FINAL

FORSCOM

CORRECTIVE ACTION PLAN

Part A

3d Inf Div (Mech)

Former Heating Oil Tanks (HOTs) A & B
Building 850
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

98-216P(PPT-8Fiery)/021699

DOCUMENT 17.1

FINAL

CORRECTIVE ACTION PLAN - PART A REPORT FOR FORMER HEATING OIL TANKS (HOTs) A & B BUILDING 850 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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Attachments

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	date 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
HOT	Heating Oil Tank
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
MSL	mean sea level
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

Former Heating Oil Tanks A & B,
Facility Name: Building 850 Street Address: Strachen Drive, HAAF

Facility ID: N/A City: Savannah County: Chatham Zip Code: 31406

Latitude: 32°01'21" N Longitude: 81°08'03" 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: 03/05/99

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. Reeves, P.E.
Signature: John B Reeves
Date: 1-22-99

Georgia Stamp or Seal

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 Former Heating Oil Tanks (HOTs) A & B, Building 850 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 the Former HOTs.

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)

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

FORMER UST SYSTEMS (if applicable)

Tank ID Number	Capacity (gal)	Substance Stored	Date Removed
Former HOT A	20,000	heating oil	October 31, 1996
Former HOT B	20,000	heating oil	October 31, 1996

D. Initial Site Characterization

(Figure 1: Vicinity/Location Map)
(Figure 2: Site Plan)

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

Characterization of petroleum-related contamination at the site was initiated during system closure activities on October 31, 1996, by Anderson Columbia Environmental, Inc. (ACE). After removal of the Former HOTs A & B and ancillary piping, five soil samples were collected from the tank pit (Figure 7). Three soil samples (8102-B850-TKA-N, TKA-S, and TKA-C) were collected from native soil at the Former HOT A excavation base and two soil samples (8102-B850-TKB-N and TKB-S) were collected from native soil at the Former HOT B excavation base. However, the soil samples collected did not contain contaminant concentrations that exceeded Georgia Environmental Protection Division applicable soil threshold levels (i.e., Table A, column 2). However, elevated concentrations of total petroleum hydrocarbon–diesel-range organics (TPH-DRO) and polynuclear aromatic hydrocarbons (PAHs) were present in the soil at the site (Tables 5a and b) (ACE 1997). Groundwater was not sampled as part of closure activities.

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

A detailed schematic diagram illustrating Former HOTs A & B and ancillary piping as configured during operation is not available. However, during removal activities by ACE, no holes in either tank were reported. Therefore, the major source of contamination 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:* 1,440 *feet*

ii. *Nearest down-gradient public water supply located within:* 1,440 *feet*

iii. *Nearest non-public water supply located within:* 12,480 *feet*

iv. *Nearest down-gradient non-public water supply located within:* >12,480 *feet*

c. *Surface Water Bodies and sewers:*

i. *Nearest surface water located within:* 1,920 *feet*

ii. *Nearest down-gradient surface water located within:* 4,560 *feet*

iii. *Nearest storm or sanitary sewer located within:* 80 *feet*

iv. *Depth to bottom of sewer at a point nearest the plume:* 5.09 *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 four boreholes (N1 through N4). Field headspace gas analyses were performed on each sample to determine organic vapor concentration. Two soil samples were selected from each borehole for laboratory chemical analysis of benzene, toluene, ethylbenzene, and xylene (BTEX); TPH gasoline-range organics (GROs)/DROs; and PAHs. In boreholes where organic vapors were detected, one sample was collected from the 2.0-foot interval where the highest vapor concentration was recorded, and the other from the 2.0-foot interval located immediately above the saturated zone. If organic vapors were not detected, one sample was collected from the 2.0-foot interval directly below ground surface, and the other from the 2.0-foot interval located immediately above the saturated zone. 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 (N1 through N4), one groundwater sample was collected from a depth interval of approximately 1.0 to 5.0 feet below the saturated zone using a direct-push sampling device. Chemical parameters for groundwater samples submitted for laboratory analysis included BTEX and PAHs. Refer to Attachment A for complete documentation of the technical approach implemented during this investigation.

i. Groundwater contamination above MCLs? YES X NO _____

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

YES _____ NO X

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

Benzene was detected in the groundwater sample collected from direct-push location N-3 at a concentration of 5.7 µg/L (Figure 5). This concentration exceeds the U.S. Environmental Protection Agency maximum contaminant level of 5.0 µg/L (Table 3).

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:* 9.27 to 9.96 feet BGS *(Table 4: Groundwater Elevations)*

b. *Groundwater Flow Direction:* southeast *(Figure 6: Potentiometric Surface Map)*

c. *Hydraulic Gradient:* 0.003 feet/feet

d. *Geophysical Province:* Coastal Plain

e. *Unique geologic/hydrogeological conditions:* A localized groundwater depression exists in the vicinity of the former excavation area at this site (see Appendix X, Section 1.4).

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 the Former HOTs on October 31, 1996. The 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 top of the tanks. After the atmosphere in each tank was tested with a combustible gas indicator, all accessible tank openings were capped and the tanks were 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 250 cubic yards of soil were removed from the Building 850 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: *500*
(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 this site. The results of the investigation indicate that the site conditions do not exceed the applicable Georgia Environmental Protection Division soil threshold levels as defined in Table A, column 2. However, benzene was detected in the groundwater at a concentration of 5.7 µg/L. Although the results of the investigation indicate groundwater contamination is present at the site, fate and transport modeling of the benzene concentrations indicates that benzene will never reach the nearest receptor, which is located 1,440 feet downgradient from the site. A detailed description of the fate and transport model is presented in Appendix VI.

Because no soil contamination was found at the site and the results of the fate and transport model indicate no risk to the receptor, further investigation of the Former HOTs A & B, Building 850 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)

Public notification letters are not required for the Former HOTs A & B, Building 850 site because heating oil tanks are not regulated as defined by Georgia Department of Natural Resources (GA DNR) guidance.

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 Former HOTs A & B, Building 850 site, which is unregulated as defined by GA DNR guidance and has no Facility Identification Number, 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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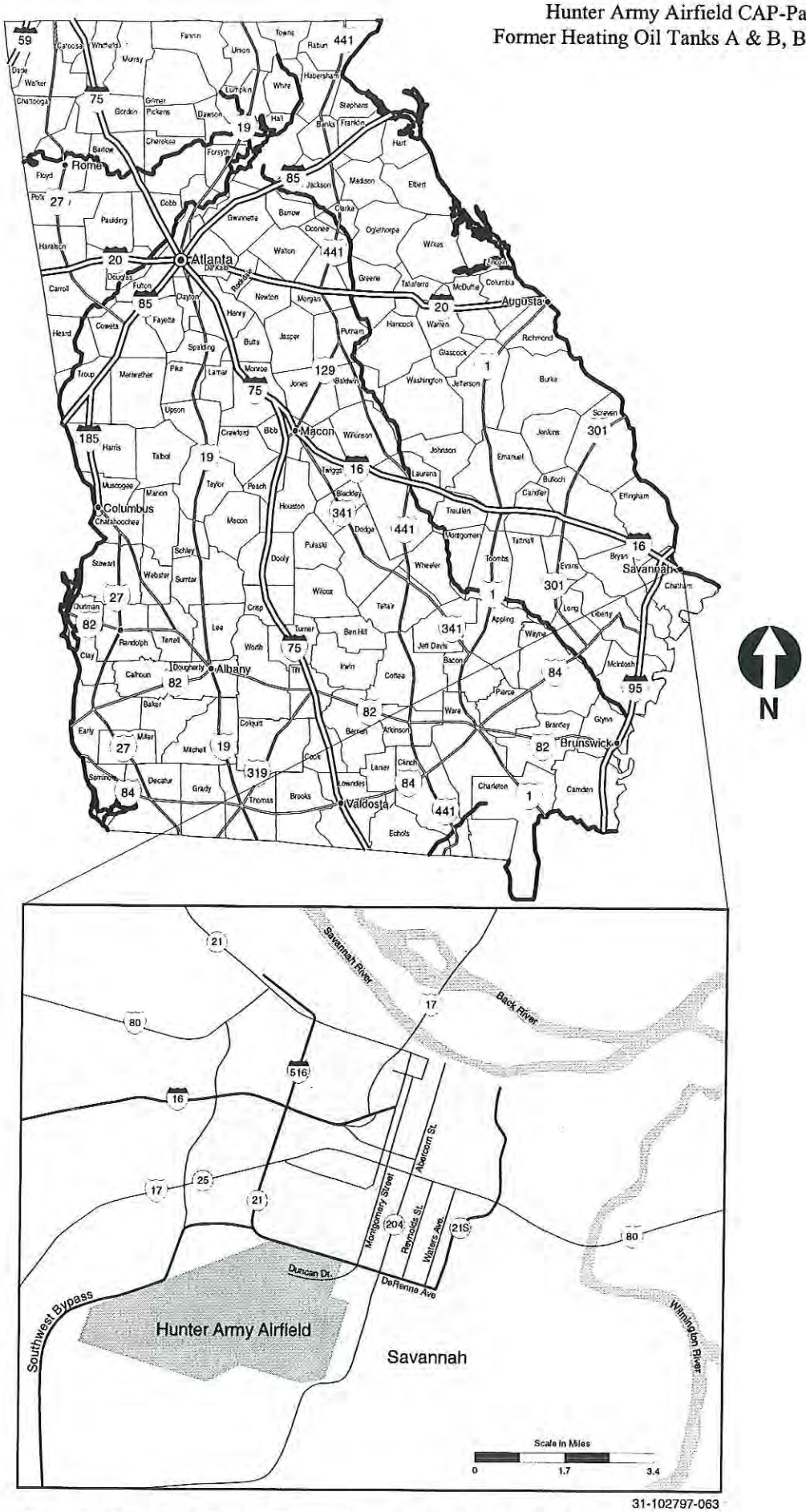


Figure 1. Location Map of Hunter Army Airfield, Chatham County, Georgia

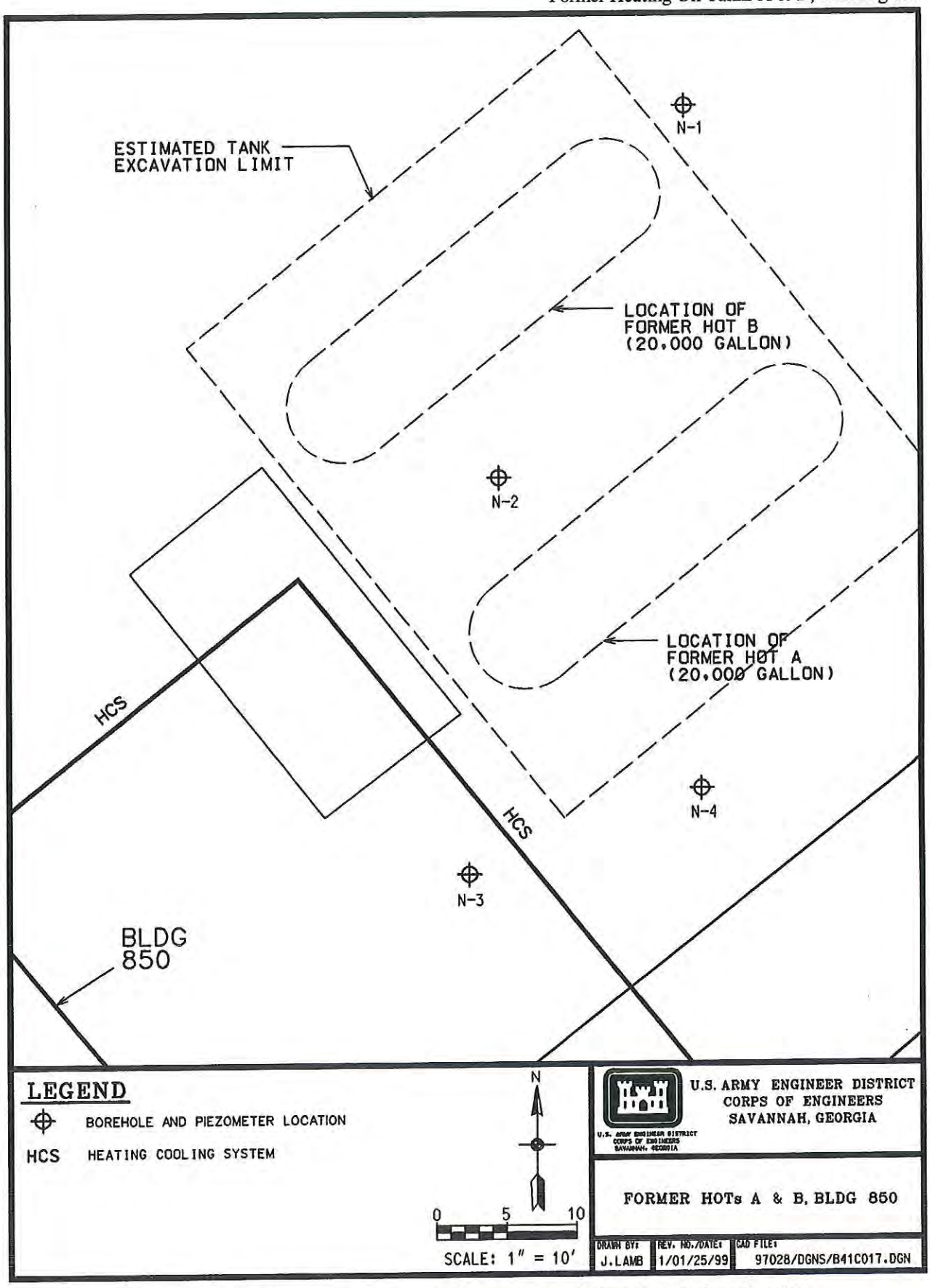
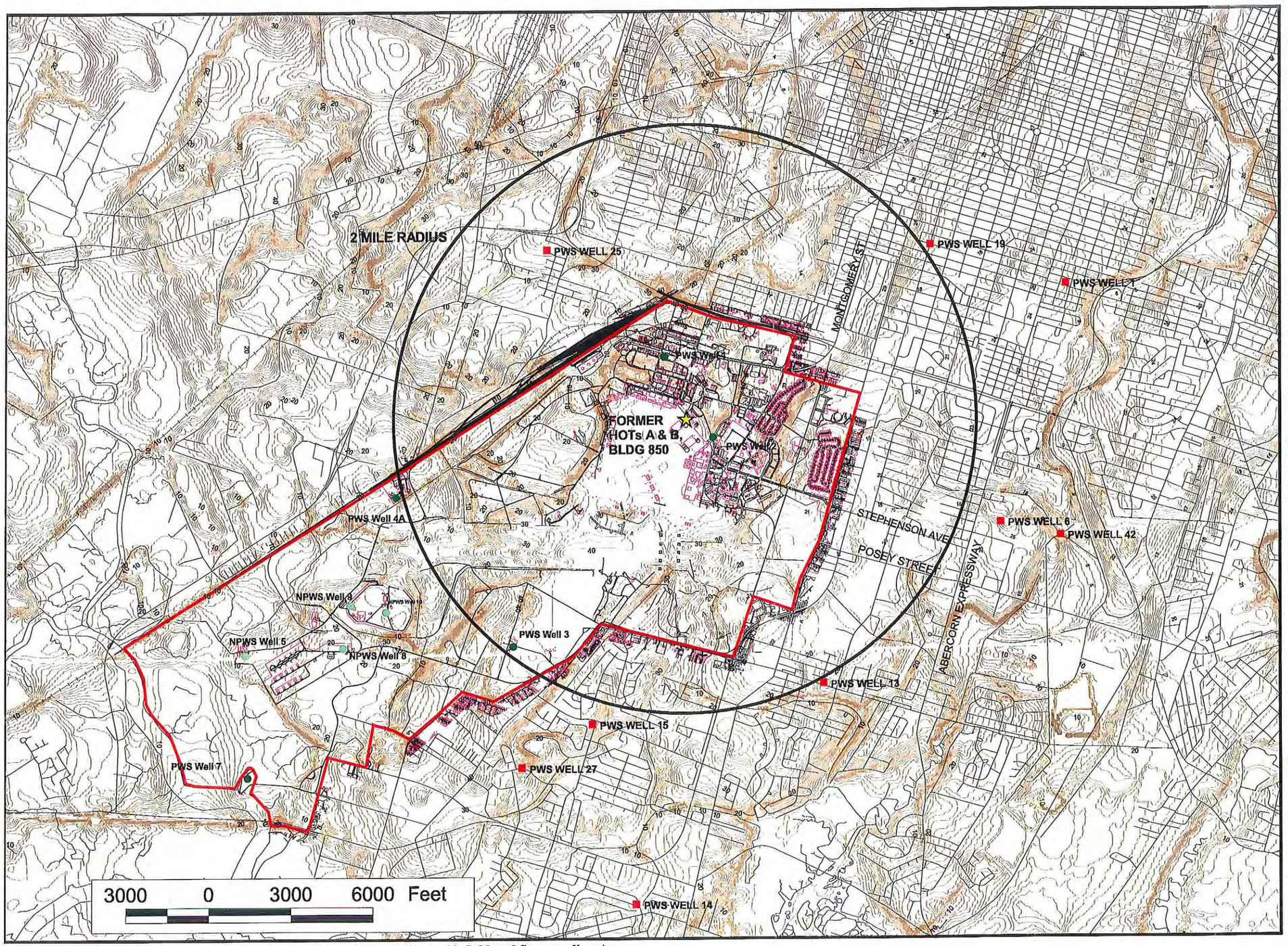


Figure 2. Site Plan for the Former HOTs A & B, Building 850 Site Investigation



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
- 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 minuteTopographic Quad sheets: Borroughs, 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 Port Stewart.

N

GA State Plane NAD83 (feet)

SAIC
Science Applications International Corporation

FORMER HOT s A & B, BLDG 850

REVISION	DRAWN BY:	CHKD BY:	DATE:
0	M.Norris	A. Bailey	12/09/98

FILE REFERENCES

051rds_polyline	burroughsctrf
051hyd_polyline	isleofhopectrf
051rr	savannahctrf
hunterarea	gardoncityctrf
	trveh.dgn
	bggen.dgn

SHT 1 of 1 DRAWING #

G:\97028\HUNTERBASE\BLDG850_APR ARCVIEW PROJECT NAME

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

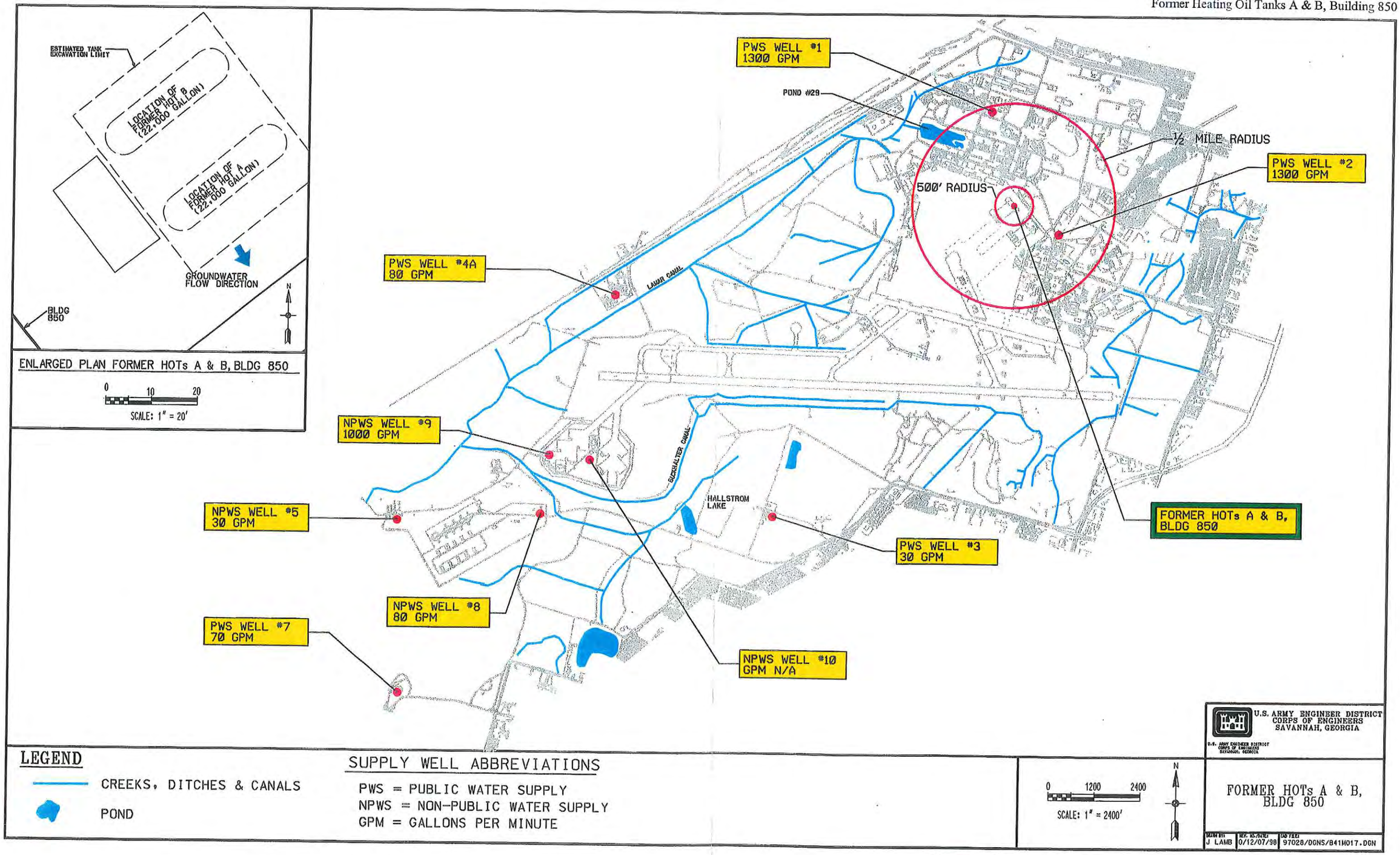


Figure 3b. Detailed Map Showing Public and Private Drinking Water Sources and Surface Water Bodies at Hunter Army Airfield

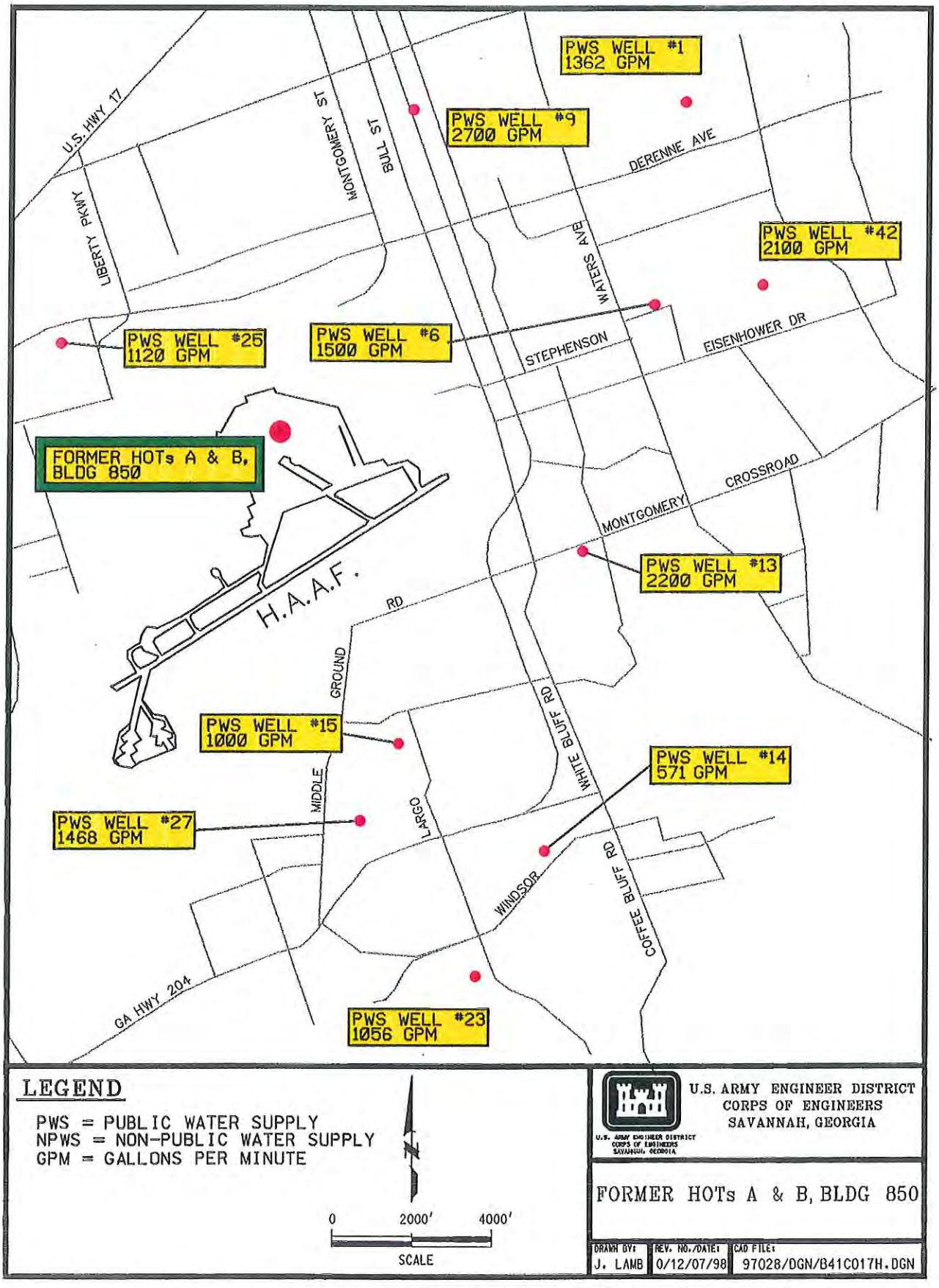


Figure 3c. Detailed Map Showing Public and Private Drinking Water Sources in Areas Adjacent to Hunter Army Airfield

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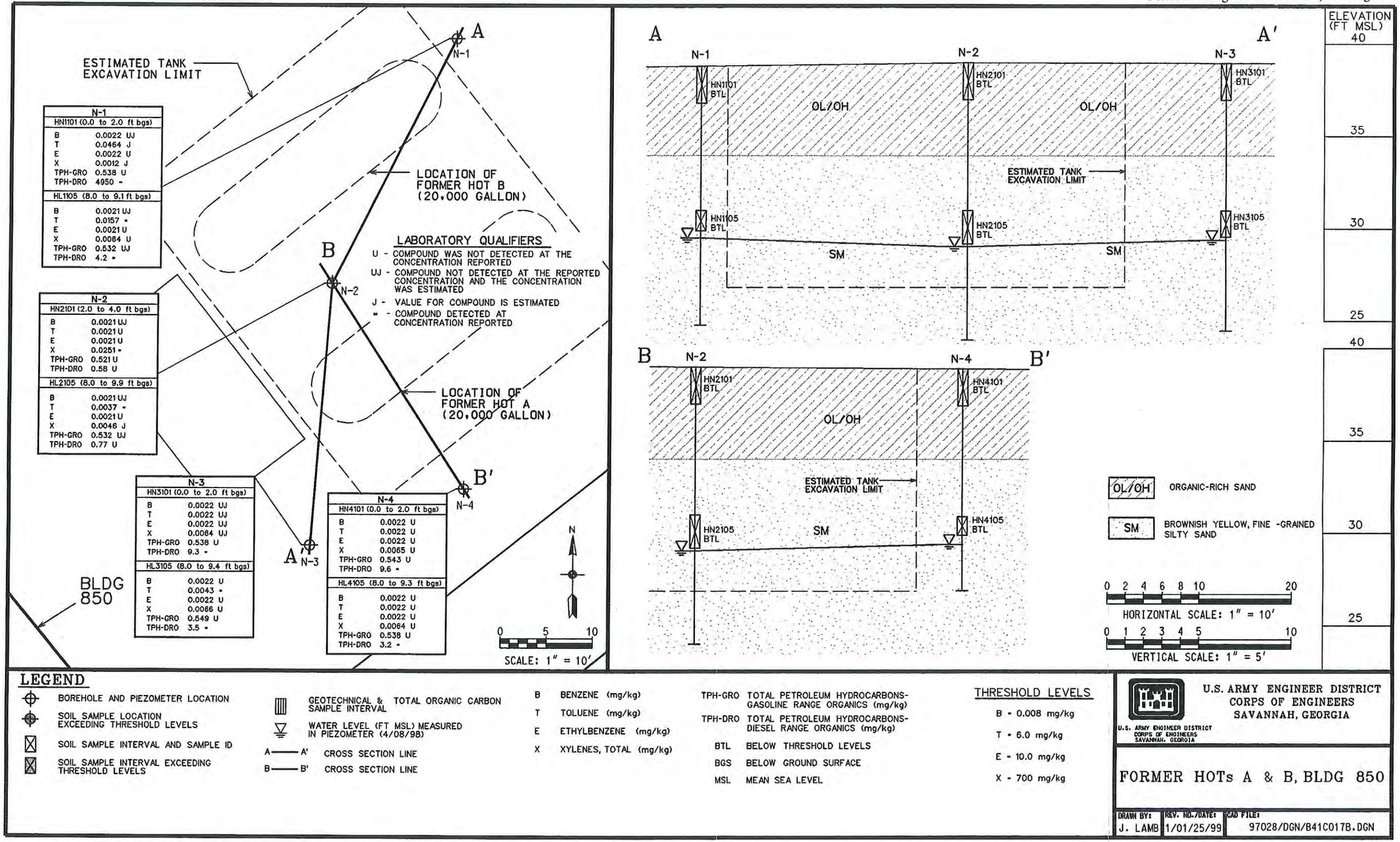

Figure 4. Soil Quality Map of the Former HOTs A & B, Building 850 Site

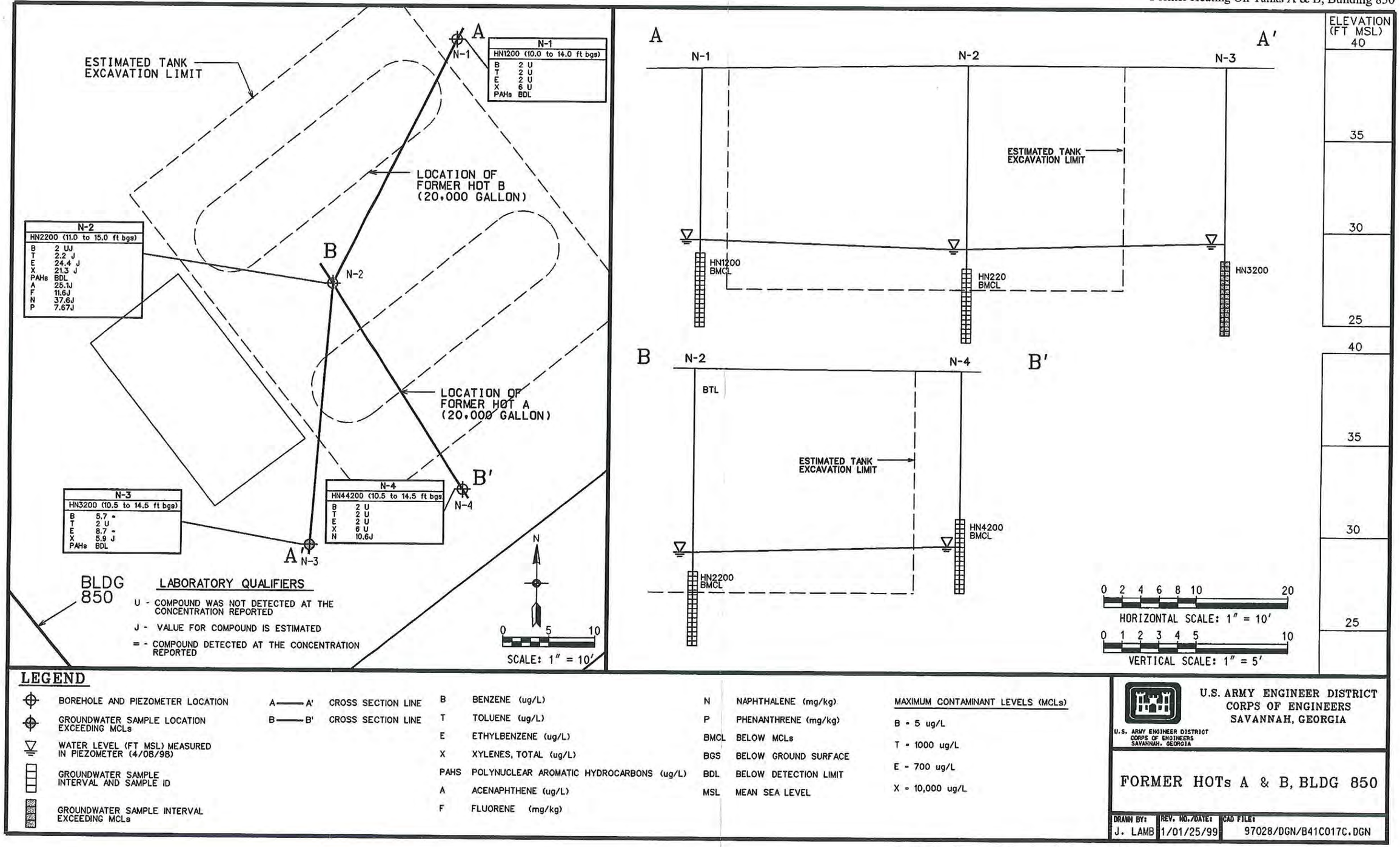

Figure 5. Groundwater Quality Map of the Former HOTs A & B, Building 850 Site

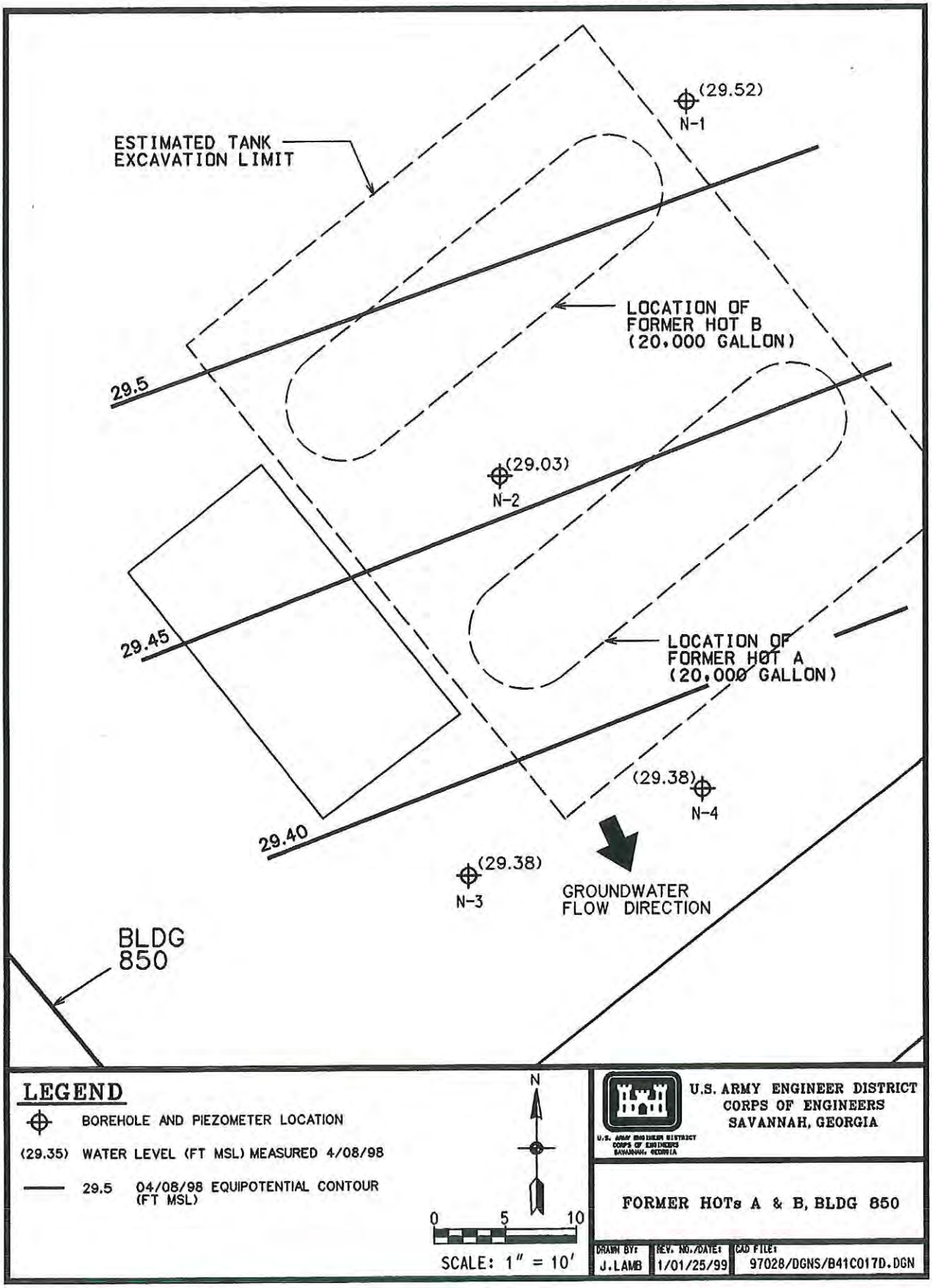

Figure 6. Potentiometric Surface Map of the Former HOTs A & B, Building 850 Site

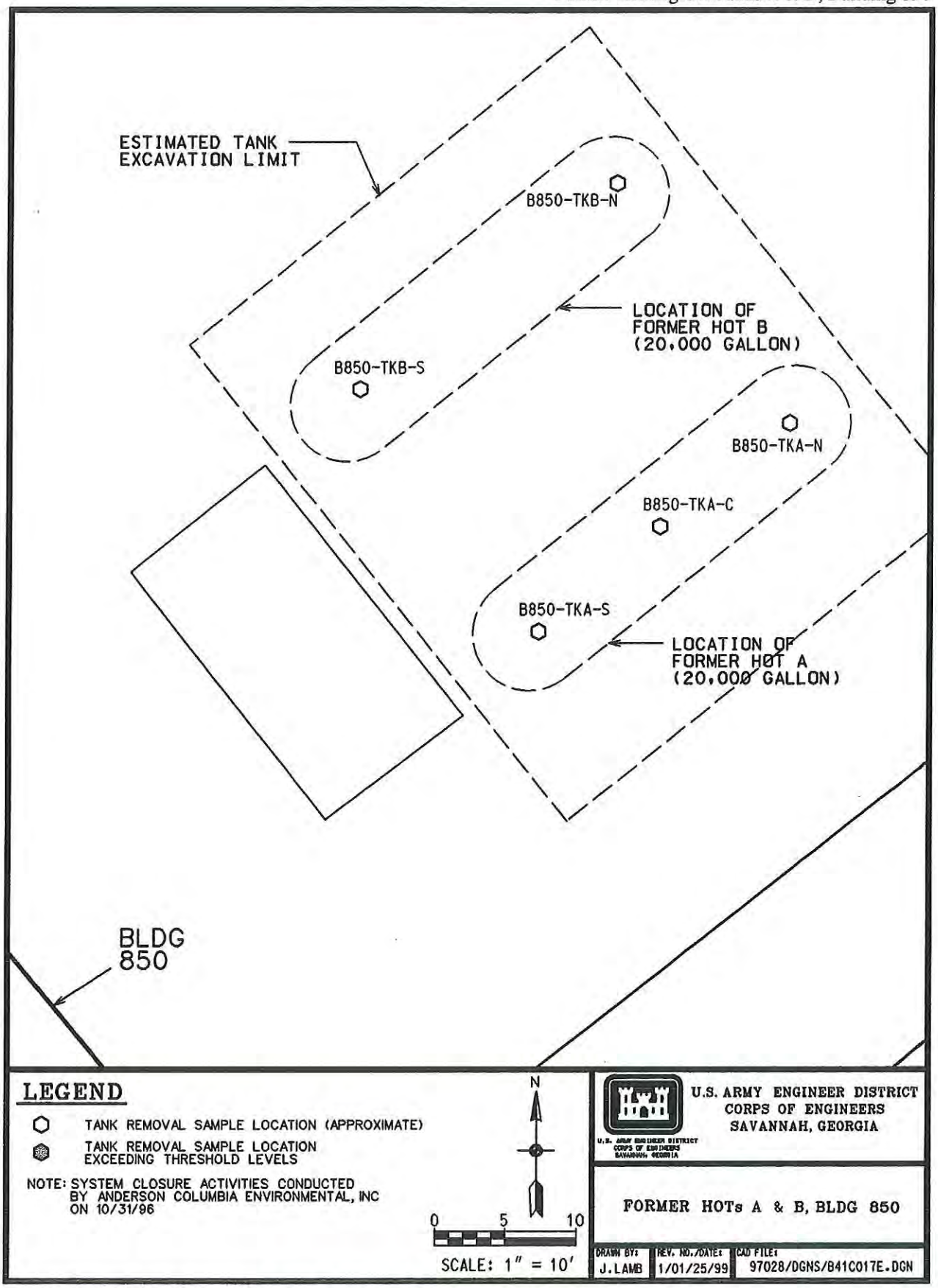

Figure 7. HOT System Closure Sampling Locations at the Former HOTs A & B, Building 850 Site

**NOT APPLICABLE FOR THE FORMER HOTs A & B
BUILDING 850 SITE INVESTIGATION**

Figure 8. Proposed Additional Boring/Monitoring Well Locations

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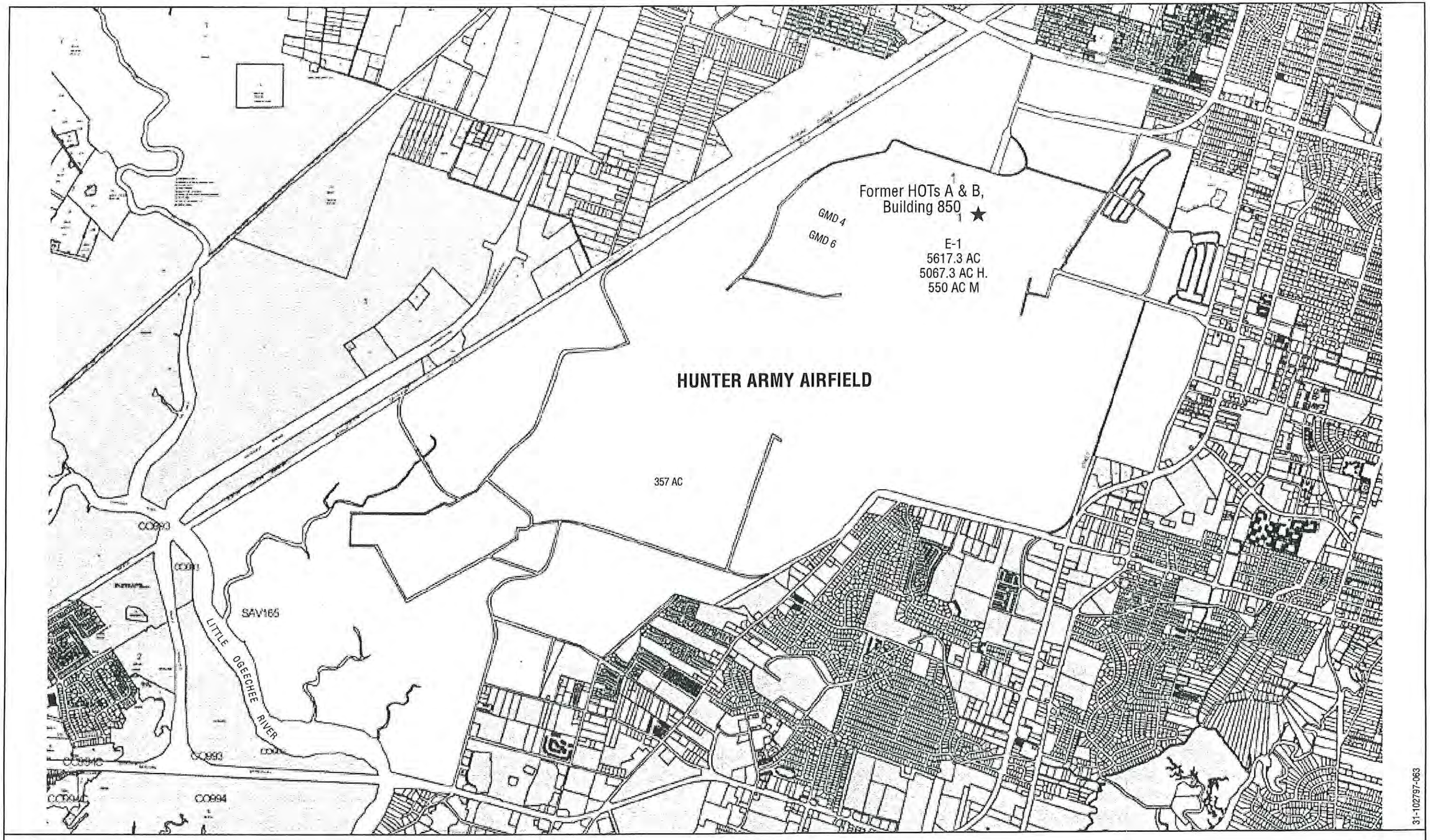

Figure 9. Tax Map of Hunter Army Airfield and Vicinity, Chatham County, Georgia

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APPENDIX II

REPORT TABLES

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Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 1: FREE PRODUCT REMOVAL

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

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

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 2a: SOIL ANALYTICAL RESULTS[3]
(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)
N-1	HN1101	0.0 to 2.0	04/06/98	0.0022 UJ	0.0464 J	0.0022 U	0.0012 J	0.0476	4950 =	0.538 U
N-1	HN1105	8.0 to 9.1	04/06/98	0.0021 UJ	0.0157 =	0.0021 U	0.0064 U	0.0157	4.2 =	0.532 UJ
N-2	HN2101	0.0 to 2.0	04/06/98	0.0021 UJ	0.0021 U	0.0021 U	0.0251 =	0.0251	0.58 U	0.521 U
N-2	HN2105	8.0 to 9.9	04/06/98	0.0021 UJ	0.0037 =	0.0021 U	0.0046 J	0.0083	0.77 U	0.532 UJ
N-3	HN3101	0.0 to 2.0	04/03/98	0.0022 UJ	0.0022 UJ	0.0022 UJ	0.0064 UJ	BDL	9.3 =	0.538 U
N-3	HN3105	8.0 to 9.4	04/03/98	0.0022 U	0.0043 =	0.0022 U	0.0066 U	0.0043	3.5 =	0.549 U
N-3	HN3110[4]	8.0 to 9.4	04/03/98	0.0022 U	0.0022 U	0.0022 U	0.0067 U	BDL	2.6 U	0.556 U
N-4	HN4101	0.0 to 2.0	04/03/98	0.0022 U	0.0022 U	0.0022 U	0.0065 U	BDL	9.6 =	0.543 U
N-4	HN4105	8.0 to 9.3	04/03/98	0.0022 U	0.0022 U	0.0022 U	0.0064 U	BDL	3.2 =	0.538 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 N-3 at a depth of 8.0 to 9.4 ft 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.

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 2b: SOIL ANALYTICAL RESULTS[3]
POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (mg/kg)											Total PAHs (mg/kg)
				Benzo(a)-anthacene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Fluor-anthene	Indeno-(1,2,3-cd)-pyrene	Phenan-threne	Pyrene	
N-1	HN1101	0.0 to 2.0	04/06/98	3.47 =	3.96 =	5.00 =	2.25 =	2.55 =	3.94 =	0.819 J	3.31 =	2.44 =	1.42 U	3.39 =	31.129
N-1	HN1105	8.0 to 9.1	04/06/98	1.62 =	1.78 =	2.46 =	1.05 J	1.03 J	1.69 =	1.41 U	1.97 =	1.11 J	1.91 U	1.76 =	14.47
N-2	HN2101	0.0 to 2.0	04/06/98	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	0.346 U	BDL
N-2	HN2105	8.0 to 9.9	04/06/98	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	0.352 U	BDL
N-3	HN3101	0.0 to 2.0	04/03/98	0.714 U	1.32 =	0.714 U	0.714 U	0.714 U	0.714 U	0.714 U	1.25 =	0.714 U	0.714 U	0.994 =	3.564
N-3	HN3105	8.0 to 9.4	04/03/98	0.730 U	0.522 J	0.730 U	0.730 U	0.730 U	0.730 U	0.730 U	0.730 U	0.730 U	0.730 U	0.730 U	0.522
N-3	HN3110[4]	8.0 to 9.4	04/03/98	0.557 J	1.20 =	0.738 U	0.738 U	0.738 U	0.738 U	0.738 U	1.12 =	0.738 U	0.738 U	1.18 =	4.057
N-4	HN4101	0.0 to 2.0	04/03/98	0.0757 J	0.089 J	0.141 J	0.056 J	0.082 J	0.106 J	0.362 U	0.103 J	0.067 J	0.0367 J	0.112 J	0.8696
N-4	HN4105	8.0 to 9.3	04/03/98	0.198 J	0.172 J	0.232 J	0.105 J	0.119 J	0.313 J	0.358 U	0.228 J	0.111 J	0.0824 J	0.328 J	1.888
Applicable Standards[1]				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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 N-3 at a depth of 8.0 to 9.4 ft BGS.
BGS - Below ground surface.
N/A - Not applicable, the health-based threshold level exceeds the expected soil concentration under free production conditions.
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.

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 3a: GROUNDWATER ANALYTICAL RESULTS[4]
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	Total BTEX[3] (µg/L)
N-1	HN1200	10.0 to 14.0	04/06/98	2 U	2 U	2 U	6 U	BDL[2]
N-2	HN2200	11.0 to 15.0	04/06/98	2 UJ	2.2 J	24.4 J	21.3 J	BDL[2]
N-3	HN3200	10.5 to 14.5	04/03/98	**5.7 =**	2 U	8.7 =	5.9 J	BDL[2]
N-4	HN4200	10.5 to 14.5	04/03/98	2 U	2 U	2 U	6 U	BDL[2]
Applicable Standards[1]				5	1,000	700	10,000	NRC

TABLE 3b: GROUNDWATER ANALYTICAL RESULTS[4]
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Sample ID	Depth (ft BGS)	Date Sampled	Detected PAH Compounds (µg/L)				Total PAHs[3] (µg/L)
				Acenaph-thalene	Fluorene	Naptha-lene	Phenan-threne	
N-1	HN1200	10.0 to 14.0	04/06/98	9.9 UJ	9.9 UJ	9.4 UJ	9.9 UJ	BDL[2]
N-2	HN2200	11.0 to 15.0	04/06/98	25.1 J	11.6 J	37.6 J	7.6 J	81.9
N-3	HN3200	10.5 to 14.5	04/03/98	10.5 UJ	10.5 UJ	10.5 UJ	10.5 UJ	BDL[2]
N-4	HN4200	10.5 to 14.5	04/03/98	10.3 UJ	10.3 UJ	10.6 J	10.3 UJ	10.6
Applicable Standards[1]				NRC	NRC	NRC	NRC	NRC

NOTE: [1]U.S. Environmental Protection Agency maximum contaminant level.
[2]BDL - Below detection limit; PAH/BTEX compounds were not detected above the laboratory detection limit. Refer to Appendix VIII, Table VIII-A, for complete list of PAH and BTEX 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.**
BGS - Below ground surface.
BTEX - Benzene, toluene, ethylbenzene, and xylene.
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.

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

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)
N-1	04/08/98	38.79	39.88	9.0 to 14.0	N/A	10.36	N/A	N/A	29.52
N-2	04/08/98	38.99	40.94	10.0 to 15.0	N/A	11.91	N/A	N/A	29.03
N-3	04/08/98	38.96	41.55	9.5 to 14.5	N/A	12.17	N/A	N/A	29.38
N-4	04/08/98	38.89	40.83	9.5 to 14.5	N/A	11.45	N/A	N/A	29.38

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

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID#: N/A

TABLE 5a: HOT SYSTEM CLOSURE[1] - SOIL ANALYTICAL RESULTS
(VOLATILE ORGANIC COMPOUNDS)

Sample Location	Depth (ft BGS)[3]	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH-DRO (mg/kg)
8102-B850-TKA-N		10/31/96	BDL	BDL	BDL	BDL	BDL	750.6
8102-B850-TKA-S		10/31/96	BDL	BDL	BDL	BDL	BDL	4,400
8102-B850-TKA-C		10/31/96	BDL	BDL	BDL	BDL	BDL	690
8102-B850-TKB-N		10/31/96	BDL	BDL	BDL	BDL	BDL	7,030.3
8102-B850-TKB-S		10/31/96	BDL	BDL	BDL	BDL	BDL	141,100
Applicable Standards[2]			0.008	6	10	700	NRC	NRC

NOTE: [1]Heating Oil Tank system closure performed by Anderson Columbia Environmental Services, Inc. (1997).
[2]Georgia Department of Natural Resources Applicable Soil Threshold Levels (i.e., Table A, column 2).
[3]Depth of system closure sample not reported. Samples were reported to have been collected in the bottom center portion of the tank excavation pit.
BDL - Below detection limit. Analytical result/detection limit not provided.
BGS - Below ground surface.
BTEX - Benzene, toluene, ethylbenzene, and xylene.
NRC - No regulatory criteria.
TPH-DRO - Total petroleum hydrocarbon–diesel-range organics.

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 5b: HOT SYSTEM CLOSURE[1] - SOIL ANALYTICAL RESULTS
(POLYNUCLEAR AROMATIC HYDROCARBONS)

Sample Location	Depth (ft BGS)[4]	Date Sampled	Detected PAH Compounds (mg/kg)													Total PAHs (mg/kg)
			Acenaph-thene	Anthra-cene	Benzo(b)-fluor-anthene	Benzo(a)-pyrene	Benzo(g,h,i)-perylene	Chry-sene	Fluor-anthene	Fluorene	Indeno-(1,2,3-cd)-pyrene	2-Methyl-Naph-thalene	Naph-thalene	Phen-anthrene	Pyrene	
8102-B850-TKA-N		10/31/96	BDL	BDL	BDL	BDL	BDL	BDL	1.160	BDL	BDL	BDL	BDL	1.770	1.130	4.06
8102-B850-TKA-S		10/31/96	3.10	2.7	BDL	BDL	BDL	BDL	7.30	4.00	BDL	12.90	2.70	13.3	8.90	54.9
8102-B850-TKA-C		10/31/96	BDL	BDL	BDL	BDL	BDL	BDL	6.00	BDL	BDL	BDL	BDL	6.40	5.10	18.0
8102-B850-TKB-N		10/31/96	BDL	BDL	BDL	BDL	BDL	BDL	3.10	BDL	BDL	BDL	BDL	3.20	2.40	9.20
8102-B850-TKB-S		10/31/96	3.60	3.20	4.60	3.40	2.20	4.90	11.60	3.80	2.40	13.1	2.80	17.4	16.7	89.7
Applicable Standards[2]			N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	N/A[3]	NRC

NOTE: [1]Heating Oil Tank system closure performed by Anderson Columbia Environmental, Inc. (1997).
[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.
[4]Depth of system closure sample not reported. Samples were reported to have been collected from the bottom center portion of the tank excavation pit.
BDL - Below detection limit.
BGS - Below ground surface.
NRC - No regulatory criteria.
PAHs - Polynuclear aromatic hydrocarbons.

Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID #: N/A

TABLE 6a: HOT SYSTEM CLOSURE[1] - 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[3]			5	1,000	700	10,000	NRC

TABLE 6b: HOT SYSTEM CLOSURE[1] - 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]Heating Oil Tank system closure performed by Anderson Columbia Environmental, Inc. (1997).
[2]Not applicable; groundwater samples were not collected.
[3]U.S. Environmental Protection Agency maximum contaminant levels.
BGS - Below ground surface.
NRC - No regulatory criteria.

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 from 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 3,890 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 containing 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 5,000 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 1,000-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 5,000-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 3b, 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 Figures 3a and 3c, 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 1,477 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, 48,000 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 FORMER HOTs A & B, BUILDING 850 SITE

A field potential receptor survey was conducted for the Former HOTs A & B, Building 850 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 Former HOTs A & B, Building 850 Site

The Former HOTs A & B, Building 850 site is located approximately 1,440 feet northwest (upgradient) of Well 2. Well 2 is located at Building 1205, Strachen Drive, HAAF (Figure 3b, Appendix I). Therefore, the site is classified as being located greater than 500 feet to a withdrawal point. Well 2 is a public well that supplies water to 7,500 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 3b, Appendix I). Therefore, collection and analysis of groundwater samples from Well 2 is not recommended.

1.3.2 Surface Water Bodies Near the Former HOTs A & B, Building 850 Site

Pond 29 is located approximately 1,920 feet northwest (upgradient) of the site (Figures 3a and 3b). As shown on Figure 3b, the nearest downgradient surface water body is a drainage ditch that lies approximately 4,560 feet southeast of the Former HOTs A & B, Building 850 site. Based on the distances between the site and the nearest surface water bodies, the site is classified as being located greater than 500 feet to a downgradient surface water body.

Based on the estimated nature and extent of petroleum-related groundwater contamination at the site, there is no indication that surface water bodies (Figure 3b, Appendix I) have been impacted or that sewer lines, culverts, or any other utility lines could serve as preferential pathways for contaminants to surrounding surface water bodies or water supply wells. Therefore, collection and analyses of surface water samples were not conducted as part of the site investigation.

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	1,300	525	7,500	Public
1205	2	1941	600	250	1,300	525	7,500	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	1,000	Unk	Unk	Non-public
8464	10	Unk	Unk	Unk	Unk	N/A	N/A	Non-public

NOTE: DPW - Directorate of Public Works.
gpm - Gallons per minute.
N/A - Not applicable.
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	Casing Depth	Pump Rate (gpm)	Number of Service Connections	Population[1]	Public or Non-Public Supply
1	Unk	1,006	300	1,362	Unk	Unk	Public
6	Unk	750	240	1,500	Unk	Unk	Public
9	Unk	710	267	2,700	Unk	Unk	Public
13	Unk	1,000	270	2,200	Unk	Unk	Public
14	Unk	800	338	571	Unk	Unk	Public
15	Unk	414	252	1,000	Unk	Unk	Public
23	Unk	639	320	1,056	Unk	Unk	Public
25	Unk	540	287	1,120	Unk	Unk	Public
27	Unk	550	321	1,468	Unk	Unk	Public
47	Unk	550	260	2,100	Unk	Unk	Public

NOTE: gpm - Gallons per minute.
TBD - To be determined.
Unk - Unknown
[1]All 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

1. COMPANY NAME: SAIC

2. DRILL SUBCONTRACTOR: R E Wright (SAIC)

SHEET: N1 — SHEETS: 1 OF

3. PROJECT: HAAF CAP Part A UST Sites

4. LOCATION: Hunter AAF Bldg. 850 Tanks A+B

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 liners = 4' length
shoe to drive cap = 4.6' length
push rods = 3' + 4' lengths

8. HOLE LOCATION: N1

9. SURFACE ELEVATION: TBD

10. DATE STARTED: 4-6-98

11. DATE COMPLETED: 4-6-98

12. OVERBURDEN THICKNESS: NA

13. DEPTH DRILLED INTO ROCK: NA

14. TOTAL DEPTH OF HOLE: 14.0'

15. DEPTH GROUNDWATER ENCOUNTERED: 9.1' BLS

16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: See water level log

17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): See water level log

18. GEOTECHNICAL SAMPLES: NA — DISTURBED: NA — UNDISTURBED: NA

19. TOTAL NUMBER OF CORE BOXES: NA

20. SAMPLES FOR CHEMICAL ANALYSIS	BTEX/VOC	PAH/METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERED %
soil/water	2/1	2/1	DRO 2/0	GRO 2/0	NA	37

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
piezometer	✓	NA	NA	John B Rawett

LOCATION SKETCH/COMMENTS — SCALE: Not to scale

See page 34
Log book 6

PROJECT: HAAF CAP Part A UST Sites

HOLE NO.: N1

(A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO. (E)	(F)	
	0	0 to 0.8 5Y 4/1 OL/OH sandy organic soil well graded 0.8 to 2.2' QBR 4-6-98 1.0' to ~~1.9'~~ SM Silty Sand 5Y 5/3 laminated with black sand 2.2' to 2.7' silty fine sand 5Y 3/2	Head Space 0' to 2' <2000		0 to 2' HN1101	Began 1235 End 1240 Recovery 0 to 3.4'
	4	2.7' to 3.4' OL/OH sandy organic soil well graded 0' to 3.4' unconsolidated 4.0' to 4.7' same as above 4.7' to 5.5' 10YR6/6 brownish yellow fine sand unconsolidated	headspace 4' to 6' 1225 head space 6' to 8' 17 ppm			Began 1250 end 1255 4.0' to 7.3' Recovery
	8	grades ~~2.5Y~~ 2.5Y 6/3 light yellowish brown - WT fine sand unconsolidated	8' to 0 9.1 256 ppm		8' to 10' HN1105	Began 1300 end 1305 Full Recovery

PROJECT CONTINUED ON page 2.2

HOLE NO. N1

(A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	
	10.0	cont'd 8.0 to 8.5' same as above 8.5' to 9.1' 7.5YR 2.5/1 very dark brown fine sand with 10YR5/6 yellowish brown med to fine sand TD = 14.0'			start 1310 finish 1315 screen pushed to 14'

9/24/98

PROJECT: HAAF - CAP A UST INVEST.

HOLE NO: ~~A2~~ N1

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HTRW DRILLING LOG

1. COMPANY NAME: SAIC	2. DRILL SUBCONTRACTOR: RE Wright (SAIC)	DISTRICT: USACE Savannah; HOLE NUMBER: N2; SHEET 1 OF 2
3. PROJECT: HAAF CAP Part A UST sites	4. LOCATION: Hunter AAF Bldg. 850 Tanks A+B	
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 macro core; acetate liner = 4' length; push rods = 5' and 4' length; screen length = 3.5 Ft.	8. HOLE LOCATION: N2	
	9. SURFACE ELEVATION: TBD	
	10. DATE STARTED: 4-6-98	11. DATE COMPLETED: 4-6-98
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 9.9'	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: See water level log	
14. TOTAL DEPTH OF HOLE: ~~12~~ 15'	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): See water level log	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
NA	NA	NA	NA

20. SAMPLES FOR CHEMICAL ANALYSIS	~~BAE~~ VOC	~~PAH~~ METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %
soil / water	2 / 1	2 / 1	GRO 2/0	DRO 2/0	NA	62

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
piezometer	✓	WA	NA	John B Reeves

LOCATION SKETCH/COMMENTS — SCALE:

See page 34 log book #6

PROJECT	HOLE NO.
HAAF CAP Part A UST Sites	N2

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

DEPTH (ft) (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)		
0	0 to 0.6 7.5YR 2.5/1 OL/OH organic soil with sand 0.6 to 1.7' 7.5YR 6/3 light brown SAN 1.7 to 3.1' 7.5YR 5/2 brown sand	0 to 2' 0 2' to 4' 0	PPM PPM	0' to 2' HN210 1	Begin 1330 end 1335 Recovery 0 to 3.1'
4'	4.0' to ~~6.2'~~ 5.8' QBR 4-6-98 5.0 same as above 5.0 to ~~6.8~~ 5.8' QBR 4-6-98 7.5YR 2.5/1 very dark brown silty fine sand 5.8' to 6.2' sub angular poorly sorted sand 10YR 6/6	4' to 6' 0	4' to 6' PPM		Begin 1335 end 1340 Recovery 4.0 to 6.2'
8'	brownish yellow sandy clay 6.0 to 6.2' 2.5Y 6/2 light brownish gray 30% to 40% 2.5YR 5/8 wt dark red QBR 4-6-98	8.0 to 9.9' 0	PPM	8' to 10' HN2105	Began 1350 end 13 recovery ~~0.8~~ QBR 4-6-98 8.0' to 10.1

PROJECT

HOLE NO N2

plasticity

(A)	(B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	(F)
		cont'd from Page 28			
		8.0 to 10.1 same as above			
		Screen pushed to 15.0'			
		TD = 15.0			

29

4/29/98

PROJECT

HOLE NO

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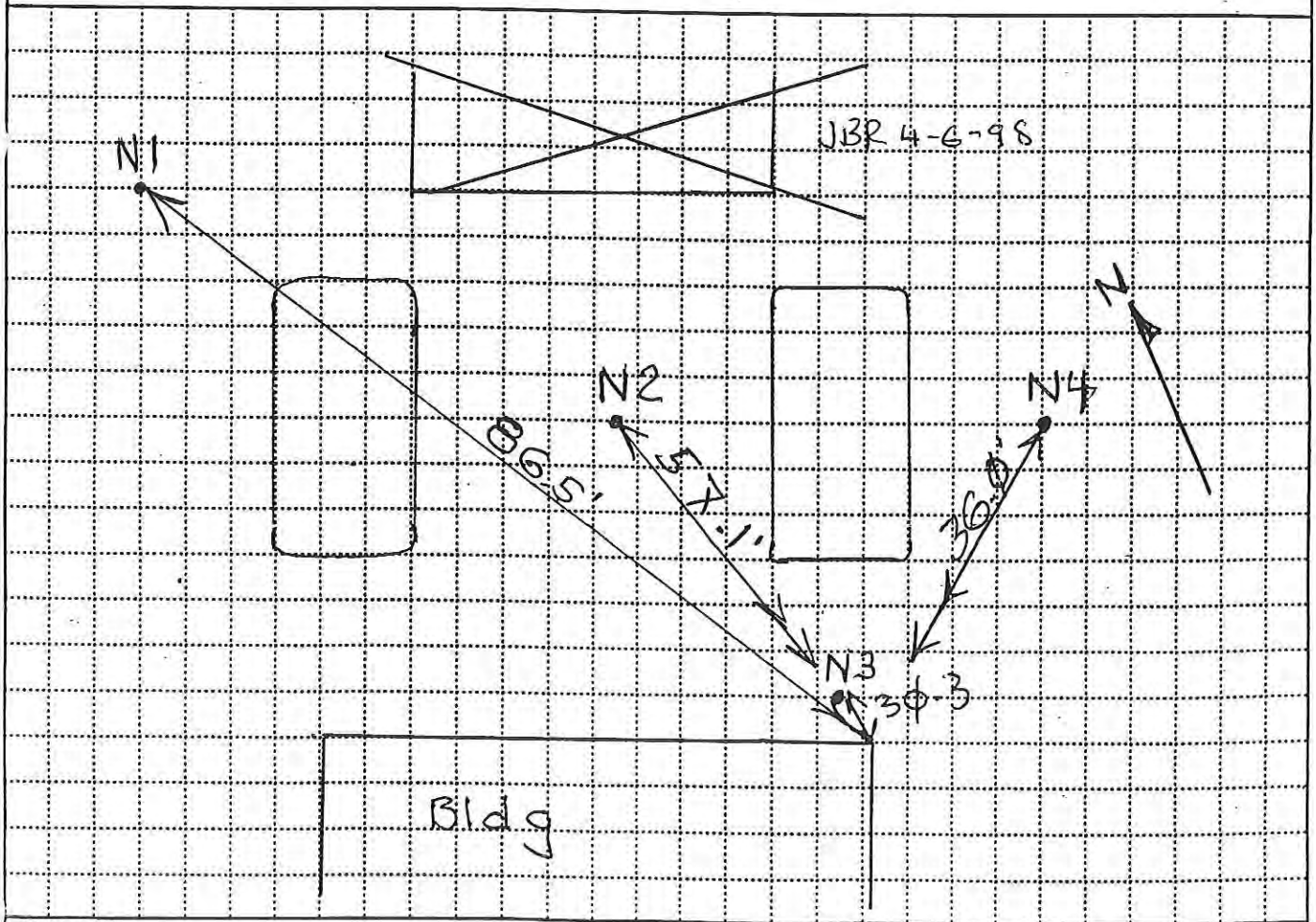
HTRW DRILLING LOG

1. COMPANY NAME: SAIC	DISTRICT: USACE Savannah	HOLE NUMBER: N3
2. DRILL SUBCONTRACTOR: RE Wright (SAIC)		SHEET 1 OF SHEETS
3. PROJECT: Hunter AAF CAP Part A Ust sites	4. LOCATION: Hunter AAF Bldg. 850 Tanks A+B	
5. NAME OF DRILLER: John Hasselhoff	6. MANUFACTURERS DESIGNATION OF DRILL: Geoprobe Saliva KA	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: 2" dia macrocore acetate liner = 4'; sleeve to drive cap = 4.6'; push rods = 3'+4'; screen length = 3.5'	8. HOLE LOCATION: N3	
	9. SURFACE ELEVATION: TBD	
	10. DATE STARTED: 4-3-98	11. DATE COMPLETED: 4-3-98
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: JBR 10-12-98 ~~10.4'~~ 9.4'	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: See water level log	
14. TOTAL DEPTH OF HOLE: ~~12'~~ 14.5' BGS	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): See water level log	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES			
NA	NA	NA	NA			
20. SAMPLES FOR CHEMICAL ANALYSIS (EG)	**BTEX VOC**	**PAH ~~METALS~~**	**OTHER (SPECIFY)**	**OTHER (SPECIFY)**	**OTHER (SPECIFY)**	**21. TOTAL CORE RECOVERY %**
Soil / water	2/1	2/1	GRO 2/0	DRO 2/0	NA	73
22. DISPOSITION OF HOLE	**BACKFILLED**	**MONITORING WELL**	**OTHER (SPECIFY)**	**23. SIGNATURE OF INSPECTOR**		
Piezometer	✓	NA	NA	John B Reeves		

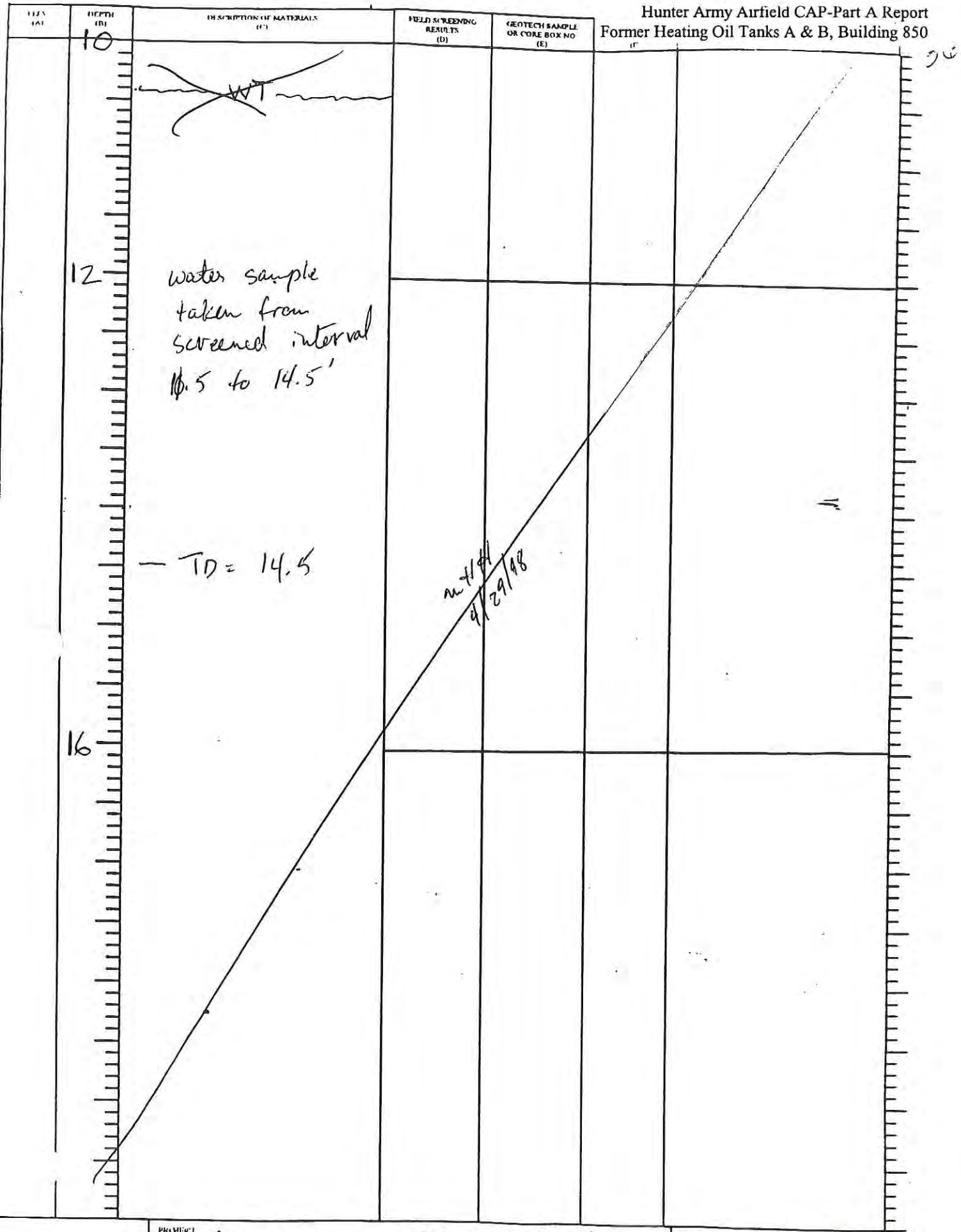
LOCATION SKETCH/COMMENTS — SCALE:



PROJECT	HOLE NO.
Hunter AAF CAP Part A UST Sites	N3

DEPTH (ft)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)		
0	Ø' to Ø.9' JBR 4-3-98 ~~Sandy Silt w/~~ SW-SM well graded sand with silt 7.5YR5/4 Ø.9' to 2.7' organic soil w sand 7.5YR 2.5/1 2.7' to 4.0' 7.5YR5/1	Ø'to 2' Ø 2'-4' Ø		Ø'to2' HN31Ø1	Started 11ØØ Finished 1105 full recovery drilled 4'
4	4.Ø to 7.3' same as above	4'to6' Ø 6'-8' Ø			4.Ø' to 7.3' recovery started 1105 finished 1110
8	JBR 4-3-98 8.Ø' to ~~10.8'~~ 9.4' same as above WT	8.Ø to 9H Ø		8'to1Ø' HN31Ø5	started 11:2Ø finished 11:25 JBR 4-~~3~~-98 8.Ø to ~~10.8~~ 9.4'

PROJECT HAAF ~~UST~~ CAP A UST Investigations HOLE NO N3 Bldg. 85Ø



PROJECT HAAF CAP A UST Investigations | BOLE NO N3

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HTRW DRILLING LOG

DISTRICT: USACE Savannah
HOLE NUMBER: N4
1. COMPANY NAME: SAIC
2. DRILL SUBCONTRACTOR: RE Wright (SAIC)
SHEET: SHEETS OF
3. PROJECT: Hunter AAF CAP Part A UST Sites
4. LOCATION: Hunter AAF Bldg 850 Tanks A+B
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; shoe to drive cap = 4.6'; pushrods = 3' and 2', 1.5" diam; screen length = 3.5'
8. HOLE LOCATION: N4
9. SURFACE ELEVATION: TBP
10. DATE STARTED: 4-3-98
11. DATE COMPLETED: 4-3-98
12. OVERBURDEN THICKNESS: NA
15. DEPTH GROUNDWATER ENCOUNTERED: 9.3'
13. DEPTH DRILLED INTO ROCK: NA
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: see water level log
14. TOTAL DEPTH OF HOLE: ~~12'~~ 14.5'
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): See water level log
18. GEOTECHNICAL SAMPLES: NA — DISTURBED: NA — UNDISTURBED: NA
19. TOTAL NUMBER OF CORE BOXES: NA

20. SAMPLES FOR CHEMICAL ANALYSIS	BTEX VOC	PAH	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
soil / water	2 / 1	2 / 1		GRO 2/0	DRO 2/0	NA	85%

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
piezometer	✓	NA	NA	John B Reeves

LOCATION SKETCH/COMMENTS — SCALE:

See page 34

PROJECT: Hunter AAF CAP Part A UST Sites
HOLE NO.: N4

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)		
0	0' to 0.8' highly organic with sand 0.8' to 2.3' OL/OH organic soil with sand 2.3' to 3.5' SW-SM well graded sand with silt 5YR 4/3 low Moisture	0'-2' 0 2' to 4' 0		0' to 2' HN41@1	Start 12:50 Finish 12:55 drilled 0 to 4' recovered 0 to 3.5'
4	4.0 to 4.7' highly organic 4.7' to 6.4' SW-SM well graded sand with silt 5YR 5/3 gradual change well graded sand w silt 5YR 7/2	4' to 6' 0 6' to 8' 0			Start 12:55 Finish 13:00 drilled 4' to 8' recovered 4.0 to 7.2'
8	8.0 to 11.5' 8.0 to 8.8 same as above 8.8' to 9.3' 5YR 4/3 sandy silt WT	8' to 12' 0		8' to 10' HN41@5	Start 13:10 Finish 13:15 drilled 8' to 12' recovered 3.5'
10					

PROJECT HAAF - CAP A UST Investigation

HOLE NO N4

ELEV (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS (D)	GEOTECH SAMPLE OR CORE BOX NO (E)	
					HN42ØØ
	11.Ø				
		WATER SAMPLE TAKEN FROM 1Ø.5 to 14.5' BTOC			
	12.Ø				
	13.Ø				
	14.Ø				
		—— TD = 14.5'			
	15.Ø				

[handwritten initials] 5/1/98

PROJECT
HAAF CAP A UST Investigation

HOLE NO.

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APPENDIX V

SOIL LABORATORY REPORTS

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Former HOTs A & B, Building 850
Hunter Army Airfield
Chatham County, Facility ID: N/A

TABLE V-A. SUMMARY OF SOIL ANALYTICAL RESULTS[3]

Location Sample ID Date Collected Depth (ft BGS)	Applicable Standards[1]	N-1 HN1101 04/06/98 0.0 to 2.0	N-1 HN1105 04/06/98 8.0 to 9.1	N-2 HN2101 04/06/98 0.0 to 2.0	N-2 HN2105 04/06/98 8.0 to 9.9	N-3 HN3101 04/03/98 0.0 to 2.0	N-3 HN3105 04/03/98 8.0 to 9.4	N-3 HN3110[4] 04/03/98 8.0 to 9.4
VOCs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	0.008	0.0022 UJ	0.0021 UJ	0.0021 UJ	0.0021 UJ	0.0022 UJ	0.0022 U	0.0022 U
Toluene	6.00	0.0464 J	0.0157 =	0.0021 U	0.0037 =	0.0022 UJ	0.0043 =	0.0022 U
Ethylbenzene	10.00	0.0022 U	0.0021 U	0.0021 U	0.0021 U	0.0022 UJ	0.0022 U	0.0022 U
Xylenes	700.00	0.0012 J	0.0064 U	0.0251 =	0.0046 J	0.0064 UJ	0.0066 U	0.0067 U
TPH-DRO	NRC	4,950 =	4.2 =	0.58 U	0.77 U	9.3 =	3.5 =	2.6 U
TPH-GRO	NRC	0.538 U	0.532 UJ	0.521 U	0.532 UJ	0.538 U	0.549 U	0.556 U
PAHs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
2-Chloronaphthalene	NRC	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Acenaphthene	N/A[2]	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Acenaphthylene	NRC	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Anthracene	N/A[2]	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Benzo(a)anthracene	N/A[2]	3.47 =	1.62 =	0.346 U	0.352 U	0.714 U	0.730 U	0.557 J
Benzo(a)pyrene	N/A[2]	3.96 =	1.78 =	0.346 U	0.352 U	1.32 =	0.522 J	1.20 =
Benzo(b)fluoranthene	N/A[2]	5.00 =	2.46 =	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Benzo(g,h,i)perylene	N/A[2]	2.25 =	1.05 J	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Benzo(k)fluoranthene	N/A[2]	2.55 =	1.03 J	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Chrysene	N/A[2]	3.94 =	1.69 =	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Dibenzo(a,h)anthracene	N/A[2]	0.819 J	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Fluoranthene	N/A[2]	3.31 =	1.97 =	0.346 U	0.352 U	1.25 =	0.730 U	1.12 =
Fluorene	N/A[2]	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Indeno(1,2,3-cd)pyrene	N/A[2]	2.44 =	1.11 J	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Naphthalene	N/A[2]	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Phenanthrene	N/A[2]	1.42 U	1.41 U	0.346 U	0.352 U	0.714 U	0.730 U	0.738 U
Pyrene	N/A[2]	3.39 =	1.76 =	0.346 U	0.352 U	0.994 =	0.730 U	1.18 =

NOTE: [1]Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (i.e., 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 N-3 at a depth of 8.0 to 9.4 ft 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 RESULTS[3] (continued)

Location Sample ID Date Collected Depth (ft BGS)	Applicable Standards[1]	N-4 HN4101 04/03/98 0.0 to 2.0	N-4 HN4105 04/03/98 8.0 to 9.3
VOCs	mg/kg	mg/kg	mg/kg
Benzene	0.008	0.0022 U	0.0022 U
Toluene	6.00	0.0022 U	0.0022 U
Ethylbenzene	10.00	0.0022 U	0.0022 U
Xylenes	700.00	0.0065 U	0.0064 U
TPH-DRO	NRC	9.6 =	3.2 =
TPH-GRO	NRC	0.543 U	0.538 U
PAHs	mg/kg	mg/kg	mg/kg
2-Chloronaphthalene	NRC	0.362 U	0.358 U
Acenaphthene	N/A[2]	0.362 U	0.358 U
Acenaphthylene	NRC	0.362 U	0.358 U
Anthracene	N/A[2]	0.362 U	0.358 U
Benzo(a)anthracene	N/A[2]	0.0757 J	0.198 J
Benzo(a)pyrene	N/A[2]	0.0892 J	0.172 J
Benzo(b)fluoranthene	N/A[2]	0.141 J	0.232 J
Benzo(g,h,i)perylene	N/A[2]	0.0564 J	0.105 J
Benzo(k)fluoranthene	N/A[2]	0.0819 J	0.119 J
Chrysene	N/A[2]	0.106 J	0.313 J
Dibenzo(a,h)anthracene	N/A[2]	0.362 U	0.358 U
Fluoranthene	N/A[2]	0.103 J	0.228 J
Fluorene	N/A[2]	0.362 U	0.358 U
Indeno(1,2,3-cd)pyrene	N/A[2]	0.0677 J	0.111 J
Naphthalene	N/A[2]	0.362 U	0.358 U
Phenanthrene	N/A[2]	0.0367 J	0.0824 J
Pyrene	N/A[2]	0.112 J	0.328 J

NOTE: [1]Georgia Department of Natural Resources (GA DNR) Applicable Soil Threshold Levels (i.e., 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.
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.

An Employee-Owned Company
Science Applications International Corporation
800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4500

CHAIN OF CUSTODY RECORD

COC NO.: 40898B

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell Hall (Printed Name): Mitchell Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS SPECIAL INSTRUCTIONS
HN11Ø1	4/6/98	124Ø	soil	X	X	X	X		2	>2ØØØ ppm	9804218-0
HN11Ø5	4/6/98	13Ø5	soil	X	X	X	X		2	256 ppm	02
HN21Ø1	4/6/98	133Ø	soil	X	X	X	X		2	Ø ppm	03
HN21Ø5	4/6/98	135Ø	soil	X	X	X	X		2	Ø.Ø ppm	04
HG11Ø1	4/6/98	1455	soil	X	X	X	X		2	2.6 ppm	05
HG31Ø1	4/6/98	154Ø	soil	X	X	X	X		2	343 ppm	06
HG31Ø2	4/6/98	1545	soil	X	X	X	X		2	8.7 ppm	07
HG41Ø1	4/6/98	16Ø5	soil	X	X	X	X		2	4.3 ppm	08
HG211Ø	4/6/98	1515	soil	X	X	X	X		2	141 ppm	09
HG64ØØ	4/7/98	1115	soil					X	1	NA	9804218-18
HG21Ø1	4/6/98	1515	soil	X	X	X	X		2	141 ppm	9804218-10

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
Mitchell Hall	4/8/98 1300 1330		
COMPANY NAME: SAIC		COMPANY NAME: GEL	4.8.98 1630
RECEIVED BY:	Date/Time 4/8/98 1330	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY:	Date/Time 4/8/98	RECEIVED BY:	Date/Time
COMPANY NAME: GEL	1630	COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 19

Cooler ID: 63

Cooler Temperature: 4°C

FEDEX NUMBER: NA

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An Employee-Owned Company
Science Applications International Corporation

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

CHAIN OF CUSTODY RECORD

COC NO.: 403983

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell H. Hall (Printed Name): Mitchell H. Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

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/water	X	X	X	X		2	0 ppm	9804105-[illegible]
*HH3101	4/3/98	0855	Soil	X	X	X	X		2	0 ppm	9804105-02
HH3103	4/3/98	0900	Soil	X	X	X	X		2	0 ppm	0[illegible]
HH4101	4/3/98	0930	Soil	X	X	X	X		2	0 ppm	[illegible]
HH4103	4/3/98	0940	Soil	X	X	X	X		2	0 ppm	[illegible]
HN3101	4/3/98	1105	Soil	X	X	X	X		2	0 ppm	[illegible]
HN3105	4/3/98	1130	Soil	X	X	X	X		2	0 ppm	[illegible]
HN3110	4/3/98	1130	Soil	X	X	X	X		2	0 ppm	[illegible]
HH3210	4/3/98	~~1140~~ 0905	water	X					2	0 ppm	dupl. of [illegible]
										N/A	duplicate of 9804105-[illegible]
HH2110	4/3/98	08:05	Soil	X	X	X	X				
HA2103	~~4/2/98~~ 4/3/98	16:15	Soil	X	X	X	X			9804105-09	added by DAG
										9804105-10	added by DAG

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
Mitchell H. Hall	4/3/98 1340	[signature]	4.3.98 16:40
COMPANY NAME: SAI		COMPANY NAME: GEL	
RECEIVED BY: [signature]	Date/Time 4/3/98 1340	RELINQUISHED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	
RELINQUISHED BY: [signature]	Date/Time 4/3/98 1640	RECEIVED BY:	Date/Time
COMPANY NAME: GEL		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS:

Cooler ID: #253

Cooler Temperature: 4°C wet

FEDEX NUMBER:

V-7

Hunter Army Airfield CAP-Part A Report
Former Heating Oil Tanks A & B, Building 850

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SAIC An Employee-Owned Company
Science Applications International Corporation

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

CHAIN OF CUSTODY RECORD

COC NO.: 40498C

PROJECT NAME: CAP - Hunter AFB - Part A

PROJECT NUMBER: 0019

PROJECT MANAGER: Allison Bailey

Sampler (Signature): Mitchell H. Hall (Printed Name): Mitchell H. Hall

LABORATORY NAME: General Engineering Laboratory

LABORATORY ADDRESS: 2040 Savage Raod, Charleston, SC 29417

PHONE NO: (803) 556-8171

Sample ID	Date Collected	Time Collected	Matrix	BTEX	PAH	DRP	GRO	TOC	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
HL3103	4/3/98	1610	~~Soil~~	X	X	X	X		2	0.0 ppm	4.8 to 5.4 1
HL1110	4/3/98	1445	soil	X	X	X	X		2	2.0 ppm	4.0 to 6.0 2
HL2101	4/3/98	1520	soil	X	X	X	X		2	30 ppm	0 to 2" 13
HL2103	4/3/98	1525	soil	X	X	X	X		2	10 ppm	10" 4.0 - 5.1 14
HL3101	4/3/98	1555	soil	X	X	X	X		2	0 ppm	0 - 2 ft. 15
HN4101	4/3/98	1255	soil	X	X	X	X		2	0 ppm	0 - 2 ft. 16
HN4105	4/3/98	1315	soil	X	X	X	X		2	0 ppm	8.0 - 9.3 ft 17
HL1101	4/3/98	1430	soil	X	X	X	X		2	0 ppm	0.5 - 3.5 18
HL1103	4/3/98	1445	soil	X	X	X	X		2	2 ppm	4.0 - 4.8 19
HH5305	4/4/98	1205	water		X				2	NA	well profile 5
HTB003	4/4/98	0750	water	X					2	NA	TRIP BLANK
HH5301	4/4/98	1640	water	X					2	NA	well prof. 16
HH5310	4/4/98	1055	water	X					2	NA	well prof. 13

REQUESTED PARAMETERS

RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time	TOTAL NUMBER OF CONTAINERS: 26	Cooler Temperature: 4 °C
COMPANY NAME: SAIC	4/4/98 1350	COMPANY NAME: G&L	4-6-98 09:30	Cooler ID: 359	FEDEX NUMBER: NA
RECEIVED BY: Carol Sandel	Date/Time 4/4/98 1350	RELINQUISHED BY:	Date/Time		
COMPANY NAME: General Engineering		COMPANY NAME:			
RELINQUISHED BY: Carol Sandel	Date/Time 4/4/98 1800	RECEIVED BY:	Date/Time		
COMPANY NAME: General Engineering		COMPANY NAME:			

4/4/98

V-9

Hunter Army Airfield CAP-Part A Report
Former Heating Oil Tanks A & B, Building 850

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN1101

Lab Name: GENERAL ENGINEERING LABOR | Contract: NA
Lab Code: NA | Case No.: NA | SAS No.: NA | SDG No.: HA008S
Matrix: (soil/water) SOIL | Lab Sample ID: 9804218-01
Sample wt/vol: 10.0 (g/mL) G | Lab File ID: 2F106
Level: (low/med) LOW | Date Received: 04/08/98
% Moisture: not dec. 7 | Date Analyzed: 04/20/98
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	2.2	U	UJ CΦ8
108-88-3	Toluene	46.4		J HΦ2
100-41-4	Ethylbenzene	2.2	U	U
1330-20-7	Xylenes (total)	1.2	J	J

DATA VALIDATION COPY

FORM I VOA

FORM 1 Science Applications08-APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HN1101DT1

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-01

Sample wt/vol: 30.9 (g/mL) G Lab File ID: 4D4006

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 7 decanted: (Y/N) N Date Extracted:04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/23/98

Injection Volume: 1.0(uL) Dilution Factor: 1000.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	4950	B	= FΦ1, FΦ8

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA038S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-01

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F108

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 7 Date Analyzed: 04/20/98

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	538	U	U

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN1101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-01

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 1Q108

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 7 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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	1420	U	U
91-58-7	2-chloronaphthalene	1420	U	
208-96-8	acenaphthylene	1420	U	
83-32-9	acenaphthene	1420	U	
86-73-7	fluorene	1420	U	
85-01-8	phenanthrene	1420	U	
120-12-7	anthracene	1420	U	
206-44-0	fluoranthene	3310		=
129-00-0	pyrene	3390		
56-55-3	benzo(a)anthracene	3470		
218-01-9	chrysene	3940		
205-99-2	benzo(b)fluoranthene	5000		
207-08-9	benzo(k)fluoranthene	2550		
50-32-8	benzo(a)pyrene	3960		
193-39-5	indeno(1,2,3-cd)pyrene	2440		
53-70-3	dibenz(a,h)anthracene	819	J	J
191-24-2	benzo(g,h,i)perylene	2250		=

FORM I SV-1 OLM03.0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F107

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 6 Date Analyzed: 04/20/98

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	2.1	U	uJ (08
108-88-3	Toluene	15.7		=
100-41-4	Ethylbenzene	2.1	U	u
1330-20-7	Xylenes (total)	6.4	U	u

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HN1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-02

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 4D4007

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 6 decanted: (Y/N) N Date Extracted:04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/23/98

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	4.2	B	= F01, F08

FORM I SV

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-02

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F2019

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 6 Date Analyzed: 04/21/98

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	532	U	UJ Aϕ3, Cϕ8

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN1105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-02

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 1Q109

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 6 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98

Injection Volume: 1.0(uL) Dilution Factor: 4.0

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	1410	U
91-58-7	2-chloronaphthalene	1410	U
208-96-8	acenaphthylene	1410	U
83-32-9	acenaphthene	1410	U
86-73-7	fluorene	1410	U
85-01-8	phenanthrene	1410	U
120-12-7	anthracene	1410	U
206-44-0	fluoranthene	1970	
129-00-0	pyrene	1760	
56-55-3	benzo(a)anthracene	1620	
218-01-9	chrysene	1690	
205-99-2	benzo(b)fluoranthene	2460	
207-08-9	benzo(k)fluoranthene	1030	J
50-32-8	benzo(a)pyrene	1780	
193-39-5	indeno(1,2,3-cd)pyrene	1110	J
53-70-3	dibenz(a,h)anthracene	1410	U
191-24-2	benzo(g,h,i)perylene	1050	J

U → = → J = J U J

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN2101

Lab Name: GENERAL ENGINEERING LABOR | Contract: NA

Lab Code: NA | Case No.: NA | SAS No.: NA | SDG No.: HA008S

Matrix: (soil/water) SOIL | Lab Sample ID: 9804218-03

Sample wt/vol: 10.0 (g/mL) G | Lab File ID: 2F108

Level: (low/med) LOW | Date Received: 04/08/98

% Moisture: not dec. 4 | Date Analyzed: 04/20/98

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	2.1	U	UJ CP8
108-88-3	Toluene	2.1	U	U
100-41-4	Ethylbenzene	2.1	U	U
1330-20-7	Xylenes (total)	25.1		=

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HN2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-03

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 4D10043

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 4 decanted: (Y/N) N Date Extracted: 04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

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_____	0.58	JB	U	FØ1, FØ6

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-03

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F1010

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 4 Date Analyzed: 04/20/98

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	521	U	U

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN2101

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S
Matrix: (soil/water) SOIL Lab Sample ID: 9804218-03
Sample wt/vol: 30.1 (g/mL) G Lab File ID: 1Q110
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: 4 decanted: (Y/N) N Date Extracted: 04/09/98
Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98
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	346	U
91-58-7	2-chloronaphthalene	346	U
208-96-8	acenaphthylene	346	U
83-32-9	acenaphthene	346	U
86-73-7	fluorene	346	U
85-01-8	phenanthrene	346	U
120-12-7	anthracene	346	U
206-44-0	fluoranthene	346	U
129-00-0	pyrene	346	U
56-55-3	benzo(a)anthracene	346	U
218-01-9	chrysene	346	U
205-99-2	benzo(b)fluoranthene	346	U
207-08-9	benzo(k)fluoranthene	346	U
50-32-8	benzo(a)pyrene	346	U
193-39-5	indeno(1,2,3-cd)pyrene	346	U
53-70-3	dibenz(a,h)anthracene	346	U
191-24-2	benzo(g,h,i)perylene	346	U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S
Matrix: (soil/water) SOIL Lab Sample ID: 9804218-04
Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2F109
Level: (low/med) LOW Date Received: 04/08/98
% Moisture: not dec. 6 Date Analyzed: 04/20/98
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	2.1	U	UJ CØ8
108-88-3	Toluene	3.7		=
100-41-4	Ethylbenzene	2.1	U	U
1330-20-7	Xylenes (total)	4.6	JP	J MØ8

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FORM I V0A

FORM 1 Science Applications08-APR-1998 SA
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HN2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-04

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 4D10044

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 6 decanted: (Y/N) N Date Extracted:04/10/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/22/98

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	0.77	B	U F01, F07

FORM I SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-04

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 1F1011

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: not dec. 6 Date Analyzed: 04/20/98

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	532	U	UJ CB2, CB8

FORM I VOA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HN2105

Lab Name: GENERAL ENGINEERING LABOR Contract: NA

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: HA008S

Matrix: (soil/water) SOIL Lab Sample ID: 9804218-04

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 1Q107

Level: (low/med) LOW Date Received: 04/08/98

% Moisture: 6 decanted: (Y/N) N Date Extracted: 04/09/98

Concentrated Extract Volume: 1.00(mL) Date Analyzed: 04/20/98

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	352	U
91-58-7	2-chloronaphthalene	352	U
208-96-8	acenaphthylene	352	U
83-32-9	acenaphthene	352	U
86-73-7	fluorene	352	U
85-01-8	phenanthrene	352	U
120-12-7	anthracene	352	U
206-44-0	fluoranthene	352	U
129-00-0	pyrene	352	U
56-55-3	benzo(a)anthracene	352	U
218-01-9	chrysene	352	U
205-99-2	benzo(b)fluoranthene	352	U
207-08-9	benzo(k)fluoranthene	352	U
50-32-8	benzo(a)pyrene	352	U
193-39-5	indeno(1,2,3-cd)pyrene	352	U
53-70-3	dibenz(a,h)anthracene	352	U
191-24-2	benzo(g,h,i)perylene	352	U

U

FORM I SV-1 OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HN3101

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: 9804105-06

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 2E4025

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

% Moisture: not dec. 7 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	2.2	U	UJ Kϕ1
108-88-3	Toluene	2.2	U	↓ ↓
100-41-4	Ethylbenzene	2.2	U	
1330-20-7	Xylenes (total)	6.4	U	

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

HN3101DL1

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: 9804105-06

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 4B30063

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

% Moisture: 7 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: 2.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q	
	----------Diesel Range Organics	9.3	B	= FØ1, FØ8

FORM I SV