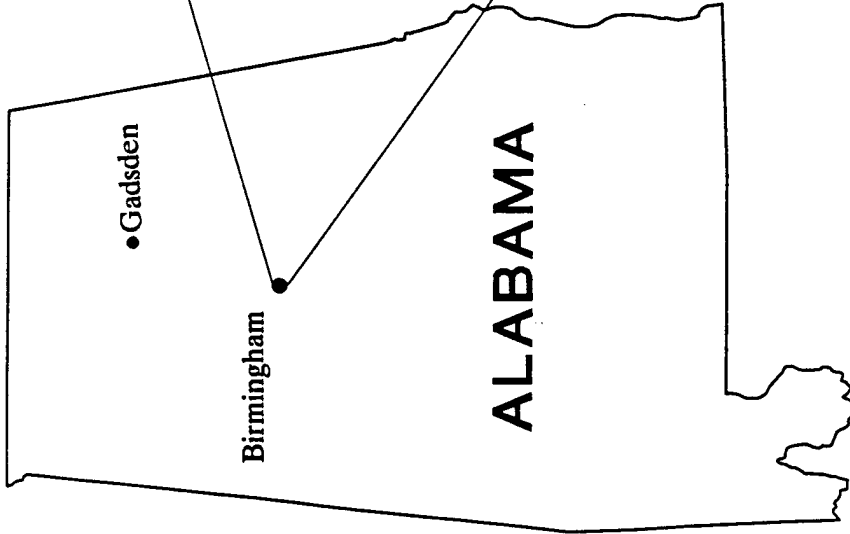
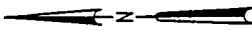
The Air National Guard Readiness Center (ANGRC), through the Air National Guard (ANG), initiated an Installation Restoration Program (IRP) in response to the policies of the Department of Defense (DOD). The IRP was developed as a phased program for identifying and addressing environmental contamination 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. The UST was removed during the SI implemented through the IRP.



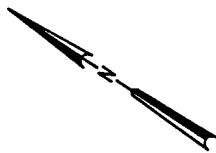
VICINITY MAP
N.T.S.



LOCATION MAP

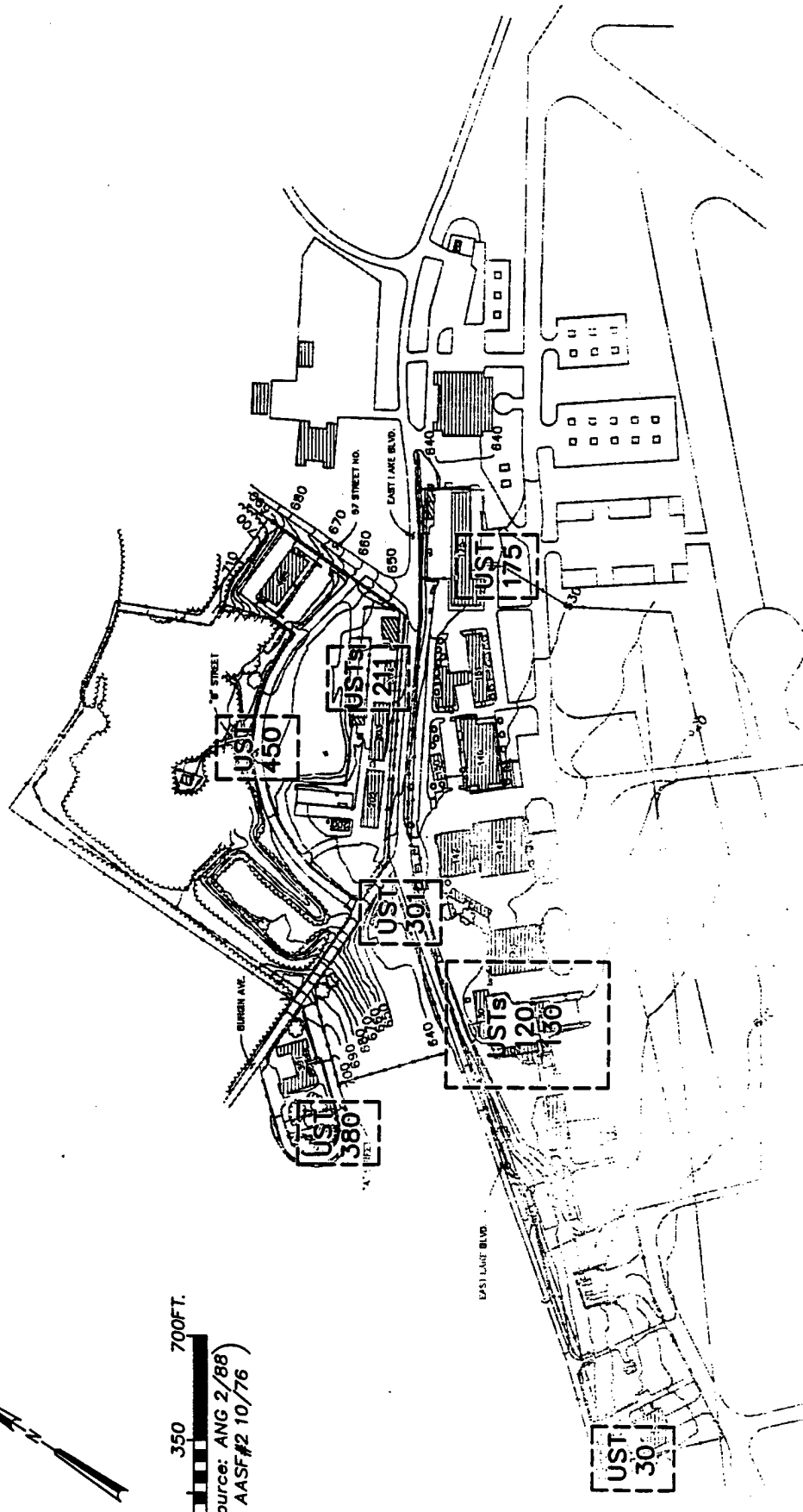


FIGURE 1
ANG LOCATION
Birmingham Air National Guard, Birmingham, Alabama



0 350 700FT.

(Source: ANG 2/88
AASF #2 10/76)



2.2 SITE DESCRIPTION

The 117th Tactical Reconnaissance Wing is located next to and north of the Birmingham Municipal Airport, Birmingham, Alabama. This AANG installation has been active at its present location since 1938. Through the years, the base has had several missions, with past and present operations involving the use of USTs for containment of heating fuels, diesel fuels, and jet propulsion fuels.

UST 380 was a 280-gallon fuel storage tank located on a hill adjacent to the ANG communications tower. Tank age could not be determined from base records, but the estimated last use was in 1980. The tank was suspected to have contained diesel fuel and was removed in January 1991. Figure 3 presents the UST 380 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.

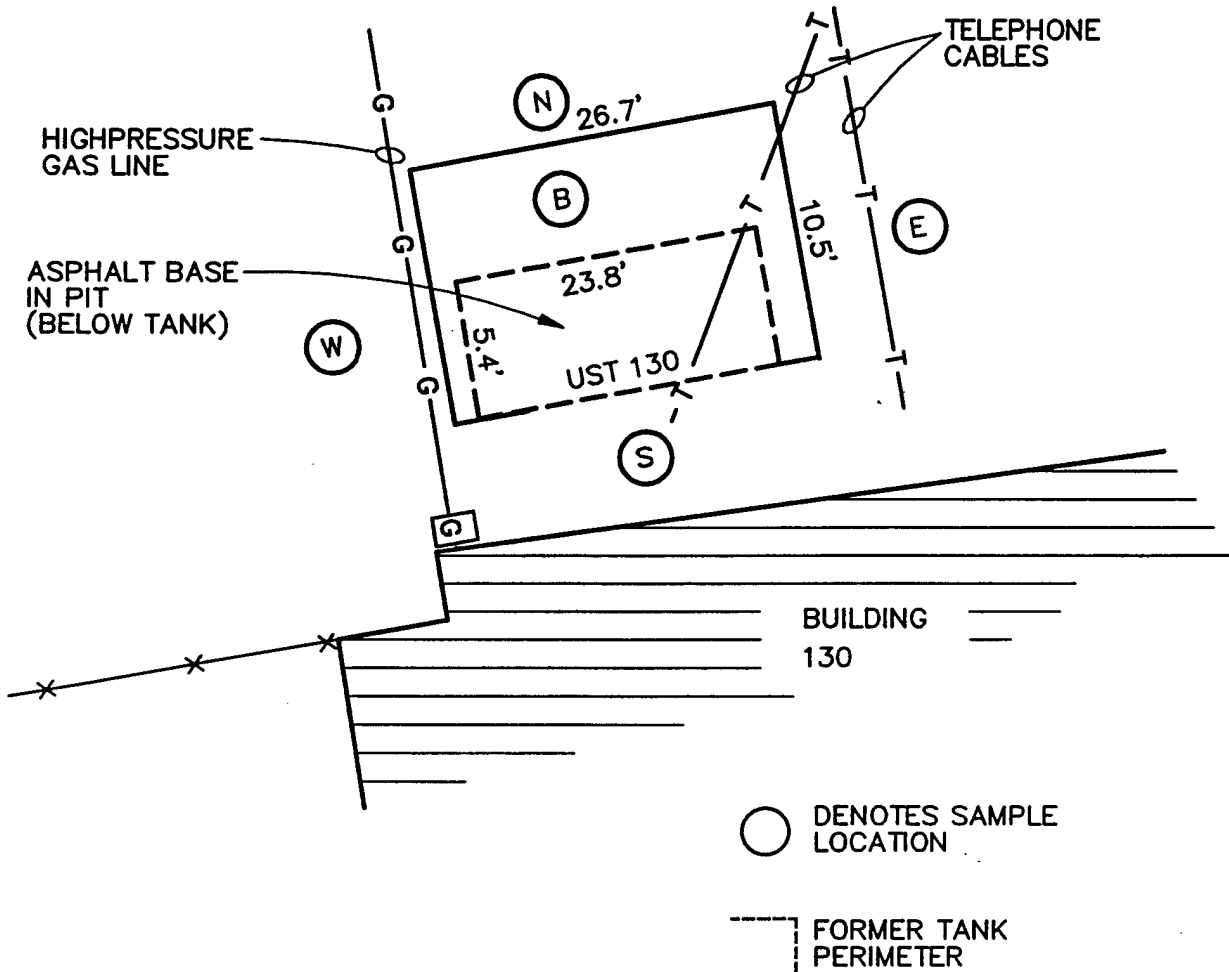
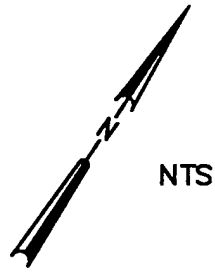
2.4 TANK REMOVAL OBSERVATIONS

A program to evaluate abandoned USTs at the Birmingham AANG facility 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.

The tank was removed in January 1991. Soil samples were taken from the bottom one-third of the excavation at the UST 380 site, from each of the four side walls, the pit bottom, and the spoil pile generated during the process. Field screening tests (headspace readings) were conducted with a photoionization detector, manufactured by HNu Systems, to indicate contamination and estimate the extent of total petroleum hydrocarbon (TPH) present in the soil. Soil samples were placed in glass jars and covered with foil to create a headspace in the top half of the jar. The HNu probe was inserted through the foil cover into the headspace above the soil approximately 5 minutes after sampling to indicate if TPH was present in the soil sample. The headspace readings with the HNu resulted in a reading of zero parts per million (ppm); therefore, no additional excavation was conducted.

Analytical samples were collected from the same locations as the field screening samples within the pit once all excavation was complete. These laboratory soil samples were analyzed for TPH (EPA Method 418.1), total lead (EPA Method 7421), and ignitability (EPA Method 846[1C]).

UST 380 appeared to be in good condition upon removal; no holes or corrosion were found. No soil staining was observed during the excavation and water was not encountered in the tank pit.



HNU HEADSPACE READING	
LOCATION	(ppm)
130-N	4
130-S	28
130-E	3
130-W	4
130-B	44
130-SP	30

Note: Readings based on initial calibration of 100 ppm isobutylene = 55.

FIGURE 2.6
UST 130 SITE MAP
Alabama Air National Guard, Birmingham, Alabama



Field screening tests (headspace readings) for the soils remaining in the excavation did not indicate soil contamination, and the excavation was backfilled. No soil was removed from the excavation for offsite disposal.

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

Total lead concentrations of 5 mg/kg also were considered a remedial action criteria. If total lead concentrations are below 5 mg/kg, then no action is required. If the total lead concentrations are higher than the 5 mg/kg limit, then a toxicity characteristic leachate procedure (TCLP) lead analysis is required to determine if the soils need to 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.

Table 2.1 shows the results of the TPH analyses conducted at the laboratory.

In addition to the TPH analyses, the west wall sample was analyzed for total lead and resulted in a lead concentration of 30.8 mg/kg. A subsequent analysis for TCLP lead of the spoil pile materials resulted in a value of 7 $\mu\text{g/L}$. 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 is below the remedial criteria, and the TCLP lead levels are below regulatory limits. Thus, soils remain onsite to be used as general fill on the AANG property.

Laboratory analyses show that the soils remaining at the UST 380 site contain 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.

Table 2.1. Total Petroleum Hydrocarbons -UST 380 Pit	
Soil Sample Location	TPH Concentration (ppm)
UST North Wall	9.6
UST South Wall	2.7
UST East Wall	<2.0
UST West Wall	4.0
UST Pit Bottom	5.2
UST Spoil Pile	16.8

On the basis of a well and spring inventory conducted during the site investigation, potential groundwater receptors are more than 1 mile from the UST 380 site.

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 remaining at the UST 380 site.

3.1 SCREENING

Potential control measures used to manage the UST 380 site were screened to develop a technically feasible and reliable solution about the status of the former UST 380 site. The following criteria were used to identify and screen potential control measures for the former tank site.

- Known characteristics of the UST 380 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:

- Gather Additional SI Data
- Recommend remedial investigation (RI)
- No further action required (NFAR)

3.3 EVALUATION

The soils removed at UST 380 contained TPH levels showing that fuel components were a direct result of materials contained in UST 380 or by actions involved in the operations of UST 380. The soils that remain in the former UST 380's location indicate that a minor amount of petroleum-contaminated media exists (see Table 2.1).

Additional SI data could be used to determine if contamination of soils outside the immediate pit has occurred. However, the level of petroleum components that remains at the former UST site is less than ADEM's corrective action limits. It is suspected that further SI data would show only that contamination does not exist beyond the immediate soils adjacent to the pit.

A remedial investigation is not warranted because data that have been collected are below action levels set forth by ADEM.

4. CONCLUSIONS

Past operations at the UST 380 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 criteria of 100 ppm. Discussions with ADEM field personnel indicated that additional excavation would not be required. ADEM documentation is included in the Appendix.

Appendix
ADEM Response to Closure Assessment Report

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT



Leigh Pegues, Director

May 8, 1991

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Dear Colonel Copeland:

RE: 117th Recon, East Lake Boulevard, Birmingham, Jefferson County, Alabama
Facility Not Registered
UST380, 211A and 211B

The Department has reviewed the underground storage tank closure assessment for the referenced site. As a result of this review it is determined that no further investigative or corrective actions will be required for this site at this time.

Please use a complete reference line in all future correspondence, including Facility Identification Number, name, address, and Incident Number (UST - -), where applicable. Sites that are not registered will not have an Identification Number and should be labeled (NOT REGISTERED). Because our filing system is dependent on the use of the Facility Identification Number, we may have to return correspondence and reports that do not provide this information.

If there are any questions, please contact me at 205/271-7835.

Sincerely,

Thadous W. Pittman
Environmental Scientist
Groundwater Branch
Water Division

TWP/cmh

Because ADEM's corrective action limits were met and groundwater receptors are more than 1 mile away, it is recommended that the UST 380 site be removed from further IRP consideration and that no further action be required.

Signature: _____ Date: _____
DAVID C. VAN GASBECK
Chief, Environmental Division
Air National Guard Readiness Center

Signature: _____ Date: _____
Alabama Department of Environmental Management