CORRECTIVE ACTION PLAN - PART A REPORT FOR UNDERGROUND STORAGE TANKS 242 & 244 FACILITY ID #9-089041 BUILDING 241 FORT STEWART, 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 0024

Prepared by:

Science Applications International Corporation 800 Oak Ridge Turnpike Oak Ridge, Tennessee 37830

August 1999

FINAL

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List of Abbreviations and Acronyms

ACE	Anderson Columbia Environmental, Inc.
ACL	alternate concentration limits
AMSL	above mean sea level
ARAR	applicable, relevant, and appropriate requirement
ASTM	American Society for Testing and Materials
ATL	alternate threshold level
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
BTOC	below top of casing
CAP	Corrective Action Plan
COCs	chemicals of concern
DAF	dilution-attenuation factor
DPW	Directorate of Public Works
DRO	diesel-range organics
EPA	U.S. Environmental Protection Agency
GA EPD	Georgia Environmental Protection Division
GRO	gasoline-range organics

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HQ	hazard quotient
ID	inside diameter
IDW	investigation-derived waste
MCL	maximum contaminant level
MSL	mean sea level
ND	not detected
NRC	no regulatory criteria
OVA	organic vapor analyzer
OVM	organic vapor meter
PAH	polynuclear aromatic hydrocarbon
PVC	polyvinyl chloride
SAIC	Science Applications International Corporation
ТРН	total petroleum hydrocarbon
USACE	U.S. Army Corps of Engineers
UST	underground storage tank
USTMP	Underground Storage Tank Management Program

CORRECTIVE ACTION PLAN PART A

Facility Name: USTs 242 & 2	244, Building 241	Street Address: Bultman Av	venue
Facility ID: 9-089041	City: Fort Stewart	County: Liberty	Zip Code: <u>31314</u>
Latitude: 31° 51′ 50″	Longitude: 81° 30	5' 00''	
Submitted by LICT Ourses/Or			

Submitted by UST Owner/Operator:	Prepared by Consultant/Contractor:
Name: Thomas C. Fry/ Environmental Branch	Name: Patricia A. Stoll
Company: U.S. Army/HQ 3d, Inf. Div (Mech)	Company: SAIC
Address: DPW ENRD ENV. Br. (Fry)	Address: P.O. Box 2502
1557 Frank Cochran Drive	
City: Fort Stewart State: GA	City: Oak Ridge State: TN
Zip Code: 31314-4928	Zip Code: 37831
Telephone: (912) 767-2010	Telephone: (423) 481-8792

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: 09/07/99	

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: Patricia A. Stoll			
Signature:	fot - OStall		
Date:	117/99		



YES

NO

X

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

Actions were not required to abate imminent hazards and/or emergency conditions at the USTs 242 & 244 site. Therefore, contaminant migration and release prevention, fire and vapor migration, or emergency free product removal was not performed prior to, or during, the removal of USTs 242 & 244.

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?

If Yes, please summarize free product recovery efforts.

YES	NO	X

Continuing free product recovery proposed?YESNOXIf yes, please indicate the method and frequency of removal.

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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)

		Substance		Meets 1998 Upgrade
Tank ID Number	Capacity (gal)	Stored	<u>Age (yrs)</u>	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
242	1000	used oil	6/25/96
244	1000	used oil	6/25/96

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.

Anderson Columbia Environmental, Inc. (ACE) initiated characterization of petroleum-related contamination at the site during UST system closure activities on June 25, 1996. After removal of each tank, one soil sample was collected from each tank pit (Figure 7). TPH was detected in soil samples 242-T1-S1 and 244-T1-S1 at 441 mg/kg and 125 mg/kg, respectively. No BTEX or PAH compounds were detected in these two soil samples. However, the benzene detection limit of 0.114 mg/kg in sample 242-T1-S1 exceeds the applicable soil threshold level. No groundwater samples were collected during the tank removal activities.

2. Source(s) of Contamination: <u>unknown; piping leakage or tank overflow suspected</u> Discuss how this determination was made.

A detailed schematic diagram illustrating the former USTs 242 & 244 and ancillary piping as configured during operation is presented in Figure 2. During removal activities by ACE, no holes in the tank were reported. Therefore, the source of contamination is believed to have been piping leakage and/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	Х	NO
	If yes,			
	i. Nearest public water supply located within:		-	000 feet
	ii. Nearest down-gradient public water supply located within:		>10	,560 feet
	iii. Nearest non-public water supply located within:		>10	,560 feet
	iv. Nearest down-gradient non-public water supply located within	1:	>10	,560 <i>feet</i>
С.	Surface Water Bodies and sewers:			
	i. Nearest surface water located within]	900 feet
	ii. Nearest down-gradient surface water located within		2	2500 feet
	iii. Nearest storm or sanitary sewer located within:			70 feet
	iv. Depth to bottom of sewer at a point nearest the plume			7.0 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 soil cores were collected at 1.5- or 2.0-foot intervals during the installation of six boreholes. Field headspace gas analyses were performed on each sample to determine the organic vapor concentration. Two soil samples were selected from each borehole for laboratory chemical analysis of BTEX, TPH, and PAH. In boreholes where organic vapors were detected, one sample was collected from the sample interval where the highest vapor concentration. If organic vapors were not detected, one sample interval with the lowest concentration. If organic vapors were not detected, one sample interval mearest the midpoint of the boring, and the other from the sample interval located immediately above the water table. 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.

The benzene detection limit in one of the soil closure samples was 0.114 mg/kg. This sample also contained an elevated concentration of TPH that may have caused the elevated benzene detection limit.

ii. ATLs calculated? If yes, present ATLs.

YES NO X

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, except the vertical profile boring, one groundwater sample was collected from the temporary piezometer screened from ground surface to approximately 5.0 feet below the water table. At the vertical profile location (59-04), groundwater samples were collected every 5 feet below the water table until several groundwater sample intervals indicated a headspace gas measurement of zero. Chemical parameters for groundwater samples submitted for laboratory analysis included BTEX and PAH. Refer to Attachment A for complete documentation of the technical approach used to collect groundwater samples.

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. In May 1998, benzene was present in boring 59-01, located in the former UST 242 tank pit, at a concentration of 12.1 μ g/L. Benzene was present in boring 58-02, located in the former UST 244 tank pit, at a concentration of 5.7 μ g/L.

In September 1998, the investigation was extended to include additional sampling in an effort to determine extent. BTEX was not present in the three additional borings that were installed around the perimeter of contamination in September 1998. No contamination was present in the vertical profile boring (59-04), which was installed in the area of contamination that was observed in May 1998.

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

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

5. Other Geologic/Hydrogeologic Data

- (Table 4: Groundwater Elevations) a. Depth to Groundwater (ft BTOC): 5.97 - 9.57
- b. Groundwater Flow Direction: north (Figure 6: Potentiometric Surface Map) 0.025 ft/ft
- c. Hydraulic Gradient
- coastal plain d. Geophysical Province:
- e. Unique geologic/hydrological conditions: The Hawthorn Formation acts as a confining unit between the surficial and Floridan aquifers.

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)

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

ACE removed USTs 242 & 244 on June 25, 1996. The UST piping was drained into the tank, and all used oil was subsequently removed using a vacuum truck and/or compressor-driven barrel vacuum device. A backhoe was used to excavate down to the tank top. All lines were capped except the fill and vent. After the tank atmosphere was tested with a combustible gas indicator, all accessible tank openings were capped and the tanks were lifted from the excavation pit. The ancillary piping was closed in-place due to the fact that it was covered with 12 inches of high strength concrete. In-place closure consisted of purging the line and grouting the ends at each tank pit and in each respective maintenance pit.

b. Excavation and Treatment/Disposal of Backfill Materials and Native Soils Check one: No UST removal performed

No UST removal performed Returned to UST excavation Excavated soils treated or disposal off site

••		
	X	

If soils were excavated, summarize excavation and treatment/disposal activities: All contaminated soil removed during the entire project (i.e., all USTs removed under contract with ACE, to include clean and non-clean closures) was tested in accordance with the disposal facility requirements and transported to Kedesh, Inc., Highway 84, Ludowici, GA, 31316. The Closure Report was not submitted to GA EPD in 1996 because review of the closure analytical data indicated that a CAP-Part A would re required (i.e., per requirements of GUST-9, Item 15, page 12, dated August 1995). However, all pertinent information (i.e., copies of analytical data, manifests, and maps) are provided in this CAP-Part A Report. Disposal manifests for the UST 242 site were submitted to GA EPD, USTMP in September 1998 with the UST 207A (Facility ID#9-089039) Closure Report response to comments correspondence (Perez 1998). Approximately 22.33 tons of contaminated soil was excavated from the UST 242 tank pit. No contaminated soil was removed from the UST 244 tank pit.

7. Site Ranking:

Environmental Site Sensitivity Score: 350 (Appendix X: Site Ranking Form)

- 8. <u>Conclusions and Recommendations</u> Complete applicable section below, one section only
 - a. No Further Action Required (if applicable) (provide justification)

There was no soil contamination in excess of applicable GUST soil threshold levels (i.e., Table A, Column 2) during the CAP-Part A investigation. Benzene was detected in two CAP-Part A groundwater samples with the highest concentration being 12.1 μ g/L. The horizontal and vertical extent of groundwater contamination was determined during the CAP-Part A investigation. The storm drain is located approximately 70 feet from the tank pit. The site ranking score was determined to be 350.

- b. Monitoring Only (if applicable) (provide justification)
- c. CAP-B (if applicable) (provide justification)

N/A

N/A X

N/A X

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	Х

<u>,</u> 2.	Groundwater	
	a. Free Product	N/A <u>X</u>
	b. Dissolved phase	N/A <u>X</u>
3.	Surface Water	N/A

B. Proposed Investigation of Vadose Zone And Aquifer Characteristics:

Additional vadose zone and aquifer characteristics were collected as part of the CAP-Part A investigation, thus no additional data is required.

V. PUBLIC NOTICE

(Figure 9. Tax Map) (Appendix XI: Copies of public notification letters & certified return receipts or newspaper notice if approved)

USTs 242 & 244 is located within the confines of Fort Stewart Military Reservation, a federal facility. The U.S. Government owns all of the property contiguous to the site. The Fort Stewart Directorate of Public Works (DPW) has complied with the public notice requirements defined by Georgia Environmental Protection Division (GA EPD) guidance by publishing an announcement in the *Savannah Morning News* on June 27 and July 4, 1999.

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

Fort Stewart is a federally owned facility and has funded the investigation for USTs 242 & 244, Building 241, Facility ID #9-089041, using Department of Defense Environmental Restoration Account Funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

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APPENDIX I

REPORT FIGURES

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Figure 1. Location Map of USTs 242 & 244, Fort Stewart, Liberty County, Georgia



Figure 2. Site Plan for the USTs 242 & 244 Site Investigation



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Figure 3. Map Showing Public and Private Drinking Water Sources Bodies at Fort Stewart, Liberty County, Georgia

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Figure 5. Groundwater Quali

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Fort Stewart UST CAP-Part A Report USTs 242 & 244, Building 241, Facility ID #9-089041

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Figure 6. Potentiometric Surface Map of the USTs 242 & 244 Site



Figure 7. UST System Closure Sampling Locations at the USTs 242 & 244 Site

No additional borings or monitoring well locations are proposed for this site.

Figure 8. Proposed Additional Boring/Monitoring Well Locations

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No tax map is available for Fort Stewart Military Reservation, which is a government owned facility.

Figure 9. Tax Map

APPENDIX II

REPORT TABLES

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	Monitoring Well Number: N/A							
Date of Measurement	Groundwater Elev. (ft AMSL)			Product Removed (gal)				
	1	No Free Product	Detected					
			····					
			TOTAL	NONE				

TABLE 1: FREE PRODUCT REMOVAL

	Monitoring Well Number: N/A							
Date of Measurement	Groundwater Elev. (ft AMSL)	Product Thickness (ft)	Corrected Water Elev. (ft AMSL)	Product Removed (gal)				
	No Free Product Detected							
			TOTAL	NONE				

NOTE:

AMSL Above mean sea level.

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Sample	Sample	Depth	Date	Benzene	Toluene	Ethyl- benzene	Xylenes	Total BTEX	ТРН
Location	ID	(ft BGS)	Sampled	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
58-01	580111	0.0 - 2.0	5/9/98	0.0022 U	0.0218 =	0.0022 U	0.0067 U	0.0218	107 =
58-01	580121	2.0 - 4.0	5/9/98	0.0022 U	0.0149 =	0.0022 U	0.0067 U	0.0149	11.2 U
58-02	580211	0.5 - 2.0	5/10/98	0.0011 U	0.021 =	0.0045 U	0.0136 U	0.021	121 =
58-02	580221	2.0 - 4.0	5/10/98	0.00063 U	0.0188 =	0.0025 U	0.0076 U	0.0188	92.7 J
58-03	580311	6.0 - 8.0	9/17/98	0.0022 U	0.0022 U	0.0022 U	0.0066 U	ND	1.92 UJ
58-03	580321	0.5 - 2.0	9/17/98	0.0022 U	0.0079 =	0.0022 U	0.0067 U	0.0079	34.5 J
59-01	590111	0.5 - 2.0	5/10/98	0.0011 U	0.0134 J	0.0044 U	0.0133 U	0.0134	55.9 =
59-01	590121	2.0 - 4.0	5/10/98	0.0057 U	0.0153 =	0.0023 U	0.0069 U	0.0153	1530 =
59-02	590211	0.0 - 2.0	5/7/98	0.0023 U	0.0045 J	0.0023 U	0.007 U	0.0045	38 =
59-02	590221	2.0 - 4.0	5/7/98	0.0022 U	0.0022 U	0.0022 U	0.0067 U	ND	185 =
59-03	590311	4.0 - 6.0	9/21/98	0.0022 U	0.0022 U	0.0022 U	0.0066 U	ND	5.58 UJ
59-03	590321	2.0 - 4.0	9/21/98	0.0022 U	0.0022 U	0.0022 U	0.0066 U	ND	127 =
	Applicable Standards ¹			0.008	6	10	700	NRC	NRC

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

NOTES:

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May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

- Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)
- BGS Below ground surface
- BTEX Benzene, toluene, ethylbenzene, and xylene
- ND Not detected
- NRC No regulatory criteria
- TPH Total petroleum hydrocarbon

Laboratory Qualifiers

- U Indicates that the compound was not detected above the reported sample quantitation limit.
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates that the value for the compound was an estimated value.
- R Indicates that the sample results are unusable and the presence or absence of the compound could not be verified.
- = Indicates that the compound was detected at the concentration reported.

				Det	ected PA	H Compo	ounds (mg/k	g)	
Sample Location	Sample ID	Depth (ft BGS)	Date Sampled						Total PAHs (mg/kg)
58-01	580111	0.0 - 2.0	5/9/98						ND
58-01	580121	2.0 - 4.0	5/9/98						ND
58-02	580211	0.5 - 2.0	5/10/98						ND
58-02	580221	2.0 - 4.0	5/10/98		1				ND
58-03	580311	6.0 - 8.0	9/17/98						ND
58-03	580321	0.5 - 2.0	9/17/98						ND
59-01	590111	0.5 - 2.0	5/10/98						ND
59-01	590121	2.0 - 4.0	5/10/98		-				ND
59-02	590211	0.0 - 2.0	5/7/98						ND
59-02	590221	2.0 - 4.0	5/7/98						ND
59-03	590311	4.0 - 6.0	9/21/98						ND
59-03	590321	2.0 - 4.0	9/21/98						ND
	Applicable	e Standards ¹							NRC

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

NOTES:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

BGS Below ground surface

ND Not detected (refer to Appendix V, Table V-A, for complete list of PAH results)

NRC No regulatory criteria

PAH Polynuclear aromatic hydrocarbon

Laboratory Qualifiers

U Indicates that the compound was not detected above the reported sample quantitation limit.

- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates that the value for the compound was an estimated value.

Indicates that the compound was detected at the concentration reported.

						Ethyl -		Total
Sample	Sample	Depth	Date	Benzene	Toluene	benzene	Xylenes	BTEX
Location	ID	(ft BGS)	Sampled	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
58-01	580112	3.0 - 8.0	5/7/98	2 U	2 U	2 U	6 U	ND
58-02	580212	2.0 - 12.0	5/10/98	5.7 =	2 U	2 U	6 U	5.7
58-03	580312	0.3 - 10.3	9/17/98	2 U	2 U	2 U	6 U	ND
59-01	590112	0.0 - 12.0	5/10/98	12.1 =	2 U	2 U	2.8 J	14.9
59-02	590212	0.0 - 7.5	5/7/98	2 U	2 U	2 U	6 U	ND
59-03	590312	0.1 - 10.1	9/21/98	2 U	2 U	2 U	6 U	ND
59-04	590412	8.0 - 12.0	9/17/98	2 U	2 U	2 U	6 U	ND
59-04	590422	13.0 - 17.0	9/17/98	2 U	2 U	2 U	6 U	ND
59-04	590432	18.0 - 22.0	9/17/98	2 U	2 U	2 U	6 U	ND
Applicable Standards ¹				5	700	1000	10000	NRC

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

NOTE:

1

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

U.S. Environmental Protection Agency maximum contaminant level

- BTEX Benzene, toluene, ethylbenzene, and xylene
- BGS Below ground surface

ND Not detected

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates that the compound was not detected above an approximated sample quantitation limit.

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

= Indicates the compound was detected at the concentration reported.
				Det	ected PAH Co	ompounds (ı	1g/L)	
Sample Location	Sample ID	Depth (ft BGS)	Date					Total PAH
58-01	580112	3.0 - 8.0	Sampled					(ug/L)
			5/7/98		······			ND
58-02	580212	2.0 - 12.0	5/10/98					ND
58-03	580312	0.3 - 10.3	9/17/98					ND
59-01	590112	0.0 - 12.0	5/10/98					ND
59-02	590212	0.0 - 7.5	5/7/98			· · · · · · · · · · · · · · · · · · ·		ND
59-03	590312	0.1 - 10.1	9/21/98					ND
59-04	590412	8.0 - 12.0	9/17/98		· · · · · · · · · · · · · · · · · · ·			ND
59-04	590422	13.0 - 17.0	9/17/98		· · · · · · · · · · · · · · · · · · ·			ND
59-04	590432	18.0 - 22.0	9/17/98				···· , /·,	ND
	Applicat	ele Standards ¹						NRC

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

NOTE:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

- U.S. Environmental Protection Agency maximum contaminant level
- BGS Below ground surface
- N/A Not analyzes, insufficient sample volume for analysis
- ND Not detected (refer to Appendix VIII, Table VIII-A, for complete list of PAH results)
- NRC No regulatory criteria
- PAH Polynuclear aromatic hydrocarbon

Laboratory Qualifiers

- U Indicates the compound was not detected above the reported sample quantitation limit.
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates the value for the compound is an estimated value.
- = Indicates the compound was detected at the concentration reported.

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)
58-01	5/11/98	87.88	88.68	3.0 - 8.0	'N/A	6.20	N/A	'N/A	82.48
58-02	5/11/98	88.08	92.05	2.0 - 12.0	N/A	9.57	N/A	N/A	82.48
59-01	5/11/98	88.07	91.89	0.0 - 12.0	N/A	9.42	N/A	N/A	82.47
59-02	5/11/98	87.80	88.45	0.0 - 7.5	N/A	5.97	N/A	N/A	82.48
58-03	9/22/98	88.33	88.02	0.3 - 10.3	N/A	6.32	N/A	N/A	81.70
59-03	9/22/98	87.79	87.72	0.1 - 10.1	N/A	6.05	N/A	N/A	81.67
95.01	9/22/98	87.81	89,66	0.0 - 8.2	N/A	7.46	N/A	N/A	82.20

TABLE 4: GROUNDWATER ELEVATIONS

NOTE:

Mean sea level MSL

Below ground surface Below top of casing Not applicable BGS

BTOC

N/A

App06/SC/FTS/UST242&244

(· · ·				
Sample Location	Depth (ft BGS)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- benzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH (mg/kg)
242-T1-S1	unknown	6/24/96	0.114 U	0.114 U	0.114 U	0.114 U	ND	441 =
244-T1-S1	unknown	6/24/96	0.0011 U	0.0011 U	0.0011 U	0.0011 U	ND	125 =
Applica	ible Standa	rds ²	0.008	6	10	700	NRC	NRC

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

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

			Detected PAH Co	ompounds (mg/kg)	
Sample Location	Depth (ft BGS)	Date Sampled			Total PAHs (mg/kg)
242-T1-S1	unknown	6/24/96			ND
244-T1-S1	unknown	6/24/96			ND
		l			_
Applic	able Standard	ds ²			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 (Table 4), October 201

Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

BGS Below ground surface

BTEX Benzene, toluene, ethylbenzene, and xylene

NRC No regulatory criteria

PAH Polynuclear aromatic hydrocarbon

TPH Total petroleum hydrocarbons

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates that the compound was not detected above an approximated sample quantitation limit.

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

= Indicates the compound was detected at the concentration reported.

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

Sample Location	Depth (ft BGS)	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethyl – benzene (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)
			No	Groundwater	Samples Colle	cted	
Applic	able Stand	ards ²	5	1,000	700	10,000	NRC

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

			Detected P.	AH Compounds (ug/L)	
Sample Location	Depth (ft BGS)	Date) Sampled			Total PAHs (µg/L)
			No Groundy	vater Samples Collected	
Applic	able Stand	ards ²			NRC

NOTE:

2

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

U.S. Environmental Protection Agency maximum contaminant levels

BGS Below ground surface

BTEX Benzene, toluene, ethylbenzene, and xylene

NRC No regulatory criteria.

PAH Polynuclear aromatic hydrocarbons

Laboratory Qualifiers

U Indicates the compound was not detected above the reported sample quantitation limit.

UJ Indicates that the compound was not detected above an approximated sample quantitation limit.

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

= Indicates the compound was detected at the concentration reported.

APPENDIX III

WATER RESOURCES SURVEY DOCUMENTATION

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WATER RESOURCES SURVEY DOCUMENTATION

1.0 LOCAL WATER RESOURCES

As required by the GA EPD UST CAP-Part A guidance, 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 the Fort Stewart UST investigation sites. The information presented in this appendix 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 EPD guidelines/requirements:

- Fort Stewart is located in an area of average or higher groundwater pollution susceptibility.
- Locate all public supply wells as defined by GA EPD 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.

A total of seven groundwater supply wells are located within a 2-mile radius of the Fort Stewart garrison area. Six of these wells are located within the confines of the garrison area. The other well is located at Wright Army Airfield, approximately 1.2 miles northeast of the garrison area. All of the groundwater supply wells are classified as public wells that supply water to Fort Stewart for drinking and nondrinking purposes. These wells are approximately 450 feet deep and draw groundwater from the Principal Artesian (also known as the Floridian) aquifer. Chlorine and fluoride are added into the groundwater at the well heads prior to being pumped into storage tanks and/or water towers, according to Fort Stewart DPW personnel. The location of these wells, along with a 500-foot radius drawn around each well, is shown in Figure 3.

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, 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 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 EPD 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 the investigation sites.

Several surface water bodies are located within a 1-mile radius of the Fort Stewart garrison area. These are shown in Figure 3 and include Mill Creek, Taylors Creek, Peacock Creek, Childpen's Pond, and two unnamed ponds. Mill Creek extends along the western side of the garrison area and flows into Taylors Creek, located approximately 0.75 miles northwest of the garrison area. Taylors Creek then flows northward approximately 3.5 miles to its confluence with Canoochee Creek. Peacock Creek originates near the east corner of the garrison area and flows southward from the garrison. Mill Creek, Taylors Creek, and Peacock Creek all have natural streambeds and exhibit perennial flow.

Childpen's Pond is located at the northwest end of the garrison area. The two unnamed ponds are located at the northwest end of the facility golf course in the vicinity of Childpen's Pond. All of the ponds are isolated water bodies that are relatively small in size, measuring less than 500 feet in diameter.

Typically, surface water run-off from the UST site moves over the existing concrete and asphalt cover to the Fort Stewart storm water drainage system. Since petroleum contamination at the sites primarily impacts surficial groundwater, the surface water run-off pathway is not a viable contaminant transport mechanism because of the concrete acting as a barrier and the location of the nearest surface water body.

2.0 POTENTIAL RECEPTOR SURVEY SUMMARY OF THE USTs 242 & 244 SITE

A field potential receptor survey was conducted for the USTs 242 & 244 site in September 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 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.

2.1 Water Supply Wells Near the USTs 242 & 244 Site

The USTs 242 & 244 site is located approximately 3000 feet southeast (sidegradient) of the Well #2. Therefore, the USTs 242 & 244 site is classified as being located greater than 500 feet to a withdrawal point. There are no other public or non-public supply wells located downgradient of the site within a 2-mile radius.

2.2 Surface Water Bodies Near the USTs 242 & 244 Site

At the closest point to the site, a tributary to Peacock Creek is located approximately 1900 feet east (sidegradient) of the site. In the direction of groundwater flow, a tributary to Taylors Creek is located approximately 2500 feet north of the site. Based on the distances between the UST and the nearest surface water body, the site is classified as being located greater than 500 feet to a downgradient surface water body.

2.3 Underground Utility Lines Near the USTs 242 & 244 Site

A storm drain is located about 70 feet north of the former tank pits. The invert elevation of this line is estimated to be approximately 81.0 feet AMSL or approximately 7.0 feet BGS, which is near the water table, thus the storm drain is considered a preferential pathway.



Science Applications International Corporation

CONTACT REPORT INDIVIDUAL CONTACTED, TITLE: Pam Babbs **ORIGINATOR:** Patty Stoll ORGANIZATION: Fort Stewart DPW - Water Resources DATE CONTACTED: October 10, 1998 PHONE: 912 - 767 - 2281 TIME CONTACTED: 11:00 am ADDRESS: CONTACT TYPE: telephone SUBJECT: Update Supply Well Information for Fort Stewart Supply Wells for Water Resources Survey DISCUSSION: COMMENTS, ACTIONS, DATES During a telephone conversation with Pam Babbs on October 10, 1998 the following Incorporate new pumping rate data into the information on the supply wells at Fort Stewart was provided. CAP Part A and B reports being prepared for Fort Stewart. Well No.1 1750 gpm, CD = 451 ft, TD = 816 ft Well No.2 1400 gpm, CD = 470 ft, TD = 808 ft Well No.3 1400 gpm, CD = 436 ft, TD = 750 ft Well No.5 1100 gpm, CD = 560 ft, TD = 779 ft Well No.6A 500 gpm, CD = 374 ft, TD = 472 ft Well No.6B 500 gpm, CD = 393 ft, TD = 508 ft Evans Well 190 gpm, CD = 404 ft, TD = 600 ft Camp Oliver Well 400 gpm, CD = 451 ft, TD = 706 ft DISTRIBUTION: Melanie Little (Fort Stewart DPW) Central Records (SAIC) Project File (SAIC)



Science Applications International Corporation

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CONTACT REPORT									
INDIVIDUAL CONTACTED, TITLE: Jeff Barnes	ORIGINATOR: Patty Stoll								
ORGANIZATION: Georgia Department of Natural Resources	DATE CONTACTED: October 1, 1997								
PHONE: 912 - 353 - 3225	TIME CONTACTED: 11:00 am								
ADDRESS:	CONTACT TYPE: telephone								
SUBJECT: Update Supply Well Information for Liberty County Supply Wells for Wa	ter Resources Survey								
DISCUSSION:	COMMENTS, ACTIONS, DATES								
During a telephone conversation with the Ga DNR, regarding drinking water wells in Liberty County, it was suggested I contact Mr. Jeff Barnes. After being transfered to Mr. Jeff Barnes and explaining our needs, he agreed to send a printout of the permitted drinking water systems in Liberty County.	Review list of permitted drinking water supply wells for proximity to Fort Stewart CAP Part A and B sites.								
On October 17, 1997 we received the list of permitted drinking water systems in Liberty County.									
DISTRIBUTION: Melanie Little (Fort Stewart DPW) Central Records (SAIC) Project File (SAIC)									

APPENDIX IV

SOIL BORING LOGS

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PROJEC	T: Fort S	HTRW DRIL		$\overline{\mathbf{D}}$			HOLE NUMBER 58-C
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	SAM	YTICAL PLE NO.	SHEET 1 OF REMARKS (G)
		Clayey SAND, medium grained, very saft, moist, reddish brown (D.5YR.4/4) Silty SAND, fine	Oppm		Soil Sample	2401/1	
		Silty SAND, fine to medium grained, firm to hard, moist, very dark gray (104R3/1)	Oppm		Soil Sample	580121	
	• • •		Oppm				J.7 FT BGS
	7					E	End of drilling 8. DFT 865 Set piezometer
	, , , , , , , , , , , , , , , , , , ,				,		un precometer

	<u></u>	HTRW DRILL	HTRW DRILLING LOG										
PROJEC	T: Fort St		SPECTOR SPECTOR	K. Ledbe	Her	SHEET 1 OF L							
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)							
		Concrete			mple								
		Sandy SILT, 20% Sand, fine grained, Saft, dry, dark brown (104R3/3) mottled with yellowish brown (104R5/4)	Оррт		So:1 Sample 580211								
		Silty SAND, 20% silt, fine to medium grained, soft, dry light yellowish brown (104R6/4) Mo Recovery]		Soil Sample 580221								
	4	Silty SAND, 20% silt, fine to medium grained, soft, wet, light yellowish brown (IDYR 6/4) Color grading to black (IDYR Z/1)	Dppm			4.ZFT BSS							
	6												
	8	consistency grading to firm	Oppm			Pushed to 12.0 FT Set piezometer							

PROJEC	T' Fort S	HTRW DRILI				HOLE NUMBER 58-0
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	Field SCREENING	GEOTECH SAMPLE	ANALYTICA SAMPLE NO	
		Concrete	RESULTS	OR CORE BOX	(F)	
	-	Silty SAND (SM), 10% silt, Fine to medium grained, Subrounded, soft, dry, grayish brown (10 YR \$/2) mottled with brown (10 YR \$/3)	ЧОррт		Soil Sample SB0321	
	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sandy SILT (ML), 15% fine to medium grained sand, subrounded, Soft, dry, brown (10 YR 4/3)	Ібррт			
	•	<u> <u> </u></u>				
		SAND (SP), fine grained, soft, dry, very pale brown (10427/3)	llppm			
	•					WET ZONE FROM 5.7'TO 4.1'
	7 7 8		Бррт		Soil Sample 580311	
	, ⊢ ⊊	ilty SAND (SM), 20% silt, ine to medium grained sand, off, wet, black (10 yzz/,)	Өррт			V WET BELOW B.6 FT BES COLLEZTED GROUNDWATER SAMPLE SBO312 FROM TEMPORARY PIE 20METER

DRILLED TO 12.0 FT B65

	HTF	W DRILLING LO	G		HOLE NUMBER 59-01	
PROJECT		INSPECTOR	J.K. Ledbe	tter	SHEET 1 OF	4
ELEV. (A)	DEPTH DESCRIPTION OF MATH (B) (C)	RIALS FIELD SCREENIN RESULT	GEOTECH IG SAMPLE	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)	
	Clayey SAND, 5% cla clayey SAND, 5% cla medium grained, softma Sandy SILT, fine grained, so dark brown (10 mottled with y	y fine to ist, red (10R 4/4) Z. PPI 10% sand, oft, dry, YR 3/3) ellowish		Soil Sample 590111		
	2 brown (IDYR 5/4) 3 	Z. (opp d, soft, dry	m	Soil Sample 590121		
	silty SAND, 25 fine to medium saft, wet, ligh yellowish brow (IDVR 6/4) color graded black (IDVR 2	to to	n		Vet below 4.2FT BGS	
		Oppn	^			
	,				Pushed to 12.0FT Set piezometer	

.

PROTEC	Tr East C	tewart USTs		<u></u>	······	HOLE NUMBER 59-02
ELEV, (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD	P. Lucot GEOTECH	ANALYTICAL	SHEET 1 OF REMARKS
	,	Clayey SAND, medium grained, very soft, moist, reddish brown (D.5 YR 4/4) silty SAND, fine to medium grained, firm to hard, moist, very dark gray	O Ppm	SAMPLE OR CORE BOX	sample no. F) 2 dub (P) COD (P) COD (COD (CO	(G)
	, 1111111111111	(10YR 3/1) 2.5'-8.0' Strat: fied layers of sand with Some silt between silty sand layers are <0.1' thick	Oppm		Soil Sample 590331	
		and spaced approximately 0.4'apart.	Oppm			Wet Below HillFT BGS
	, , , , , , , , , , , , , , , , , , , ,		N/A			End of Drilling 7.5FT 845
	8 9 10					Set piezometer

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(A) 1	Fort Sf DEPTH (B)	HTRW DRILL tewart USTs IN DESCRIPTION OF MATERIALS (C)	FIELD SCREENING	GEOTECH	ANALY		SHEET 1 OF 1		
(A) 1	(B)	DESCRIPTION OF MATERIALS	FIELD SCREENING	GEOTECH					
	1		RESULTS	SAMPLE OR CORE BOX	SAMPL (F	E NO,	REMARKS (G)	-	
	ı	Concrete						- - - - -	
2		Sandy SILT (ML), 25% fine grained sand, soft, moist, gray (10 yr s/1)	15ррт						
	3	sandy SILT (ML), 10% fine sand, soft, dry, dark brown (10YR %) silty SAND (SM), 10% silt, dry, soft, very pale brown (10 YR 7/3)	36ppm		Sail Sample	59 03 2 I			
	5		10ppm		Soil Sample	590311	WET BELOW I S, G FT BGS		
	7	silty SAND (SIN), 10% silt, dry, soft, dark brown (104R3/3)							
	8 						COLLECTED GROUNDWATER SAMPLE 590312 FROM TEMPORARY PIEROMETER SCREENED AT O.1 TO 10.1 FT BGS (10 FT SCREEN)		

ROJEC	T: Fort S	HTRW DRILI	NSPECTOR J	0.1.1			HOLE NUMBER	
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING	GEOTECH SAMPLE	ANALYTI SAMPLE	CAL NO	REMARKS	i
		(6)	RESULTS	OR CORE BOX	((F)	NO.	(G)	
		CONCRETE						
		·		-				
	1 _	DID NOT COLLECT SOIL FOR						
	=	LITHOLOGY DESCRIPTION						
	_	No SOIL CUTTINGS FROM						
		GEOPROBE						
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	Ξ		- 177"			scree	ened from	
						8.0 +	12.0 F+BGS	
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	1				N S P S			
1	10 -				0	1		

	, <u>, , , , , , , , , , , , , , , , </u>	HTRW DRI	LLING LOG			HOLE NUMBER 59.00	4
PROJECT	: Fort Stewart		INSPECTOR J.	Celeste		SHEET 2 OF 3	
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO.	REMARKS (G)	
			Zlppm	OR CORE BOX	GW Sample Sqoy22	Vertical profile screened from 13.0 to 17.0 ft BES	
			I니 ppm		GW Sample Sqoy32	Vertical profile screened from 18.0 to 22.0ft B65	

			ILLING LOG			HOLE NUMBER 59-04
	T: Fort Stewar		INSPECTOR J	Celeste		SHEET 3 OF 3
elev. (Å)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	FIELD SCREENING	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO.	REMARKS (G)
			RESULTS	OR CORE BOX		
	21					
	1					
	<u> </u>					
	22					
		• • • • • • •				END OF GEOPLOBE
	1					DRILLING AT 22.0 Ft BGS
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APPENDIX V

SOIL LABORATORY REPORTS

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Station:	GA UST	58-01	58-01	58-02	58-02
Sample ID:	Soil	580111	580121	580211	580221
Sample Interval:	Threshold	0.0 - 2.0	2.0 - 4.0	0.5 - 2.0	2.0 - 4.0
Collection Date:	Level	9-May-98	9-May-98	10-May-98	10-May-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOU	NDS				
Benzene	0.008	0.0022 U	0.0022 U	0.0011 U	0.00063 U
Toluene	6	0.0218 =	0.0149 =	0.021 =	0.0188 =
Ethylbenzene	10	0.0022 U	0.0022 U	0.0045 U	0.0025 U
Xylenes, Total	700	0.0067 U	0.0067 U	0.0136 U	0.0076 U
POLYNUCLEAR AROMATIC HY	DROCARBONS				
2-Chloronaphthalene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Acenaphthene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Acenaphthylene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Anthracene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Benzo(a)anthracene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Benzo(a)pyrene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Benzo(b)fluoranthene	NRC	0.37 U	0.372 Ü	3.78 U	1.69 U
Benzo(g,h,i)perylene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Benzo(k)fluoranthene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Chrysene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Dibenzo(a,h)anthracene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Fluoranthene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Fluorene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Indeno(1,2,3-cd)pyrene	NRC	0.37 U	0.372 U	3.78 U	1. 69 U
Naphthalene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Phenanthrene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
Pyrene	NRC	0.37 U	0.372 U	3.78 U	1.69 U
OTHER ANALYTES					
Lead	NRC		2 =		40.5 =
Total Petroleum Hydrocarbons	NRC	107 =	11.2 U	121 =	92.7 J

TABLE V-A. Summary of Soil Analytical Results

NOTE:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for the September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Analytical data for the UST closure is summarized in Appendix II, and the analytical data is included at the end of this appendix but not summarized in this table.

Elevated PAH detection limits are a result of associated organic content such as TPH. During extraction of the PAH compounds, all other organic compounds are extracted, causing a wide range of organic compounds to be present; thus, the target PAHs become small peaks in the chromatograph. As a result, the laboratory dilutes the concentrate, in turn elevating the detection limit.

Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

Bold values exceed soil threshold levels

NRC No regulatory criteria

Laboratory Qualifiers

1

- Indicates that the compound was not detected above the reported sample quantitation limit. U
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates that the value for the compound was an estimated value.
- Indicates that the compound was detected at the concentration reported. -----
- R Indicates that the sample results are unusable and the presence or absence of the compound could not be verified.

Station:	GA UST	58-03	58-03	59-01	59-01
Sample ID:	Soil	580311	580321	590111	590121
Sample Interval:	Threshold	6.0 - 8.0	0.5 - 2.0	0.5 - 2.0	2.0 - 4.0
Collection Date:	Level ¹	17-Sep-98	17-Sep-98	10-May-98	10-May-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOU					
Benzene	0.008	0.0022 U	0.0022 U	0.0011 U	0.00057 U
Toluene	6	0.0022 U	0.0079 =	0.0134 J	0.0153 =
Ethylbenzene	10	0.0022 U	0.0022 U	0.0044 U	0.0023 Ü
Xylenes, Total	700	0.0066 U	0.0067 U	0.0133 U	0.0069 U
POLYNUCLEAR AROMATIC HY	DROCARBONS				
2-Chloronaphthalene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Acenaphthene	NRC	0.361 U	3. <u>7</u> 3 U	0.37 U	3.76 U
Acenaphthylene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Anthracene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Benzo(a)anthracene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Benzo(a)pyrene	NRC	0.361 U	3.73 U	0:37 U	3.76 U
Benzo(b)fluoranthene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Benzo(g,h,i)perylene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Benzo(k)fluoranthene	NRC	0.361 U	.3.73 U	0.37 U	3.7 <u>6</u> U
Chrysene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Dibenzo(a,h)anthracene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Fluoranthene	NRC	0.361 U	3:73 U	0.37 U	3.76 U
Fluorene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Indeno(1,2,3-cd)pyrene	NRC	0.361 U	3.73 U	0.37 U	3.76 Ú
Naphthalene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Phenanthrene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
Pyrene	NRC	0.361 U	3.73 U	0.37 U	3.76 U
OTHER ANALYTES					
Lead	NRC		6.7 =		14.8 =
Total Petroleum Hydrocarbons	NRC	1.92 UJ	34.5 J	55.9 =	1530 =

TABLE V-A. Summary of Soil Analytical Results (continued)

NOTE:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for the September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Analytical data for the UST closure is summarized in Appendix II, and the analytical data is included at the end of this appendix but not summarized in this table.

Elevated PAH detection limits are a result of associated organic content such as TPH. During extraction of the PAH compounds, all other organic compounds are extracted, causing a wide range of organic compounds to be present; thus, the target PAHs become small

peaks in the chromatograph. As a result, the laboratory dilutes the concentrate, in turn elevating the detection limit, Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

Bold values exceed soil threshold levels

NRC No regulatory criteria

Laboratory Qualifiers

U Indicates that the compound was not detected above the reported sample quantitation limit.

UJ Indicates that the compound was not detected above an approximated sample quantitation limit.

J Indicates that the value for the compound was an estimated value.

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

R Indicates that the sample results are unusable and the presence or absence of the compound could not be verified.

Station:	GA UST	59-02	59-02	59-03	59-03
Sample ID:	Şoil	590211	590221	590311	590321
Sample Interval:	Threshold	0.0 - 2.0	2.0 - 4.0	4.0 - 6.0	2.0 - 4.0
Collection Date:	Level ¹	7-May-98	7-May-98	21-Sep-98	21-Sep-98
Units:	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
VOLATILE ORGANIC COMPOU	INDS				
Benzene	0.008	0.0023 U	0.0022 U	0.0022 U	0.0022 U
Toluene	6	0.0045 J	0.0022 U	0.0022 U	0.0022 U
Ethylbenzene	10	0.0023 U	0.0022 U	0.0022 U	0.0022 U
Xylenes, Total	700	0.007 U	0.0067 U	0.0066 U	0.0066 U
POLYNUCLEAR AROMATIC E	IYDROCARBONS				
2-Chloronaphthalene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Acenaphthene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Acenaphthylene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Anthracene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Benzo(a)anthracene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Benzo(a)pyrene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Benzo(b)fluoranthene	NRC	0,384 U	0.373 U	0.365 U	0.365 U
Benzo(g,h,i)perylene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Benzo(k)fluoranthene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Chrysene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Dibenzo(a,h)anthracene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Fluoranthene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Fluorene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Indeno(1,2,3-cd)pyrene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Naphthalene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Phenanthrene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
Pyrene	NRC	0.384 U	0.373 U	0.365 U	0.365 U
OTHER ANALYTES					
Lead	NRC		7.7 =		3.2 J
Total Petroleum Hydrocarbons	NRC	38 =	185 =	5.58 UJ	127 =

TABLE V-A. Summary of Soil Analytical Results (continued)

NOTE:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for the September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Analytical data for the UST closure is summarized in Appendix II, and the analytical data is included at the end of this appendix but not summarized in this table.

Elevated PAH detection limits are a result of associated organic content such as TPH. During extraction of the PAH compounds, all other organic compounds are extracted, causing a wide range of organic compounds to be present; thus, the target PAHs become small

peaks in the chromatograph. As a result, the laboratory dilutes the concentrate, in turn elevating the detection limit. Georgia Department of Natural Resources Applicable Soil Threshold Levels (Table A, Column 2)

Bold values exceed soil threshold levels

NRC No regulatory criteria

Laboratory Qualifiers

t

- U Indicates that the compound was not detected above the reported sample quantitation limit.
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates that the value for the compound was an estimated value.
- = Indicates that the compound was detected at the concentration reported.
- R Indicates that the sample results are unusable and the presence or absence of the compound could not be verified.

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VOLATILE ORGANICS ANALYSIS DATA SHEET	•
Lab Name: GENERAL ENGINEERING LABOR Contract: NA 580111	
Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FS4002S	_ !
Matrix: (soil/water) SOIL Lab Sample ID: 9805262-19	
Sample wt/vol: 10.0 (g/mL) G Lab File ID: 21407	
Level: (low/med) LOW Date Received: 05/08/98	
<pre>% Moisture: not dec. 10 Date Analyzed: 05/14/98</pre>	
GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution Factor: 1.0	
Soil Extract Volume: (ml)	(uL
CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q	•
71-43-2Benzene 2.2 U U 108-88-3Toluene 21.8 21.8 100-41-4Ethylbenzene 2.2 U U 1330-20-7Xylenes (total) 6.7 U U	

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	Client:	Science .	Applic	ations Internation	nal Corp.							
		P.O. Box										
				Tumpike								
	Contact:			nessee 37831								
Project Des		Ms. Lore			_							
Tiojeerbes	carpuon:	CAP-PE	I A IOT	UST Sites (Tasl	c Order No	o. 8)						
∞: SAIC00598			F	Report Date: Ju	ne 01, 199	8						Page 1 of 1
	Sample	D		: 580111						<u> </u>		
	Lab ID	i		: 980526								
	Marrix			: Soil								
	Date C	ollected		: 05/07/9	8							
		eceived		: 05/08/9								
	Priority	1		: Routing	5							
·	Collect	or		: Client								
Parameter	Qualifier	Res	alt	·	DL	RL	Units	DF	Ånal	yst Date	Time	Batch M
General Chemistry												Datch M
Total Rec. Petro. Hyd	irocarbons	1	07 *	= F&I,F\$8	2.20	11.1	mg/kg	1.0	ЛР	05/11/98	3 1400	121925 1
M = Method				Method-De	scription							
M1				EPA 418.1				<u></u>				
Notes:												
The qualifiers in this re	Dort are define	d as follow										
ND indicates that the a	nalvie was not	a heteoted a	ra. La com			A						
I indicates presence of U indicates that the ane	analyte at a co	ncentration	less th	an the reporting	Linan (nc	Octection his	mit,					
			CUTICE	DITRNAM OTABLET			T than the	detection	n limit	(DL).	,	
 indicates that a qualit 	y control analy	ric recover	v is on	side of specified		ancuon luma	L.					
	-	•										-
This data report has been	en prepared an	d teviewed										
in accordance with Gen	eral Engineeri	ing Laborat	ories									
standard operating proc	edures. Please	direct										
any questions to your P	roject Manage	r, Valerie I)avis a	t (803) 769-7391	L,							
				-							-	

Reviewed By

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9805262-19

VOLATILE ORGANICS ANALYSIS	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR C	Contract: NA 580121)
Lab Code: NA Case No.: NA	SAS NO.: NA SDG NO.: FS4003S
Matrix: (soil/water) SOIL	Lab Sample ID: 9805263-02
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 214018
Level: (low/med) LOW	Date Received: 05/08/98
% Moisture: not dec. 11	Date Analyzed: 05/14/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	$ \begin{array}{c} 2.2 \\ 14.9 \\ 2.2 \\ \hline 0 \\ \hline \hline \hline 0 \\ \hline \hline 0 \\ \hline \hline \hline \hline 0 \\ \hline \hline$

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.



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	Client: Contact:	P.O. Box 2502 800 Oak Ridge Oak Ridge, Te Ms. Lorene Ro	e Tumpike nnessee 37831 ollins	-	DAT	_	ALII OP`	DATI Y	ON	
Project Des cc: SAIC00598	scription:	CAP-Part A fo	n UST Sites (Task (Report Date: May						F	age 1 of 1
		ollected eccived	: 580121 : 9805263 : Soil : 05/07/98 : 05/08/98 : Routine : Client		<u>. </u>			<u>.,</u>		
Parameter	Qualifier	Result		DL	RL Un	its I	F Ano	lyst Date	Time	Batch M
General Chemistry Total Rec. Petro. H	ydrocarbons J	11.2	Н Fol,Fob Ц	2.22	11.2 mg/	kg 1	.0 JLP	05/11/98	1400	121925 1
M = Method			Method-Des	cription						
Ml			EPA 418.1	Modified						

Notes:

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL),

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed

in accordance with General Engineering Laboratories

standard operating procedures. Please direct

any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By



9805263-02

DG No.: FS4003S	Form	1: Inor	ganic Analy			t pe: Total Memls	
Sample ID: 9805263-02					lient ID: 5	80121	
Contract: SAIC00598	Lab Code:		GEL.	Case No.:		······································	No.:
Matrix: SOIL % Solids: 89.00]Date R	leceived:	5/8/98	L	evel: LOW	1	
CAS No. Analyte Concen 7439-92-1 Lead	tration 2.0	Units mg/kg	C Qual	M P	DL 0.10	Instrument ID	Analytical Run
Color Before: Color After:		Clari	ty Before: ly After:			TJA61 Trace ICPAES Texture: Artifacts:	980514a-1
Comments:							

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1A VOLATILE ORGANICS ANALYS	IS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA
Lab Code: NA Case No.: NA	SAS NO.: NA SDG No.: FS4007S
Matrix: (soil/water) SOIL	Lab Sample ID: 9805298-14
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 216033
Level: (low/med) LOW	Date Received: 05/11/98
% Moisture: not dec. 12	Date Analyzed: 05/17/98
GC Column: J&W DB-624 (PID) ID: 0.53	(mm) Dilution Factor: 2.0
Soil Extract Volume:(ml)	Soil Aliquot Volume:(uL
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 1.1 \\ 21.0 \\ 4.5 \\ 0 \\ 13.6 \\ \end{array} \\ \begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$

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Project De	P 8 C Contact: N	O. Box 2502 00 Oak Ridge T Oak Ridge, Tenn Is. Lorene Rolli	iessee 37831	•	•)							
cc: SAIC00598		R	eport Date: June	01, 1998						I	Page 1 of	1
	Sample II Lab ID Matrix Date Colle Date Rece Priority Collector	ected	: 580211 : 9805298 : Soil : 05/10/98 : 05/11/98 : Routine : Client									
Parameter	Qualifier	Result		DL	RL	Units	DF	Analy	st Date	Time	Batch 2	 M
General Chemistry Total Rec. Petro. H <u>M = Method</u>		121 =	Føl,Fø8	2.26	11.4 п	ng/kg	1.0	ПР	05/26/98	1330	122880	1
M = Method M 1	<u></u>		Method-Des EPA 418.1									<u> </u>
Notes: The qualifiers in this ND indicates that the J indicates presence U indicates presence * indicates that the a * indicates that a que This data report has in accordance with C standard operating pr any questions to your	analyte was not d of analyte at a com- unalyte was not det unalyte was not det lity control analyn been prepared and leneral Engineerin rocedures. Please d	etected at a com centration less ti ected at a conce e recovery is ou reviewed g Laboratories lirect	centration greater han the reporting entration greater t tside of specified	r than the du limit (RL) han the deta acceptance	and greater ection limit.	then the	detectio	n limit	(DL).			÷

Reviewed By

1-1-2005

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9805298-14

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DATA VALIDATIUN	
COPY VOLATILE ORGANICS ANALYSIS DATA	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contra	580221
Lab Code: NA Case No.: NA SAS N Matrix: (soil/water) SOIL	
Sample wt/vol: 10.0 (g/mL) G	Lab Sample ID: 9805300-05
Level: (low/med) LOW	Lab File ID: 217012 Date Received: 05/11/98
* Moisture: not dec. 21	Date Analyzed: 05/18/98
GC Column: J&W DB-624(PID) ID: 0.53 (mm) Soil Extract Volume:(ml)	Dilution Factor: 1.0
CAS NO CONDENS	Soil Aliquot Volume:(uL) ENTRATION UNITS: L or ug/Kg) UG/KG Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

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11.11. 有主任法书记录 1BEPA SAMPLE NO. C() YSEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 580221 Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FS4008S Matrix: (soil/water) SOIL Lab Sample ID: 9805300-05 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 70416 Level: (low/med) LOW Date Received: 05/11/98 % Moisture: 21 decanted: (Y/N) N Date Extracted:05/15/98 Concentrated Extract Volume: 1.00 (mL) Date Analyzed: 05/21/98 Injection Volume: 1.0(uL)Dilution Factor: 4.0 GPC Cleanup: (Y/N) N pH: 7.0 CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q 91-20-3----naphthalene 91-58-7-----2-chloronaphthalene 1690 U IJ 1690 U 208-96-8----acenaphthylene 1690 U 83-32-9----acenaphthene 83-32-9----acenaphthene 86-73-7----fluorene 85-01-8-----phenanthrene 120-12-7-----anthracene 206-44-0-----fluoranthene 1690 U 1690 U 1690 U 1690 U 1690 U 129-00-0-----pyrene 56-55-3----benzo(a)anthracene 1690 U 218-01-9-----chrysene 1690 U 1690 U 205-99-2----benzo (b) fluoranthene 1690 U 207-08-9-----benzo(k) fluoranthene

OLM03.0

1690 U

1690 U

1690 U 1690 U

1690 U

50-32-8-----benzo (a) pyrene

193-39-5-----indeno(1,2,3-cd)pyrene_ 53-70-3-----dibenz(a,h)anthracene___

191-24-2----benzo(g,h,i)perylene_

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	Client:	Science Appl P.O. Box 250	ications International Corp.							
		800 Oak Ridg								
	÷	Oak Ridge, T	ennessee 37831							
Project De	Contact:	Ms. Lorene R								
Project Des	scription:	CAP-Part A f	or UST Sites (Task Order No. 8)						
cc: SAIC00598		_	Report Date: June 01, 1998							Page 1 of
	Sample	Ď	: 580221							
	Lab ID		: 9805300-05							
	Marrix		: Soil							
	Date Co		: 05/10/98							
	Date Re	ceived	: 05/11/98							
	Priority		: Routine							
	Collecto	Ľ	: Client							
Parameter	Qualifier	Result	DL	RL						
eneral Chemistry				RL.	Units		Ana	lyst Date	Time	Batch N
Total Rec. Petro. Hyd	lrocarbons	92.7	Tal, Fol, Fog 251	12,7	mg/kg	1.0	JLP	05/26/98	3 1330	122880
1 = Method	<u> </u>		Method-Description			<u></u>		<u> </u>		
£1										
			EPA 418.1 Modified							
Dies:										
e qualifiers in this re D indicates that the ar	port are defined	i as follows:								
adicates presence of	mabute et a or	letected at a con	accentration greater than the dete	ction lin	nit					
indicates that the anal	IVIa was not de	tested as a su	ution the reporting limit (RL) and	d greate	than the	octection	a limit	ົຫມ		
ndicates that a quality	control analyt	e recovery is or	entration greater than the detect itside of specified acceptance or	ion <u>limi</u> denia	L			(-
is data report has been		- • ·		- HALLAN						
ccordance with Gene	a prepared and	Teviewed								
dard operating proce	chires. Pleasa d	E LADORADORIES								
questions to your Pr	oject Manager,	Valerie Davis	at (803) 769-7391.						~	
riewed By										

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DG No.: FS40085	Form 1: Inc	organic Anal		Sheet I Type: Total Metals		
Sample ID: 9805300-05			Client]	D: 580221		
Contract: SAIC00598	Lab Code:	GEL	Case No			
Matrix: SOIL % Solids: 79.00	Date Received	i: 5/11/98	Level:	LOW		
AS No. Analyte Concent 439-92-1 Lead			· · · · · · · · · · · · · · · · · · ·)L Instrument ID	Analytical Run	<u></u>
	40.5 mg/kg	5	P 0.12	TJA61 Trace ICPAES	980517-1	
Color Before:	Clar	rity Before:	<u></u>	Texture:		
Color After:	Clar	rity After:		Artifacts:		

1A VOLATILE ORGANICS ANALYS	IS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 580311
Lab Code: NA Case No.: NA	SAS NO.: NA SDG No.: FS4B03S
Matrix: (soil/water) SOIL	Lab Sample ID: 9809639-01
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2C3011
Level: (low/med) LOW	Date Received: 09/21/98
% Moisture: not dec. 9	Date Analyzed: 09/30/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 2.2 \\ 2.2 \\ 2.2 \\ 0 \\ \hline 6.6 \\ 0 \\ \end{array} $

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DATA V SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET EPA SAMPLE NO. 580311 Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA SAS No.: NA SDG No.: FS4B03S Case No.: NA Matrix: (soil/water) SOIL Lab Sample ID: 9809639-01 Sample wt/vol: 30.4 (q/mL) G Lab File ID: 2M408 Level: (low/med) LOW Date Received: 09/21/98 % Moisture: 9 decanted: (Y/N) N Date Extracted:09/23/98 Concentrated Extract Volume: 1.00(mL) Date Analyzed: 09/24/98 Injection Volume: Dilution Factor: 1.0 1.0(uL) GPC Cleanup: (Y/N) N pH: 7.0 CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG 0 91-20-3----naphthalene 361 U 91-58-7-----2-chloronaphthalene 361 U 209-96-8----acenaphthylene_83-32-9----acenaphthene_ 361 U 361 U 86-73-7----fluorene 361 U 85-01-8-----phenanthrene 361 U 120-12-7----anthracene 361 U 206-44-0----fluoranthene 361 U 129-00-0----pyrene 361 U 56-55-3-----benzo (a) anthracene 361 U 218-01-9----chrysene

FORM I SV-1

205-99-2----benzo(b) fluoranthene

207-08-9-----benzo(k)fluoranthene

193-39-5-----indeno (1,2,3-cd) pyrene_

53-70-3-----dibenz(a,h)anthracene_

191-24-2----benzo(g,h,i)perylene_

50-32-8-----benzo(a)pyrene

361 U



Page 1 of 1

General Chemistry			TAZ			
Parameter	Qualifier	Result	DL	RL.	Units	DF Analyst Date Time Batch M
	Date Colle Date Rece Priority Collector		: 09/17/98 : 09/21/98 : Routine : Client			
	Lab ID Matrix		: 9809639-01 : Soil			

Total Rec. Petro. Hydrocarbons U	1.92	ÛJ	2.18	11.0	mg/kg	1.0 AAT 10/06/98 1100 132776 1	
*							
1							

= Method	Method-Description
1	EPA 418,1 Modified

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Notes:

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The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyze at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed

in accordance with General Engineering Laboratories

standard operating procedures. Please direct

any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By

1A VOLATILE ORGANICS ANALYS	EPA SÁMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4B04S
Matrix: (soil/water) SOIL	Lab Sample ID: 9809641-06
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2B5011
Level: (low/med) LOW	Date Received: 09/21/98
% Moisture: not dec. 11	Date Analyzed: 09/25/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (tota	$ \begin{array}{c} 2.2 \\ 7.9 \\ 2.2 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$

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18 EPA SAMPLE NO.SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET Lab Name: GENERAL ENGINEERING LABOR Contract: NA 580321 Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FS4B04S Matrix: (soil/water) SOIL Lab Sample ID: 9809641-06 Sample wt/vol: 30.1 (g/mL) G Lab File ID: 7M606 Level: (low/med) LOW Date Received: 09/21/98 % Moisture: 11 decanted: (Y/N) N Date Extracted:09/23/98 Concentrated Extract Volume: 1.00(mL) Date Analyzed: 09/25/98 Injection Volume: 1.0(uL) Dilution Factor: 10.0 GPC Cleanup: (Y/N) N pH: 7.0 CONCENTRATION UNITS: CAS NO. COMPOUND

91-20-3naphthalene 91-58-72-chloronaphthalene 208-96-8acenaphthylene 83-32-9acenaphthene 86-73-7fluorene 85-01-8phenanthrene 120-12-7anthracene 206-44-0fluoranthene 129-00-0	3730 3730 3730 3730 3730 3730 3730 3730	ם כם	
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(ug/L or ug/Kg) UG/KG

FORM I SV-1

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	Client:	Science Applicatio	ns International Corp).						
1		P.O. Box 2502	_							
- F 		800 Oak Ridge Tu	mpike							
		Oak Ridge, Tenne	ssee 37831			1				
	Contact:	Ms. Lorene Rollin	2							
Project D	escription:	CAP-Part A for U	ST Sites (Task Order	No. 8)						
cc: SAIC00598		Reş	ort Date: October 0	8, 1998				F	age 1 c	fĺ
	Sample]	ш	: 580321	·, ·· · ·=						
	Lab ID		: 9809641-06							
	Matrix		: Soil							
	Date Col	llected	: 09/17/98							
•	Date Rec	ceived	: 09/21/98							
1	Priority		: Routine							
	Collector	ſ	: Client							
Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst Date	Time	Batch	М
General Chemistry	F	য	F41, F48,	IO2						
Total Rec. Petro. H		34.5	223	11.2	mg/kg	1.0	AAT 10/06/98	1100	13280) 1
	•									
	•	<u></u>								
M = Method	•		Method-Descripti	ор						
M = Method M 1	·		Method-Descripti EPA 418.1 Modii							
	·									
M1 .										
M 1										
M 1 Notes: The qualifiers in this			EPA 418.1 Modi	fied						
M 1 Notes: The qualifiers in this ND indicates that th	e analyte was not	detected at a conce	EPA 418.1 Modif	fied the detection		latantia				
M 1 Notes: The qualifiers in this ND indicates that th J indicates presence	e analyte was not of analyte at a co	detected at a conce ncentration less the	EPA 418.1 Modis entration greater than on the reporting limit	fied the detection (RL) and grea	ater than the c	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the	e analyte was not of analyte at a con analyte was not de	detected at a conce ncentration less the stected at a concen	EPA 418.1 Modis entration greater than on the reporting limit tration greater than th	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the	e analyte was not of analyte at a con analyte was not de	detected at a conce ncentration less the stected at a concen	EPA 418.1 Modis entration greater than on the reporting limit	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the * indicates that a qui	e analyte was not of analyte at a con analyte was not de ality control analy	detected at a conce ncentration less the steeted at a concen- te recovery is outs	EPA 418.1 Modis entration greater than on the reporting limit tration greater than th	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the * indicates that a qui This data report has	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and	detected at a conce ncentration less the etected at a concent recovery is ours d reviewed	EPA 418.1 Modis entration greater than on the reporting limit tration greater than th	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL.).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the * indicates that a qui This data report has in accordance with 0	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin	detected at a conce ncentration less the stected at a concen- rie recovery is outs d reviewed ng Laboratories	EPA 418.1 Modis entration greater than on the reporting limit tration greater than th	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates presence U indicates that the indicates that a qui This data report has in accordance with (standard operating p	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the * indicates that a qu This data report has in accordance with (standard operating p	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the * indicates that a qu This data report has in accordance with (standard operating p	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	a limit (DL).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the indicates that a qui This data report has in accordance with 0 standard operating p any questions to you	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL.).			
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the i indicates that a qui This data report has in accordance with 0 standard operating p any questions to you	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	a limit (DL.).			· · · · · · · · · · · · · · · · · · ·
M 1 Notes: The qualifiers in this ND indicates that the J indicates presence U indicates that the indicates that a qui This data report has in accordance with 0 standard operating p arry questions to you	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			· · · · · · · · · · · · · · · · · · ·
M 1 Notes: The qualifiers in this ND indicates that th J indicates presence U indicates that the	e analyte was not of analyte at a con analyte was not de ality control analy been prepared and General Engineerin rocedures. Please	detected at a conce ncentration less the stected at a concen- ric recovery is outs d reviewed ng Laboratories direct	EPA 418.1 Modif entration greater than in the reporting limit tration greater than the ide of specified accept	the detection (RL) and greater lie detection lie	ater than the c mit.	letectio	n limit (DL).			· · · · · · · · · · · · · · · · · · ·

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0027 SDG No.: F\$4B04S

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Form 1: Inorganic Analyses Data Sneet

Method Type: Total Metals

Sample ID: 9809641-	-06		C	lient ID: 5	80321]
Contract: SAIC00598	Lab Code:	GEL	C	ase No.:	SAS	No.:	
Matrix: SOIL	Date Received	ceived: 9/21/98		evel: LOV	Ý		
% Solids: 89.00							
AS No. Analyte	Concentration Units	5 C Qual	М	DL	Instrument ID	Analytical Run	
39-92-1 Lead	6.7 mg/kg	3	P	0.17	TJA61 Trace2 ICPAES	980924-1	
Color Before:	Cla	rity Before:			Texture:		
Color After:	Cla	rity After:			Artifacts:		
Comments:							

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IA VOLATILE ORGANICS ANALYSIS	DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR C	ontract: NA
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4007S
Matrix: (soil/water) SOIL	Lab Sample ID: 9805298-19
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2I7013
Level: (low/med) LOW	Date Received: 05/11/98
% Moisture: not dec. 10	Date Analyzed: 05/17/98
GC Column: J&W DB-624(PID) ID: 0.53 (r	mm) Dilution Factor: 2.0
Soil Extract Volume:(ml)	Soil Aliquot Volume:(u2
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	1.1 U U 13.4 P J 4.4 U U 13.3 U U

DATA VALIDATION COPY

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Notes:

The qualifiers in this report are defined as follows:

ND indicates that the analyse was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

Data reported in mass/mass units is reported as 'dry weight'.

DATA VALIDATION COPY VOLATILE ORGANICS ANALYS	SIS DATA SHEET	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Lab Code: NA Case No.: NA Matrix: (soil/water) SOIL Sample wt/vol: 10.0 (g/mL) G Level: (low/med) LOW % Moisture: not dec. 13	Contract: NA SAS No.: NA SDG N Lab Sample ID: 9 Lab File ID: 2 Date Received: 0	590121 0.: FS4008S 9805300-06 216019 5/11/98
GC Column: J&W DB-624(PID) ID: 0.53 Soil Extract Volume:(ml) CAS NO. COMPOUND	Date Analyzed: 0 (mm) Dilution Fa Soil Aliquot Volu CONCENTRATION UNITS:	actor: 1.0
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	

FORM I VOA

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FORM I SV-1

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Client:

Project D	Contact: escription:	Oak Ridge, ' Ms. Lorens	dge Tumpike Tennessee 37831)						
cc: SAIC00598	···		Report Date: June 01, 1998							Page 1 of 1
÷	Sample 1 Lab ID Matrix Date Col Date Rec Priority Collector	lected	: 590121 : 9805300-06 : Soil : 05/10/98 : 05/11/98 : Routine : Client							
Parameter	Qualifier	Result	DL	RL	Units	DF	Anal	yst Date	Time	Batch M
General Chemistry Total Rec. Petro. Hy	ydiocarbons	1530	=====,Fø1,Fø8 22.8	115	ту/кg	10.				122880 1
M = Method			Method-Description		·	·····				
M 1			EPA 418.1 Modified							

Notes:

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

I indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

Science Applications International Corp.

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed

in accordance with General Engineering Laboratories

standard operating procedures. Please direct.

any questions to your Project Manager, Valeric Davis at (803) 769-7391.

Reviewed By



9805300-06

DG No.: FS4008S		Method Ty	pe: Total Metals		
Sample ID: 9805300-06		Client ID:	590121		
Contract: SAIC00598 Lab C	Code: GEL	Case No.:	SAS	No.:	
Matrix: SOIL Date R % Solids: 87.00	leceived: 5/11/98	Level: LO	w		
AS No. Analyte Concentration	Units C Qual	M DL	Instrument ID	Analytical Run	
439-92-1 Lead <u>-</u> 14.8	mg/kg	P 0.10	TJA61 Trace ICPAES	980517-1	
Color Before:	Clarity Before:		Texture:		
Color After:	Clarity After:		Artifacts:		
Comments:					

IA VOLATILE ORGANICS ANALYS	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590211
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4002S
Matrix: (soil/water) SOIL	Lab Sample ID: 9805262-18
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2I3027
Level: (low/med) LOW	Date Received: 05/08/98
% Moisture: not dec. 14	Date Analyzed: 05/13/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	2.3 U 4.5 P 2.3 U 2.3 U U Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ

DATA VALIDATION COPY

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1BEPA SAMPLE NO. SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 590211 Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS NO.: NA SDG No.: FS4002S Matrix: (soil/water) SOIL Lab Sample ID: 9805262-18 Sample wt/vol: 30.3 (q/mL) G Lab File ID: 2T304 Level: (low/med) LOW Date Received: 05/08/98 % Moisture: 14 decanted: (Y/N) N Date Extracted:05/11/98 Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/13/98 Injection Volume: 1.0(uL)Dilution Factor: 1.0 GPC Cleanup: (Y/N) N DATA PH VAL IDATION CONCENTRATION UNITS: COMPOUND COPY (ug/L or ug/Kg) UG/KG CAS NO. Q U 91-20-3----naphthalene 384 U 91-58-7-----2-chloronaphthalene 384 U 209-96-8----acenaphthylene Ū 384 83-32-9----acenaphthene U 384 86-73-7-----fluorene 384 U 85-01-8----phenanthrene 384 U 120-12-7----anthracene 384 10 206-44-0----fluoranthene 384 U 129-00-0----pyrene 384 U 56-55-3-----benzo (a) anthracene 384 U 218-01-9----chrysene 384 U 205-99-2----benzo(b) fluoranthene 384 U 207-08-9----benzo(k)fluoranthene 384 U 50-32-8-----benzo(a)pyrene 384 U

FORM I SV-1

193-39-5-----indeno (1,2,3-cd) pyrene

53-70-3-----dibenz (a, h) anthracene

191-24-2----benzo(g,h,i)perylene

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384 | U

384 U

DATA VALIDATION COPY

	Client:	P.O. Box 2: 800 Oak Ri	plications Internation 502 dge Turnpike Termessee 37831	al Corp.							
n	Contact:	Ms. Lorene	Rollins								
Project De	scription:	CAP-Part A	for UST Sites (Task	Order No.	8)						
∞: SAIC00598			Report Date: Jun								Page 1 of 1
	Sample	D	; 590211								
	Lab ID		: 9805262	-18							
	Matrix		: Soil								
	Date Co		: 0 5/07 / 98	ſ							
	Date Rea	ceived	: 05/08/98								
•	Priority Collecto	_	: Routine								
·····	Conecto	ŗ	: Client								
Parameter	Qualifier	Result		DL				<u> </u>			
General Chemistry					RL	Units	DF	Ana	lyst Date	Time	Batch M
Total Rec. Petro. Hyd	brocarbons	38.0	= FØI, FØ8	2.30	11.6	mg/kg	1.0	ЛР	05/11/98	1400	121925 1
M = Method		·····	Method-Desc	rintion							<u> </u>
M 1			EPA 418.1 M			·····			<u> </u>		······
Notes: The qualifiers in this re ND indicates that the an J indicates presence of U indicates that the ana * indicates that a quality This data report has been in accordance with Gen	nalyte was not d analyte at a con- lyte was not det v control analyte n prepared and	letected at a c centration les ected at a cor recovery is a reviewed	oncentration greater s than the reporting h	than the dep imit (RL) as	nd greates	nit. r then the (t.	detection	ı limit	(DL).		, Ŧ

eral Engineering Laboratories

standard operating procedures. Please direct

any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By

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1A VOLATILE ORGANICS ANALYSI	S DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590221)
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4002S
Matrix: (soil/water) SOIL	Lab Sample ID: 9805262-10
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2I3012
Level: (low/med) LOW	Date Received: 05/08/98
% Moisture: not dec. 11	Date Analyzed: 05/13/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	2.2 U 2.2 U 2.2 U 2.2 U 0 6.7 U

DATA	VALIDATION
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1BSEMIVOLATILE ORGANICS ANALYSIS DATA SHEET EPA SAMPLE NO. Lab Name: GENERAL ENGINEERING LABOR Contract: NA 590221 Lab Code: NA Case No.: NA SAS NO.: NA SDG No.: FS4002S Matrix: (soil/water) SOIL Lab Sample ID: 9805262-10 Sample wt/vol: 30.1 (g/mL) G Lab File ID: 2T216 Level: (low/med) LOW Date Received: 05/08/98 % Moisture: 11 decanted: (Y/N) NDate Extracted:05/11/98 Concentrated Extract Volume: 1.00(mL) Date Analyzed: 05/12/98 Injection Volume: 1.0(uL)Dilution Factor: 1.0 GPC Cleanup: (Y/N) N pH: 7.0 VALIDATION DNCENTRATION UNITS: DMPOUND UG/KG Ug/L or ug/Kg) UG/KG DATA CAS NO. COMPOUND Q 91-20-3-----naphthalene 91-58-7-----2-chloronaphthalene 373 0 209-96-8-----acenaphthylene_ 373 U 83-32-9----acenaphthene 373 U 373 U 86-73-7----fluorene 85-01-8----phenanthrene 373 U 120-12-7-----anthracene 373 U 206-44-0----fluoranthene 373 0 129-00-0-----pyrene 373 0 56-55-3-----benzo (a) anthracene 373 0 218-01-9----chrysene 373 0 205-99-2----benzo (b) fluoranthene 207-08-9----benzo (k) fluoranthene 373 0 373 U 50-32-8-----benzo (a) pyrene 373 U 193-39-5-----indeno(1,2,3-cd)pyrene 53-70-3-----dibenz(a,h)anthracene 373 0 373 Ū 191-24-2----benzo(g,h,i)perylene_ 373 Ū 373 U

FORM I SV-1

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DATA VALIDATION Science Applications International Corp. Client COPY P.O. Box 2502 800 Oak Ridge Tumpike Oak Ridge, Temessee 37831 Contact Ms. Lorene Rollins Project Description: CAP-Part A for UST Sites (Task Order No. 8) ∝: SAIC00598 Report Date: June 01, 1998 Page 1 of 1 Sample ID : 590221 Lab ID : 9805262-10 Matrix : Soil Date Collected : 05/07/98 Date Received : 05/08/98 Priority : Routine Collector : Client Parameter Qualifier Result DL RL Units DF Analyst Date Time Batch M General Chemistry $185 = F \phi I_1 F \phi 8$ Total Rec. Petro. Hydrocarbous 22.2 112 mg/kg 10. JLP 05/11/98 1400 121925 1 M = MethodMethod-Description M1 EPA 418.1 Modified Notes: The qualifiers in this report are defined as follows: ND indicates that the analyte was not detected at a concentration greater than the detection limit. I indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL). U indicates that the analyte was not detected at a concentration greater than the detection limit. * indicates that a quality control analyte recovery is outside of specified acceptance criteria. This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis at (803) 769-7391. Reviewed By



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Sample ID: 9805262-10			C	lient ID: 5	90221	
Contract: SAIC00598	Lab Code:	GEL	C	ase No.:	SAS	No.:
Matrix: SOIL	Date Received:	5/8/98	L	evel: LOW	v	
% Solids: 89.00						
	Concentration Units	<u>C</u> Qual	M	DL	Instrument ID	Analytical Run
19-92-1 Lead	7.7 mg/kg		Р	0.10	TJA61 Trace ICPAES	980514a-1
olor Before:	Clari	ty Before:	<u> </u>		Texture:	
Color After:	Clari	ty After:			Artifacts:	
omments:						

DATA VALIDATION COPY

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1A VOLATILE ORGANICS ANALYS	IS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4B09S
Matrix: (soil/water) SOIL	Lab Sample ID: 9809704-01
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2C2014
Level: (low/med) LOW	Date Received: 09/22/98
% Moisture: not dec. 9	Date Analyzed: 09/29/98
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
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (tota	$ \begin{array}{c} 2.2 \\ 2.2 \\ 2.2 \\ 0 \\ 2.2 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$

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DATA VENIDOLAE	IB ILE ORGANICS ANALYSIS DATA	EPA S	AMPLE NO.
COPY Lab Name: GENERAL EN	GINEERING LABOR Contract	.: NA 59	0311
Lab Code: NA	Case No.: NA SAS No.	: NA SDG No.: F	54B09S
Matrix: (soil/water)		Lab Sample ID: 98097	
Sample wt/vol:	30.1 (g/mL) G		
Level: (low/med)			1
		Date Received: 09/22/	98 -
	decanted: (Y/N) N	Date Extracted:09/24/	98
Concentrated Extract	Volume: 1.00(mL)	Date Analyzed: 09/24/	98
Injection Volume:	1.0(uL)	Dilution Factor: 1.0	
GPC Cleanup: (Y/N)	N pH·70		
209-96-8 83-32-9 86-73-7 85-01-8 120-12-7 206-44-0 129-00-0 56-55-3 218-01-9 205-99-2 207-08-9 50-32-8 193-39-5 53-70-3	COMPOUND (ug/L naphthalene 2-chloronaphthalene acenaphthylene acenaphthene fluorene phenanthrene phenanthrene fluoranthene pyrene pyrene	VTRATION UNITS: or ug/Kg) UG/KG 365 U 365 U	Q V

FORM I SV-1

V-43

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	COPY							
Project I	Contact:	P.O. Box 2502 800 Oak Ridge Oak Ridge, Tenn Ms. Lorene Roll	iessee 37831			,		
cc: SAIC00598		R	eport Date: October 08	8, 1998				Page 1 of 1
	Sample J Lab ID Matrix Date Col Date Rec Priority Collector	llected ceived	: 590311 : 9809704-01 : Soil : 09/21/98 : 09/22/98 : Routine : Client					1
Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst Date	Time Batch M
General Chemistr	- v							
Total Rec. Perro.		5.58 (/)	FØI, FØG218- IØZ	11.0	mg/kg	1.0	AAT 10/06/98	1100 132809 1
General Chemistr Total Rec. Perro. M = Method M 1		5.58 (/)		on	mg/kg	1.0	AAT 10/06/98	1100 132809 1
Total Rec. Perro. M = Method M 1 Notes: . The qualifiers in th ND indicates that to I indicates presence U indicates that the * indicates that a q This data report ha in accordance with	Hydrocarbons J is report are define he analyte was not e of analyte was not d uality control analy s been prepared an General Engineeri	ed as follows: detected at a cor ncentration less t etected at a conc yte recovery is of d reviewed ing Laboratories	TOZ Method-Descriptic	on ied the detection (RL) and grue detection	n limit. eater than the limit.			1100 132809 1
Total Rec. Perro. M = Method M 1 Notes: . The qualifiers in th ND indicates that r J indicates presence U indicates that the * indicates that a q This data report ha	Hydrocarbons J is report are define he analyte was not e of analyte at a co analyte was not d uality control analy s been prepared and General Engineeri procedures. Please	ed as follows: detected at a cor ncentration less t etected at a conc yte recovery is ou d reviewed ng Laboratories direct	TOZ Method-Description EPA 418.1 Modif ecentration greater than than the reporting limit contration greater than the arration greater than the arside of specified accept	on ied the detection (RL) and grue detection	n limit. eater than the limit.			1100 132809 1



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VOLATILE ORGANICS ANALYS	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4B09S
Matrix: (soil/water) SOIL	Lab Sample ID: 9809704-02
Sample wt/vol: 10.0 (g/mL) G	Lab File ID: 2C2015
Level: (low/med) LOW	Date Received: 09/22/98
* Moisture: not dec. 9	Date Analyzed: 09/29/98
GC Column: J&W DB-624(PID) ID: 0.53	
Soil Extract Volume:(ml)	Soil Aliquot Volume:(uL)
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 2.2 \\ 2.2 \\ 0 \\ 2.2 \\ 0 \\ 0 \\ 6.6 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$

FORM I VOA

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1B SEMIVOLATILE ORGANICS ANALYSIS	DATA SHEET
ÚG. / Lab Name: GENERAL ENGINEERING LABOR Cont	ract: NA
Lab Code: NA Case No.: NA SAS	NO.: NA SDG No.: FS4B09S
Matrix: (soil/water) SOIL	Lab Sample ID: 9809704-02
Sample wt/vol: 30.1 (g/mL) G	Lab File ID: 1M412
Level: (low/med) LOW	Date Received. 09/22/98
% Moisture: 9 decanted: (Y/N) N	Date Extracted:09/24/98
Concentrated Extract Volume: 1.00(mL)	Date Analyzed: 09/24/98
Injection Volume: 1.0 (uL)	Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0	
	ONCENTRATION UNITS: ug/L or ug/Kg) UG/KG Q
91-20-3naphthalene 91-58-7acenaphthalene 209-96-8acenaphthylene 83-32-9acenaphthylene 86-73-7fluorene 85-01-8fluorene 120-12-7anthracene 206-44-0fluoranthene 129-00-0	365 U 365 U

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218-01-9----chrysene

56-55-3-----benzo (a) anthracene

205-99-2----benzo (b) fluoranthene

207-08-9-----benzo(k) fluoranthene

207-08-9-----benzo(a) pyrene 50-32-8-----benzo(a) pyrene 193-39-5-----indeno(1,2,3-cd) pyrene 53-70-3-----dibenz(a,h) anthracene 191-24-2-----benzo(g,h,i) perylene

FORM I SV-1

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V-46



Client:	Science Applications International Corp.
, Calify	· · · · · · · · · · · · · · · · · · ·
	P.O. Box 2502
	800 Oak Ridge Tumpike
	Oak Ridge, Tennessee 37831
Contact:	Ms. Lorene Rollins
Project Description:	CAP-Part A for UST Sites (Task Order No. 8)

cc: SAIC00598			Report	Date: October 0	8, 1998				I	Page 1 o	ıf 1
	Sample II)	·····	: 590321				· · · · · · · · · · · · · · · · · · ·			
1	Lab ID			9809704-02							
· ·	Marrix			: Soil							
1 1	Date Colle	cted		: 09/21/98							
	Date Rece	ived		: 09/22/98							
	Priority			: Routine							
,	Collector			: Client							
Parameter	Qualifier	Result		DL	RL	Units	DF	Analyst Date	Time	Batch	M
eneral Chemistry Foul Rec. Perro. F		127	-	2.18	11.0	mg/kg	1.0	AAT 10/06/98	1100	132809	r 1
	1										
VI = Method	•		М	ethod-Descriptio	'n						
M1			E	PA 418.1 Modifi	ed						

Notes:

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed

in accordance with General Engineering Laboratories

standard operating procedures. Please direct

any questions to your Project Manager, Valerie Davis at (803) 769-7391.

Reviewed By



V-47

TOATA VALIDATForm 1: Inorganic Analyses Data Sheet FS4B09S COPY Method Type: SDG No.: FS4B09S

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	Method Type: Total Metals

Sampl	e ID: 9809704	-02				C	lient ID: 5	90321			
Contra	et: SAIC0059	8 Lab C	ode:	GEL		Ċ	ase No.:	SAS	No.:		
Matrix	SOIL	Date R	eceived:	9/22/5	98	L	evel: LOV	v			
% Soli	ds: 91.00										
AS No.	Analyte	Concentration	Units	с	Qual	M	DL	Instrument ID	Analytical Run		
439-92-1	Lead	3.2	mg/kg			P	0.16	TJA61 Trace ICPAES	980930-3	J	I05
Color Be	efore:		Clarit	ty Bef	ore:			Texture:		· <u>···</u> ·	<u></u>
Color A	ter:		Clarit	y Aft	er:			Artifacts:			
Comments	:										

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PROJECT NAME: Fort Stewart New CAP Part A UST Investigation PROJECT NUMBER: 01-0331-04-9505-200 PROJECT MANAGER: Patty Stoll Sampler I Signature) [Printed Name]	P Part A UST I)	HAIN	L OF	JF CUSTO		T HE	CHAIN OF CUSTODY RECORD	-			COC NO .: GABY (
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siere a	800 Oak Ridge Turnpike, Oak Ridge, TN 37831 (423) 481-4600	PROJECT NAME: 46 SWMUs-Inveetigation	PROJECT NUMBER: 01-0331 04 7326 2000		PROJECT MANAGER Jail Longaker	Sampler (Signatura)	2	Sa	221.009	215,000	56031	100.2	(2000)	14000	2051	63031	112029	19009	19029				COMPANY NAME	RECEIVED BY:	E.A	COMPANH NAME	RELINGUISHED BY	COMPANY WANE
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PROJECT NAME: -16. SWMUS Investigations			REQUESTED PARAMETERS	ARAMETER	s			LABORATORY NAME	VAME:	
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	6. An Enployee Orned Company toone Company				(~	6	(Y)	\sim				(
800 Oak Ridge Turnpite, Oak Ridge, TN 37831	Ridge, TN 37831 (423) 4	(423) 481-4600		ъ	AIN O	F CU	CHAIN OF CUSTODY	r RECORD	ORD				COC NO.: GABDO 3
PROJECT NAME: Fort Stewart CAP Part A UST Investigation	t Stewart CAP Part A	V UST Investigat	tion	F		<u>۳</u>	EQUESTI	REQUESTED PARAMETERS	METERS				LABORATORY NAME:
9405 PROJECT NUMBER: 01-0331-04 5471-200	0405							<u>مر</u>				······	General Engineering Laboratory
PROJECT MANAGER: Patty Stoll	Patty Stoll			2.1AT:									LABORATORY ADDRESS: 2040 Savage Raod Charleston, SC 29417
Sampler (Signature)	(Print	(Printed Name)		и аяря	2JAT3M	оно	OX	তম্ব বর্ম নির্চ			· · · · · · · · · · · · · · · · · · ·	siV \aeiiyoi	PHONE NO: (803) 556-8171
Sample (D	Date Collected	Time Collected	Metrix	SVOA,	ARDF X3TE HA	TEX,	.oc	DAH PAH	HF			8 to .a	OBSERVATIONS, COMMENTS,
CC900b	2/7 9-6	1520	water	69.9	•(L		đ	1			N N	SPECIAL INSTRUCTIONS
134004	5/2/28	345	water		1							<u>ر</u> م	
650311	5/7194		50.1									8 त	
101069	-+		-									್ಷದ	
Ţ	1 2-61-15	1435				+-							
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60000	1 39/F/5	1145										10	
650111	7-9-4	1430										6 (
111009	5/7/946/1	1035										85	
(050131		1435										80	
596211	5 196 1	435			-			-				δc	
	61, 87 A1 K 151	05/1	7									50	
RELINQUISHED BY	Acted 1 1210	IN RECEIVED BY:	D BY:		Dat	Date/Time	TOTAL	NUMBEF	TOTAL NUMBER OF CONTAINERS:	TAINERS:			Cooler Temperature: H ²⁰ P
COMPANY NAME: 1			COMPANY NAME:				Cooler 1D:#	₩ ġ	- 	7		ш.	FEDEX NUMBER:
RECEVED ON:	Date/Time	Pe RELINQUISHED	IISHED BY:		Dat	Date/Time				C		-	
COMPANY MAME:		190 COMPAN	COMPANY NAME:		<u> </u>								
RELINQUISHED BY:	Date/Time	ne RECEIVED BY:) BY:		Date	Date/Time							
COMPANY NAME:		COMPAN	COMPANY NAME:		· .								

Science Arglisation international Corporation Science Arglisation international Corporation 800 Oak Ridge Turnpike, Dak Ridge, IN 37831 (423) 481-4600	An Employee-Ouned Company al Corporation 6gm, TN 37831 (423).	1997-197 (E.			5 L	IAIN	OF CI		DE CUSTODY RI	CHAIN OF CUSTODY RECORD	۵				COC NO .: CARS ME	(Y)
PROJECT NAME: Fort Stewart CAP Part A UST Investigation	Stewart CAP Par	t'A UST In	vestigatic	Ē				REQUI	ESTED P	REQUESTED PARAMETERS	rers				LABORATORY NAME: General Engineering Laboratory	
9405 PROJECT NUMBER: 01-0331-04-6481-200	9805-0331-04-6484	200							pr	202					ABORATORY ADDRESS;	·
PROJECT MANAGER: Patty Stoll	atty Stoll				2JAT3				»97.H	<u>क</u> म् अव्य					2040 Savage Raod Charleston, SC 29417	
Samplar (Signature)		15	le merievi	evi	и аяся	SJATAM			ਾਰ					\aelito8	PHONE NO: (803) 556-8171	<u> </u>
Sample (D	Date Collected	ad Time Collected	acted	Matrix	SVOC.	аяся и кака и Кака и кака и	НА9 НЯТ	втех, о РАН, D	רס¢ 10¢	1 A 9				to .oV	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
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RETINOUISHER BY:	To at		RECEIVED BY:	о вγ:			Date/Time		DTAL NU	TOTAL NUMBER OF CONTAINERS:	F CONT	AINERS:	00)		Cooler Temperature: 40 C	1
COMPANY NAME: 1 COMPANY NAME: 1		241/2/c	COMPAN	COMPANY NAME:				ວິ		Cooler ID: #548	44	~ ^			FEDEX NUMBER:	
RECEVED ON: LANG		Date/Time	JELINOU	RELINQUISHED BY:			Date/Time									
COMPANY NAME:		00/	COMPAN	COMPANY NAME:												
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COMPANY NAME:		10	OMPAN'	COMPANY NAME:		T.										

	An Empilyrer Owned Company	Company					($\widetilde{\mathcal{S}}$	\mathcal{T}							(
Scione Applications International Corporation 800 Oak Hidge Turnplice, Oak Ridge, TN 37831	mal Corporation Ridge, TN 37831	(423) 481-4600	-			CHA	O NI		STO	рҮ в	CHAIN OF CUSTODY RECORD	g				COC NO .: GAB D/ P
PROJECT NAME: Fort Stewart New CAP Part A UST Investigation	Stewart New I	CAP Part A I	UST Invest	tigation					REQUE:	STED P	REQUESTED PARAMETERS	ELERS		-		LABORATORY NAME;
	30%	52														General Engineering Laboratory
PROJECT NUMBER: 01-0331-04-5305-200	1-04-20	002-90													•	LABORATORY ADDRESS.
PROJECT MANAGER: Patty Stoll	Patty Stoll				,			P		201 (b					.sisi⊻	2040 Savage Raod Charleston, SC 29417
Sampler (Signature)		(Printed Name	•	-				88,1 ,C	, Lea	(, Lea					\sei11	PHONE NO: (803) 556-8171
- Dure Cu	prell-in	Lawo	-	-umley	x		чо () 990 ()	990 (Hat 'I					of Bo	DASERVATIONS COMMENTS
Sampla ID	Date Collected	d Time Collected	ollected	Matrix	318	ная рот		HAq	HÅ9.	HAq					.oN	SPECIAL INSTRUCTIONS
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730111	5 /10/98	8 1110	0		-										3	
730311	5 1098	S 1430	30		1			1							0	
11 COH 9	5/6/68	8 1510	0					7						-	Q	
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730411	5/10/98	8 1545	5		_			-							<u>n</u>	
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590101	5/10/9	0101 261	0)											-0	-
RELINQUISHED BY:	<u>v –</u> Č	Date/Time	RECEIVED BY	D BY:			Da	Date/Time	·	TAL NI	UMBER	OF CO	TOTAL NUMBER OF CONTAINERS:	RS:		Cooler Temperature: 2/0
COMPANY NAME: 1		11 30	COMPAN	COMPANY NAME:					-ΰ	Cooler ID:	*	0	34			FEDEX NUMBER:
RECERTENT BY:	1	Derta Trigita	RELINQU	RELINQUISHED BY:			Q	Date/Time								
COMPANY HAME:		1/20	COMPAN	COMPANY NAME:			1									
RELINQUISHED BY:		Date/Time	RECEIVED BY:	D BY:		•	Da	Date/Time								
COMPANY NAME:			COMPAN	COMPANY NAME:			······									

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Fort Stewart UST CAP-Part A Report USTs 242 & 244, Building 241, Facility ID #9-089041

> SOIL ANALYTICAL DATA **OBTAINED DURING USTS 242 & 244 CLOSURE ACTIVITIES** (June 1996)

Fort Stewart UST CAP-Part A Report USTs 242 & 244, Building 241, Facility ID #9-089041

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394 CESAD LABORATORY 611 SOUTH COBB DRIVE MARIETTA, GA 30060-3172

Sample Location: 29349 #242-T1-S1 FT. STEWART

Sampler: BOBBI THORN

Date Collected: 6/24/96

Time Collected: 12:05

Sample type: Soil

Lab Number: 96-A038067

Date Received: 6/26/96

Time Received: 8:30

SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

liyte	Pocult	51.55	DC.	and the	N b	.		
	Result	Flag	DF 	Units	Date 	Time	Analyst	Metrija
2-Chlorophenol	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	6270B
4-Chlorophenylphenylether	376.	Ű	1	ug/kg	6/28/96		G. Baun	8270B
Chrysene	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
Dibenzofuran	376.	Ű	1	ug/kg	6/28/96		G. Baun	8270B
Dibenz(a,h)anthracene	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
1,2-Dichlorobenzene	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
1,3-Dichlorobenzene	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
1,4-Dichlorobenzene	376.	Ū	ī	ug/kg	6/28/96		G. Baun	8270B
3,3'-Dichlorobenzidine	763.	บ	1	ug/kg	6/28/96		G. Baun	8270B
2,4-Dichlorophenol	376.	ม	1	ug/kg	6/28/96		G. Baun	8270B
Diethylphthalate	376.	มี	1	ug/kg	6/28/96		G. Baun	8270B
2,4-Dimethylphenol	376.	บ	1	ug/kg	6/28/96		G. Baun	8270B
Dimethylphthalate	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
Di-n-butylphthalate	376.	ũ	1	ug/kg	6/28/96		G. Baun	82708
4,6-Dinitro-2-methylphenol	945.	ย	1	ug/kg	6/28/96		G. Baun	8270B
2,4-Dinitrophenol	945.	บ	1	ug/kg	6/28/96		G. Baun	8270B
2,4-dinitrotoluene	376.	Û	1	ug/kg	6/28/96		G. Baun	8270B
2,6-Dinitrotoluene	376.	U	1	ug/kg	6/28/96		G. Baun	8270B
Di-n-octylphthalate	376.	U	1	ug/kg	6/28/96		G. Baun	8270B
pranthene	376.	U	1	uq/ka	6/28/96	6:17	G. Baun	82708
orene	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
vaenlorobenzene	376.	ับ	1	ug/kg	6/28/96	6:17	G. Baun	827
ichlorobutadiene	376	U	1	ug/kg	6/28/96	6:17	G. Baun	82'.
nexachlorocyclopentadiene	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	82708
Hexachloroethane	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B

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SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr. P.Q. Box 40566 Nashville, TN 37203-0566 Phone 1-615-726-0177

ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394 CESAD LABORATORY 611 SOUTH COBB DRIVE MARIETTA, GA 30060-3172

Sample Location: 29349 #242-T1-S1 FT. STEWART

Sampler: BOBBI THORN

Date Collected: 6/24/96

Time Collected: 12:05

Sample type: Soil

Date Received: 6/26/96

;

Lab Number: 96-A038067

Time Received: 8:30

SEMIVOLATILE ORGANICS and PESTICIDE/PCB's

lyte	Result	Flag	DF	Units	Date	Time	Analyst	Method
Indeno(1,2,3-cd)pyrene	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
Isophorone	376.	ប	1	ug/kg	6/28/96	6:17	G. Baun	8270B
2-Methylnaphthalene	376.	U	1	ug/kg	6/28/96	-6:17	G. Baun	827ÓB
2-Methylphenol	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
m.p-Methylphenol	376.	B	1	ug/kg	6/28/96	6:17	G. Baun	8270B
Naphthalene	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
2-Nitroaniline	945.	U	1	ug/kg	6/28/96	6:17	G. Baun	82708
3-Nitroaniline	945.	U	1	ug/kg	6/28/96		G. Baun	8270B
4-Nitroaniline	945.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
Nitrobenzene	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	82708
2-Nitrophenol	376.	U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
4-Nitrophenol	945.	ារ	1	ug/kg	6/28/96	6:17	G. Baun	8270B
N-nitrosodi-n-propylamine	376.	U	1	ug/kg	6/28/96		G. Baun	8270B
N-nitrosodiphenylamine	376.	Ū	1	ug/kg	6/28/96		G. Baun	82708
Pentachlorophenol	945.	Ū	1	ug/kg	6/28/96	6:17	G. Baun	8270B
Phenanthrene	376.	U	ī	ug/kg	6/28/96	6:17	G. Baun	82708
Phenol	376.	΄ U	1	ug/kg	6/28/96	6:17	G. Baun	8270B
Pyrene	376.	ម	i	ug/kg	6/28/96	6:17	G. Baun	82708
Bis(2-ethylhexyl)phthalate	376.	Ú	1	ug/kg	6/28/96	6:17	G. Baun	8270B
.4-Trichlorobenzene	376.	Ū	1	ug/kg	6/28/96		G. Baun	8270B
2 ,5-Trichlorophenol	945.	Ū	1	úg∕kg	6/28/96		G. Baun	8270
P 4,6-Trichlorophenol	376.	Ϋ́υ.	1	ug/kg	6/28/96		G. Baun	827)
action, BNA,s	Completed			ug/kg			C.Bardwell	3550



SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

ANALYTICAL REPORT

DIRECTOR U.S. ARMY CORPS ENG. 5394 CESAD LABORATORY 611 SOUTH COBB DRIVE MARIETTA, GA 30060-3172

Sample Location: 29349 #242-T1-S1 FT. STEWART

Sampler: BOBBI THORN

Date Collected: 6/24/96

Time Collected: 12:05

Sample type: Soil

Lab Number: 96-A038067

۰.

Date Received: 6/26/96

Time Received: 8:30

UNDERGROUND STORAGE TANK RESULTS

Analyte	**************************************	Result	Units	PQL	Dil Factor	Date	Time	Analyst	Method
Benzene Toluene Ethylbenzene Kylenes, total		< 0.114 < 0.114 < 0.114 < 0.114	mg/kg mg/kg mg/kg mg/kg	0.114 0.114 0.114 0.114	i 1	6/28/96 6/28/96 6/28/96 6/28/96	2:17 2:17	Holingwrth Holingwrth Holingwrth Holingwrth	8020 8020
etroleum Hydroc	arbons,IR	441.	mg/kg	11.4	1	6/28/96		M.Himelick	
Sample Extraction i	Data		* ********** ****					-	
BNA's Extracted	6/27/96	Wt extracted:	30.0	ign Ex	tract Volu	le: is	0 al		
		CONTROL DATA	**	<u> </u>	 	<u> </u>			

50170	oate.	KECO	Veries

Surrogate	X Recovery	Target Range
***************************************	********	••••••••••••••
GRO Surrogate, soil	102.	50 - 150
NA Surrogate, Nitrobenzene	53.0	23 - 120
BNA Surr., 2-Fluorobiphenyl	57.0	30 - 115
BNA Surrogate, Terphenyl d14	81.0	18 - 140

COPY 1

ECUS, dy Rect	INTRANILAN		Remarkei SAD NO	ĴĴ	ABED WATE					solated with Samples	<u>069</u>	at time of receiption	-	Pro, ent: CB-ID	
Chain of	/ / /		SA SA		96-A038068					Hazarde Associated	96-A038069	A+ H L K			
Job # 3969	/ 🐙 /	100 00 00 100		- ус-дозво67	96-A0					 D.e.i.e./T1m.e	Date (Time	Deter Time			
ł			100	3 1 1	2 1					 byı (81g.)	(alg.)	atata:	_		
ers work urd		46778	Oode/Bample Number	31	W -					Received by	Received by: (Big.)	Recenter of the	Lab gase No.1		
of Engine	Freder	4	Bite Oode/Bamp	#242-TZ-SL	TRP ESENI					Date/Time	Dayarixim	Date		-	
Corps	Project Name 77-	[Gignatura]	Grab Grab			÷			•	 M Cal	and all the A	by: [81g]	0 .	21-R, Oct 90	
U.S. / ny	Proj. No. Pró	Bamples i (31en	Date Time.	Bulph Clars	1					Bempler Nellnquiehed by	1011ngul 10 d	nelingulehed ^b y	Duelody Seal No.	IT to T	

V-62

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ECUSYS			ANALYTICAL REPORT
1412 Oakbrook Drive		Client Code	29112130
xoss, Georgia 30093		Ledger Number	107849
		P.O. Number	
Fax (770) 368-0806		Date Received	06/28/96
USACE-SAD		Time Received	09:45
Blaisdell Willis 611 South Cobb Drive Marietta, GA 30060 P: 919-5270 F: 919-4977		Reporting Date	07/12/96
			۰. ۳۷
ab Sample ID AB35169	Client Site #	29356	

Client Sample # 244-T1-S1

	V033103	
Project #	3972	
Project Name	FT. STEW	ART
Sampling Date/Time	06/24/96	16:50

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METHOD ANALYTE	TEST CODE	RESULT	MDL UNITS	Dilution Factor	CAS # A	NALYST	DATE OF
Sample Comment Results are reported on a	drv weight basi	s.					
SE 7/MS) SOIL			Prep Date 0	7/08/96	Bate	h 0708	960001
8270B PHENOL	\$06013	Below MDL	378 ug/Kg	1.0	108-95-2	BS	07/08/96
8' BIS(2-CHLOROETHYL) ETHER	\$06013	Below MDL	378 ug/Kg	1.0	111-44-4	BS	07/08/96
5. 2-CHLOROPHENOL	\$06013	Below MDL	378 ug/Kg	1.0	95-57-8	BS	
8270B 1,3-DICHLOROBENZENE	\$06013	Below MDL	378 ug/Kg	1.0	541-73-1	 	07/08/96
8270B 1,4-DICHLOROBENZENE	\$06013	Below MDL	378 ug/Kg	1.0	105-46-7	BS	07/08/96
8270B 1,2-DICHLOROBENZENE	\$06013	Below MDL	378 ug/Kg	1.0		BS	
8270B BIS(2-CHLOROISOPROPYL) ETHER	\$06013	Below MDL	378 ug/Kg	1.0	95-50-1	BS	07/08/96
8270B 2-METHYLPHENOL	\$06013	Below MDL	378 ug/Kg	1.0	108-80-1	BS	07/08/96
82708 4-METHYLPHENOL	\$06013	Below MDL	378 ug/Kg	1.0	95-48-7	BS	07/08/96
8270B N-NITROSODI-N-PROPYLAMINE	\$06013	Below MDL	378 ug/Kg	1.0	105-44-5		07/08/96
82708 HEXACHLOROETHANE	\$06013	Below MDL	378 ug/Kg	1.0	621-64-7	BS	07/08/96
8270B NITROBENZENE	\$06013	Below MDL	378 ug/Kg		67-72-1	BS	07/08/96
8270B ISOPHORONE	\$06013	Below MDL	378 ug/Kg	1.0	98-95-3	BS	07/08/96
8270B 2-NITROPHENOL	\$06013	Below MDL	757 ug/Kg	1.0	78-59-1	BS	07/08/96
8270B 2,4-DIMETHYLPHENOL	\$06013	Below MDL	378 ug/Kg	1.0	88-75-5	BS	07/08/96
82708 BIS(2-CHLOROETHOXY)METHANE	\$06013	Below MDL	378 ug/Kg 378 ug/Kg	1.0	105-67-9	BS	07/08/96
8270B 2,4-DICHLOROPHENOL	\$06013	Below MDL	378 ug/Kg	1.0	111-91-1	BS	07/08/96
8270B 1,2,4-TRICHLOROBENZENE	\$06013	Below MDL		1.0	120-83-2	BS	07/08/96
B270B NAPHTHALENE	\$06013	Below MDL	378 ug/Kg 378 ug/Kg	1.0	120-02-1	BS -	07/08/96
3270B 4-CHLOROANILINE	\$06013	Below MDL	378 ug/Kg	1.0	91-20-3	BS BS	07/08/96
3270B HEXACHLOROBUTADIENE	\$06013	Below MDL	378 ug/Kg		108-47-8	BS	07/08/96
4-CHLORO-3-METHYLPHENOL	\$06013	Below MDL	757 ug/Kg	1.0	87-68-3	BS	07/08/96
2-METHYLNAPHTHALENE	\$06013	Below MDL		1.0	59-50-7		07/08/96
32708 HEXACHLOROCYCLOPENTADIENE	\$06013 \$06013	Below MDL	378 ug/Kg	1.0	91-57-6	BS	07/08/96
2.4.6-TRICHLOROPHENOL	+-+		378 ug/Kg	1.0	77-47-4	BS	07/08/96
	506013	Below MDL~~	378 ug/Kg	1.0	88-08-2	BS	07/08/96
	\$06013	Below MDL	378 ug/Kg	1.0	95-95-4	BS	07/08/96
270B 2-CHLORONAPHTHALENE	\$06013	Below MDL	378 ug/Kg	1.0	91-58-7	BS	07/08/96

Lab Sample ID AB35169 Project # 3972 Pi : Name FT. STEWART Sampling Date/Time 06/24/96 16:50

<u>a</u>) ANALYTE	TEST CODE	RESULT	MOL UNITS	Dilution Factor	CAS # ANA	LYST	DATE (ANALYS
ample (Comment Results are reported on a c	iry weight basis	5.					
SEMI (GC/MS) SOIL Prep Date 07/08/96 Batch 0708960001								
2708	2-NITROANILINE	\$06013	Below MDL	378 ug/Kg	1.0	88-74-4	BS	07/08/96
2708	DIMETHYL PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	131-11-3	8S	07/08/96
2708	ACENAPHTHYLENE	\$06013	Below MDL	378 ug/Kg	1.0	208-96-8	85	07/08/9
2708	2,6-DINITROTOLUENE	\$06013	Below MDL	378 ug/Kg	1.0	606-20-2	BS	07/08/9
2708	3-NITROANILINE	\$06013	Below MDL	378 ug/Kg	1.0	99-09-2	BS	07/08/9
2708	ACENAPHTHENE	\$06013	Below MDL	378 ug/Kg	1.0	83-32-9	BS	07/08/9
2708	2.4-DINITROPHENOL	\$06013	Below MDL	1892 ug/Kg	1.0	51-28-5	BS	07/08/9
270B	4-NITROPHENOL	\$06013	Below MDL	1892 ug/Kg	1.0	100-02-7	BS	07/08/9
270B	DIBENZOFURAN	\$06013	Below MDL	378 ug/Kg	1.0	132-54-9	BS	07/08/9
2708	2,4-DINITROTOLUENE	\$06013	Below MDL	378 ug/Kg	1.0	121-14-2	BS	07/08/9
2708	DIETHYL PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	84-66-2	BS	07/08/9
2708	4-CHLOROPHENYL PHENYL ETHER	\$06013	Below MDL	378 ug/Kg	1.0	7005-72-3	BS.	07/08/9
270B	FLUORENE	\$06013	Below MDL	378 ug/Kg	1.0	86-73-7	BS	07/08/9
270B	4-NITROANILINE	\$06013	Below MDL	378 ug/Kg	1.0	100-01-6	BS	07/08/
2708	2-METHYL-4,6-DINITROPHENOL	\$06013	Below MDL	1892 ug/Kg	1.0	534-52-1	BS	07/08/
	N-NITROSODIPHENYLAMINE	\$06013	Below MDL	378 ug/Kg	1.0	86-30-6	8S	07/08/
2	4-BROMOPHENYL PHENYL ETHER	\$06013	Below MDL	378 ug/Kg	1.0	101-55-3	BS	07/08/
2708	HEXACHLOROBENZENE	\$06013	Below MDL	378 ug/Kg	1.0	118-74-1	BS	07/08/
	PENTACHLOROPHENOL	\$06013	Below MDL	1892 ug/Kg	1.0	87-88-5	BS	07/08/
۔۔۔ در ۱	PHENANTHRENE	\$06013	Below MDL	378 ug/Kg	1.0	85-01-8	BS	07/08/
270B	ANTHRACENE	\$06013	Below MDL	378 ug/Kg	1.0	120-12-7	BS	07/08/
2708	DI-N-BUTYL PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	84-74-2	BS	07/08/
270B	FLUORANTHENE	\$06013	Below MDL	378 ug/Kg	1.0	206-44-0	BS	07/08/
2708	PYRENE	\$06013	Below MDL	378 ug/Kg	1.0	129-00-0	BS	07/08/
270B	BUTYL BENZYL PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	85-68-7	BS	07/08/
270B	3,3'-DICHLOROBENZIDINE	\$06013	Below MDL	757 ug/Kg	1.0	91-94-1	BS	07/08/
270B	BENZO(A)ANTHRACENE	\$06013	Below MDL	378 ug/Kg	1.0	58-55-3	8S	07/08/
270B	BIS(2-ETHYLHEXYL) PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	117-81-7	BS	07/08/
270B	CHRYSENE	\$06013	Below MDL	378 ug/Kg	1.0	218-01-9	BS	07/08/
2708	DI-N-OCTYL PHTHALATE	\$06013	Below MDL	378 ug/Kg	1.0	117-84-0	BS	07/08/
2708	BENZO(B)FLUORANTHENE	\$06013	Below MDL	378 ug/Kg	1.0	205-99-2	BS	07/08/
270B	BENZO(K)FLUORANTHENE	\$06013	Below MDL	378 ug/Kg	1.0	207-08-9	BS	07/08/
270B	BENZO(A)PYRENE	\$06013	Below MDL	378 ug/Kg	1.0	50-32-8	8S	07/08/
2708	INDENO(1,2,3-CD)PYRENE	\$06013	Below MDL	378 ug/Kg	1.0	193-39-5	BS	07/08/
270B	DIBENZO(A,H)ANTHRACENE	\$06013	Below MDL	378 ug/Kg	1.0	53-70-3	BS	07/08/
2708	BENZO(G.H.))PERYLENE	\$06013	Below MDL	378 ug/Kg	1.0	191-24-2	BS	07/08/
270B	2-FLUOROPHENOL (SURR)	\$06013	35	% REC	1.0	387-12-4	BS	07/08/
2708	PHENOL-05 (SURR)	\$06013	43	% REC	1.0	13127-88-3	BS	07/08/
5	NITROBENZENE-D5 (SURR)	\$06013	40	% REC	1.0	4165-60-0	BS	07/08/
327.0_ ⁻	2-FLUOROBIPHENYL (SURR)	\$06013	48	% REC	1.0	321-60-6	BS	07/08/
	2,4,6-TRIBROMOPHENOL (SURR)	506013	60	% REC	1.0	118-79-8	BS	07/08/
	TERPHENYL-D14 (SURR)	\$06013	72	% REC	1.0	1718-51-0	88	07/08/
\ 32708	CARBAZOLE	\$06013	Below MDL	378 ug/Kg	1.0	86-74-8	BS	07/08/
اللا تعد	UNINDREGEL			Prep Date (1 0708	20

Client Site #

29356

Client Sample # 244-T1-S1

Lab Sample ID	AB35169	Client Site #	29356
Project #	3972	Client Sample #	244-T1-S1
P :t Name	FT. STEWART		
Sampling Date/Time	06/24/96 16:50		

<u>ر</u>	D ANALY	TE	TEST CODE	RESULT	MDL	UNITS	Dilution Factor	CAS #	ANALYST	DATE O
ample	Comment	Results are reported on a	dry weight basi	s.		,				<u></u>
BTEX (G	C) SOIL	·			Pn	o Date (07/08/96	R	atch 0708!	160
8020A	BENZENE					<u> </u>				708
8020A	TOLUENE	· · · · · · · · · · · · · · · · · · ·	\$08006	Below MDL		ug/Kg	1.0	71-43-2	DTA	07/08/9
8020A	ETHYLBEN		\$08006	Below MDL Below MDL		ug/Kg	1.0	108-88-3		07/08/9
8020A	XYLENES		\$08006	Below MDL		ug/Kg	1.0	100-41-4		07/08/9
8020A		LUOROTOLUENE (SURR)				ug/Kg	1.0	1330-20-		07/08/98
8020A		LUOROBENZENE (SURR)		77		REC	1.0	95-08-8	DTA	07/08/96
8020A	CHLOROBI		\$08006	69 Below MDL		REC	1.0	450-00-4		07/08/96
8020A		DROBENZENE	\$08006	Below MDL		ug/Kg	1.0	108-90-7		07/08/96
8020A		DROBENZENE	\$08006	Below MDL		ug/Kg	1.0	95-50-1	DTA	07/08/96
8020A		ROBENZENE	\$08006	Below MDL		ug/Kg	1.0	541-73-1	DTA	07/08/96
8020A			\$08006	Below MDL		ug/Kg	1.0	106-46-7	DTA	07/08/96
				Below MUL		ug/Kg	1.0	1634-04-		07/08/96
				<u></u>	Pre	p Date 0	7/04/96	Ba	tch 07049	6
9071A	TRPH SOIL		08041	125	11.5	mg/Kg	1.0		ML	07/05/96
				·····	Pre	p Date 0	7/03/96	Ba	tch 07039	
1 [^]	% TOTAL S	OLIDS SOIL (N/C)	09099	87.2	0.1	%	1.0		MN	07/03/96
	•			1					<u></u>	
Jan	npie iD	AB35170		Client Site #	29	357				
roject		3972		Client Sample	# 26	I-T1-S1				
roject !	Vame	FT. STEWART								
amplin	g Date/Tim									
AETHOD	ANALYT	E	TEST CODE	RESULT	MDL.	UNITS	Dilution Factor	CAS# A	NALYST	
ample C	Comment	Results are reported on a d	rv weight hasis	· · · · · · · · · · · · · · · · · · ·			/			
	/MS) SOIL		11 Haldur 1999	•			-	τ.		

82708	PHENOL	\$08913	Below MDL	819 ug/Kg	1.0	108-95-2	BS	07/08/96
82708	BIS(2-CHLOROETHYL) ETHER	\$06013	Below MDL	379 ug/Kg	1.0	111-44-4	BS	07/08/96
8270B	2-CHLOROPHENOL	\$06013	Selow MOL	379 ug/Kg	1.0	95-57-8	BS	07/08/96
8270B	1,3-DICHLOROBENZENE	\$06013	BOOMMDL	379 ug/Kg	1.0	541-73-1	BS	07/08/96
82708	1,4-DICHLOROBENZENE	\$06013	Below MDL	379 ug/Kg	1.0	106-45-7	BS	07/08/96
8270B	1,2-DICHLOROBENZENE	\$06016	Below MDL	379 ug/Kg	1.0	95-50-1	BS	07/08/96
8270B	BIS(2-CHLOROISOPROPYL) ETHER	906013	Below MDL	379 ug/Kg	1.0	105-60-1	BS	07/08/96
8270B	2-METHYLPHENOL	\$06013	Below MDL	379 ugKa	1.0	95-48-7	BS	07/08/96
82708	4-METHYLPHENOL	\$06013	Below MDL	379 ug/Kg	1.0	105-44-5	BS	07/08/96
82708	N-NITROSODI-N-PROPYCAMINE	\$06013	Below MDL	379 ug/Kg		621-64-7	BS	07/08/96
8.	HEXACHLOROETHANE	\$06013	Below MDL	379 ug/Kg	1.0	67-72-1	BS	07/08/96
82708	NITROBENZENE	\$06013	Below MDL	379 ug/Kg	1.0	98-16-3	BS	07/08/96
8 🛨	ISOPHORONE	\$06013	Below MDL	379 ug/Kg	1.0	78-59-1	BS	07/08/96
تر ب	2-NEROPHENOL	\$06013	Below MDL	759 ug/Kg	1.0	88-75-5	95	07/08/96
82708	2,4-DIMETHYLPHENOL	\$06013	Below MDL	379 ug/Kg	1.0	105-67-9	BS	07/08/96
82738	BIS(2-CHLOROETHOXY)METHANE	\$06013	Below MDL	379 ug/Kg	1.0	111-91-1	BS	07/08/96

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(<u>10</u>		x Lavo ///	SAD NO. MATHIX	29356 AB35169 Sail	29357 AB 351705:1	729358 ABYTI Wite	A& 35172	ET12E AN				Sazardo Associated with Bampics		Nomarks at time of receipt:	•	Prope 1: CBMP-F
Job # 3972		2/20/23/ /		7	2		XX					Date (Time	Date (Time	6/20/ 9-145	VIE:01 678 LUI	8
Work Order			*3 / ⁶	3	3	2 1	У Х	er X			٠	by: (515.)	Racelved by: (215.)	estved for eratory by: (819.)	5 (c)	
	ewar]	~~~~	ette Codo/Sample Number	244-71-51	261-71-51	Tim all	method Blank soil	method Blankwater				Dale/Time Received Dályn) // De	 	Date / Time Reserved for Laboratory by	Lab ene	
U.S. Ar / orps of Engineers	Proloni Name FF Stewart	mer p2. best ward	Pres. 6				ž	MC-				a N	(ale.)			8, Oct 90
U.S. Ar	Prei. No. Preis	Ampler - raination	Date 71mo	0591 24/20	06/18/96 16 30	- "19k y	v.	-66				-Bampler Rollagulahed by:	allnquished by [818.]	Aslinguished by: (818)	Dustady Beal No.	THE FORM

APPENDIX VI

ALTERNATE THRESHOLD LEVEL (ATL) CALCULATIONS

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The contaminant concentrations in soil did not exceed their respective soil threshold levels, except for the closure sample with an elevated benzene detection limit. Thus, no alternate threshold levels were calculated.

The maximum benzene concentration in groundwater was 12.1 μ g/L in May 1998, the horizontal and vertical extent of contamination was determined, and the potential downgradient receptor is located 70 feet from the site, thus no alternate concentration limits were calculated.

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APPENDIX VII

MONITORING WELL DETAILS

VII-1

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Monitoring wells were not installed as part of the CAP-Part A investigation. Temporary piezometers were installed at the USTs 242 & 244 site for the determination of free product. Refer to Figure 5 (Appendix I) for locations and screened intervals.

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APPENDIX VIII

GROUNDWATER LABORATORY RESULTS

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Station:		In Stream	58-01	58-02	58-03	59-01	59-02
Sample ID:	Federal	Water	580112	580212	580312	590112	590212
Screened Interval (ft BGS):	SDWA	Quality	3.0 - 8.0	2.0 - 12.0	0.3 - 10.3	0.0 - 12.0	0.0 - 7.5
Collection Date:	MCLs	Standards	07-May-98	10-May-98	17-Sep-98		
Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/Ľ)	(ug/L)
VOLATILE ORGANIC COM	OUNDS						
Benzene	5	71.28	2 U	5.7 =	2 U	12.1 =	2 U
Ethylbenzene	1000	200000	2 U	2 U	2 U	2 U	2 U
Toluene	700	28718	2 U	2 U	2 U	2 U	2 U
Xylenes, Total	10000		6 U	6 U	6 U	2.8 J	6 Ū
POLYNUCLEAR AROMATIC	HYDROC	ARBONS					
2-Chloronaphthalene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Acenaphthene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Acenaphthylene	-	-	-11.2 U	10.5 U	11.1 U	10.6 U	112 U
Anthracene	-	110000	11 .2 U	10.5 U	11.1 U	10.6 U	112 U
Benzo(a)anthracene	-	0.0311	11.2 U	10.5 U	11.1 Ú	10.6 U	112 U
Benzo(a)pyrene	0.2	0.0311	11 .2 U	10.5 U	11.1 U	10.6 U	112 U
Benzo(b)fluoranthene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Benzo(g,h,i)perylene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Benzo(k)fluoranthene		0.0311	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Chrysene	.	0.0311	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Dibenzo(a,h)anthracene	-	0.0311	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Fluoranthene	-	370	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Fluorene	-	14000	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Indeno(1,2,3-cd)pyrene	-	0.0311	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Naphthalene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Phenanthrene	-	-	11.2 U	10.5 U	11.1 U	10.6 U	112 U
Pyrene		11000	11.2 U	10.5 U	11.1 U	10.6 U	112 U

TABLE VIII-A. Summary of Groundwater Analytical Results

NOTES:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for the September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Analytical data for QA/QC samples 580214 (duplicate), 580316 (equipment rinsate), 590216 (equipment rinsate), and 590314 (duplicate) are contained within this appendix, but are not summarized in this table.

Elevated PAH detection limits are a result of associated organic content such as TPH or other organic compounds. During extraction of the PAH compounds, all other organic compounds are extracted, causing a wide range of organic compounds to be present; thus, the target PAHs become small peaks in the chromatograph. As a result, the laboratory dilutes the concentrate, in turn elevating the detection limit.

U.S. Environmental Protection Agency Safe Drinking Water Act Maximum Contaminant Level

² GA EPD water quality standards (Chapter 391-3-6.03)

Bold values exceed MCLs

Laboratory Qualifiers

- U Indicates the compound was not detected above the reported quantitation limit.
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates the value for the compound is an estimated value.
- Indicates the compound was detected at the concentration reported.

Station:		In Stream	59-03	59-04	59-04	59-04
Sample ID:	Federal	Water	590312	590412	590422	590432
Screened Interval (ft BGS):	SDWA	Quality	0.1 - 10.1	8.0 - 12.0	13.0 - 17.0	18.0 - 22.0
Collection Date:	MCLs	Standards	21-Sep-98	17-Sep-98	17-Sep-98	17-Sep-98
Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
VOLATILE ORGANIC COMI	POUNDS					
Benzene	5	71.28	2 U	2 U	2 U	2 U
Toluene	1000	200000	2 U	2 U	2 Ú	2 U
Ethylbenzene	700	28718	2 U	2 U	2 U	2 U
Xylenes, Total	10000		6 U	6 U	6 U	6 U
POLYNUCLEAR AROMATIC	C HYDROCA	RBONS				
2-Chloronaphthalene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Acenaphthene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Acenaphthylene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Anthracene	-	110000	10.4 U	10.6 U	42.6 U	42.1 U
Benzo(a)anthracene	-	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Benzo(a)pyrene	0.2	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Benzo(b)fluoranthene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Benzo(g,h,i)perylene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Benzo(k)fluoranthene	-	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Chrysene	-	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Dibenzo(a,h)anthracene	-	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Fluoranthene	-	370	10.4 U	10.6 U	42.6 U	42.1 U
Fluorene	-	14000	10.4 U	10.6 U	42.6 U	42,1 U
Indeno(1,2,3-cd)pyrene	-	0.0311	10.4 U	10.6 U	42.6 U	42.1 U
Naphthalene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Phenanthrene	-	-	10.4 U	10.6 U	42.6 U	42.1 U
Pyrene	-	11000	10.4 U	10.6 U	42.6 U	42.1 U

TABLE VIII-A. Summary of Groundwater Analytical Results (continued)

NOTES:

May 1998 sampling was conducted prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Contract for the September 1998 sampling was issued prior to the new CAP-Part A guidance that was published in May 1998, thus the new SW-846 analytical methods were not used during that sampling event.

Analytical data for QA/QC samples 580214 (duplicate), 580316 (equipment rinsate), 590216 (equipment rinsate), and 590314 (duplicate) are contained within this appendix, but are not summarized in this table.

Elevated PAH detection limits are a result of associated organic content such as TPH or other organic compounds. During extraction of the PAH compounds, all other organic compounds are extracted, causing a wide range of organic compounds to be present; thus, the target PAHs become small peaks in the chromatograph. As a result, the laboratory dilutes the concentrate, in turn elevating the detection limit.

¹ U.S. Environmental Protection Agency Safe Drinking Water Act Maximum Contaminant Level

² GA EPD water quality standards (Chapter 391-3-6.03)

Bold values exceed MCLs

Laboratory Qualifiers

- U Indicates the compound was not detected above the reported quantitation limit.
- UJ Indicates that the compound was not detected above an approximated sample quantitation limit.
- J Indicates the value for the compound is an estimated value.
- = Indicates the compound was detected at the concentration reported.

1A VOLATILE ORGANICS ANALYS	IS DATA SHEET EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 580112
Lab Code: NA Case No.: NA	SAS NO.: NA SDG NO.: FS4001W
Matrix: (soil/water) GROUNDH20	Lab Sample ID: 9805260-10
Sample wt/vol: 10.00 (g/ml) ML	
Level: (low/med) LOW	Date Received: 05/09/98
<pre>% Moisture: not dec</pre>	Date Analyzed: 05/12/98
GC Column: J&W DB-624(PID) ID: 0.53	(mm) Dilution Factor: 1.0
Soil Extract Volume:(m1)	Soil Aliquot Volume:(uI
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	2.0 U 2.0 U 2.0 U 2.0 U 6.0 U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.



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NALYSIS DATA SHEET	EPA SAMPLE NO.
ABOR Contract: NA	580212
SAS NO.: NA SDG	No.: FS4013W
1	
	•
	i Factor: 1.0
CONCENTRATION UNITS: (ug/L or ug/Kg) UG/I	Q Q
ene	5.7 = 2.0 U = 4 $2.0 U = 4$ $6.0 U = 4$
	ABOR Contract: NA SAS No.: NA SDG Lab Sample ID Date Sample ID: Date Received Date Analyzed .53 (mm) Dilution Soil Aliquot V CONCENTRATION UNITS: (ug/L or ug/Kg) UG/I

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LA VOLATILE ORGANICS ANALYS	SIS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 580214
Lab Code: NA Case No.: NA	SAS NO.: NA SDG NO.: FS4013W
Matrix: (soil/water) GROUNDH20	Lab Sample ID: 9805307-18
Sample wt/vol: 10.00 (g/ml) ML	
Level: (low/med) LOW	Date Received: 05/11/98
<pre>% Moisture: not dec</pre>	Date Analyzed: 05/20/98
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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (tota)	$ \begin{array}{c} 5.1\\ 2.0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0\\ 0$

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CUTY VOLATILE ORGANICS ANALY	SIS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	580312
Lab Code: NA Case No.; NA	SAS No.: NA SDG No.: FS4B05W
Matrix: (soil/water) WATER	Lab Sample ID: 9809642-13
Sample wt/vol: 10.00 (g/ml) M	L Lab File ID: 282019
Level: (low/med) LOW	Date Received: 09/21/98
% Moisture: not dec.	Date Analyzed: 09/22/98
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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (tota	2.0 U 2.0 U 2.0 U 2.0 U 2.0 U 41) 6.0 U

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DATA VALIDATION			
COPY	1B LE ORGANICS ANALYSIS	5 DATA SHEET	EPA SAMPLE NO.
Lab Name: GENERAL EN	GINEERING LABOR CO	ntract: NA	580312
Lab Code: NA	Case No.: NA SA	AS NO.: NA SDG	No.: FS4B01W
Matrix: (soil/water)	GROUNDH20	Lab Sample ID	: 9809637-14
Sample wt/vol:	900.0 (g/mL) ML	Lab File ID:	4N205
Level: (low/med)	LOW	Date Received	: 09/21/98
% Moisture:	decanted: (Y/N)	Date Extracte	d:09/22/98
Concentrated Extract	Volume: 1.00(mL)	Date Analyzed	: 09/29/98
Injection Volume:	1.0(uL)	Dilution Fact	or: 1.0
GPC Cleanup: (Y/N)	N pH: 7.0		
CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) UG/	-

91-20-3naphthalene	11.1	TT ,
91-58-72-chloronaphthalene		1 - 1.4
209-96-8acenaphthylene		
83-32-9acenaphthene		1 7 1 1
86-73-7fluorene		
85-01-8phenanthrene		
120-12-7anthracene	11.1	-
206-44-0fluoranthene		-
129-00-0pyrene		
56-55-3benzo (a) anthracene		
218-01-9chrysene		
205-99-2benzo (b) fluoranthene		- 1
207-08-9benzo (k) fluoranthene		-
50-32-8benzo (a) pyrene		-
193-39-5indeno (1,2,3-cd) pyrene		. –
53-70-3dibenz (a, h) anthracene		-
191-24-2benzo (g,h,i) perylene		ΰ
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LA VOLATILE ORGANICS ANALYSIS DATA	RINSATE EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contrac	580316
Lab Code: NA Case No.: NA SAS No	D.: NA SDG No.: FS4B05W
Matrix: (soil/water) WATER	Lab Sample ID: 9809642-20
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2B2027
Level: (low/med) LOW	Date Received: 09/21/98
% Moisture: not dec.	Date Analyzed: 09/23/98
GC Column: J&W DB-624(PID) ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume:(ml)	Soil Aliquot Volume: (uL
	ENTRATION UNITS: Lorug/Kg) UG/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	2.0 U 2.0 U 2.0 U 3.2 J J

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			RINSATE
SEMIVOLATI	1B LE ORGANICS ANALYSIS DATA	SHEET	EPA SAMPLE NO.
Lab Name: GENERAL ENG	GINEERING LABOR Contract	: NA	580316
Lab Code: NA (Case No.: NA SAS No.	NA SDG 1	No.: FS4B02W
Matrix: (soil/water)	GROUNDH20	Lab Sample ID:	9809638-08
Sample wt/vol:	930.0 (g/mL) ML	Lab File ID:	8M517
Level: (low/med)	LOW	Date Received:	09/21/98
% Moisture:	decanted: (Y/N)	Date Extracted	:09/22/98
Concentrated Extract	Volume: 1.00(mL)	Date Analyzed:	09/25/98
Injection Volume:	1.0 (uL)	Dilution Factor	r: 1.0
GPC Cleanup: (Y/N)	N pH: 7.0		

CAS NO. COMPOUND

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

Q

91-20-3naphthalene	10.8 U	10
91-58-72-chloronaphthalene	10.8 0	$\boldsymbol{\nu}$
208-96-8acenaphthylene	10.8 0	1
83-32-9acenaphthene	10.8 U	
86-73-7fluorene	10.8 U	
85-01-8phenanthrene	10.8 U	· · ·
120-12-7anthracene	10.8 U	
206-44-0fluoranthene	10.8 U	
129-00-0pyrene	10.8 0	
56-55-3benzo (a) anthracene	10.8 U	
218-01-9chrysene	10.8 0	
205-99-2benzo(b) fluoranthene	10.8 U	
207-08-9benzo(k)fluoranthene	10.8 U	
50-32-8benzo (a) pyrene	10.8 U	
193-39-5indeno (1, 2, 3-cd) pyrene	10.8 0	11
53-70-3dibenz (a, h) anthracene	10.8 U	
191-24-2benzo(g,h,i)perylene	10.8 U	

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VOLATILE ORGANICS ANALYS	SIS DATA SHEET EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590112
Lab Code: NA Case No.: NA Matrix: (soil/water) GROUNDH20	SAS NO.: NA SDG No.: FS4015W
	Lab Sample ID: 9805309-02
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2J303
Level: (low/med) Low	Date Received: 05/11/98
% Moisture: not dec.	Date Analyzed: 05/20/98
GC Column: J&W DB-624(PID) ID: 0.53 Soil Extract Volume:(ml)	(mm) Dilution Factor: 1.0
(ml)	Soil Aliquot Volume: (uL
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 12.1 \\ 2.0 \\ J \\ 2.0 \\ J \\ 2.8 \\ J \\ J \end{array} $

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1A VOLATILE ORGANICS ANALYS	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590212
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4001W
Matrix: (soil/water) GROUNDH20	Lab Sample ID: 9805260-11
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2I2027
Level: (low/med) LOW	Date Received: 05/09/98
% Moisture: not dec.	Date Analyzed: 05/12/98
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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 2.0 & U \\ 2.0 & U \\ 2.0 & U \\ 2.0 & U \\ 6.0 & U \end{array} $

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LA VOLATILE ORGANICS ANALYS	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590216
Lab Code: NA Case No.: NA	SAS NO.: NA SDG NO.: FS4001W
Matrix: (soil/water) GROUNDH20	Lab Sample ID: 9805260-12
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2I2028
Level: (low/med) LOW	Date Received: 05/09/98
% Moisture: not dec.	Date Analyzed: 05/13/98
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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	$ \begin{array}{c} 2.0 & U \\ 2.0 & U \\ 2.0 & U \\ 2.0 & U \\ 6.0 & U \end{array} $

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1B SEMIVOLATILE ORGANICS ANALYSIS DAT	RINSATE EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contrac	590216
Lab Code: NACase No.: NASAS NoMatrix: (soil/water)GROUNDH2OSample wt/vol:915.0 (g/mL) MLLevel: (low/med)LOW% Moisture:decanted: (Y/N)Concentrated ExtractVolume:1.00 (mL)Injection Volume:1.0 (uL)	SDG No.: FS4001W Lab Sample ID: 9805260-12 Lab File ID: 4T118 Date Received: 05/08/98 Date Extracted:05/10/98 Date Analyzed: 05/11/98 Dilution Factor: 1.0
GPC Cleanup: (Y/N) N DATA AALIDA CAS NO. COMPOUND CONCE 91-20-3	ATION ENTRATION UNITS: , or ug/Kg) UG/L Q 10.9 U 10.9 U

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LA LA VOLATILE ORGANICS ANALYSIS DATA S	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contract	: NA 590312
Lab Code: NA Case No.: NA SAS No.	: NA SDG No.: FS4B08W
Matrix: (soil/water) WATER	Lab Sample ID: 9809703-02
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2B4017
Level: (low/med) LOW	Date Received: 09/22/98
% Moisture: not dec.	Date Analyzed: 09/24/98
GC Column: J&W DB-624 (PID) ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume:(ml)	Soil Aliquot Volume:(uL)
	NTRATION UNITS: or ug/Kg) UG/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	2.0 U 2.0 U 2.0 U 2.0 U 6.0 U

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DATA VALIDATION Semivolatile organics analysis data	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contract	590312
Lab Code: NA Case No.: NA SAS No.	.: NA SDG No.: FS4B08W
Matrix: (soil/water) GROUNDH20	Lab Sample ID: 9809703-02
Sample wt/vol: 960.0 (g/mL) ML	Lab File ID: 1N714
Level: (low/med) LOW	Date Received: 09/22/98
% Moisture: decanted: (Y/N)	Date Extracted:09/23/98
Concentrated Extract Volume: 1.00 (mL)	
	Dilution Factor: 1.0
GPC Cleanup: (Y/N) N pH: 7.0	
-	
	ENTRATION UNITS: Lorug/Kg) UG/L Q
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VOLATILE ORGANICS ANALYSIS DATA	SHEET
Lab Name: GENERAL ENGINEERING LABOR Contra	ct: NA
Lab Code: NA Case No.: NA SAS N	O.: NA SDG NO.: FS4B08W
Matrix: (soil/water) WATER	Lab Sample ID: 9809703-01
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2B4016
Level: (low/med) LOW	Date Received: 09/22/98
<pre>% Moisture: not dec</pre>	Date Analyzed: 09/24/98
GC Column: J&W DB-624 (PID) ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume:(ml)	Soil Aliquot Volume:(uL)
	CENTRATION UNITS: /L or ug/Kg) UG/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	2.0 U 2.0 U 2.0 U 2.0 U 6.0 U

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91-20-3naphthalene 91-58-72-chloronaphthalene 209-96-8acenaphthylene 83-32-9acenaphthene 83-32-9acenaphthene 85-01-8acenaphthene 85-01-8	10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5	dddddddddddd	0
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DATA VALIDATION IA COFY	LYSIS DATA SHEET
Let i . Lab Name: GENERAL ENGINEERING LAB	OR Contract: NA
Lab Code: NA Case No.: NA	SAS NO.: NA SDG NO.: FS4B05W
Matrix: (soil/water) WATER	Lab Sample ID: 9809642-11
Sample wt/vol: 10.00 (g/ml)	ML Lab File ID: 2B306
Level: (low/med) LOW	Date Received: 09/21/98
% Moisture: not dec.	Date Analyzed: 09/23/98
GC Column: J&W DB-624 (PID) ID: 0.3	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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzer 1330-20-7Xylenes (to	2.0 U 2.0 U 2.0 U 2.0 U 5tal)6.0 U

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w The set of the set EPA SAMPLE NO. 1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 590412 Lab Name: GENERAL ENGINEERING LABOR Contract: NA Lab Code: NA Case No.: NA SAS No.: NA SDG No.: FS4B01W Matrix: (soil/water) GROUNDH20 Lab Sample ID: 9809637-11 Sample wt/vol: 940.0 (g/mL) ML Lab File ID: 4M418 Level: (low/med) Date Received: 09/21/98 LOW % Moisture: decanted: (Y/N) Date Extracted:09/22/98 Concentrated Extract Volume: 1.00(mL)Date Analyzed: 09/25/98 Injection Volume: 1.0(uL) Dilution Factor: 1.0 GPC Cleanup: (Y/N) N pH: 7.0 CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/L Q 91-20-3----naphthalene 10.6 U U 91-58-7----2-chloronaphthalene 10.6 U 209-96-8----acenaphthylene 10.6 U 83-32-9----acenaphthene 10.6 U

86-73-7----fluorene

218-01-9-----chrysene

85-01-8-----phenanthrene 120-12-7----anthracene

206-44-0----fluoranthene

50-32-8-----benzo(a)pyrene

129-00-0-----pyrene______ 56-55-3-----benzo(a) anthracene___

205-99-2----benzo (b) fluoranthene

207-08-9-----benzo(k)fluoranthene

193-39-5-----indeno(1,2,3-cd)pyrene______ 53-70-3-----dibenz(a,h)anthracene______

191-24-2----benzo(g,h,i)perylene___

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VOLATILE ORGANICS ANALYSIS DATA SHEET	EPA SAMPLE NO.
Lab Name: GENERAL ENGINEERING LABOR Contract: NA	590422
Lab Code: NA Case No.: NA SAS No.: NA SDG	No.: FS4B05W
Matrix: (soil/water) WATER Lab Sample ID	: 9809642-12
Sample wt/vol: 10.00 (g/ml) ML Lab File ID:	2B2018
Level: (low/med) LOW Date Received	: 09/21/98
<pre>% Moisture: not dec Date Analyzed</pre>	: 09/22/98
GC Column: J&W DB-624 (PID) ID: 0.53 (mm) Dilution	n Factor: 1.0
Soil Extract Volume:(ml) Soil Aliquot	Volume:(uL
CAS NO. COMPOUND CONCENTRATION UNITS	
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total)	2.0 U 2.0 U 2.0 U 6.0 U

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50-32-8-----benzo (a) pyrene

193-39-5-----indeno(1,2,3-cd)pyrene_

53-70-3-----dibenz (a, h) anthracene

191-24-2----benzo(g,h,i)perylene

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42.6 U

42.6 U

42.6 U

42.6 U

1A VOLATILE ORGANICS ANALYS	IS DATA SHEET
Lab Name: GENERAL ENGINEERING LABOR	Contract: NA 590432
Lab Code: NA Case No.: NA	SAS No.: NA SDG No.: FS4B05W
Matrix: (soil/water) WATER	Lab Sample ID: 9809642-10
Sample wt/vol: 10.00 (g/ml) ML	Lab File ID: 2B2016
Level: (low/med) LOW	Date Received: 09/21/98
<pre>% Moisture: not dec</pre>	Date Analyzed: 09/22/98
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/L Q
71-43-2Benzene 108-88-3Toluene 100-41-4Ethylbenzene 1330-20-7Xylenes (total	2.0 U 2.0 U 2.0 U 2.0 U 2.0 U 4

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PROJECT NAME: Fort Stewart CAP Part A UST Investigation	t CAP Part A UST I	Investigati	ion	_	-		BEOL	T	PARA	REQUESTED PARAMETERS	-	.		LABORATORY NAME: General Engineering Laboratory	
مح PROJECT NUMBER: 01-0331-04-6481-200	9805 00-100											•		I ABORATORY ADDRESS.	
PROJECT MANAGER: Patty Stoll	toll			SJĂT3											
Sarppler (Signature)	(Printed Name)	nel		м аяр	SIVIS									PHONE NO: (803) 556-8171	
Sample ID Date (Law		EV/	00 708, R	CRA MS	HA H9	тех, он Яд ,на	00			<u>.</u>			D DESERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
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800 Oak Ridge Turnpike, Oak Ridge, TN 37831	Ridge, TN 378.	31 (423) 481-4600	1-4600		5		5	CHAIN UF CUS I UDY RECORD					_		
PROJECT NAME: Fort Stewart CAP Part A UST Investigation	t Stewart C/	VP Part A U	JST Investig	ation				REQU	REQUESTED PARAMETERS	PARAN		-			LABORA I ORY NAME: General Engineering Laboratory
9605 PROJECT NUMBER: 01-0331-04-6487-200	۹-1-0331-04-6	1487-200			·····								<u>×</u>	-	LABORATORY ADDRESS:
PROJECT MANAGER: Patty Stol	Patty Stoll				SJATAN									:sleiV	2040 Savage Haod Charleston, SC 29417
Sampler (Signature)		(Printed	(Printed Name)	-		SIA									PHONE NO: (803) 556-8171
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PROJECT NAME: Fort Stewart New CAP Part A UST Investigation	IT Stewart New CAP	AP Part A 1	UST Inves	tigation			ЯË	REQUESTED PARAMETERS	PARAMI	ELERS	Г.		F	LABORATORY NAME:
PROJECT NUMBER: 01-0331-04-9305-200	01-0331-04-930	5-200												General Engineering Laboratory
PROJECT MANAGER: Patty Stall	: Patty Stall							5						LABORATORY ADDRESS: 2040 Savage Raod
				_										Charleston, SC 29417
Sampler (Signature)	-	(Printed Name)	-					PH, Lesd PH, Lesd	-				V \## 170	PHONE NO: (803) 556-8171
Sample ID	Date Collected	Time Collected	flacted	Matrix	X3TEX HA ^G DOT	,ХЭТ8 А.Н.А.	T ,HA						9 to .o	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS
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COMPANY NAME: 1			COMPANY NAME:	Y NAME:		<u>.</u>		Cooler ID;	*	\mathcal{O}	Ŷ		<u> </u>	FEDEX NUMBER:
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APPENDIX IX

CONTAMINATED SOIL DISPOSAL MANIFESTS

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All contaminated soil removed during the entire project (i.e., all USTs removed under contract with ACE, to include clean and non-clean closures) was tested in accordance with the disposal facility requirements and transported to Kedesh, Inc., Highway 84, Ludowici, GA, 31316. The Closure Report was not submitted to GA EPD in 1996 because review of the closure analytical data indicated that a CAP-Part A would re required (i.e., per requirements of GUST-9, Item 15, page 12, dated August 1995). However, all pertinent information (i.e., copies of analytical data, manifests, and maps) are provided in this CAP-Part A Report. Disposal manifests for the UST 242 site were submitted to GA EPD, USTMP in September 1998 with the UST 207A (Facility ID#9-089039) Closure Report response to comments correspondence (Perez 1998). Approximately 22.33 tons of contaminated soil was excavated from the UST 242 tank pit.

I certify that the above information is true and accurate.

Name: Thomas C. Fry

Title: Acting Chief, ENRD

Signature: <u>Ahomas C. Fry</u>

Date: 09/07/99

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DEPARTMENT OF THE ARMY HEADQUARTERS, 3D INFANTRY DIVISION (MECHANIZED) AND FORT STEWART **Directorate of Public Works** 1557 Frank Cochran Drive Fort Stewart, Georgia 31314-4928

SEP 1 5 1998

Directorate of Public Works

CERTIFIED MAIL 2-098-124-167

Georgia Department of Natural Resources Environmental Protection Division Underground Storage Tank Management Program Attention: Mr. William Logan, Environmental Specialist 4244 International Parkway, Suite 104 Atlanta, Georgia 30354

Dear Mr. Logan:

Fort Stewart is pleased to receive the Georgia Environmental Protection Division's correspondence dated August 14, 1998, in reference to the Closure Report submitted for Fort Stewart's former Underground Storage Tank (UST) #207A, Building 230, Facility Identification Number 9089039. As requested in that correspondence, the April 3, 1998 Closure Report Addendum should be amended to include the enclosed manifests for Anderson Columbia Environmental Delivery Order 101, which are provided for your use and convenience. These manifests include additional UST sites (as shown on the attached list). A total of 45 USTs were removed under this delivery order. In addition, this delivery order removed dispensing islands (note included on the provided list) from another 22 sites, for a total of 67 sites as noted in the Closure Report Addendum.

If you have any questions or comments, please contact Ms. Melanie Little or Ms. Tressa Rutland, Directorate of Public Works, Environmental Branch, at (405) 364-8461 or (912) 767-7919, respectively.

Sincerely,

blale F. Kiefer for Ovidio E. Perez

Colonel, U.S. Army Director, Public Works

Enclosure

FORT STEWART UST Removal List for FY 1996 Anderson Columbia Delivery Order #101

2 Bldg 140: Diesel 25,000 9-089065 2 Bldg 1850: Mogas 5,000 9-089065 4 Bldg 1840: Waste Oil 2,500 9-089065 5 Bldg 1840: Waste Oil 1,000 9-089066 6 Bldg 1824: Mogas 6,000 9-089066 7 Bldg 1720: Waste Oil 2,000 9-089011 24 Bldg 1720: Waste Oil 2,000 9-089011 24 Bldg 1510/13: Waste Oil 1,000 9-089109 41 Bldg 1510/13: Waste Oil 1,000 9-089109 41 Bldg 1056: Waste Oil 2,000 9-089109 45 Bldg 127: Mogae 10,000 9-089101 45 Bldg 1205: Waste Oil 1,000 9-089022 71A Bldg 1203: Waste Oil 1,000 9-089022 74 Bldg 1242: Waste Oil 1,000 9-089073 93 Bldg	TANK #	LOCATION	<u>SIZE</u>	FACILITY ID #
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93Bidg 1320/23: Waste Oil1,0009-08907694Bidg 1339: Waste Oil1,0009-08911094CBidg 1339A: Waste Oil1,0009-089110100ABidg 1349: Waste Oil1,0009-089080100BBidg 1350: Waste Oil1,0009-089081201ABidg 260: Waste Oil1,0009-089043201BBidg 232: Waste Oil1,0009-089043207Bidg 230: Waste Oil5009-089038207ABidg 230: Waste Oil5509-089015215Bidg 1503: Waste Oil5509-089015215Bidg 4502: Waste Oil1,0009-089060224Bidg 4528: Waste Oil1,0009-089063225Bidg 4586: Waste Oil1,0009-089041241Bidg 241: Waste Oil1,0009-089041243Bidg 241: Waste Oil1,0009-089041244Bidg 241: Waste Oil1,0009-089041245Bidg 241: Waste Oil1,0009-089041246Bidg 241: Waste Oil1,0009-089041241Bidg 241: Waste Oil1,0009-089041243Bidg 241: Waste Oil1,0009-089041244Bidg 241: Waste Oil1,0009-089041251Bidg 15003 Em. Gen: Diesel2509-054005118Bidg 1239 Em. Gen: Diesel1,0009-089070	, 88	Bldg 1245: Diesel	5,000	9-089073
94B Bldg 1339: Waste Oil 1,000 9-089110 94C Bldg 1339A: Waste Oil 1,000 9-089110 100A Bldg 1349: Waste Oil 1,000 9-089080 100B Bldg 1350: Waste Oil 1,000 9-089081 201A Bldg 260: Waste Oil 1,000 9-089043 201B Bldg 260: Waste Oil 1,000 9-089043 207 Bldg 230: Waste Oil 500 9-089038 207A Bldg 1503: Waste Oil 2,500 9-089039 214 Bldg 1503: Waste Oil 550 9-089015 215 Bldg 4502: Waste Oil 1,000 9-089015 216 Bldg 4502: Waste Oil 1,000 9-089060 224 Bldg 4528: Waste Oil 1,000 9-089063 225 Bldg 4586: Waste Oil 1,000 9-089041 241 Bldg 241: Waste Oil 1,000 9-089041 242 Bldg 241: Waste Oil 1,000 9-089041 243 Bldg 241: Waste Oil 1,000 9-089041 244 Bldg 241: Waste Oil 1,000 9-089041 <	93	Bldg 1330: Waste Oil	2,500	
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201ABldg 260: Waste Oil1.0009-089043201BBldg 260: Waste Oil1,0009-089043207Bldg 232: Waste Oil5009-089038207ABldg 230: Waste Oil2,5009-089039214Bldg 1503: Waste Oil5509-089015215Bldg 1503: Waste Oil1,0009-089060224Bldg 4502: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 4586: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041245Bldg 241: Waste Oil1,0009-089041246Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil5009-089041245Bldg 1239 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	100A	Bldg 1349: Waste Oil	1,000	9-089080
201BBldg260: Waste Oil1,0009-089043207Bldg232: Waste Oil5009-089036207ABldg230: Waste Oil2,5009-089039214Bldg1503: Waste Oil5509-089015215Bldg1503: Waste Oil1,0009-089060224Bldg4502: Waste Oil1,0009-089063225Bldg4529: Waste Oil1,0009-089044241Bldg241: Waste Oil2,0009-089041242Bldg241: Waste Oil1,0009-089041243Bldg241: Waste Oil1,0009-089041244Bldg241: Waste Oil1,0009-089041245Bldg241: Waste Oil1,0009-089041246Bldg241: Waste Oil1,0009-089041246Bldg241: Waste Oil5009-089041246Bldg241: Waste Oil5009-089041246Bldg241: Waste Oil5009-089041244Bldg241: Waste Oil5009-089041251Bldg430(AAFES):Waste Oil5009-089041261Bldg15003 Em. Gen: Diesel2509-054005118Bldg1239 Em. Gen: Diesel1,0009-089070	100B	Bldg 1350: Waste Oil	1,000	9-089081
207Bldg 232: Waste Oil5009-089038207ABldg 230: Waste Oil2,5009-089039214Bldg 1503: Waste Oil5509-089015215Bldg 1503: Waste Oil5009-089015216Bldg 4502: Waste Oil1,0009-089060224Bldg 4528: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 4586: Waste Oil1,0009-089044241Bldg 241: Waste Oil1,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041245Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	201A	Bldg 260: Waste Oil	1,000	9-089043
207ABldg 230: Waste Oil2,5009-089039214Bldg 1503: Waste Oil5509-089015215Bldg 1503: Waste Oil5009-089015216Bldg 4502: Waste Oil1,0009-089060224Bldg 4528: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 241: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES):Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	201B	Bldg 260: Waste Oil	1,000	9-089043
214Bldg 1503: Waste Oil5509-089015215Bldg 1503: Waste Oil5009-089015216Bldg 4502: Waste Oil1,0009-089060224Bldg 4528: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 241: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES): Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	207	Bldg 232: Waste Oil	500	9-089038
215Bldg 1503: Waste Oil5009-089015216Bldg 4502: Waste Oil1,0009-089060224Bldg 4528: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 4586: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041251Bldg 430 (AAFES):Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005116Bldg 1239 Em. Gen: Diesel1,0009-089070	207A		2,500	
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224Bldg 4528: Waste Oil1,0009-089063225Bldg 4529: Waste Oil1,0009-089090238Bldg 4586: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES):Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	215			
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238Bldg 4586: Waste Oil1,0009-089044241Bldg 241: Waste Oil2,0009-089041242Bldg 241: Waste Oil1,0009-089041243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES):Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	224			
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243Bldg 241: Waste Oil1,0009-089041244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES): Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	241	Bldg 241: Waste Oil		
244Bldg 241: Waste Oil1,0009-089041261Bldg 430 (AAFES): Waste Oil5009-089118115Bldg 15003 Em. Gen: Diesel2509-054005118Bldg 1239 Em. Gen: Diesel1,0009-089070	242	Bldg 241: Waste Oil		
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115Bldg 15003 Em. Gen: Diesel2509~054005116Bldg 1239 Em. Gen: Diesel1,0009-089070	244			
118 Bldg 1239 Em. Gen: Diesel 1,000 9-089070	261			
	115	—		
123 Bldg 933 Em. Gen: Diesel 1,000 9-089092	118	— .		
	123	Bldg 933 Em. Gen: Diesel	1,000	9-089092

IX-6

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d **REYNOLDS CONSTRUCTION COMPANY** Highway 84 • P. O. Box 749 Ludowici, Georgia 31316 Office (912) 368-7488 • Plant (912) 876-8085 Strate Press -5 34 Date 19 Load No. ۲ 14 P a 5 Custo Description KKR 104 Project Number CINGY ÷ Location County ÷ 60 6 20080 16 'N 00 lb Tare 20080 1b+ Gross ÷ 11123 AM AU 12 96 64740 16 Net 00 lb Tare 64740 1b+ Gross 11:18 AM AU 12 96 1.1 ÷ Ulle Signature of Weigher 35 85.83 TONS: TOTAL TONS: TRUCK NO. TICKET NO. 58821 ي. جاري VIP-1515-HV

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	Manifest	1, Pa	ne 1	<u> </u>			
	NON-HAZARDOUS WASTE MANIFEST	of	<u> </u>				
2.	Generator's Name and Mailing Address						
	Ft. Stewart Hinesville, GA 31313						
	Generator's Phone (912) 234-6579						
4.	Transporter 1 Company Name						
5.	Hendricks Hauling Transporter 2 Company Name						
6,	Designated Facility Name Trop Ste Ad Res Manage ment, Inc.			ners F ners F			
	c/o Reynolds Constr Co. Rt. 84	·		Phone		912-42	7-67
	Ludowici, GA 31316	<u> </u>			- 365		
7.	Waste Shipping Name and Description		- T	Gont		9. Total	10 Ur
a.	· · · · · · · · · · · · · · · · · · ·			No.	Туре	Quantity	W
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	Additional Descriptions for Materials Listed Above	E. Hi	andling	, Code	s for Wa	stes Listed Abc	ve.
11	Additional Descriptions for Materials Listed Above Special Handling Instructions and Additional Information	E. Ha	andling) Code	s for Wa	stes Listed Abc	<u>.</u> wө.
11	Special Handling Instructions and Additional Information	E. H	andling	, Code	s for Wa	stes Lsted Abc	
	Special Handling Instructions and Additional Information 8101	E. H	andling) Code	s for Wa	stes Listed Abc	ve.
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	Special Handling Instructions and Additional Information 8101	E. H	andling	, Code	s for Wa	stes Listed Abc	× J
	Special Handling Instructions and Additional Information 8101		-	-		sal of Hazardous	Waste.
	Special Handling Instructions and Additional Information 8101 Tank # GENERATOR'S CERTIFICATION: 1 cerenty the materials described above on this manifest are not subject to federal regul Printed/Typed Name		-	-			Waste.
12	Special Handling Instructions and Additional Information 8101 Tank #_2UR GENERATOR'S CERTIFICATION: I cerefy the materials described above on this manifest are not subject to federal regul Printed/Typed Name Signature Signatur		-	-		sal of Hazardous	Waste.
12	Special Handling Instructions and Additional Information 8101 Tank # 247 GENERATOR'S CERTIFICATION: 1 cereity the materials described above on this manufast are not subject to federal regul Printed/Typed Name Signature Signature Printed/Typed Name Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name		-	-		sal of Hazardous	Waste.
12	Special Handling Instructions and Additional Information 8101 Tank #_2YZ GENERATOR'S CERTIFICATION: 1 ceretry the materials described above on this manifest are not subject to federal regul Printed/Typed Name Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Frinted/Typed Name Signature Signature Signature Frinted/Typed Name Signature Signature Signature Frinted/Typed Name Frinted/Typed Name Signature		-	-		eal of Hazardous Month	Waste Day Y CC1
12	Special Handling Instructions and Additional Information 8101 Tank #_2YZ GENERATOR'S CERTIFICATION: 1 certify the materials described above on this members are not subject to federal regul Printed/Typed Name Image: Signature Signature Image: Signature Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Image: Signature Signature <td></td> <td>-</td> <td>-</td> <td></td> <td>eal of Hazardous Month</td> <td>Waste. Day Y 2618 12</td>		-	-		eal of Hazardous Month	Waste. Day Y 2618 12
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12	Special Handling Instructions and Additional Information 8101 Tank # 247 GENERATOR'S CERTIFICATION: 1 cerenty the materials described above on this manifest are not subject to federal regul Printed/Typed Name Image: Signature Signature Printed/Typed Name Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name Signature Signature Signature Signature			-		Month	Waste. Day Y 2618 12
12	Special Handling Instructions and Additional Information 8101 Tank # 247 GENERATOR'S CERTIFICATION: 1 cerenty the materials described above on this manifest are not subject to federal regul Printed/Typed Name Image: Signature Signature Printed/Typed Name Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name Signature Signature Signature Signature			-		Month	Waste. Day Y 2618 12
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12 13 14	Special Handling Instructions and Additional Information 8101 Tank #	ations for term 19	¢hepou /	-		Month	Waste. Day Y 2618 12

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APPENDIX X

SITE RANKING FORM

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SITE RANKING FORM

Facility Name: USTs 242 & 244, Building 241				Ranked by:			S. Stoller			
County: Liberty Facility ID #: 9-089041				Date F	anked:	6/30/99				
SOIL C	ONTAM	IINATION (based or	n soil (closure data)	2					
Α.	Total PAHs – Maximum Concentration found on the site (Assume <0.660 mg/kg if only gasoline					Total E Maxim	d on	the site		
	was sto	ored on site)					≤0.005 m	g/kg	Ξ	0
	\boxtimes	≤0.660 mg/kg	=	0.			>0.005 -	.05 mg/kg	H	1
		>0.66 - 1 mg/kg	=	10	*	\boxtimes	>0.05 - 1	mg/kg	Ξ	10
		>1 - 10 mg/kg	=	25			>1 - 10 m	ng/kg	=	25
		>10 mg/kg	=	50			>10 - 50	mg/kg	=	40
							>50 mg/k	g	=	50
						* Eleva sample		on limit associa	ited v	with 1 closu
C.		to Groundwater below land surface)								
		>50' bls =	1							
		>25' - 50' bls =	2							
		>10' - 25' bls =	5							
	\boxtimes	≤10' bls =	10							
Fill in i	the blan	ks: (A. <u>0</u>)+((B, <u>1(</u>)_) = (<u>10</u>)	x (C	<u>10</u>)	= (D. <u>10</u>	<u>0_)</u>		
GROU	NDWAT	ER CONTAMINATI	<u>ON (ba</u>	ased on CAP	Part /	<u>groun</u>	dwater da	<u>ata)</u>		
E.	liquid h	roduct (Nonaqueous hydrocarbons; See G finition of "sheen"),			F.	Maxin (One		ene - entration at th be located at		
	\boxtimes	No free product =	0				≤5 μg/L		=	0
		Sheen - 1/8" =	250			\boxtimes	>5 - 100	µg/L	=	5
		>1/8" - 6" =	500					,000 µg/L	=	50
		>6" - 1ft. =	1,000					10,000 µg/L	=	100
		For every additionation for every additionation 100 points = <u>1,000</u>		add another			>10,000			250
Fill in	the blar	nks: (E. <u>0</u>)+	· (F!	5_) = (G. <u>5</u>)					

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Facility Name: USTs 242 & 244, Building 241

POTENTIAL RECEPTORS (MUST BE FIELD-VERIFIED)

Distance from nearest contaminant plume boundary to the nearest downgradient and hydraulically connected Point of Withdrawal for water supply. If the point of withdrawal is not hydraulically connected, evidence as outlined in the CAP-A guidance document MUST be presented to substantiate this claim.

Н.	Public Water Supply					I. Non-Public Water Suppl			
		Impacted <u><</u> 500' >500' - ¼ mi ¼ mi - 1 mi >1 mi - 2 mi	= 10				Impacted ≤100' >100' - 500' >500' - ¼ mi >¼ - ½ mi		2
*	D Note:		= 0 wer suscer	otibility ar		t use the	>½ mi ver susceptibility >¼ mi e shaded areas. nnected, see atta	=	0
J.	Distand bounda OR UT trench	ce from neares ary to downgra ILITY TRENC may be omitte on is more tha	st Contamin dient Surfa HES & VAI	nant Plume ice Waters ULTS (a ut king if its in	k K. tility avert	Distan	ce from any Free ements and crav Impacted	e Pro vl sp	oduct
		Impacted ≤500' >500' - 1,000 >1,000'	= 500 = 50)' = 5 = 1				<500' >500' - 1,000' >1,000' or no free produc	=	50 50 5 0
Fill in t	the blan	iks: (H. <u>0</u>) + (I. <u>0</u>	_) + (J	<u>50</u>)+	(K. <u>0</u>	_) = L. <u>50</u>		
				(G.	<u> 5)</u> x	(L. <u>50</u>	_) = M. <u>250</u>		
				(M.	250)+	(D. <u>100</u>	<u>)</u> = N. <u>350</u>		
P.	SUSCI	EPTIBILITY A	REA MULI	<u> TIPLIER</u>					
		If site is loca	ted in a Lov	w Ground-\	Water Poll	lution Su	sceptibility Area	= 0.5	5
	\boxtimes	All other site	s = 1						
Q.	EXPLO	OSION HAZA	RD						
	Have any explosive petroleum vapors, possibly originating from this release, been detected in any subsurface structure (e.g., utility trenches, basements, vaults, crawl spaces, etc.)?								
		Yes = 20	00,000						
	\boxtimes	No = 0							
Fill in	the blar	nks: (N	<u>350)</u> x (F	P. <u>1</u>) =	(<u>350</u>)	+ (Q. <u>0</u>)		L

= <u>350 (based on closure soil detection limits and CAP-Part A groundwater data)</u> ENVIRONMENTAL SENSITIVITY SCORE

ADDITIONAL GEOLOGIC AND HYDROLOGIC DATA

The following information is presented to provide supplemental information to Section II.D.5 of the CAP-Part A form and Item H of the Site Ranking Form and provides detailed information relating to the geologic and hydrogeologic conditions at Fort Stewart which supports Fort Stewart's determination that the water withdrawal point(s) located at Fort Stewart is (are) not hydraulically connected to the surficial aquifer.

1.0 REGIONAL AND LOCAL GEOLOGY

Fort Stewart is located within the coastal plain physiographic province. This province is typified by nine southeastward dipping strata that increase in thickness from 0 feet at the fall line located approximately 150 miles inland from the Atlantic coast, to approximately 4,200 feet at the coast. State geologic records describe a probable petroleum exploration well (the No. 1 Jelks-Rogers) located in the region as encountering crystalline basement rocks at a depth of 4254 feet BGS. This well provides the most complete record for Cretaceous, Tertiary, and Quaternary sedimentary strata in the region.

The Cretaceous section was found to be approximately 1970 feet thick and dominated by clastics. The Tertiary section was found to be approximately 2170 feet thick and dominated by limestone with a 175-foot-thick cap of dark green phosphatic clay. This clay is regionally extensive and is known as the Hawthorn Group. The interval from approximately 110 feet to the surface is Quaternary in age and composed primarily of sand with interbeds of clay or silt. This section is undifferentiated into separate formations (Herrick and Vochis 1963).

State geologic records contain information regarding a well drilled in October 1942, 1.8 miles north of Flemington at Liberty Field of Camp Stewart (now known as Fort Stewart). This well is believed to be an artesian well located approximately one-quarter mile north of the runway at Wright Army Airfield within the Fort Stewart Military Reservation. The log for this well describes a 410-foot section, the lowermost 110 feet of which consisted predominantly of limestone sediments, above which 245 feet of dark green phosphatic clay typical of the Hawthorn Group was encountered. The uppermost portion of the section was found to be Quaternary-age interbedded sands and clays. The top 15 feet of these sediments were described as sandy clay (Herrick and Vochis 1963).

The surface soil located throughout the Fort Stewart garrison area consists of Stilson loamy sand. The surface layer of this soil is typically dark grayish-brown loamy sand measuring approximately 6 inches in depth. The surface layer is underlain by material consisting of pale yellow loamy sand and extends to a depth of approximately 29 inches. The subsoil is dominantly sandy clay loam and extends to a depth of 72 inches or more (Herrick and Vochis 1963).

2.0 REGIONAL AND LOCAL HYDROGEOLOGY

The hydrogeology in the vicinity of Fort Stewart is dominated by two aquifers referred to as the Principal Artesian and the surficial aquifers. The Principal Artesian aquifer is the lowermost hydrologic unit and is regionally extensive from South Carolina through Georgia, Alabama, and most of Florida. Known elsewhere as the Floridan, this aquifer is composed primarily of Tertiary-age limestone, including the

Bug Island Formation, the Ocala Group, and the Suwannee Limestone. These formations are approximately 800 feet thick, and groundwater from this aquifer is used primarily for drinking water (Arora 1984).

The uppermost hydrologic unit is the surficial aquifer, which consists of widely varying amounts of sand and clay ranging from 55 to 150 feet in thickness. This aquifer is primarily used for domestic lawn and agricultural irrigation. The top of the water table ranges from approximately 2 to 10 feet BGS (Geraghty and Miller 1993). The base of the aquifer corresponds to the top of the underlying dense clay of the Hawthorn Group. The Hawthorn Group was not encountered during drilling at this site but is believed to be located at 40 to 50 feet BGS; thus, the effective aquifer thickness would be approximately 35 to 45 feet. Soil surveys for Liberty and Long Counties describe the occurrence of a perched water table within the Stilson loamy sands present within Fort Stewart (Looper 1980).

The confining layer for the Principal Artesian aquifer is the phosphatic clay of the Hawthorn Group and ranges in thickness from 15 to 90 feet. The vertical hydraulic conductivity of this confining unit is on the order of 10⁻⁸ cm/sec. There are minor occurrences of aquifer material within the Hawthorn Group; however, they have limited utilization (Miller 1990). The Hawthorn Group has been divided into three formations: Coosawhatchie Formation, Markshead Formation, and the Parachula Formation, which are listed from youngest to oldest.

The Coosawhatchie Formation is composed predominantly of clay but also has sandy clay, argillaceous sand, and phosphorite units. The formation is approximately 170 feet thick in the Savannah Georgia area. This unit disconformably overlies the Markshead Formation and is distinguished from the underlying unit by dark phosphatic clays or phosphorite in the lower part and fine-grained sand in the upper part.

The Markshead Formation is approximately 70 feet thick in the Savannah Georgia area and consists of light- colored phosphatic, slightly dolomitic, argillaceous sand to fine-grained sandy clay with scattered beds of dolostone and limestone.

The Parachula Formation consists of sand, clay, limestone, and dolomite, and is approximately 10 feet thick in the Savannah Georgia area. The Parachula Formation generally overlies the Suwannee Limestone in Georgia.

Groundwater encountered at all the UST investigation sites is part of the Surficial Aquifer system. Based on the fact that all public and non-public water supply wells draw water from the Principal (Floridan) Aquifer, and that the Hawthorn confining unit separates the Principal Aquifer from the Surficial Aquifer, it is concluded that there is no hydraulic interconnection between the Surficial Aquifer (and associated groundwater plumes, if applicable) located beneath former UST sites and identified water supply withdrawal points at Fort Stewart.

APPENDIX XI

COPIES OF PUBLIC NOTIFICATION LETTERS AND CERTIFIED RECEIPTS OF NEWSPAPER NOTICE

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STATE OF GEORGIA CHATHAM COUNTY

Personnally appeared before me, Lynnette Tuck , to me known, who being sworn, deposes and says:

That he is the Class. Inside Sales Mgr. of Southeastern Newspapers Corporation, a Georgia corporation, doing business in Chatham County, Georgia, under the trade name of Savannah Morning News/Savannah Evening Press, a daily newspaper published in said county;

That he is authorized to make affidavits of publication on behalf of said published corporation;

That said newspaper is of general circulation in said county and in the area adjacent thereto;

That he has re	viewed the regula	r editions of the	ne Savannah Morning
News/Savannah Eveni	ng Press, publish	ied on 627	⁷ , 19 99 ,
7-4, 1999.			19 99 , and finds

that the following Advertisement, to-wit:

VIEW INSCILLATED VOICES PUBLIC NOTICE Notification of Corrective Action Plan, Underground Storage Tank Accey will be mailed at a nominal fre. Comments to the plan will be accepted until October 31, 1997, and should be directed to GEPD and should

to examine a copy of one or more of the plans, please contact Commander, 3rd infantry Divi-sion (Mechanized) and Fort Stewart, attn: DPW ENRD ENV, Br. (T. Rutland), 1537 Frank Cochran, Fart Stewart, Ga. 31314-4928 A copy will be mailed at a nominal fee. Comments to the plan will be accepted until October 31, 1999, and should be directed to GEPD at 404-302-2007. Following is the mailing address:

28B, 1720. 9-089011 145 & 37m 1510, 9-089016 181 1510/13. 9-0890109 03 & 64, 1128. 9-089051 71, 1203. 9-089022 87 & 88. 1245. 9-089073 1006, 1350, 9-089063 122, 7705, 9-089063 123, 931, 9-089072 214, 1503, 9-089097 214, 1503, 9-089097 224, 25, 9-089090 242 & 244, 241, 9-089041 288 & 249, 15016, 9-054006 4 & 5 NGTC, 9395, 0-890028 & & 7 NGTC, 9795, 0-890028 & & 8 NGTC, 9755, 0

appeared in each of said editions.

VIICK.

(Deponent)

Sworn to and subscribed / day before me this of £ F

Chatham County Notary Public, orgia

Form 121 rev.

APPENDIX XII

GUST TRUST FUND REIMBURSEMENT APPLICATION AND CLAIM FOR REIMBURSEMENT

Fort Stewart is a federally owned facility and has funded the investigation for USTs 242 & 244, Building 241, Facility ID #9-089041, using Department of Defense Environmental Restoration Account Funds. Application for Georgia Underground Storage Tank Trust Fund reimbursement is not being pursued at this time.

ATTACHMENT A

TECHNICAL APPROACH

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TECHNICAL APPROACH

1.0 INTRODUCTION

The overall objective of this project is to provide the engineering services required to produce Corrective Action Plans (CAPs) for the subject UST sites. These reports will conform to the site closure requirements of a CAP-Part A for sites in Georgia. The field investigations necessary to support the report preparation included the installation of temporary piezometers, soil borings, and associated sampling of soil and groundwater. Upon completion of the field investigations, a CAP-Part A will be prepared to meet GA EPD, Fort Stewart, and the USACE-Savannah requirements.

2.0 FIELD ACTIVITIES

The following sections detail the methodologies used for geoprobe drilling, sampling, and piezometer installation. A geologist from SAIC was on site at all times during operations. No drilling activities were undertaken until all utility clearances and permits had been obtained from Fort Stewart's utility personnel.

2.1 Subsurface Soil Sampling

2.1.1 Geoprobe Drilling

The geoprobe method was used during the project for collecting soil samples. During all geoprobe drilling, soil samples were collected continuously on 4.0-foot centers from the ground surface to the bottom of the borehole. The total depth of each borehole was dictated by the depth where the water table was encountered.

2.1.2 Sample Collection

Soil samples for chemical analyses were collected from boreholes using 4.0-foot macro-core samplers. Upon retrieval of the sampling device, the soil core was split into two 2.0-foot sections using a stainless steel knife. A portion of each 2.0-foot section was collected for possible laboratory analysis. The remaining portion of each 2.0-foot section was used for field measurements.

During the May and June 1998 sampling events, samples designated for possible laboratory analysis were collected from the section using a stainless steel spoon. The spoon was run lengthwise down the core to collect a sample representative of the entire core section. The portion of the sample designated for volatile organic analyses was placed into laboratory sample containers first, followed by placement of the remaining portion of the sample into the containers designated for other types of analyses. Sample containers designated for volatile organic analyses were filled so that minimal headspace was present in the containers. Headspace gas concentration measurements were made using a field organic vapor meter (OVM). Initially, soil from each 2.0-foot interval was placed into a glass jar, leaving some air space, and covered with aluminum foil to create an air-tight seal. The sample was allowed to volatilize for a minimum of 15 minutes. The sealed jar was punctured with the OVM probe and headspace gas drawn until the meter reading was stable. The concentration of the headspace gas was recorded to the nearest 0.1 part per million.

Due to a change in the state regulations governing sample analysis, the collection of samples designated for volatile organic analyses was modified beginning with the November 1998 field effort. Soil samples designated for volatile organic analyses were collected using En CoreTM samplers. The samplers were locked into an En Core T-Handle. Using the T-Handle, the sampler was pushed into the soil until the coring body of the sampler was full. Once the samplers were filled, caps were locked onto them insuring that no

headspace was present. The samplers were then removed from the handle and placed in an En Core zipper bag. Three encore samples are collected from each section 2.0-foot section.

Immediately after collection of each sample and completion of bottle label information, each potential analytical sample container was placed into an ice-filled cooler to ensure preservation. A clean split-barrel sampling device was used to collect soil core from each interval of the project boreholes. Information regarding the criteria for selection of soil samples for off-site shipment to a laboratory for chemical analysis is presented in Section 3.1.3 of the project Work Plan. Soil samples, which were not selected for laboratory analysis, were disposed of as investigation-derived waste (IDW).

2.2 Groundwater Sampling

2.2.1 Groundwater Collection

Groundwater samples from geoprobe boreholes installed during Preliminary Groundwater and CAP-Part A investigations were collected using a geoprobe sampler or from temporary piezometers. The geoprobe sampler is a probe that allows the collection of a groundwater sample from a discrete undisturbed depth interval in a soil boring. Temporary piezometers were constructed of 1.0-inch inside diameter (ID) polyvinyl chloride (PVC) casing with a 5-foot or 10-foot screened interval. These piezometers were installed in the open borehole following completion of all drilling activities.

Each soil borehole was advanced to the top of the water table using direct push methods. For each borehole, the geoprobe sampler was lowered to the bottom of the borehole and driven through the undisturbed soil to a depth of approximately 3.0 feet below the water table. The outer casing of the geoprobe sampler was retracted to expose the screen and allow groundwater to enter the chamber. In cases where the geoprobe sampler could not be driven or where groundwater recovery through the geoprobe sampler was poor, the groundwater sample was collected through the temporary piezometer.

Groundwater samples were collected using a peristaltic pump or a 0.75-inch diameter stainless steel bailer. The portion of the sample designated for volatile organic analysis was poured into laboratory sample containers first, followed by pouring the remaining sample portion into containers designated for other types of chemical analyses. Sample containers designated for volatile organic analysis were filled so that no headspace was present in the containers.

2.2.2 Field Measurements

Groundwater field measurements performed during the project included measurement of static groundwater level, pH, specific conductance, and temperature. Measurement of groundwater levels in soil boreholes was accomplished through the installation of temporary PVC piezometers. A summary of the procedures and criteria to be used for groundwater sample field measurements is presented in the following sections.

Static Groundwater Level

Static groundwater level measurements were made using an electronic water level indicator. Initially, the indicator probe was lowered into each temporary piezometer casing until the alarm sounded and/or the indicator light illuminated. The probe was withdrawn several feet and slowly lowered again until the groundwater surface was contacted as noted by the alarm and/or indicator light. Water level measurements were estimated to the nearest 0.01 foot based on the difference between the nearest probe cord mark to the top of the piezometer casing.

The distance between the top of casing and the surrounding ground surface was taken into account in measuring the water level to within 0.01 foot. The static water level measurement procedure was repeated two or three times to ensure that the water level measurements were consistent (plus or minus 0.01 foot). If this was the case, then the first measured level was recorded as the depth to groundwater. If this was not the case, the procedure was repeated until consistent readings were obtained from three consecutive measurements.

pH, Specific Conductance, and Temperature

The pH, specific conductance, and temperature measurements were recorded for groundwater during groundwater sampling. The pH, temperature, and conductivity measurements were made using a combination meter designed to measure these parameters. A portion of each groundwater sample was retrieved from the PowerPunch sampler and poured into the collection cup. With the combination meter set in the pH mode, the meter electrode was swirled at a slow constant rate within the sample until the meter reading reached equilibrium. The sample pH was recorded to the nearest 0.1 pH unit. The pH measurement procedure was repeated, using a new sample each time, until the pH measurements were consistent (less than 0.2 pH units variation).

Upon completion of the pH measurement, conductivity and temperature measurements were made on a groundwater sample collected in the same manner as described above. With the combination meter set in the conductivity mode, the meter electrode was swirled at a slow constant rate within the sample until the meter reading reached equilibrium. Concurrently, a temperature probe was placed into the sample and allowed to reach equilibrium. The sample conductivity was recorded to the nearest 10 mmhos/cm and the temperature to the nearest 0.1° C. All recorded conductivity values were converted to conductance at 25° C. The conductivity and temperature measurement procedure was repeated a minimum of three times using a new sample each time, until the measurements were consistent (less than 10 percent variation for conductance and less than 0.5° C variation for temperatures).

2.3 Temporary Piezometer Installation

Following the collection of the groundwater sample, a 1.0-inch PVC piezometer, with a 5-foot or 10-foot screened section, was installed in the borehole to prevent the borehole from collapsing. These piezometers remained in the boreholes approximately 24 hours, after which time the static water level was measured. During field activities in November 1998 or later, the temporary piezometers were screened from ground surface to the bottom of the borehole.

2.4 Borehole Abandonment

Once the static water level was measured, the temporary piezometers were removed and the boreholes were abandoned. Abandonment was conducted in a manner precluding any current or subsequent fluid media from entering or migrating within the subsurface environment along the axis or from the endpoint of the borehole. Abandonment was accomplished by filling the entire volume of the borehole with grout.

2.5 Surveying

A topographic survey of the horizontal and vertical locations of all soil boreholes was conducted after completion of all field activities. The topographic survey was conducted by a surveyor registered in the state of Georgia.

The horizontal coordinates for each soil borehole were surveyed to the closest 1.0 foot and referenced to the State Plane Coordinate System. Ground elevations were surveyed to the closest 0.1 foot. Elevations were referenced to the National Geodetic Vertical Datum of 1983.

2.6 Decontamination Procedures

2.6.1 Geoprobe Equipment

Decontamination of equipment used for drilling boreholes was conducted within the temporary decontamination pad constructed at the central staging area. The decontamination pad was constructed so that all decontamination liquids were contained from the surrounding environment and were recovered for disposal as IDW. The entire geoprobe vehicle and equipment were decontaminated once they arrived on site and the geoprobe sampling equipment was decontaminated after completion of each soil borehole. The equipment was decontaminated by removing the caked soil material from the exterior of equipment using a rod and/or brush, steam cleaning the interior and exterior of equipment, allowing the equipment to air dry as long as possible, and wrapping or covering the equipment in plastic.

2.6.2 Sampling Equipment

Decontamination of equipment used for soil sampling and collection of groundwater samples was conducted at the temporary decontamination area. Nondedicated equipment was decontaminated after each use. The sampling equipment was washed with potable water and phosphate-free detergent using various types of brushes required to remove particulate matter and surface films, followed by a potable water rinse, American Society for Testing and Materials (ASTM) Type I or equivalent water rinse, isopropyl alcohol rinse, ASTM Type I or equivalent water rinse, allowed to air dry, and wrapped in plastic or aluminum foll.

In addition to the sampling equipment, field measurement instruments were also decontaminated between uses. Only those portions of each instrument that come into contact with potentially contaminated environmental media were decontaminated. Because of the delicate nature of these instruments, the decontamination procedure only involved initial rinsing of the instrument probes with ASTM Type I or equivalent water.

2.7 Documentation of field activities

All information pertinent to sampling activities, including instrument calibration data, was recorded in field logbooks. The logbooks were bound and the pages consecutively numbered. Entries in the logbooks were made in black permanent ink and included, at a minimum, a description of all activities, individuals involved in drilling and sampling activities, date and time of drilling and sampling, weather conditions, any problems encountered, and all field measurements.

Sufficient information was recorded in the logbooks to permit reconstruction of all sampling activities. For a detailed description of all field documentation, see section 4.5 of Attachment IV of the Work Plan.

3.0 SAMPLE HANDLING AND ANALYSIS

3.1 Analytical Program

Soil samples were screened for the presence of volatile vapors using a MiniRae organic vapor analyzer (PID). The MiniRae was calibrated daily using 100 parts per million (ppm) isobutylene. The headspace of each sample was measured approximately 15 minutes after collection.

For sites where the UST had contained waste oil, soil samples were analyzed for BTEX by method SW846-8020, PAH by method SW846-8270, TPH by method SW846-9073, and lead by method SW846-6010/7000, during the May and June 1998 field effort. Beginning in November 1998, BTEX was analyzed using method SW846-5035/8260B, while the analyses for the other contaminants remained the same. Groundwater samples were analyzed for BTEX by method SW846-8260 and PAH by method SW 846-8270. All samples were sent to General Engineering Laboratories, Charleston, South Carolina.

For sites where the UST had contained gasoline or diesel, soil samples were analyzed for BTEX by method SW846-8020, PAH by method SW846-8270, TPH by method SW846-8015 (modified), and lead by method SW846-6010/7000. Groundwater samples were analyzed for BTEX by method SW846-8260 and PAH by method SW 846-8270. TPH analysis included both gasoline range organics (GRO) and diesel range organics (DRO). Beginning in November 1998, soil samples were analyzed for BTEX using method SW846-5035/8260B. All samples were sent to General Engineering Laboratories, Charleston, South Carolina.

Duplicate samples of soil and groundwater were collected throughout the project and represented approximately 10 percent of the total sample population. Rinsate blanks were collected to determine whether the sampling equipment was causing cross-contamination of the samples and represented approximately 5 percent of the total sample population. Duplicates and rinsates were submitted to General Engineering Laboratories, Charleston, South Carolina.

3.2 Sample Containers, Preservation, and Holding Times

The soil sample containers, preservatives, and holding times are summarized in Table A-1. The groundwater sample containers, preservatives, and holding times are summarized in Table A-2.

3.3 Sampling Packaging and Shipment

Each sample container was labeled, taped shut with electrical tape (except those containing samples designated for volatile organic analysis), and an initialed/dated custody seal was placed over the lid. Each sample bottle was placed into a separate plastic bag and sealed. The samples were placed upright in thermally insulated rigid-body coolers and surrounded by vermiculite to prevent breakage during shipment. In addition, samples were cooled to approximately 4°C with wet ice. These measures were taken to slow the decomposition and volatilization of contaminants during shipping and handling. The sample coolers were shipped to the analytical laboratory via courier service provided by the laboratory.

Analyte Group	Container	Minimum	Preservative	Holding Time
		Sample Size		
BTEX/TPH-GRO	1-4 oz jar with	20 g	Cool, 4°C	14 d
	Teflon [®] -lined cap			
	(no headspace)			
BTEX	$3 - \text{En Core}^{\text{TM}}$	15 g	Cool, 0°C	48 hrs
(beginning 11/98)	Samplers			
TPH-GRO	1-4 oz jar with	20 g	Cool, 4°C	14 d
(beginning 11/98)	Teflon [®] -lined cap			
	(no headspace)			
PAHs	1-8 oz jar with	90 g	Cool, 4°C	14 d (extraction)
	Teflon [®] -lined cap			40 d (analysis)
TPH-DRO	use same container	90 g	Cool, 4°C	14 d (extraction)
	as PAHs			40 d (analysis)
ТРН	use same container	90 g	Cool, 4°C	14 d (extraction)
	as PAHs			40 d (analysis)
Metals (lead)	use same container	20 g	Cool, 4°C	180 d
	as PAHs			

Table A-1. Summary of Sample Containers, Preservation Techniques, and Holding Times for Soil Samples Collected During the Site Investigation

Table A-2. Summary of Sample Containers, Preservation Techniques, and Holding Times for Groundwater Samples Collected During the Site Investigation

Analyte Group	Container	Minimum Sample Size	Preservative	Holding Time
BTEX	2-40 mL glass vials with Teflon [®] - lined septum (no headspace)	40 mL	Cool, 4°C HCl to pH < 2	14 d
PAHs	2 – 1L amber glass bottle with Teflon [®] -lined lid	1000 mL	Cool, 4°C	7 d (extraction) 40 d (analysis)

ATTACHMENT B

REFERENCES

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