

FINAL



FORS COM

CORRECTIVE ACTION PLAN

Part A



3d Inf Div (Mech)

**Underground Storage Tank 109
Building 1310
Facility Identification Number: 9-025105
Hunter Army Airfield, Georgia**

Prepared for



**U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT**

Contract No. DACA21-95-D-0022
Delivery Order 0019

February 1999

98-190P(PPT-8Fiery)/020399



DOCUMENT 7.1

FINAL

**CORRECTIVE ACTION PLAN - PART A REPORT
FOR
UNDERGROUND STORAGE TANK 109
BUILDING 1310
FACILITY IDENTIFICATION NUMBER: 9-025105
HUNTER ARMY AIRFIELD, GEORGIA**

Prepared for:

**U.S. Army Corps of Engineers - Savannah District
and
Fort Stewart Directorate of Public Works
Under Contract Number DACA21-95-D-0022
Delivery Order 0019**

Prepared by:

**Science Applications International Corporation
800 Oak Ridge Turnpike
Oak Ridge, Tennessee 37831**

February 1999

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List of Abbreviations and Acronyms

ACE	Anderson Columbia Environmental, Inc.
ASTM	American Society for Testing and Materials
ATL	alternate threshold level
BDL	below detection limit
BGS	below ground surface
BLS	below land surface
BTEX	benzene, toluene, ethylbenzene, and xylene
BTL	below threshold level
CAP	Corrective Action Plan
CL	clay
COE	(U.S. Army) Corps of Engineers
CX	Center of Excellence
DOT	U.S. Department of Transportation
DPW	Directorate of Public Works
DQA	data quality assessment
DQCR	Daily Quality Control Report
DQO	data quality objective
DRO	diesel-range organics

EPA	U.S. Environmental Protection Agency
EPD	Environmental Protection Division
FS	Fort Stewart
GA DNR	Georgia Department of Natural Resources
GEL	General Engineering Laboratories
gpm	gallons per minute
GRO	gasoline-range organics
GUST	Georgia Underground Storage Tank
HAAF	Hunter Army Airfield
ID	inside diameter
IDW	investigation-derived waste
IWTP	Industrial Waste Treatment Plant
LCS	laboratory control sample
MCL	maximum contaminant level
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MPR	Monthly Progress Report
MS	matrix spike
N/A	not applicable
NCO	noncommissioned officer
NRC	no regulatory criteria
OVM	organic vapor meter
PAHs	polynuclear aromatic hydrocarbons
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
QA	quality assurance
QA/QC	quality assessment/quality control
QAPjP	Quality Assurance Project Plan
QC	quality control
QCSR	Quality Control Summary Report
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
SAIC	Science Applications International Corporation
SAS	South Atlantic Savannah (Division)
SC	clayey sand
SC-SM	clayey, silty sand
SM	silty sand
SP-SC	poorly graded, clayey sand
SW	sand
TBD	to be determined
TCLP	Toxicity Characteristic Leaching Procedure
TOC	total organic carbon
TPH	total petroleum hydrocarbon
UNK	unknown
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
UST	underground storage tank

USTMP	Underground Storage Tank Management Program
VOC	volatile organic compound

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CORRECTIVE ACTION PLAN PART A

Facility Name: UST 109, Building 1310 Street Address: White Drive, HAAF

Facility ID: 9-025105 City: Savannah County: Chatham Zip Code: 31406

Latitude: 32°01'57"N Longitude: 81°07'05"W

Submitted by UST Owner/Operator:

Name: Thomas C. Fry/Environmental Branch

Company: U.S. Army/HQ 3d, Inf. Div. (Mech)

Address: DPW ERD ENV. Br. (Fry)
1557 Frank Cochran Drive

City: Fort Stewart State: Georgia

Zip Code: 31314-4928

Telephone: (912) 767-1078

Prepared by Consultant/Contractor:

Name: C. Allison Bailey

Company: SAIC

Address: P.O. Box 2502

City: Oak Ridge State: TN

Zip Code: 37831

Telephone: (423) 481-8719

I. PLAN CERTIFICATION:

A. UST Owner/Operator Certification

I hereby certify that the information contained in this plan and in all the attachments is true, accurate, and the plan satisfies all criteria and requirements of rule 391-3-15-09 of the Georgia Rules for Underground Storage Tank Management.

Name: Thomas C. Fry

Signature: Thomas C. Fry Date: 03/01/99

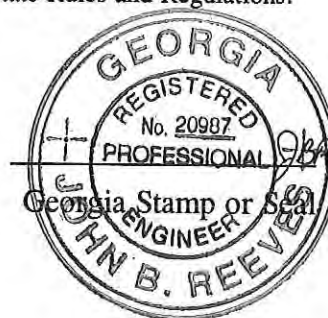
B. Registered Professional Engineer or Professional Geologist Certification

I hereby certify that I have directed and supervised the field work and preparation of this plan, in accordance with State Rules and Regulations. As a registered professional geologist and/or professional engineer, I certify that I am a qualified groundwater professional, as defined by the Georgia State Board of Professional Geologists. All of the information and laboratory data in this plan and in all of the attachments are true, accurate, complete, and in accordance with applicable State Rules and Regulations.

Name: John B. Reeyes, P.E.

Signature: John B. Reeyes

Date: 1-22-99



General: READ THE GUIDANCE DOCUMENT FOR CAP PART-A BEFORE COMPLETING THIS FORM. FAILURE TO READ THE GUIDANCE DOCUMENT WILL MOST LIKELY RESULT IN PREPARATION OF AN UNACCEPTABLE REPORT. All text, figures, and tables requested in their respective sections should be prepared strictly in accordance with the Georgia EPD CAP-A guidance document. Please fill out this form as provided. Do not change the size of the fields or alter the placement of each section on each page.

(Appendix I: All Report Figures)

(Appendix II: All Report Tables)

II. INITIAL RESPONSE REPORT

A. Initial Abatement

Were initial abatement actions initiated?

YES _____ NO X

If Yes, please summarize. If No, please explain why not.

Actions were not required to abate imminent hazards and/or emergency conditions at the underground storage tank (UST) 109, Building 1310 site. Therefore, contaminant migration and release prevention, fire and vapor mitigation, or emergency free product removal were not performed prior to, or during, the removal of UST 109.

B. Free Product Removal

(Table 1: Summary of Free Product Removal – must include Free Product thickness in each well in which it was detected, and volume of product removed)

Free Product Detected?

YES _____ NO X

If Yes, please summarize free product recovery efforts.

Continuing free product recovery proposed?

YES _____ NO X

If yes, please indicate the method and frequency of removal.

C. Tank History

List current and former UST's operated at site based on owner/operator knowledge consistent with EPA 7530-1 Form). Systems must be illustrated on Figure 2 (Site Plan), as described in section D below.

CURRENT UST SYSTEMS (if applicable)

<u>Tank ID Number</u>	<u>Capacity (gal)</u>	<u>Substance Stored</u>	<u>Age (yrs)</u>	<u>Meets 1998 Upgrade Standards (Yes/No)</u>
N/A	N/A	N/A	N/A	N/A

FORMER UST SYSTEMS (if applicable)

<u>Tank ID Number</u>	<u>Capacity (gal)</u>	<u>Substance Stored</u>	<u>Date Removed</u>
109	1,000	used oil	September 11, 1996

D. Initial Site Characterization

(Figure 1: Vicinity/Location Map)

(Figure 2: Site Plan)

1. Regulated Substance Released (gasoline, diesel, used oil, etc.): used oil.
Discuss how this determination was made and circumstances of discovery.

Characterization of petroleum-related contamination at the site was initiated during UST system closure activities on September 11, 1996, by Anderson Columbia Environmental, Inc. (ACE). After removal of the UST 109, the ancillary piping was purged and closed in place by filling with grout. One soil sample (8102-TK109-S1) was collected from the bottom of the tank pit (Figure 7). The soil sample collected during tank closure activities did not contain contaminant concentrations that exceeded Georgia Environmental Protection Division (GA EPD) applicable soil threshold levels (i.e., Table A, column 2). However, elevated total petroleum hydrocarbon (TPH) concentrations were detected in the soil (Table 5a).

2. Source(s) of Contamination: Unknown; piping leakage or tank overflow suspected.
Discuss how this determination was made.

Although ACE (1996) presented a diagram showing the approximate location of the former UST and associated ancillary piping, a detailed schematic diagram is not available. During tank removal activities by ACE, holes in the tank were not reported. Therefore, the major source of contamination at the UST 109, Building 1310 site is believed to have been piping leakage or tank overflow.

3. Local Water Resources

(Figure 3: Quadrangle Map - Public and Private drinking water and surface water)

(Appendix III: Water resources survey documentation, including, but not limited to: USGS database search, interview forms, and documentation of field survey)

- a. Site located in high/average X OR low _____ groundwater pollution susceptibility area?
- b. Water Supplies within applicable radii? YES X NO _____
If yes,
i. Nearest public water supply located within: 2,300 feet
ii. Nearest down-gradient public water supply located within: 5,500 feet
iii. Nearest non-public water supply located within: 11,700 feet
iv. Nearest down-gradient non-public water supply located within: >11,700 feet
- c. Surface Water Bodies and sewers:
i. Nearest surface water located within: 750 feet
ii. Nearest down-gradient surface water located within: 750 feet
iii. Nearest storm or sanitary sewer located within: 6 feet
iv. Depth to bottom of sewer at a point nearest the plume: 6.7 feet

4. Impacted Environmental Media

a. Soil Impacted

(Table 2: Soil Analysis Results)

(Figure 4: Soil Quality Map)

(Appendix IV: Soil Boring Logs)

(Appendix V: Soil Laboratory Reports)

(Appendix VI: ATL Calculations, if applicable)

Provide a brief discussion of soil sampling.

Continuous direct-push soil cores were collected at 2.0-foot intervals during the installation of five boreholes (H-1 through H-4 and H-7). Field headspace gas analyses were performed on each sample to determine organic vapor concentration. Two soil samples were collected from boreholes H-2, H-3, H-4, and H-7 for chemical analysis. However, one soil sample was collected from H-1 because of low core recovery (55 percent) prior to penetration of the saturated zone. All soil samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX); total petroleum hydrocarbon (TPH) gasoline-range organics/diesel-range organics (GROs/DROs); and polynuclear aromatic hydrocarbons (PAHs). In addition, an undisturbed (Shelby tube) soil sample was collected for geotechnical parameters (H-6) to determine vadose zone and aquifer characteristics. The results are presented in Appendix VI, Table VI-A. Refer to Attachment A for complete documentation of the technical approach implemented during this investigation.

i. *Soil contamination above applicable threshold levels?*

YES _____ NO X

If yes, indicate highest concentrations in soil along with locations and depths detected.

ii. *ATLs calculated?*

YES _____ NO X

If yes, present ATLs.

iii. *If ATL's calculated, is soil contamination above ATL's?*

YES _____ NO _____ N/A X

b. *Groundwater Impacted*

(Table 3: Groundwater Analysis Results)

(Figure 5: Groundwater Quality Map)

(Appendix VII: Monitoring Well Details)

(Appendix VIII: Groundwater Laboratory Results)

Provide a brief discussion of groundwater sampling.

At each borehole location (H-1 through H-4, H-7), one groundwater sample was collected from a depth interval of approximately 1.0 to 5.0 feet below the water table using a direct-push sampling device. At the vertical profile location (H-5), discrete groundwater samples were collected every 10 feet below the water table down to approximately 50 feet below ground surface (BGS) [the estimated depth of the Hawthorn confining unit]. Although the Hawthorn unit was not encountered at 50 feet BGS, the vertical profile was terminated at this depth because of the difficulty experienced during the extraction of groundwater samples. Chemical parameters for groundwater samples submitted for laboratory analysis included BTEX and PAHs. Refer to Attachment A for complete documentation of the technical approach used to collect groundwater samples.

i. *Groundwater contamination above MCLs?* YES _____ NO X

ii. *Groundwater contamination above In-Stream Water Quality Standards?*

YES _____ NO X

If yes, indicate highest concentrations in groundwater along with the locations.

c. *Surface Water Impacted?* YES _____ NO X
If Yes, indicate concentration(s) of surface water sample(s) taken from the surface water body/bodies impacted.

d. *Point of Withdrawal Impacted?* YES _____ NO _____ N/A X
If Yes, indicate concentration(s) of water sample(s) taken from withdrawal point(s).

5. Other Geologic/Hydrogeologic Data

- a. *Depth to Groundwater:* 2.47 to 2.56 feet BGS (Table 4: Groundwater Elevations)
- b. *Groundwater Flow Direction:* southeast (Figure 6: Potentiometric Surface Map)
- c. *Hydraulic Gradient:* 0.017 feet/feet
- d. *Geophysical Province:* Coastal Plain
- e. *Unique geologic/hydrogeological conditions:* None

6. Corrective Action Completed or In-Progress (if applicable)

(Table 5: UST System Closure Sampling)

(Figure 7: UST System Closure Sampling)

(Appendix IX: Contaminated Soil Disposal Manifests)

- a. *Underground Storage Tank (UST) System Closure:* N/A _____
If applicable, summarize UST system closure activities conducted.

ACE removed UST 109 on September 11, 1996. The UST piping was drained into the tank, and all remaining contents were subsequently removed using a vacuum truck and/or compressor-driven barrel vacuum device. The piping was then closed in place by filling with grout. A backhoe was used to excavate down to the tank top. After the tank atmosphere was tested with a combustible gas indicator, all accessible tank openings were capped and the tank was lifted from the excavation pit.

b. Excavation and Treatment/Disposal of Backfill Materials and Native Soils

Check one: *No UST removal performed* _____
Returned to UST excavation _____
Excavated soils treated or disposed off site X

If soils were excavated, summarize excavation and treatment/disposal activities:

Approximately 30.07 tons of soil were removed from the Building 1310 site and stockpiled at the ACE temporary soil containment area located at Hunter Army Airfield (HAAF) where it was tested in accordance with the disposal facility requirements. The soil was transported to Kedesh, Inc., Highway 84, Ludowici, GA 31316. The Installation has records of all manifests and weight tickets for the total project. However, site-specific information is not available.

7. Site Ranking:

Environmental Site Sensitivity Score: 0
(Appendix X: Site Ranking Form)

8. Conclusions and Recommendations

Complete applicable section below, one section only

a. No Further Action Required (if applicable) N/A _____
(provide justification)

The groundwater and soil analytical data collected during the Corrective Action Plan (CAP)-Part A investigation are sufficient to define the nature and extent of petroleum-related contamination at the site. The results of the investigation indicate that site conditions do not exceed groundwater maximum contaminant levels (MCLs) or the applicable soil threshold levels (see Tables 2 and 3). Therefore, further investigation of the UST 109, Building 1310 Site is not required.

b. Monitoring Only (if applicable) N/A X
(provide justification)

c. CAP-B (if applicable) N/A X
(provide justification)

III. MONITORING ONLY PLAN (if applicable): N/A X

A. Monitoring points

B. Period/Frequency of monitoring and reporting

C. Monitoring Parameters

D. Milestone Schedule

E. Scenarios for site closure or CAP-Part B

IV. SITE INVESTIGATION PLAN (if applicable): N/A X
(Figure 8: Proposed additional boring/monitoring well location)

A. Proposed Investigation of Horizontal and Vertical Extent of Contamination In:

1. Soil N/A X

2. Groundwater

a. Free Product

N/A X

b. Dissolved phase

NA X

3. Surface Water

N/A X

B. Proposed Investigation of Vadose Zone And Aquifer Characteristics:

V. PUBLIC NOTICE

(Figure 9. Tax Map)

(Appendix XI: Copies of public notification letters & certified return receipts or newspaper notice if approved)

UST 109, Building 1310, Facility ID: 9-025105, is located within the confines of HAAF, which is part of the Fort Stewart Military Reservation, a federally owned facility. All of the property contiguous to the site is owned by the U.S. Government. The Fort Stewart Directorate of Public Works has complied with the public notice requirements defined by Georgia Department of Natural Resources (GA DNR) guidance by publishing an announcement in the local newspaper over a period of 2 weeks. Publication of this announcement has been completed simultaneously with the submittal of this CAP-Part A report for review by the GA DNR EPD Underground Storage Tank Management Program (USTMP). A copy of the newspaper announcement used for public notification is presented in Appendix XI.

VI. CLAIM FOR REIMBURSEMENT (for GUST Trust Fund sites only): N/A X
(Appendix XII: GUST Trust Fund Reimbursement Application and Claim for reimbursement)

The HAAF is a federally owned facility and has funded the investigation for the UST 109, Building 1310 site, Facility ID: 9-025105, using Environmental Restoration Account funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

APPENDIX I

REPORT FIGURES

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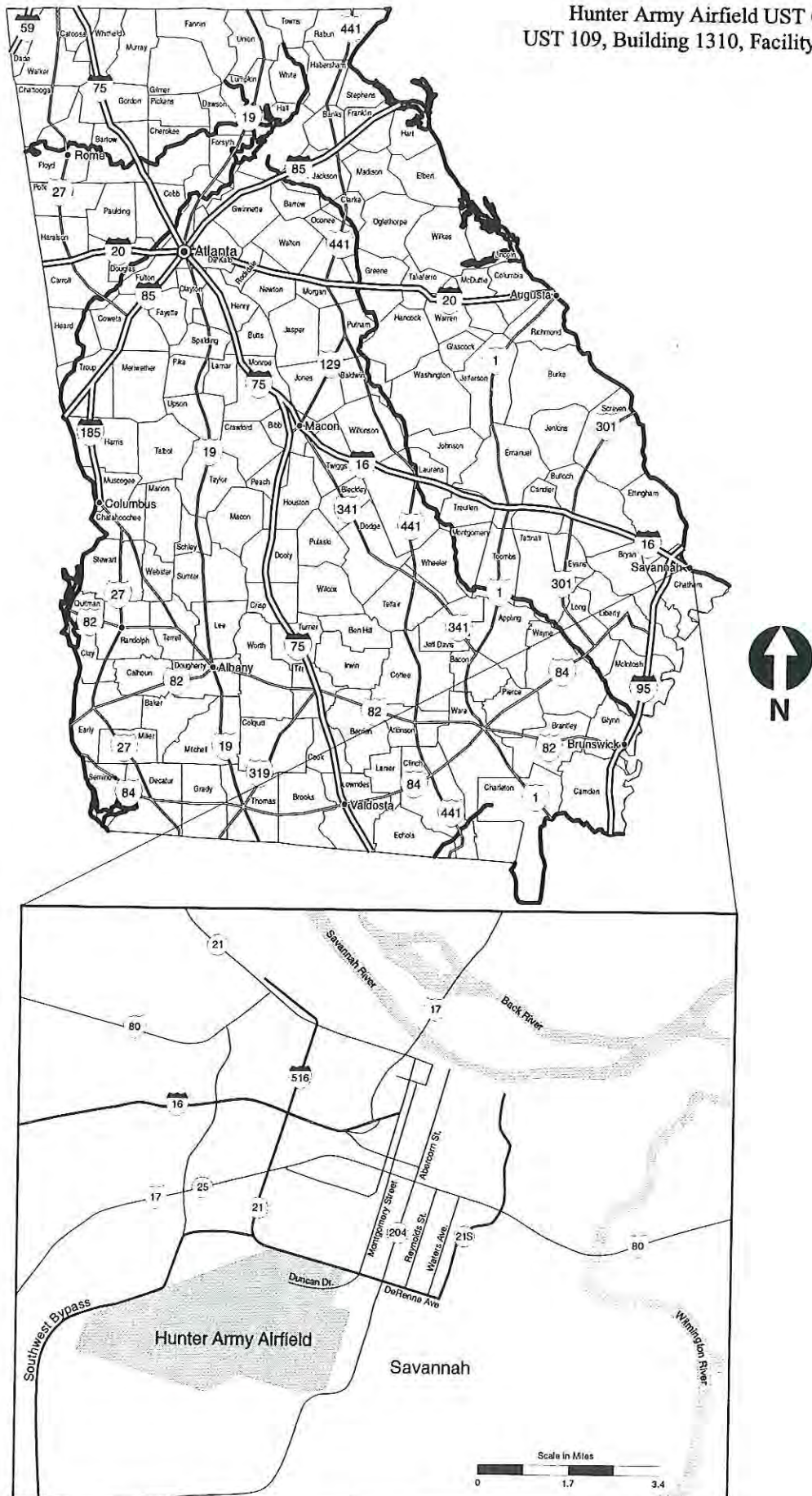


Figure 1. Location Map of Hunter Army Airfield, Chatham County, Georgia

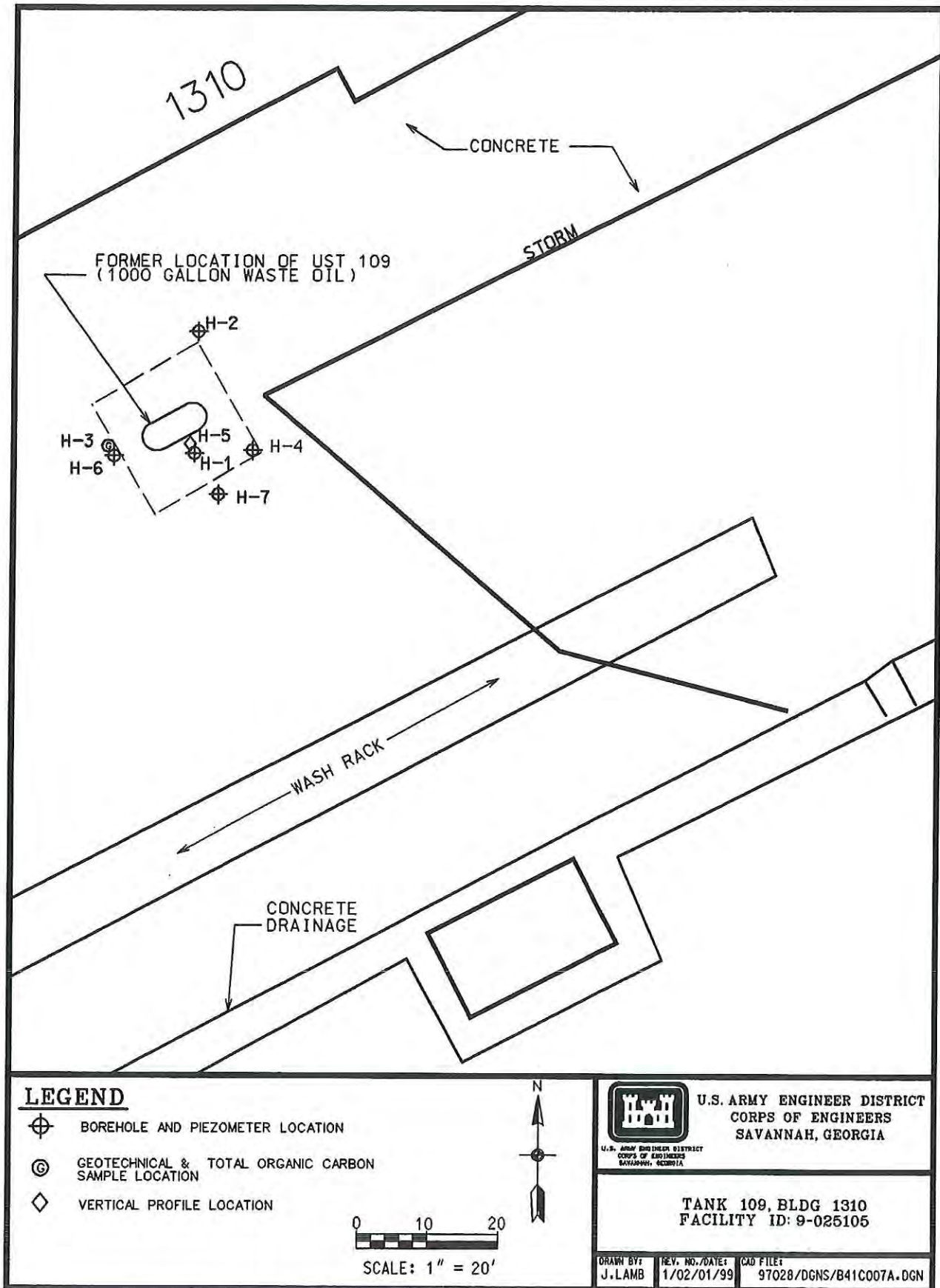
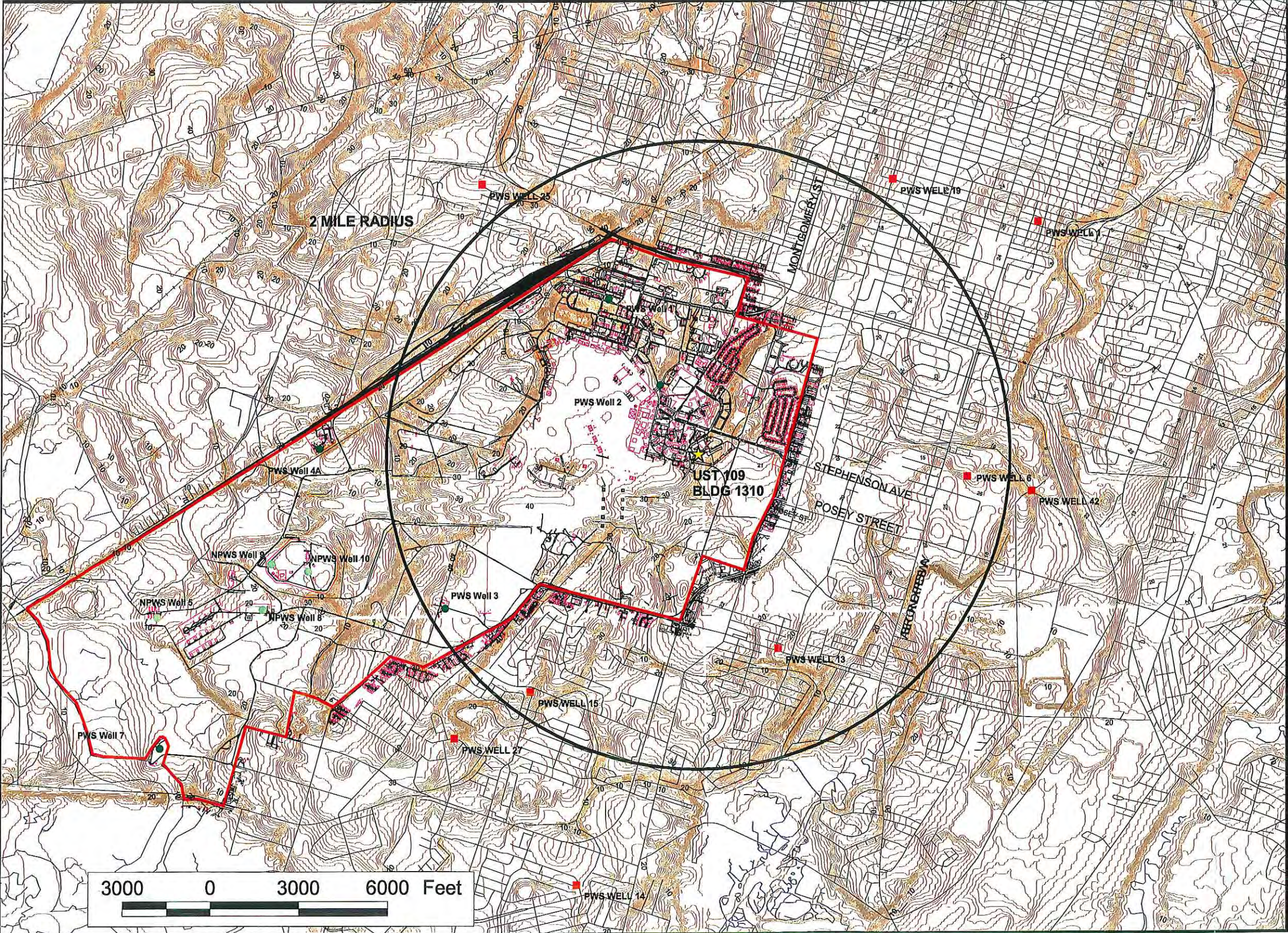


Figure 2. Site Plan for the UST 109, Building 1310 Site Investigation



- Legend:**
- Hunter Army Airfield Boundary
 - Surface Water (streams/rivers/drains)
 - Railroad
 - Roads (primary)
 - Buildings and Planimetric Features
 - Ground Contour (1 FT Intervals)
 - HAAF Non-Public Water Supply Well
 - HAAF Public Water Supply Well
 - City of Savannah Public Water Supply Well

NOTE:
Contours were created from Digital Elevation Models translated from <http://mapping.usgs.gov/>, which were obtained from the following U.S.G.S. 7.5 minute Topographic Quad sheets: Burroughs, Isle of Hope, Savannah, and Garden City. Roads, surface water, and railroad were translated from <http://www.gis.state.ga.us/>. Hunter Army Airfield BaseMap received as Microstation files from Fort Stewart.



SAIC
Science Applications
International Corporation

UST 109, BLDG 1310
FACILITY ID: 9-025105

REVISION	DRAWN BY:	CHKD BY:	DATE:
0	M.Norris	A. Bailey	10/27/98

FILE REFERENCES	
051rds_polyline	burroughsctrf
051hyd_polyline	isleofhopectrf
051rr	savannahctrf
hunterarea	gardencityctrf
	trveh.dgn
	bggen.dgn

SHT 1 of 1
DRAWING #

GA\HunterAFB\HunterBase\ust109.APR
ARCVIEW PROJECT NAME

Figure 3a. Topographic Quadrangle Map of Hunter Army Airfield and Surrounding Area

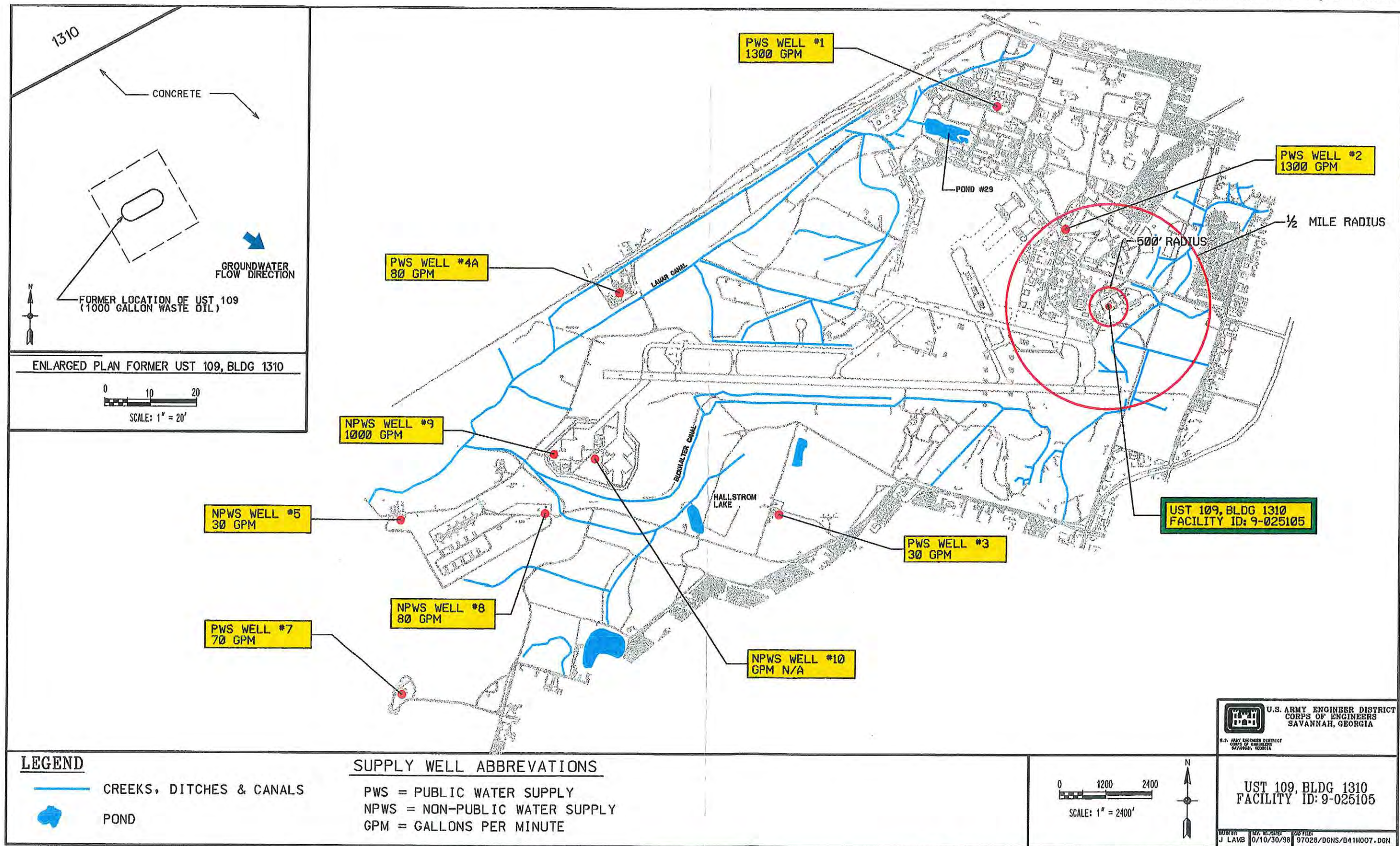


Figure 3b. Detailed Map Showing Public and Private Drinking Water Sources and Surface Water Bodies at Hunter Army Airfield

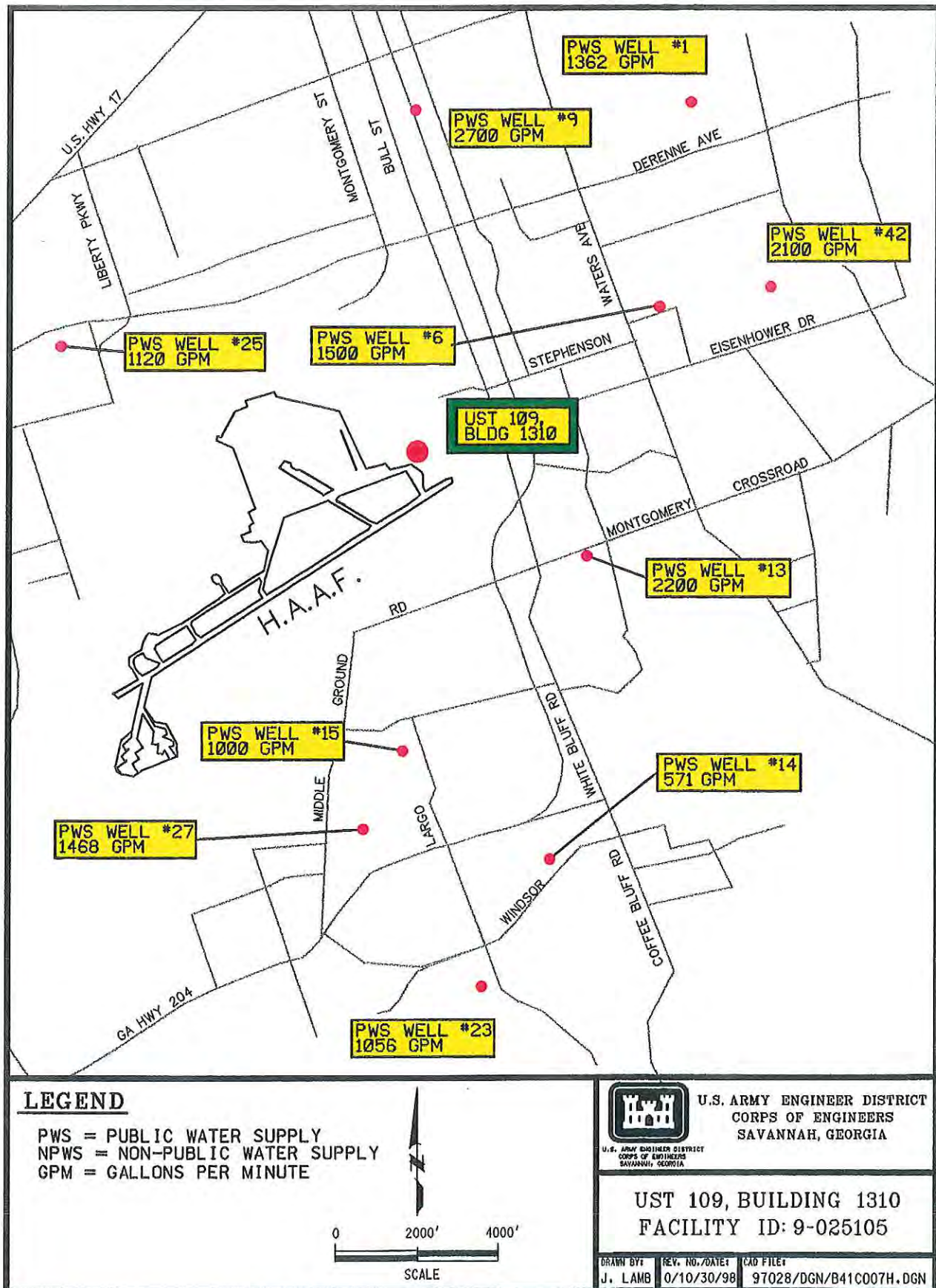


Figure 3c. Detailed Map Showing Public and Private Drinking Water Sources
in Areas Adjacent to Hunter Army Airfield

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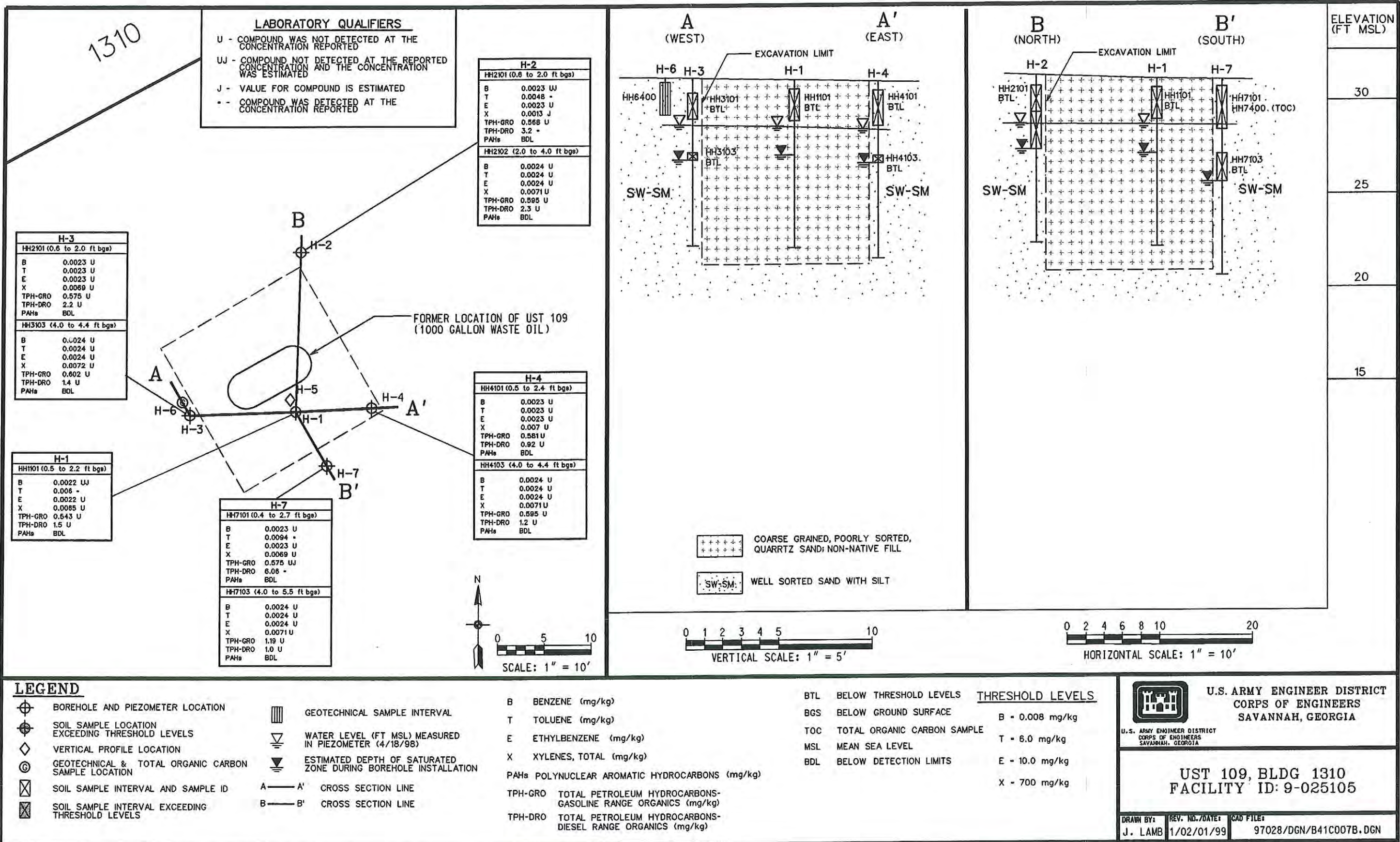


Figure 4. Soil Quality Map of the UST 109, Building 1310 Site

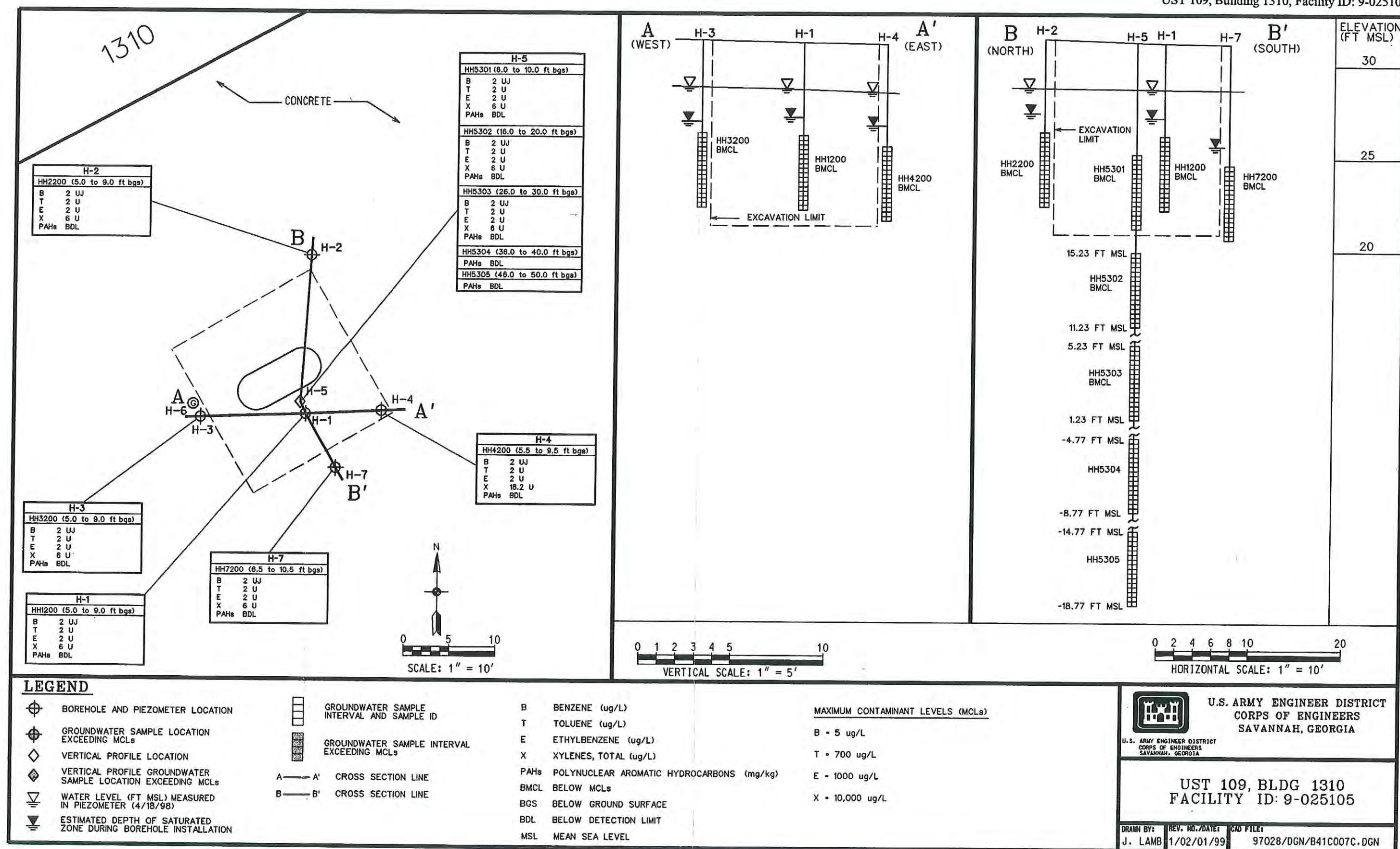


Figure 5. Groundwater Quality Map of the UST 109, Building 1310 Site

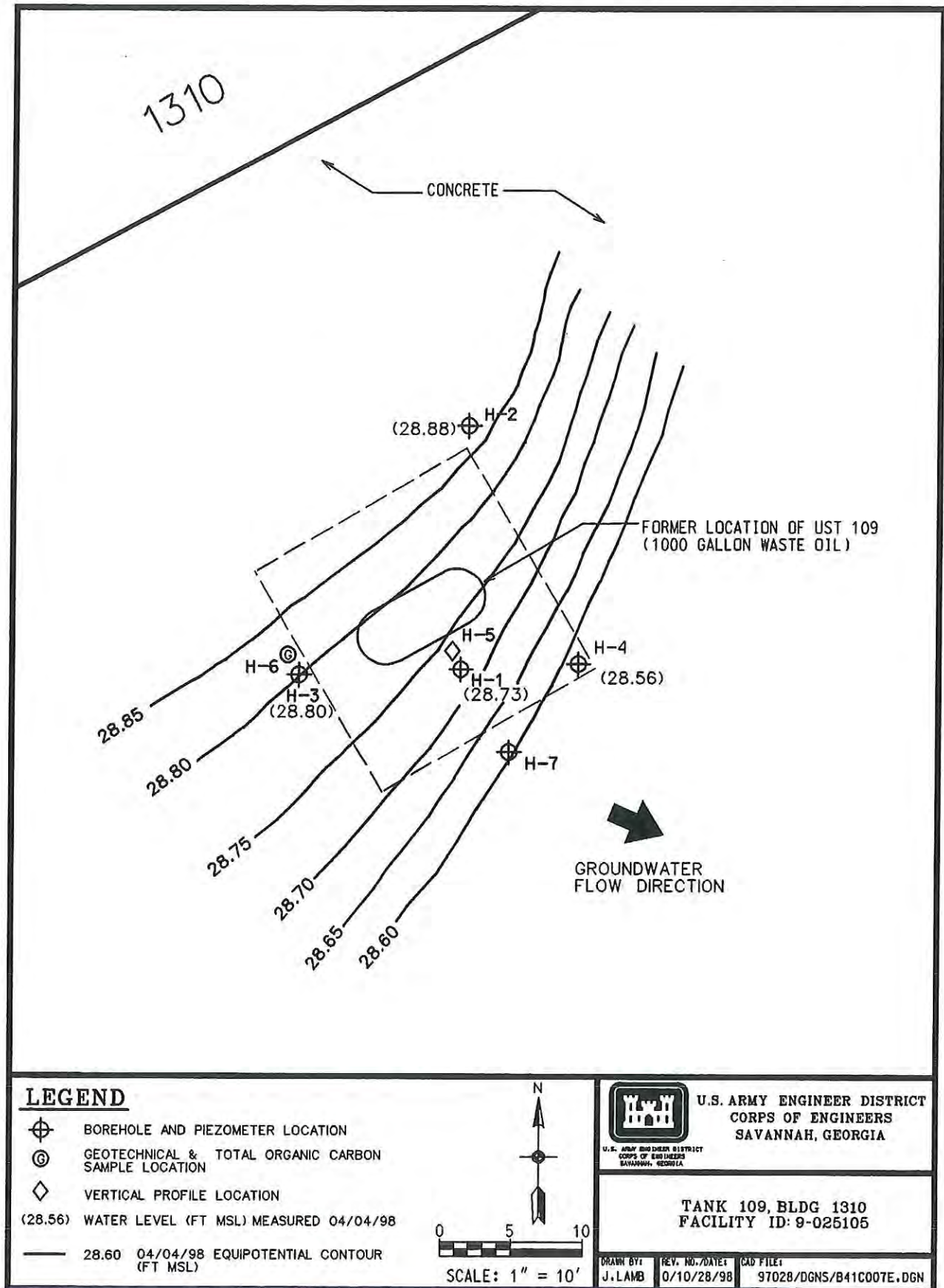


Figure 6. Potentiometric Surface Map of the UST 109, Building 1310 Site

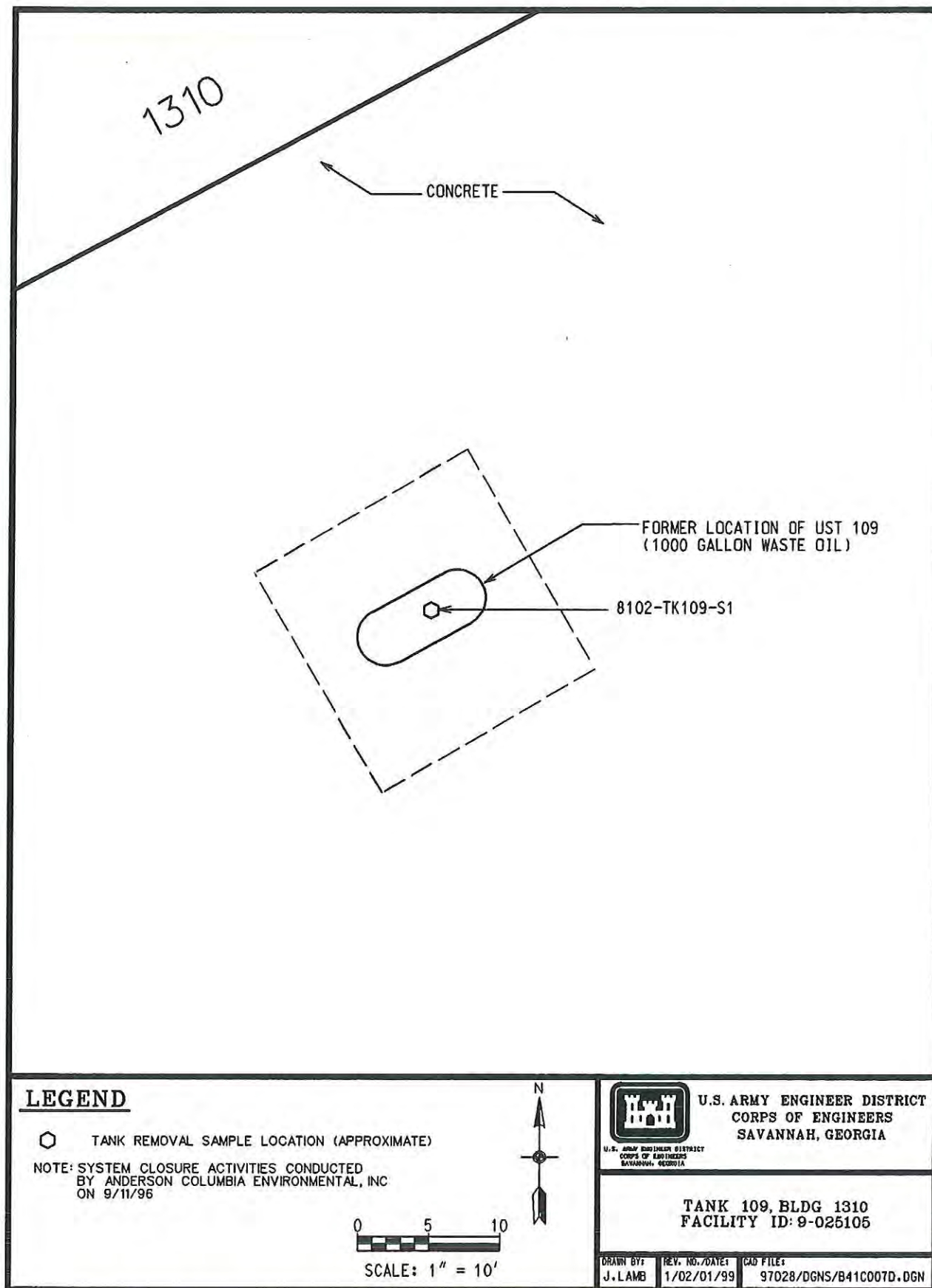


Figure 7. UST System Closure Sampling Locations at the UST 109, Building 1310 Site

**NOT APPLICABLE FOR THE UST 109, BUILDING 1310,
FACILITY ID: 9-025105 SITE INVESTIGATION**

Figure 8. Proposed Additional Boring/Monitoring Well Locations

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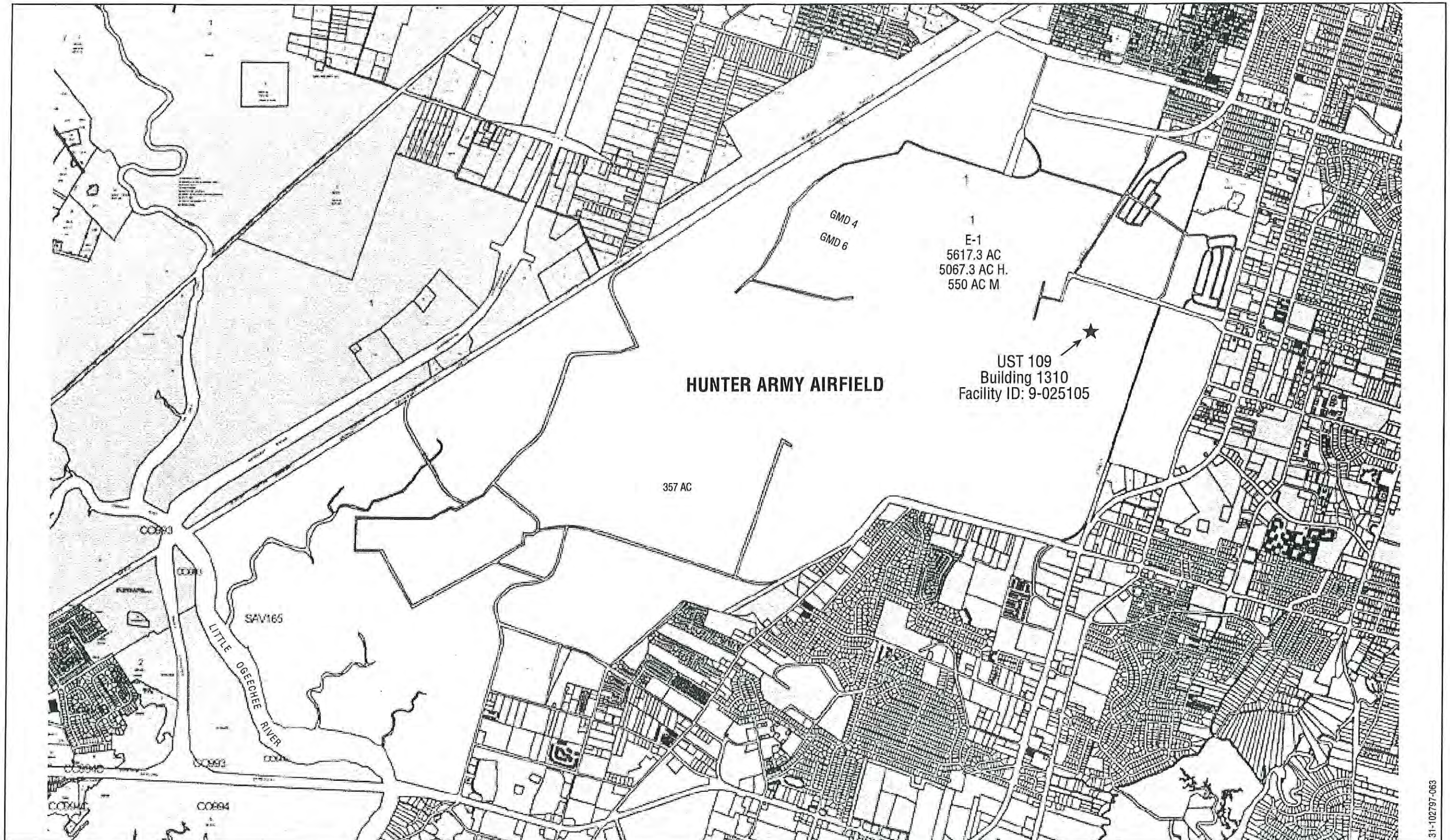


Figure 9. Tax Map of Hunter Army Airfield and Vicinity, Chatham County, Georgia



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APPENDIX II

REPORT TABLES

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UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 1: FREE PRODUCT REMOVAL

Monitoring Well Number: N/A				
Date of Measurement	Groundwater Elev. (ft MSL)	Product Thickness ¹ (ft)	Corrected Water Elev. (ft MSL)	Product Removed (gal)
TOTAL				NONE ¹

Monitoring Well Number: N/A				
Date of Measurement	Groundwater Elev. (ft MSL)	Product Thickness ¹ (ft)	Corrected Water Elev. (ft MSL)	Product Removed (gal)
TOTAL				NONE ¹

NOTE: ¹Free product was not found.
MSL - mean sea level.

TABLE 2a: SOIL ANALYTICAL RESULTS³
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX ² (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)
H-1	HH1101	0.5 to 2.2	04/02/98	0.0022 UJ	0.006 =	0.0022 U	0.0065 U	0.006	1.5 U	0.543 U
H-2	HH2101	0.6 to 2.0	04/03/98	0.0023 UJ	0.0048 =	0.0023 U	0.0013 J	0.0061	3.2 =	0.568 U
H-2	HH2110 ⁴	0.6 to 2.0	04/03/98	0.0023 U	0.0023 U	0.0023 U	0.0068 U	BDL	1.2 U	0.568 U
H-2	HH2102	2.0 to 4.0	04/03/98	0.0024 U	0.0024 U	0.0024 U	0.0071 U	BDL	2.3 U	0.595 U
H-3	HH3101	0.8 to 2.2	04/03/98	0.0023 U	0.0023 U	0.0023 U	0.0069 U	BDL	2.2 U	0.575 U
H-3	HH3103	4.0 to 4.4	04/03/98	0.0024 U	0.0024 U	0.0024 U	0.0072 U	BDL	1.4 U	0.602 U
H-4	HH4101	0.5 to 2.4	04/03/98	0.0023 U	0.0023 U	0.0023 U	0.007 U	BDL	0.92 U	0.581 U
H-4	HH4103	4.0 to 4.4	04/03/98	0.0024 U	0.0024 U	0.0024 U	0.0071 U	BDL	1.2 U	0.595 U
H-7	HH7101	0.4 to 2.7	04/22/98	0.0023 U	0.0023 U	0.0023 U	0.007 U	BDL	0.64 U	1.16 U
H-7	HH7103	4.0 to 5.5	04/22/98	0.0024 U	0.0024 U	0.0024 U	0.0071 U	BDL	1.0 U	1.19 U
Applicable Standards ¹				0.008	6.000	10	700	NRC	NRC	NRC

NOTE:

¹ Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (i.e., Table A, column 2).

² The total value reported represents the sum of all detected compounds. A total is not reported if all the compounds are below the laboratory detection limits.

³ All field work and analytical sampling were performed prior to the release of the new GA DNR Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.

⁴ Duplicate sample for sample collected from location H-2 at a depth of 0.6 to 2.0 feet BGS.

BDL - Below detection limit

BGS - Below ground surface.

BTEX - Benzene, toluene, ethylbenzene, and xylene.

NRC - No regulatory criteria.

TPH-DRO - Total petroleum hydrocarbon-diesel-range organics.

TPH-GRO - Total petroleum hydrocarbon-gasoline-range organics.

Laboratory Qualifiers

U - Indicates the compound was not detected at the concentration reported.

J - Indicates the value for the compound is an estimated value.

UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.

= - Indicates the compound was detected at the concentration reported.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 2b: SOIL ANALYTICAL RESULTS³
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)			Total PAHs (mg/kg)
				BDL ²	BDL ²	BDL ²	
H-1	HH1101	0.5 to 2.2	04/02/98				BDL ²
H-2	HH2101	0.6 to 2.0	04/03/98				
H-2	HH2110 ⁴	0.6 to 2.0	04/03/98				
H-2	HH2102	2.0 to 4.0	04/03/98				
H-3	HH3101	0.8 to 2.2	04/03/98				
H-3	HH3103	4.0 to 4.4	04/03/98				
H-4	HH4101	0.5 to 2.4	04/03/98				
H-4	HH4103	4.0 to 4.4	04/03/98				
H-7	HH7101	0.4 to 2.7	04/22/98				
H-7	HH7103	4.0 to 5.5	04/22/98				
Applicable Standards ¹							NRC

NOTE:

¹ Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (i.e., Table A, column 2).

² BDL - Below detection limit; PAH compounds were not detected above the laboratory detection limit. Refer to Appendix V, Table V-A, for a complete list of PAH results.

³ All field work and analytical sampling were performed prior to the release of the new GA DNR Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.

⁴ Duplicate sample for sample collected from location H-2 at a depth of 0.6 to 2.0 feet BGS.

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

Laboratory Qualifiers

U - Indicates the compound was not detected at the concentration reported.

J - Indicates the value for the compound is an estimated value.

UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.

= - Indicates the compound was detected at the concentration reported.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 3a: GROUNDWATER ANALYTICAL RESULTS⁴
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total BTEX ³ (µg/L)
H-1	HH1200	9.0 to 13	04/02/98	2 UJ	2 U	2 U	6 U	BDL ²
H-2	HH2200	5.0 to 9.0	04/03/98	2 UJ	2 U	2 U	6 U	BDL
H-3	HH3200	5.0 to 9.0	04/03/98	2 U	2 U	2 U	6 U	BDL
H-3	HH3210 ⁵	5.0 to 9.0	04/03/98	2 U	2 U	2 U	6 U	BDL
H-4	HH4200	5.5 to 9.5	04/03/98	2 U	2 U	2 U	18.2 J	18.2
H-5	HH5301	6.0 to 10.0	04/04/98	2 U	2 U	2 U	6 U	BDL
H-5	HH5302	16.0 to 20.0	04/04/98	2 U	2 U	2 U	6 U	BDL
H-5	HH5310 ⁶	16.0 to 20.0	04/04/98	2 U	2 U	2 U	6 U	BDL
H-5	HH5303	26.0 to 30.0	04/04/98	2 U	2 U	2 U	6 U	BDL
H-5	HH5304	36.0 to 40.0	04/04/98	N/A	N/A	N/A	N/A	N/A
H-5	HH5305	46.0 to 50.0	04/04/98	N/A	N/A	N/A	N/A	N/A
H-7	HH7200	6.5 to 10.5	04/22/98	2 U	2 U	2 U	6 U	BDL
Applicable Standards ¹				5	1,000	700	10,000	NRC

NOTE: ¹ U.S. Environmental Protection Agency maximum contaminant level.

² BDL - Below detection limit.

³ The total value reported represents the sum of all detected compounds. A total is not reported if all the compounds are below the laboratory detection limits.

⁴ All field work and analytical sampling were performed prior to the release of the new Georgia Department of Natural Resources (GA DNR) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.

⁵ Duplicate sample for sample collected from location H-3 at a depth of 5.0 to 9.0 feet BGS.

⁶ Duplicate sample for sample collected from location H-5 at a depth of 16.0 to 20.0 feet BGS.

BGS - Below ground surface.

BTEX - Benzene, toluene, ethylbenzene, and xylene.

N/A - Analytical data not available. Although the samples were collected, they were inadvertently disposed of by the laboratory before being analyzed for the volatile organic compounds.

NRC - No regulatory criteria.

Laboratory Qualifiers

U - Indicates the compound was not detected at the concentration reported.

J - Indicates the value for the compound is an estimated value.

UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 3b: GROUNDWATER ANALYTICAL RESULTS⁴
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (µg/L)				Total PAHs ³ (µg/L)
				BDL ²	BDL ²	BDL ²	BDL ²	
H-1	HH1200	5.0 to 9.0	04/02/98					BDL ²
H-2	HH2200	5.0 to 9.0	04/03/98					
H-3	HH3200	5.0 to 9.0	04/03/98					
H-3	HH3210 ⁵	5.0 to 9.0	04/03/98					
H-4	HH4200	5.5 to 9.5	04/03/98					
H-5	HH5301	6.0 to 10.0	04/04/98					
H-5	HH5302	16.0 to 20.0	04/04/98					
H-5	HH5310 ⁶	16.0 to 20.0	04/04/98					
H-5	HH5303	26.0 to 30.0	04/04/98					
H-5	HH5304	36.0 to 40.0	04/04/98					
H-5	HH5305	46.0 to 50.0	04/04/98					
H-7	HH7200	6.5 to 10.5	04/22/98					
Applicable Standards ¹								NRC

NOTE: ¹ U.S. Environmental Protection Agency maximum contaminant level.

² BDL - Below detection limit; PAH compounds were not detected above the laboratory detection limit. Refer to Appendix VIII, Table VIII-A, for complete list of PAH results.

³ The total value reported represents the sum of all detected compounds. A total is not reported if all the compounds are below the laboratory detection limits.

⁴ All field work and analytical sampling were performed prior to the release of the new Georgia Department of Natural Resources (GA DNR) Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.

⁵ Duplicate sample for sample collected from location H-3 at a depth of 5.0 to 9.0 feet BGS.

⁶ Duplicate sample for sample collected from location H-5 at a depth of 16.0 to 20.0 feet BGS.

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 4: GROUNDWATER ELEVATIONS

Well Number	Date Measured	Ground Surface Elev. (ft MSL)	Top of Casing Elev. (ft MSL)	Depth of Screened Interval (ft BGS)	Depth of Free Product (ft BTOC)	Water Depth (ft BTOC)	Product Thickness (ft)	Specific Gravity Adjustment	Corrected Groundwater Elev. (ft MSL)
H-1	04/04/98	31.20	31.53	4.0 to 9.0	N/A	2.80	N/A	N/A	28.73
H-2	04/04/98	31.42	32.31	4.0 to 9.0	N/A	3.43	N/A	N/A	28.88
H-3	04/04/98	31.33	32.32	4.0 to 9.0	N/A	3.52	N/A	N/A	28.80
H-4	04/04/98	31.12	31.83	4.5 to 9.5	N/A	3.27	N/A	N/A	28.56
H-7	04/23/98	31.14	31.50	5.5 to 10.5	N/A	3.20	N/A	N/A	28.30

NOTE: MSL - Mean sea level.
BGS - Below ground surface.
BTOC - Below top of casing.
N/A - Not applicable.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 5a: UST SYSTEM CLOSURE¹ - SOIL ANALYTICAL RESULTS
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Depth (ft BGS)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Total TPH (mg/kg)
8102-TK109-S1	12.0	09/10/96	BDL	0.268	0.963	9.659	10.89	1,604
Applicable Standards ²			0.008	6	10	700	NRC	NRC

NOTE: ¹ Underground storage tank system closure performed by Anderson Columbia Environmental, Inc. (1996).

² Georgia Department of Natural Resources Applicable Soil Threshold Levels.

BDL - Below detection limit.

BGS - Below ground surface.

BTEX - Benzene, toluene, ethylbenzene, and xylene.

NRC - No regulatory criteria.

TPH - Total petroleum hydrocarbons.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE 5b: UST SYSTEM CLOSURE¹ - SOIL ANALYTICAL RESULTS
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)									Total PAHs (mg/kg)
			Acenaphthylene	Anthracene	Benz(a)- anthracene	Chrysene	1-Methyl- Naphthalene	2-Methyl- Naphthalene	Naphthalene	Phenanthrene	Pyrene	
8102-TK109-S1	12.0	09/10/96	BDL	BDL	BDL	BDL	BDL	7.439	3.378	BDL	BDL	10.817
Applicable Standards ²			N/A ³	N/A ³	N/A ³	N/A ³	NRC	NRC	N/A ³	N/A ³	N/A ³	NRC

NOTE: ¹ Underground storage tank system closure performed by Anderson Columbia Environmental, Inc. (1996).

² Georgia Department of Natural Resources Applicable Soil Threshold Levels (i.e., Table A, column 2).

³ Not applicable; the health-based threshold level exceeds the expected soil concentration under free-product conditions.

BDL - Below detection limit.

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

**TABLE 6a: UST SYSTEM CLOSURE¹ - GROUNDWATER
ANALYTICAL RESULTS
(VOLATILE ORGANIC COMPOUNDS)**

Sample Location	Depth (ft BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX (µg/L)
N/A ²							
Applicable Standards ²			5	1,000	700	10,000	NRC

**TABLE 6b: UST SYSTEM CLOSURE¹ - GROUNDWATER
ANALYTICAL RESULTS
(POLYNUCLEAR AROMATIC HYDROCARBONS)**

Sample Location	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (µg/L)			Total PAHs (µg/L)
N/A ²						
Applicable Standards ³						NRC

NOTE: ¹ UST system closure performed by Anderson Columbia Environmental, Inc. (1996).

² N/A - Not applicable; groundwater samples were not collected.

³ U.S. Environmental Protection Agency maximum contaminant levels.

BDL - Below detection limit.

BGS - Below ground surface.

N/A - Not applicable; groundwater samples were not collected.

NRC - No regulatory criteria.

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APPENDIX III

WATER RESOURCES SURVEY DOCUMENTATION

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WATER RESOURCES SURVEY DOCUMENTATION

1.0 LOCAL WATER RESOURCES

As required by the Georgia Department of Natural Resources (GA DNR) Underground Storage Tank (UST) Corrective Action Plan (CAP)-Part A Guidance (GA DNR 1998b), a water resource survey documenting information for public and non-public water supply wells, surface water bodies, underground utilities, and potential receptors was conducted for all the Hunter Army Airfield (HAAF) UST investigation sites in April, May, and June 1998. The information presented in this section provides the supporting documentation for Section II.D.3 of the CAP-Part A form.

1.1 WATER SUPPLY WELL SURVEY

The water supply well survey was conducted using the following GA DNR guidelines/requirements:

- HAAF is located in an area of average or higher groundwater pollution susceptibility (GA DNR 1976).
- Locate all public supply wells, as defined by the GA DNR, that exist within 2 miles of the investigation sites.
- Locate all non-public supply wells that exist within 0.5 miles of the investigation sites.
- Locate all supply wells nearest the investigation sites.
- Locate all wells downgradient of the investigation sites.

The required survey was accomplished by obtaining information from the Fort Stewart Directorate of Public Works (FS DPW) and the City of Savannah Bureau of Water Operations, performing a field survey, and conducting a U.S. Geological Survey (USGS) database search. A summary of the information obtained during the survey is provided in the following sections.

1.1.1 Fort Stewart Directorate of Public Works Survey Summary

According to the FS DPW, nine water supply wells are located within the confines of the HAAF area (Figures 3a and 3b, Appendix I). These wells have the potential to provide up to 3890 gallons per minute (gpm) of water to occupants of the HAAF installation. The FS DPW was unable to provide documentation listing the companies responsible for well installation, and drillers' logs showing as-built information and subsurface geologic data. Information concerning such documentation was requested from several water well drilling companies in the Chatham County area; however, data were procured with very limited success. The FS DPW provided well locations, pump rates, treatment methods, casing depths, and total depths for eight of the nine wells located at HAAF (Table III-A). However, documentation of subsurface geology based on HAAF drill logs remains extremely limited. Therefore, other references providing deep-well

information were used to document the subsurface geology and aquifer characteristics beneath the HAAF area. Refer to Appendix X, Section 1.0, for further geologic discussion.

Wells 1 and 2, both public water supply wells located in the cantonment area of HAAF, constitute the main water supply system at the HAAF installation. Well 1, located at Building 711 on the corner of Moore Road and Douglas Street, is a 12-inch-diameter well with a 100-hp turbine pump serving a 100,000-gallon elevated storage tank (Tank 1) through 10-inch lines. Water from Well 1 is injected with hydrofluosilic acid and chlorine gas solution at the well house. Well 2, located at Building 1205 on the corner of Neal Street and Strachan Road, is a 12-inch-diameter well with a 100-hp turbine pump serving a 200,000-gallon elevated tank (Tank 2) through 10-inch lines. Water from Well 2 is also injected with hydrofluosilic acid and chlorine gas solution at the well house. Wells 1 and 2 provide water to a 500,000-gallon elevated storage tank (Tank 3) located on Middleground Road behind noncommissioned officer (NCO) family housing. This tank provides potable water to 694 service connections, which are used by an average of at least 5000 individuals year-round.

Wells 3, 4A, and 7 are public supply wells located outside the cantonment area of HAAF. Well 3, located at Building 8455, is a 4.0-inch-diameter well with a 1.0-hp electric submersible pump serving a 1000-gallon hydropneumatic storage tank through 1.5-inch galvanized steel lines. Water from Well 3 is treated with calcium hypochlorite solution and is consumed by approximately 25 people during daytime hours, year-round. Well 4A, located at Building 8581 at the 117th Air National Guard Facility, is a 4.0-inch-diameter well. Pumpage is accomplished with a 0.75-hp turbine pump with 80 gpm capacity. Well 4A provides water for approximately 50 people per day year-round. Well 7 is located at Building 8703 on the Forest River, west of Rio Road. Well 7 is a 4.0-inch well with a 3.0-hp submersible pump serving a 5000-gallon hydropneumatic tank through 2.0-inch galvanized steel lines. Well 7 serves approximately 500 people on a part-time basis. Sanitary protection for Wells 3, 4A, and 7 is provided by a pump motor block, concrete slab, sealed well head, and screened casing vent.

Based on the GA DNR criteria of serving potable water to less than 25 occupants per day and having less than 15 service connections, wells 5, 8, and 9 are classified as non-public supply wells (Figure 3a, Appendix I). Pump rates, casing depths, bore depths, treatment methods, and storage tank information are provided in Table III-A.

Well 10 is a non-potable water source (Figure 3b, Appendix I). Water from Well 10 is used for the cleaning of military equipment at a wash-rack facility. Additional information including capacity, borehole depth, and casing depth is not available.

1.1.2 City of Savannah Bureau of Water Operations Survey Summary

The locations of supply wells found outside the boundary of HAAF that are within 2 miles of one or more of the CAP-Part A investigation sites are shown on Figure 3b, Appendix I. These wells include 25, 15, 27, 14, 23, 6, and 9. Data concerning casing depths, borehole depths, casing sizes, and capacities are listed in Table III-B. The City of Savannah Bureau of Water Operations was unable to provide drill logs or as-built well information.

1.1.3 U.S. Geological Survey Summary

Chatham County encompasses three watersheds: Lower Savannah, Lower Ogeechee, and Ogeechee Coastal (EPA 1998). The HAAF installation is located within the Ogeechee Coastal watershed which covers 1477 square miles; includes 18 rivers and streams, including the Little Ogeechee River which borders the south western portion of HAAF; and contains land usage areas

classified as 2 percent urban, 67 percent forest, and 24 percent agricultural. Water use survey data for the watershed estimate that the area has a total population of 200,000 with domestic, industrial, and commercial water supplies mainly derived from groundwater sources (USGS 1990). Domestic water supply data show that a population of 144,000 receives public-supplied water from groundwater sources, 48,00 receive water from self-supplied groundwater sources, and 8,000 from public-supplied surface water sources. The water use survey also reports that two industrial facilities within the watershed are self-supplied with water obtained from groundwater sources. The survey also notes that a total of five wastewater facilities are located in the area with three reported as public wastewater treatment facilities.

1.2 SURFACE WATER BODIES

Surface water(s) in the State of Georgia, as defined by *Rules and Regulations for Water Quality Control, Chapter 391-3-6* (GA DNR 1998a), shall mean any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs producing 100,000 gallons per day, and all other bodies of surface water, natural or artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation. The surface water body survey was conducted using the following GA DNR guidelines/requirements:

- surface water bodies that exist within 1 mile of the investigation sites,
- all surface water bodies nearest the investigation sites if these bodies lie outside the 1-mile radius of concern,
- all surface water bodies downgradient of the investigation sites, and
- the storm and sanitary sewers adjacent to investigation sites.

The locations of surface water bodies at HAAF were obtained from USGS aerial photographs, USGS topographic maps, and from maps provided by the FS DPW. Storm and sanitary sewer location maps, storm sewer invert elevations, and storm sewer and culvert construction details were provided by the FS DPW and the City of Savannah Bureau of Water and Sewer Planning (1998).

Surface water bodies at HAAF include Hallstrom Lake, Lamar Canal, Buckhalter Canal, Springfield Canal, Pond 29 located northwest of Buildings 336 and 232, and an unnamed pond located along the southeast boundary of the HAAF installation (Figure 3b, Appendix I). Several unnamed drainage canals exist throughout HAAF. Most of these canals drain southwest into the Little Ogeechee River, which is part of the Lower Ogeechee watershed. The remaining drainage canals located on the east side of the HAAF installation flow east and eventually drain into the Vernon River, which is located southeast of the HAAF installation.

Surface water bodies at HAAF and adjacent areas are not used as public water supplies. The ponds and lakes are perennial, whereas most of the drainage canals and ditches are intermittent. Most of the drainage canals are at least partially enclosed in culverts.

1.3 POTENTIAL RECEPTOR SURVEY SUMMARY OF THE UST 109, BUILDING 1310 SITE

A field potential receptor survey was conducted for the UST 109, Building 1310 site on April 30, 1998. The site and adjacent areas were surveyed for locations of surface water bodies, utility lines, and basements. Basements do not exist in the buildings adjacent to the site. Additional information, provided by the FS DPW, was used to determine the location of the nearest public and non-public water supply wells and downgradient surface water bodies not located during the field survey.

1.3.1 Water Supply Wells Near the UST 109, Building 1310 Site

The UST 109, Building 1310 site is located approximately 2300 feet southeast (downgradient) of HAAF Well 2, which is located at Building 1205 on Strachen Drive, HAAF (Figure 3a, Appendix I). Therefore, the UST 109, Building 1310 site is classified as being greater than 500 feet to a withdrawal point. Well 2 is part of the main public water supply system at HAAF. This system supplies water to 7500 persons through 525 service connections. Based on the estimated nature and extent of petroleum-related groundwater contamination at the site, there is no indication that Well 2 has been impacted (Figure 3a, Appendix I). Therefore, collection and analysis of groundwater samples from Well 2 is not recommended.

1.3.2 Surface Water Bodies Near the UST 109, Building 1310 Site

A southeast-flowing drainage ditch is located approximately 750 feet southeast (downgradient) of the UST 109, Building 1310 site. Runoff from the site travels through a series of storm drain pathways and ultimately discharges into the drainage ditch.

TABLES

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CAP-Part A UST Investigation Sites
Hunter Army Airfield, Chatham County

**TABLE III-A. WATER SUPPLY WELL INFORMATION PROVIDED
BY THE FORT STEWART DPW**

Building	Well ID	Year Drilled	Bore Depth	Casing Depth	Pump Rate (gpm)	Number of Service Connections	Population	Public or Non-Public Supply
711	1	1941	550	250	1300	525	7500	Public
1205	2	1941	600	250	1300	525	7500	Public
8455	3	1951	360	40	30	2	25	Public
8581	4A	Unk	300	92	80	10	50	Public
8641	5	1955	380	85	30	Unk	Unk	Non-public
8703	7	1980	450	330	70	8	500	Public
8632	8	1956	370	255	80	5	Unk	Non-public
8654	9	Unk	600	255	1000	Unk	Unk	Non-public
8464	10	Unk	Unk	Unk	Unk	N/A	N/A	Non-public

NOTE: DPW - Directorate of Public Works.
N/A - Not applicable.
gpm - Gallons per minute.
Unk - Unknown.

CAP-Part A UST Investigation Sites
Hunter Army Airfield, Chatham County

TABLE III-B. WATER SUPPLY WELL INFORMATION PROVIDED BY THE CITY OF SAVANNAH BUREAU OF WATER OPERATIONS

Well ID	Year Drilled	Bore Depth (feet)	Casing Depth (feet)	Pump Rate (gpm)	Number of Service Connections	Population ¹	Public or Non-Public Supply ¹
1	Unk	1006	300	1362	Unk	Unk	Public
6	Unk	750	240	1500	Unk	Unk	Public
9	Unk	710	267	2700	Unk	Unk	Public
13	Unk	1000	270	2200	Unk	Unk	Public
14	Unk	800	338	571	Unk	Unk	Public
15	Unk	414	252	1000	Unk	Unk	Public
23	Unk	639	320	1056	Unk	Unk	Public
25	Unk	540	287	1120	Unk	Unk	Public
27	Unk	550	321	1468	Unk	Unk	Public
42	Unk	550	260	2100	Unk	Unk	Public

NOTE: gpm - Gallons per minute.
TBD - To be determined.
Unk - Unknown.

¹All wells are part of the same public water supply system serving the population of the City of Savannah.

APPENDIX IV

SOIL BORING LOGS

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HTRW DRILLING LOG		DISTRICT USACE Savannah		HOLE NUMBER H1	
1. COMPANY NAME SAIC		2. DRILL SUBCONTRACTOR RE Wright (SAIC)		SHEET 1 OF 2	
3. PROJECT HAAF CAP Part A, UST sites		4. LOCATION Hunter AAF Bldg 1310 Tank 109			
5. NAME OF DRILLER John Hasselhoff		6. MANUFACTURERS DESIGNATION OF DRILL Geoprobe, Salina, KA			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT Direct Push Geoprobe Microcore 2" dia		8. HOLE LOCATION H1			
acitate liner 4' shoe to 10' drive cap 4.6', push rods 4'+3', large bore rods 3' dia. 1.5', sampling pt 1 1/2" x 1 1/2" dia. screen length 3.5', screen dia. 1"		9. SURFACE ELEVATION TBD			
12. OVERBURDEN THICKNESS NA		10. DATE STARTED 4-2-98		11. DATE COMPLETED 4/2/98	
13. DEPTH DRILLED INTO ROCK NA		15. DEPTH GROUNDWATER ENCOUNTERED 4.0' BLS			
14. TOTAL DEPTH OF HOLE 4.0' BLS 9.0' BGS		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED See water level log			
18. GEOTECHNICAL SAMPLES NA		DISTURBED NA		UNDISTURBED NA	
20. SAMPLES FOR CHEMICAL ANALYSIS soil / water		BTEX VOC ✓		OTHER (SPECIFY) DEO 1/0	
22. DISPOSITION OF HOLE Piezometers		BACKFILLED ✓		MONITORING WELL NA	
19. TOTAL NUMBER OF CORE BOXES NA		OTHER (SPECIFY) NA		OTHER (SPECIFY) NA	
21. TOTAL CORE RECOVERY 55%		23. SIGNATURE OF INSPECTOR John B. Reeve			
LOCATION SKETCH/COMMENTS 					
PROJECT HAAF CAP Part A				HOLE NO. H1	

DEPTH (ft)	DESCRIPTION OF MATERIALS (ft)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	AN SA (F)
	0.5' CONC. Core 0.5' to 2.2' coarse grain Sand light tan wet.	0.5' to 2.2' 1118 ppm	0.5' to 2.2' HH1101	Started 16:00 end 16:05 2.2' recovery including CONC. core
4	WT			
	water sample HH1200 collected from 5.0' - 9.0' BGS		HH1200 HH1200	
8	TD = 9.0' BGS			

HTRW DRILLING LOG		DISTRICT		HOLE NUMBER	
1. COMPANY NAME SAIC		2. DRILL SUBCONTRACTOR K.E. Wright (SAIC)		H2	
3. PROJECT Hunter AAF CAP Part A UST Sites		4. LOCATION Hunter AAF Bldg. 1310 Tank 109		SHEET 1 OF 2	
5. NAME OF DRILLER John Hasselhoff		6. MANUFACTURERS DESIGNATION OF DRILL Geoprobe			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 2" dia macrocore, 4' long acetate liner 4' long Screen length 3.5' long Screen diameter 1.5" dia		8. HOLE LOCATION H2			
12. OVERBURDEN THICKNESS NA		9. SURFACE ELEVATION TBD			
13. DEPTH DRILLED INTO ROCK NA		10. DATE STARTED 4-3-98		11. DATE COMPLETED 4/3/98	
14. TOTAL DEPTH OF HOLE 8' 131 BGS 9.0'		15. DEPTH GROUNDWATER ENCOUNTERED 4.0'			
18. GEOTECHNICAL SAMPLES NA		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED See water level log			
DISTURBED NA		UNDISTURBED NA		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) See water level log	
20. SAMPLES FOR CHEMICAL ANALYSIS Soil / water		19. TOTAL NUMBER OF CORE BOXES NA			
22. DISPOSITION OF HOLE picrometer		21. TOTAL CORE RECOVERY % 100%			
BACKFILLED ✓		MONITORING WELL NA		23. SIGNATURE OF INSPECTOR John B. Reeves	
LOCATION SKETCH/COMMENTS		SCALE:			
See Sheet 7.6 Log book #9					
PROJECT HAAF CAP Part A				HOLE NO. H2	

DEPTH (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	AP NO (F)	UST 109, Building 1310, Facility ID: 9-025105 4
	0	ϕ .6 Conc. Core				Started ϕ 7:55
		ϕ .6' to 4.0'	ϕ .6' to 2.0'	0.6' to 2.4'	HH2101	Finished ϕ 7:59
		SW-SM Well graded sand w silt	ϕ			Full recovery
		7.5YR4/2.				Incl. CONC. CORE
		low plasticity	2.0' to 4.0'	2' to 4'	HH2102	
		fine grain	ϕ			
4		WT				
		4.0' to 4.8'				Started ϕ 8:10
		same as above				Finished ϕ 8:15
		4.8' to 8.0'				Full recovery
		7.5YR 5/2				
		low Plasticity				
		fine grain				
		well graded				
		sand w silt				
		Groundwater sample taken at 5.0' to 9.0'			HH2200	
8		TD = 9.0' BGS				

PROJECT

HAAF CAP Part A

IV-6

HOLL 100

H2 Bldg 1310

HTRW DRILLING LOG		DISTRICT		HOLE NUMBER	
1. COMPANY NAME SAIC		2. DRILL SUBCONTRACTOR R.E.Wright (SAIC)		H3	
3. PROJECT Hunter AAF CAP Part A UST Sites John Hosselhoff		4. LOCATION Georgetown Salina KA		5. NAME OF DRILLER John Hosselhoff	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 2" dia macrocore acetate liner = 4' length screen length = 3.5' screen diameter = 1.5"		6. MANUFACTURERS DESIGNATION OF DRILL Hunter AAF Bldg 1310 Tank 109		8. HOLE LOCATION H3	
		9. SURFACE ELEVATION T B D		10. DATE STARTED 4-3-98	
		11. DATE COMPLETED 4/3/98		12. OVERBURDEN THICKNESS NA	
		13. DEPTH DRILLED INTO ROCK NA		14. TOTAL DEPTH OF HOLE 9.0' BGS	
18. GEOTECHNICAL SAMPLES NA		19. TOTAL NUMBER OF CORE BOXES NA		15. DEPTH GROUNDWATER ENCOUNTERED 4.4'	
20. SAMPLES FOR CHEMICAL ANALYSIS BTEX VOC 2/1 PAH METALS 2/1 OTHER (SPECIFY) DRO 1/0 OTHER (SPECIFY) GRO 1/0		21. TOTAL CORE RECOVERY % NA		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED See water level log	
22. DISPOSITION OF HOLE pilot hole BACKFILLED MONITORING WELL NA		23. SIGNATURE OF INSPECTOR John B. Reeves		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) See water level log	
LOCATION SKETCH/COMMENTS					
SCALE:					
See Sheet 76					
PROJECT Hunter AAF CAP Part A UST Sites				HOLE NO. H3	

HUNTER ARMY AIRFIELD UST CAP-A Report UST 109, Building 1310, Facility ID: 9-025105		DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO. (E)	DATE (F)
4	8	0.5 CONC core	Ø	PPM	Ø' to 2' HH31Ø1
		0.5 to 0.8 VOID			
		0.8 to 2.2'			
		Sand SW-SM well graded low moisture 7.5YR 4/2			
		4.0 TO 4.4 WT SAME as above	Ø	PPM	4' to 6' HH31Ø3
		sampled interval = 5.0 to 9.0 ft. BGS			HH32ØØ
		- 9.0 ft BGS			

HCl; No.

143

HTRW DRILLING LOG				DISTRICT		HOLE NUMBER	
1. COMPANY NAME SAIC				2. DRILL SUBCONTRACTOR RE Wright (SAIC)		HOLE NUMBER H4	
3. PROJECT Hunter AAF CAP Part A UST Sites				4. LOCATION Hunter AAF Bldg.		SHEET 1 OF 2	
5. NAME OF DRILLER John Hasselhoff				6. MANUFACTURERS DESIGNATION OF DRILL Geoprobe Salina KA			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 2" dia macrocore acetate liner = 4' length screen length = 3.3' screen diameter = 1.5"				8. HOLE LOCATION H4			
				9. SURFACE ELEVATION TBD			
12. OVERBURDEN THICKNESS NA				10. DATE STARTED 4-3-98		11. DATE COMPLETED 4-3-98	
13. DEPTH DRILLED INTO ROCK NA				15. DEPTH GROUNDWATER ENCOUNTERED 4.4'			
14. TOTAL DEPTH OF HOLE 8' 9.5' BGS				16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED See water level log			
18. GEOTECHNICAL SAMPLES NA				17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) See water level log			
20. SAMPLES FOR CHEMICAL ANALYSIS soil / water		DISTURBED NA		UNDISTURBED NA		19. TOTAL NUMBER OF CORE BOXES NA	
22. DISPOSITION OF HOLE piezometer		BACKFILLED ☒		MONITORING WELL ☐		21. TOTAL CORE RECOVERY 64%	
LOCATION SKETCH/COMMENTS				23. SIGNATURE OF INSPECTOR John B. Reeves			
				SCALE:			
See page 76 Logbook # 9							
PROJECT Hunter AAF CAP Part A UST Sites						HOLE NO. H4	

DEPTH (ft)	DESCRIPTION OF MATERIALS (C)	FIELD SIFTING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	ANALYSIS (F)
0	0.5' Conc Core		0'to2'	started
0.5 to 2.4	recovery		HH4101	finished
0.5 to 1.0	gravel			2.4' Recovery including conc core
1.0 to 2.4'	sand SW-SM well graded low moisture 7.5YR3/3	φ ppm		
4	4.4 Same as above WT 4.4	φ ppm	4'to6'	Started 09:25 finished 09:30 2.7' Recovery
	water sample taken from 5.5 to 9.5' BGS		HH4206	
8	— TO = 9.5' BGS			

HTRW DRILLING LOG		DISTRICT		HOLE NUMBER	
1. COMPANY NAME SAIC		USACE Savannah Dist.		H5 + H6	
3. PROJECT HAAF CAP A UST Investigation		2. DRILL SUBCONTRACTOR R.E. Wright (SAIC)		SHEET SHEETS 1 OF 2	
5. NAME OF DRILLER Andy Nickersbocker		4. LOCATION Bldg 1310, Tank 109		6. MANUFACTURERS DESIGNATION OF DRILL Geoprobe; Salina KS	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT incore - 2" diam acitake liner, 4' long		8. HOLE LOCATION H5 + H6		9. SURFACE ELEVATION TBD	
10. DATE STARTED 4/4/98		11. DATE COMPLETED 4/4/98		12. OVERBURDEN THICKNESS NA	
13. DEPTH DRILLED INTO ROCK NA		15. DEPTH GROUNDWATER ENCOUNTERED 4.0 ft BGS		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED see water level log	
14. TOTAL DEPTH OF HOLE 61.5'		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) see water level log.		18. GEOTECHNICAL SAMPLES shelby tube 2" diam	
20. SAMPLES FOR CHEMICAL ANALYSIS Wetox		DISTURBED 0		UNDISTURBED 1	
22. DISPOSITION OF HOLE Vertical profile		VOC 4		OTHER (SPECIFY) NA	
BACKFILLED ✓		MONITORING WELL NA		OTHER (SPECIFY) NA	
19. TOTAL NUMBER OF CORE BOXES NA		21. TOTAL CORE RECOVERY % 100		23. SIGNATURE OF INSPECTOR John B. Reeves	
LOCATION SKETCH/COMMENTS					
Refer to Logbook # 9, p. 76 for locations of H5 and H6.					
PROJECT HAAF CAP A UST INVESTIGATION				HOLE NO. H5 + H6	

11/11/11	DEPTH (D)	DESCRIPTION OF MATERIALS (C)	FIELD SKEWING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	UST 109, Building 1310, Facility ID: 9-025105 33
			Sample	including concrete	core discarded
					Start 1020 Finish 1025
			Collected Shelby tube		Start
			HH 5400		Finish
	5				
	10				
	15				
	20				
	25				
	30				
	35				
	40				
	45				
	50				

at 10.0' groundwater sample HH5301 collected

at 20.0' groundwater sample HH5302 collected

at 30.0' groundwater sample HH5303 collected

at 40.0' groundwater sample HH5304 collected

at 50.0' groundwater sample HH5305 collected

at 60.0' groundwater sample HH5306 collection attempted

at 61.5' encountered Hawthorne layer

PROJECT

IV-12

HOLE NO.

HTRW DRILLING LOG		DISTRICT		HOLE NUMBER	
1. COMPANY NAME SAIC		USACE Savannah		H-7	
2. DRILL SUBCONTRACTOR RE Wright (SAIC)				SHEET SHEETS 1 OF 2	
3. PROJECT HAAF Part A, UST Sites		4. LOCATION Hunter AAF Bldg 1301, Tank 109			
5. NAME OF DRILLER Andy Knickerbocker		6. MANUFACTURERS DESIGNATION OF DRILL Geoprobe, Salina, KA			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 2" dia. macrocore geotextile liner = 4' shoe to drive cap = 4.6' push rods = 4' and 3' large bore rods = 3' screws = 3.5'		8. HOLE LOCATION H-7			
12. OVERBURDEN THICKNESS NA		9. SURFACE ELEVATION TBD			
13. DEPTH DRILLED INTO ROCK NA		10. DATE STARTED 4/22/98		11. DATE COMPLETED 4/22/98	
14. TOTAL DEPTH OF HOLE 10.5'		15. DEPTH GROUNDWATER ENCOUNTERED 5.5 BGS			
18. GEOTECHNICAL SAMPLES NA		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED See water level log			
20. SAMPLES FOR CHEMICAL ANALYSIS		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) See water level log			
DISTURBED NA		UNDISTURBED NA		19. TOTAL NUMBER OF CORE BOXES NA	
VOC		METALS		OTHER (SPECIFY)	
22. DISPOSITION OF HOLE piezometer		BACKFILLED ✓		MONITORING WELL NO	
LOCATION SKETCH/COMMENTS		OTHER (SPECIFY) NO		23. SIGNATURE OF INSPECTOR [Signature] NOT TO	
		SCALE: Scale		21. TOTAL CORE RECOVERY %	

for location of H-7, see log book 9, page 76

PROJECT HAAF CAP A UST INVESTIGATIONS

HOLE NO. H-7

DEPTH (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	(F)
		CONCRETE	Φ.4-2.7 HS=Φ.Φ	NA	HH71Φ1 START: 142Φ STOP: 1425 DRILLED 4.Φ' REC'D: 2.7 ft BGS
1.Φ		fine-grained sand with silt (10%) moist, sub-angular to sub-rounded grains, soft			
2.Φ		1Φ4R5/8 (yellowish brown)		NA	
3.Φ		NO RECOVERY 2.7-4.Φ			Hammer not used
4.Φ		SAME ASA ABOVE	4.Φ-5.5 HS = 3ΦΦ ppm	NA	HH71Φ3 START: 143Φ STOP: 1435 DRILLED: 4.Φ' REC'D: 1.5'
5.Φ					
6.Φ		WT			
7.Φ		NO RECOVERY 5.5-8.Φ BGS		NA	Hammer not used
8.Φ		STEEL SCREEN ~ WATER SAMPLES OBTAINED			
9.Φ					
10.Φ		TD=1Φ.5			

PROJECT: HAAF - CAPA

UST INVESTIGATION

H-7.

APPENDIX V

SOIL LABORATORY REPORTS

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UST 109, Building 1310
Hunter Army Airfield
Chatham County, Facility ID: 9-025105

TABLE V-A. SUMMARY OF SOIL ANALYTICAL RESULTS³

Location Sample ID Date Collected Depth (ft BGS)	Applicable Standards ¹	H-1 HH1101 04/02/98 0.5 to 2.2	H-2 HH2101 4/03/98 0.6 to 2.0	H-2 HH2110 ⁴ 4/03/98 0.6 to 2.0	H-2 HH2102 4/03/98 2.0 to 4.0	H-3 HH3101 4/03/98 0.8 to 2.2	H-3 HH3103 4/03/98 4.0 to 4.4	H-4 HH4101 4/03/98 0.5 to 2.4
VOCs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.008	0.0022 UJ	0.0023 UJ	0.0023 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U
Toluene	6.00	0.006 =	0.0048 =	0.0023 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U
Ethylbenzene	10.00	0.0022 U	0.0023 U	0.0023 U	0.0024 U	0.0023 U	0.0024 U	0.0023 U
Xylenes	700.00	0.0065 U	0.0013 J	0.0068 U	0.0071 U	0.0069 U	0.0072 U	0.007 U
TPH-DRO	NRC	1.5 U	3.2 =	1.2 U	2.3 U	2.2 U	1.4 U	0.92 U
TPH-GRO	NRC	0.543 U	0.568 U	0.568 U	0.595 U	0.575 U	0.602 U	0.581 U
PAHs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
2-Chloronaphthalene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Acenaphthene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Acenaphthylene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Anthracene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Benzo(a)anthracene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Benzo(a)pyrene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Benzo(b)fluoranthene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Benzo(g,h,i)perylene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Benzo(k)fluoranthene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Chrysene	N/A ²	0.362 UJ	0.379 UJ	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Dibenzo(a,h)anthracene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Fluoranthene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Fluorene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Indeno(1,2,3-cd)pyrene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Naphthalene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Phenanthrene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U
Pyrene	N/A ²	0.362 U	0.379 U	0.378 U	0.397 U	0.381 U	0.402 U	0.388 U

NOTE: ¹ Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (Table A, column 2).
² Not applicable; the health-based threshold level exceeds the expected soil concentration under free product conditions.
³ All field work and analytical sampling were performed prior to the release of the new GA DNR Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.
⁴ Duplicate sample for sample collected from location H-2 at a depth of 0.6 to 2.0 feet BGS.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.
TPH-DRO - Total petroleum hydrocarbon-diesel-range organics.
TPH-GRO - Total petroleum hydrocarbon-gasoline-range organics.
VOCs - Volatile organic compounds.

Laboratory Qualifier
U - Indicates the compound was not detected at the concentration reported.
J - Indicates the value for the compound is an estimated value.
UJ - Indicates the compound was not detected at the reported concentration and the concentration was estimated.
= - Indicates the compound was detected at the concentration reported.

TABLE V-A. SUMMARY OF SOIL ANALYTICAL RESULTS³ (continued)

Location Sample ID Date Collected Depth (ft BGS)	Applicable Standards ¹	H-4 HH4103 04/03/98 4.0 to 4.4	H-7 HH7101 04/22/98 0.4 to 2.7	H-7 HH7103 04/22/98 4.0 to 5.5
VOCs	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.008	0.0024 U	0.0023 U	0.0024 U
Toluene	6.00	0.0024 U	0.0023 U	0.0024 U
Ethylbenzene	10.00	0.0024 U	0.0023 U	0.0024 U
Xylenes	700.00	0.0071 U	0.007 U	0.0071 U
TPH-DRO	NRC	1.2 U	0.64 U	1.0 U
TPH-GRO	NRC	0.595 U	1.16 U	1.19 U
PAHs	mg/kg	mg/kg	mg/kg	mg/kg
2-Chloronaphthalene	N/A ²	0.394 U	0.388 U	0.397 U
Acenaphthene	N/A ²	0.394 U	0.388 U	0.397 U
Acenaphthylene	N/A ²	0.394 U	0.388 U	0.397 U
Anthracene	N/A ²	0.394 U	0.388 U	0.397 U
Benzo(a)anthracene	N/A ²	0.394 U	0.388 U	0.397 U
Benzo(a)pyrene	N/A ²	0.394 U	0.388 U	0.397 U
Benzo(b)fluoranthene	N/A ²	0.394 U	0.388 U	0.397 U
Benzo(g,h,i)perylene	N/A ²	0.394 U	0.388 U	0.397 U
Benzo(k)fluoranthene	N/A ²	0.394 U	0.388 U	0.397 U
Chrysene	N/A ²	0.394 U	0.388 U	0.397 U
Dibenzo(a,h)anthracene	N/A ²	0.394 U	0.388 U	0.397 U
Fluoranthene	N/A ²	0.394 U	0.388 U	0.397 U
Fluorene	N/A ²	0.394 U	0.388 U	0.397 U
Indeno(1,2,3-cd)pyrene	N/A ²	0.394 U	0.388 U	0.397 U
Naphthalene	N/A ²	0.394 U	0.388 U	0.397 U
Phenanthrene	N/A ²	0.394 U	0.388 U	0.397 U
Pyrene	N/A ²	0.394 U	0.388 U	0.397 U

NOTE: ¹ Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (Table A, column 2).

² Not applicable; the health-based threshold level exceeds the expected soil concentration under free product conditions.

³ All field work and analytical sampling were performed prior to the release of the new GA DNR Corrective Action Plan (CAP)-Part A Guidance (i.e., May 1998); therefore, the new analytical methods specified were not used.

BGS - Below ground surface.

NRC - No regulatory criteria.

PAHs - Polynuclear aromatic hydrocarbons.

TPH-DRO - Total petroleum hydrocarbon-diesel-range organics.

TPH-GRO - Total petroleum hydrocarbon-gasoline-range organics.

VOCs - Volatile organic compounds.

Laboratory Qualifier

U - Indicates the compound was not detected at the concentration reported.



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CHAIN OF CUSTODY RECORD

COC NO.: 40398A

PROJECT NAME: CAP - Hunter AFB - Part A				REQUESTED PARAMETERS												LABORATORY NAME: General Engineering Laboratory					
PROJECT NUMBER: 0019																LABORATORY ADDRESS: 2040 Savage Road Charleston, SC 29417					
PROJECT MANAGER: Allison Bailey																PHONE NO: (803) 556-8171					
Sampler (Signature) <i>Attilio Hall</i>				Date Collected				Time Collected				Matrix				OVA SCREENING		OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS			
Attilio Hall				4/3/98				0900				water				NA		98041064-18			
				4/2/98				1440				water				NA		98041064-18			
				4/2/98				1520				water				NA		98041064-19			
				4/2/98				1615				water				NA		19			
				4/3/98				0830				water				NA		20			
				4/3/98				0905				water				NA		9804106-81			
				4/3/98				0945				water				NA		9804106-82			
				4/3/98				1140				water				NA		9804106-83			
				4/2/98				1415				soil				NA		98041063-13			
				4/2/98				1425				soil				NA		98041063-14			
				4/2/98				1500				soil				NA		98041063-15			
				4/2/98				1605				soil				NA		98041063-16			
				4/3/98				0805				soil				NA		98041063-19			
RELINQUISHED BY: <i>Attilio Hall</i>				Date/Time 4/3/98 1340				RECEIVED BY: <i>Attilio Hall</i>				Date/Time 4-3-98				TOTAL NUMBER OF CONTAINERS: Cooler ID: # 253				Cooler Temperature: 4°C	
COMPANY NAME: SAIC								COMPANY NAME: GEL								FEDEX NUMBER: NA					
RECEIVED BY: <i>Attilio Hall</i>				Date/Time 4/3/98 1340				RELINQUISHED BY:				Date/Time									
COMPANY NAME: GEL								COMPANY NAME:													
RELINQUISHED BY: <i>Attilio Hall</i>				Date/Time 4/3/98 1640				RECEIVED BY:				Date/Time									
COMPANY NAME: GEL								COMPANY NAME:													



800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600

SAL An Employee-Owned Company
Science Applications International Corporation

CHAIN OF CUSTODY RECORD

COC NO.: 4039813

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature) *Allison Bailey* (Printed Name) Mitchell H. Hall

REQUESTED PARAMETERS

LABORATORY NAME:
General Engineering Laboratory

LABORATORY ADDRESS:
2040 Savage Road
Charleston, SC 29417

PHONE NO: (803) 656-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/Vials	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HH2102	4/3/98	0805	soil	X	X	X	X	X	2	0 ppm	9804105-05
HH3101	4/3/98	0855	soil	X	X	X	X	X	2	0 ppm	9804105-02
HH3103	4/3/98	0900	soil	X	X	X	X	X	2	0 ppm	05
HH4101	4/3/98	0930	soil	X	X	X	X	X	2	0 ppm	04
HH4103	4/3/98	0940	soil	X	X	X	X	X	2	0 ppm	05
HN3101	4/3/98	1105	soil	X	X	X	X	X	2	0 ppm	06
HN3105	4/3/98	1130	soil	X	X	X	X	X	2	0 ppm	07
HN3110	4/3/98	1130	soil	X	X	X	X	X	2	0 ppm	dupl. cat 08
HH3210	4/3/98	1144	water	X	X	X	X	X	2	0 ppm	9804105-04
HH2110	4/3/98	08105	soil	X	X	X	X	X	2	0 ppm	9804105-09
HA2103	4/2/98	1615	soil	X	X	X	X	X	2	0 ppm	9804105-10

RELINQUISHED BY: <i>Mitchell H. Hall</i>	RECEIVED BY: <i>Allison Bailey</i>	Date/Time 4/3/98	Date/Time 4/3/98
COMPANY NAME: SAL	COMPANY NAME: G-EL	4/3/98	4/3/98
RELINQUISHED BY: <i>Allison Bailey</i>	RELINQUISHED BY:	4/3/98	4/3/98
COMPANY NAME: G-EL	COMPANY NAME:	1340	1340
RELINQUISHED BY: <i>Allison Bailey</i>	RECEIVED BY:	4/3/98	4/3/98
COMPANY NAME: G-EL	COMPANY NAME:	1340	1340

TOTAL NUMBER OF CONTAINERS: 253
Cooler ID: #253
Cooler Temperature: 4°C
FEDEX NUMBER:

CHAIN OF CUSTODY RECORD

COC NO.: 425788

Hunter Army Airfield UST CAP-A Report
UST 109, Building 1310, Facility ID: 9-025105

[illegible]

CHAIN OF CUSTODY RECORD

COC NO.: 42398A

Hunter Army Airfield UST CAP-A Report
UST 109, Building 1310, Facility ID: 9-025105

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HA001S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804063-19

Sample wt/vol: 10.0 (g/ml) G

Lab File ID: 207020

Level: (low/med) LOW

Date Received: 04/02/98

% Moisture: not dec. 8

Date Analyzed: 04/05/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (ml)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) JG/KG

Q

71-43-2-----	Benzene	2.2	U
108-88-3-----	Toluene	6.0	U
100-41-4-----	Ethylbenzene	2.2	U
1330-20-7-----	Xylenes (total)	6.5	U

UJ C05
UUU

FORM I VOA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 02-APR-1998 SA

HH1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S

Matrix: (soil/water) SOIL Lab Sample ID: 9804063-19

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 4B30028

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: 8 decanted: (Y/N) N Date Extracted: 04/06/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) MG/KG

Q

-----Diesel Range Organics	1.5	B	U F01, F07
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FORM I SV

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 02-APR-1998 SA

HH1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDS No.: HAC01S

Matrix: (soil/water) SOIL Lab Sample ID: 9804063-19

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1D5018

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: not dec. 8 Date Analyzed: 04/10/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

-----Gasoline Range Organics	543	U
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FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S
Matrix: (soil/water) SOIL Lab Sample ID: 9804063-19
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20308
Level: (low/med) LOW Date Received: 04/02/98
% Moisture: 8 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
91-20-3	-----naphthalene	362	U	u ↓ uJ 05 u ↓
91-58-7	-----2-chloronaphthalene	362	U	
209-96-8	-----acenaphthylene	362	U	
83-32-9	-----acenaphthene	362	U	
86-73-7	-----fluorene	362	U	
85-01-8	-----phenanthrene	362	U	
120-12-7	-----anthracene	362	U	
206-44-0	-----fluoranthene	362	U	
129-00-0	-----pyrene	362	U	
56-55-3	-----benzo(a)anthracene	362	U	
218-01-9	-----chrysene	362	U	
205-99-2	-----benzo(b)fluoranthene	362	U	
207-08-9	-----benzo(k)fluoranthene	362	U	
50-32-8	-----benzo(a)pyrene	362	U	
193-39-5	-----indeno(1,2,3-cd)pyrene	362	U	
53-70-3	-----dibenz(a,h)anthracene	362	U	
191-24-2	-----benzo(g,h,i)perylene	362	U	

FORM I SV-1

OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S

Matrix: (soil/water) SOIL Lab Sample ID: 9804063-20

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2C7021

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: not dec. 12 DATA VALIDATION COPY Date Analyzed: 04/05/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ml) Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

71-43-2-----	Benzene	2.3	U
108-88-3-----	Toluene	4.8	U
100-41-4-----	Ethylbenzene	2.3	U
1330-20-7-----	Xylenes (total)	1.3	U

UT CFS
= U
X J

MP
6/25/98

FORM I VOA

FORM 1
 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
 Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S
 Matrix: (soil/water) SOIL Lab Sample ID: 9804063-20
 Sample wt/vol: 30.2 (g/mL) G Lab File ID: 4B30029
 Level: (low/med) LOW Date Received: 04/02/98
 % Moisture: 12 decanted: (Y/N) N Date Extracted: 04/06/98
 Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98
 Injection Volume: 1.0 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
	-----Diesel Range Organics	3.2	B	= F01, F08

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 02-APR-1998 SA

HH2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S

Matrix: (soil/water) SOIL Lab Sample ID: 9804063-20

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1D5C19

Level: (low/med) LOW Date Received: 04/02/98

% Moisture: not dec. 12 Date Analyzed: 04/10/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

-----Gasoline Range Organics	568	J
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FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA001S
Matrix: (soil/water) SOIL Lab Sample ID: 9804063-20
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20312
Level: (low/med) LOW Date Received: 04/02/98
% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

91-20-3	-----naphthalene	379	U
91-58-7	-----2-chloronaphthalene	379	U
209-96-8	-----acenaphthylene	379	U
83-32-9	-----acenaphthene	379	U
86-73-7	-----fluorene	379	U
85-01-8	-----phenanthrene	379	U
120-12-7	-----anthracene	379	U
206-44-0	-----fluoranthene	379	U
129-00-0	-----pyrene	379	U
56-55-3	-----benzo (a) anthracene	379	U
218-01-9	-----chrysene	379	U
205-99-2	-----benzo (b) fluoranthene	379	U
207-08-9	-----benzo (k) fluoranthene	379	U
50-32-8	-----benzo (a) pyrene	379	U
193-39-5	-----indeno (1,2,3-cd) pyrene	379	U
53-70-3	-----dibenz (a,h) anthracene	379	U
191-24-2	-----benzo (g,h,i) perylene	379	U

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UT 05
U
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FORM I SV 1

OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-09
Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2E4028
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: not dec. 12 Date Analyzed: 04/17/98
GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution Factor: 1.0
Soil Extract Volume: _____ (ml) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/KG	
71-43-2-----	Benzene	2.3	U	u ↓
108-88-3-----	Toluene	2.3	U	
100-41-4-----	Ethylbenzene	2.3	U	
1330-20-7-----	Xylenes (total)	6.8	U	

DATA REVISION
COPY

FORM I VOA

Hunter Army Airfield UST CAP-A Report
UST 109, Building 1310, Facility ID: 9-025105
Science Applications 03-APR-1998 SA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HH2110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-09
Sample wt/vol: 30.1 (g/mL) G Lab File ID: 4B30049
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/07/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/10/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
	-----Diesel Range Organics	1.2	B	u F01, F07

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH2110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-09

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1E4020

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 12 Date Analyzed: 04/16/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

-----Gasoline Range Organics	568	U	u
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH2110

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-09
Sample wt/vol: 30.1 (g/mL) G Lab File ID: 20321
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
91-20-3	naphthalene	378	U	u ↓
91-58-7	2-chloronaphthalene	378	U	
209-96-8	acenaphthylene	378	U	
83-32-9	acenaphthene	378	U	
86-73-7	fluorene	378	U	
85-01-8	phenanthrene	378	U	
120-12-7	anthracene	378	U	
206-44-0	fluoranthene	378	U	
129-00-0	pyrene	378	U	
56-55-3	benzo (a) anthracene	378	U	
218-01-9	chrysene	378	U	
205-99-2	benzo (b) fluoranthene	378	U	
207-08-9	benzo (k) fluoranthene	378	U	
50-32-8	benzo (a) pyrene	378	U	
193-39-5	indeno (1,2,3-cd) pyrene	378	U	
53-70-3	dibenz (a,h) anthracene	378	U	
191-24-2	benzo (g,h,i) perylene	378	U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH2102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-01

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2E4016

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 16 Date Analyzed: 04/16/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ml) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/KG	
71-43-2-----	Benzene	2.4	U	u ↓
108-88-3-----	Toluene	2.4	U	
100-41-4-----	Ethylbenzene	2.4	U	
1330-20-7-----	Xylenes (total)	7.1	U	

FORM I VOA

Hunter Army Airfield UST CAP-A Report
UST 109, Building 1310, Facility ID: 9-025105
Science Applications 03-APR-1998 SA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: GENERAL ENGINEERING LABOR		Contract: NA	HH2102
Lab Code: NA	Case No.: NA	SAS No.: NA	SDG No.: HA003S
Matrix: (soil/water) SOIL		Lab Sample ID: 9804105-01	
Sample wt/vol:	30.3 (g/mL) G	Lab File ID: 4B30040	
Level: (low/med)	LOW	Date Received: 04/03/98	
% Moisture: 16	decanted: (Y/N) N	Date Extracted: 04/07/98	
Concentrated Extract Volume: 1.00 (mL)		Date Analyzed: 04/09/98	
Injection Volume:	1.0 (uL)	Dilution Factor: 1.0	
GPC Cleanup: (Y/N) N	pH: 7.0		

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
	-----Diesel Range Organics	2.3	B	u F01, F07

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH2102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-01

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1E308

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 16 Date Analyzed: 04/15/98

GC Column: J&W DB-624(FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/KG	
-----	Gasoline Range Organics	595	U	u

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH2102

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-01
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20313
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
91-20-3	naphthalene	397	U	U ↓
91-58-7	2-chloronaphthalene	397	U	
209-96-8	acenaphthylene	397	U	
83-32-9	acenaphthene	397	U	
86-73-7	fluorene	397	U	
85-01-8	phenanthrene	397	U	
120-12-7	anthracene	397	U	
206-44-0	fluoranthene	397	U	
129-00-0	pyrene	397	U	
56-55-3	benzo(a)anthracene	397	U	
218-01-9	chrysene	397	U	
205-99-2	benzo(b)fluoranthene	397	U	
207-08-9	benzo(k)fluoranthene	397	U	
50-32-8	benzo(a)pyrene	397	U	
193-39-5	indeno(1,2,3-cd)pyrene	397	U	
53-70-3	dibenz(a,h)anthracene	397	U	
191-24-2	benzo(g,h,i)perylene	397	U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2E4019

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 13 Date Analyzed: 04/16/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ml) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

71-43-2-----	Benzene	2.3	U
108-88-3-----	Toluene	2.3	U
100-41-4-----	Ethylbenzene	2.3	U
1330-20-7-----	Xylenes (total)	6.9	U

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FORM I VOA

Hunter Army Airfield UST CAP-A Report
UST 109, Building 1310, Facility ID: 9-025105
Science Applications03-APR-1998 SA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: GENERAL ENGINEERING LABOR		Contract: NA	HH3101
Lab Code: NA	Case No.: NA	SAS No.: NA	SDG No.: HA003S
Matrix: (soil/water) SOIL		Lab Sample ID: 9804105-02	
Sample wt/vol:	30.2 (g/mL) G	Lab File ID: 4B30041	
Level: (low/med)	LOW	Date Received: 04/03/98	
% Moisture: 13	decanted: (Y/N) N	Date Extracted: 04/07/98	
Concentrated Extract Volume: 1.00 (mL)		Date Analyzed: 04/09/98	
Injection Volume: 1.0 (uL)		Dilution Factor: 1.0	
GPC Cleanup: (Y/N) N	pH: 7.0		

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
	-----Diesel Range Organics	2.2	B	U $F\phi_1, F\phi_7$

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH3101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1E4025

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 13 Date Analyzed: 04/16/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

-----Gasoline Range Organics	575	U	u
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3:01

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-02
Sample wt/vol: 30.2 (g/mL) G Lab File ID: 20314
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 13 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

91-20-3-----	naphthalene	381	U
91-58-7-----	2-chloronaphthalene	381	U
209-96-8-----	acenaphthylene	381	U
83-32-9-----	acenaphthene	381	U
86-73-7-----	fluorene	381	U
85-01-8-----	phenanthrene	381	U
120-12-7-----	anthracene	381	U
206-44-0-----	fluoranthene	381	U
129-00-0-----	pyrene	381	U
56-55-3-----	benzo (a) anthracene	381	U
218-01-9-----	chrysene	381	U
205-99-2-----	benzo (b) fluoranthene	381	U
207-08-9-----	benzo (k) fluoranthene	381	U
50-32-8-----	benzo (a) pyrene	381	U
193-39-5-----	indeno (1,2,3-cd) pyrene	381	U
53-70-3-----	dibenz (a,h) anthracene	381	U
191-24-2-----	benzo (g,h,i) perylene	381	U

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1A
 VOLATILE ORGANICS ANALYSIS DATA SHEET

HH3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-03

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2E4022

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: not dec. 17 Date Analyzed: 04/16/98

GC Column: J&W DB-624(PID) ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ml) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
71-43-2-----	Benzene	2.4	U	u ↓
108-88-3-----	Toluene	2.4	U	
100-41-4-----	Ethylbenzene	2.4	U	
1330-20-7-----	Xylenes (total)	7.2	U	

FORM I VOA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 03-APR-1998 SA

HH3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-03

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 4B30042

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/07/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	MG/KG	
-----	Diesel Range Organics	1.4	B	U Fφ1, Fφ7

FORM I SV

^{1A}
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804105-03

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 1E3010

Level: (low/med) LOW

Date Received: 04/03/98

% Moisture: not dec. 17

Date Analyzed: 04/15/98

GC Column: J&W DB-624(FID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

-----Gasoline Range Organics	602	U	u
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH3103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-03
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20315
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 17 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	-----naphthalene	402 U	U ↓
91-58-7	-----2-chloronaphthalene	402 U	
209-96-8	-----acenaphthylene	402 U	
83-32-9	-----acenaphthene	402 U	
86-73-7	-----fluorene	402 U	
85-01-8	-----phenanthrene	402 U	
120-12-7	-----anthracene	402 U	
206-44-0	-----fluoranthene	402 U	
129-00-0	-----pyrene	402 U	
56-55-3	-----benzo (a) anthracene	402 U	
218-01-9	-----chrysene	402 U	
205-99-2	-----benzo (b) fluoranthene	402 U	
207-08-9	-----benzo (k) fluoranthene	402 U	
50-32-8	-----benzo (a) pyrene	402 U	
193-39-5	-----indeno (1,2,3-cd) pyrene	402 U	
53-70-3	-----dibenz (a,h) anthracene	402 U	
191-24-2	-----benzo (g,h,i) perylene	402 U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH4101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA

Case No.: NA

SAS No.: NA

SDG No.: HA003S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804105-04

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 2E506

Level: (low/med) LOW

Date Received: 04/03/98

% Moisture: not dec. 14

Date Analyzed: 04/17/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ml)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

71-43-2-----	Benzene	2.3	U
108-88-3-----	Toluene	2.3	U
100-41-4-----	Ethylbenzene	2.3	U
1330-20-7-----	Xylenes (total)	7.0	U

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FORM I VOA

HH4101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-04
Sample wt/vol: 30.4 (g/mL) G Lab File ID: 4B30043
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/07/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
	-----Diesel Range Organics	0.92	B	U F ϕ 1, F ϕ 7

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH4101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804105-04

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 1E3011

Level: (low/med) LOW

Date Received: 04/03/98

% Moisture: not dec. 14

Date Analyzed: 04/15/98

GC Column: J&W DB-624 (FID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

-----Gasoline Range Organics	581	U	V
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DATE OF ANALYSIS
0011

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH4101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-04
Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20316
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 14 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

91-20-3-----	naphthalene	388	U	u ↓
91-58-7-----	2-chloronaphthalene	388	U	
209-96-8-----	acenaphthylene	388	U	
83-32-9-----	acenaphthene	388	U	
86-73-7-----	fluorene	388	U	
85-01-8-----	phenanthrene	388	U	
120-12-7-----	anthracene	388	U	
206-44-0-----	fluoranthene	388	U	
129-00-0-----	pyrene	388	U	
56-55-3-----	benzo(a)anthracene	388	U	
218-01-9-----	chrysene	388	U	
205-99-2-----	benzo(b)fluoranthene	388	U	
207-08-9-----	benzo(k)fluoranthene	388	U	
50-32-8-----	benzo(a)pyrene	388	U	
193-39-5-----	indeno(1,2,3-cd)pyrene	388	U	
53-70-3-----	dibenz(a,h)anthracene	388	U	
191-24-2-----	benzo(g,h,i)perylene	388	U	

FORM I SV-1

OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA

SDG No.: HA003S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804105-05

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 2E507

Level: (low/med) LOW

Date Received: 04/03/98

% Moisture: not dec. 16

Date Analyzed: 04/17/98

GC Column: J&W DB-624 (PID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ml)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

71-43-2-----Benzene	2.4	U
108-88-3-----Toluene	2.4	U
100-41-4-----Ethylbenzene	2.4	U
1330-20-7-----Xylenes (total)	7.1	U

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DATA VALIDATION
COPY

FORM I VOA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Science Applications 03-APR-1998 SA

HH4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL Lab Sample ID: 9804105-05

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 4B30044

Level: (low/med) LOW Date Received: 04/03/98

% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/07/98

Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/09/98

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	MG/KG	
-----	Diesel Range Organics	1.2	B	u F ₁ , F ₇

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

HH4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S

Matrix: (soil/water) SOIL

Lab Sample ID: 9804105-05

Sample wt/vol: 10.0 (g/mL) G

Lab File ID: 1E3012

Level: (low/med) LOW

Date Received: 04/03/98

% Moisture: not dec. 16

Date Analyzed: 04/15/98

GC Column: J&W DB-624(FID) ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	UG/KG	
-----	Gasoline Range Organics	595	U	U

DATA ENTRY
COPY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HH4103

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA003S
Matrix: (soil/water) SOIL Lab Sample ID: 9804105-05
Sample wt/vol: 30.2 (g/mL) G Lab File ID: 20317
Level: (low/med) LOW Date Received: 04/03/98
% Moisture: 16 decanted: (Y/N) N Date Extracted: 04/04/98
Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 04/08/98
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	-----naphthalene	394	U
91-58-7	-----2-chloronaphthalene	394	U
209-96-8	-----acenaphthylene	394	U
83-32-9	-----acenaphthene	394	U
86-73-7	-----fluorene	394	U
85-01-8	-----phenanthrene	394	U
120-12-7	-----anthracene	394	U
206-44-0	-----fluoranthene	394	U
129-00-0	-----pyrene	394	U
56-55-3	-----benzo (a) anthracene	394	U
218-01-9	-----chrysene	394	U
205-99-2	-----benzo (b) fluoranthene	394	U
207-08-9	-----benzo (k) fluoranthene	394	U
50-32-8	-----benzo (a) pyrene	394	U
193-39-5	-----indeno (1,2,3-cd) pyrene	394	U
53-70-3	-----dibenz (a,h) anthracene	394	U
191-24-2	-----benzo (g,h,i) perylene	394	U

FORM I SV-1

OLM03.0