N00207.AR.003419
NAS JACKSONVILLE
5090.3a

ADDENDUM 1 TO CONTAMINATION ASSESSMENT REPORT FOR FACILITY 159 GAS HILL FUEL FARM NAS JACKSONVILLE FL

11/1/1993

U S ARMY CORPS OF ENGINEERS

ADDENDUM 1
TO
CONTAMINATION ASSESSMENT REPORT

JACKSONVILLE NAVAL AIR STATION
FACILITY 159 - GAS HILL FUEL FARM

JACKSONVILLE, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

NOVEMBER 1993

BACKGROUND

This addendum to the Contamination Assessment Report (CAR) for Facility 159 (Gas Hill Fuel Farm) at Jacksonville Naval Air Station, Jacksonville, Florida is a result of a request from the Florida Department of Environmental Protection (FDEP) to perform supplemental assessment work at the site. A copy of the FDEP request, and comments based on their review of the CAR can be found in attachment 1.

RESULTS OF SUPPLEMENTAL ASSESSMENT

Items 1 through 8 of the following discussion of supplemental assessment at the site follow the numbered FDEP comments dated 12 December 1992, shown in attachment 1. The remaining items discuss other information relevant to the site.

1. At this time only tanks 159-M, 159-N and 159-O are in service at Gas Hill (see figure 2-A, attachment 3). The capacity of these steel tanks is 567,000 gallons each. Due to the size of these tanks, they cannot be pressure tested. The usual method of evaluating these tanks is by visual inspection of the interiors. The last interior inspections of the presently active tanks 159-M, 159-N and 159-O were in May 1984, September 1983 and January 1986 respectively. A currently active project is in progress to repair the interior liners on concrete tanks 159-A, 159-B, 159-C, 159-D and 159-H (250,000 gallons each), which are temporarily out of service. Tanks 159-M, 159-N and 159-O are scheduled for inspections as soon as possible after the concrete tanks are placed back in service.

Pipeline tightness tests are performed every six months on the active piping system at the fuel farm. The procedure for these tests is in accordance with standard Navy procedures (Navy Operations Manual No. 230), whereby the piping system is pressurized to 150% of normal operating pressure for 1 hour. A pressure drop of less than 10% in the pipeline during this procedure is considered to be a passing test. No pipeline leaks have been found during these tests.

2. Although there are no apparent records as to the precise former location of tanks 159-J and 159-K, they are believed to have been located on the east side of Catapult Road, approximately 500 feet north of Gas Hill. These tanks are believed to have been 1550-gallon tanks used to dispense diesel fuel to vehicles. No closure assessment was performed on these tanks during their removal in 1980.

3. Supplemental soil (OVA headspace) assessment was performed near previous soil gas probes 12, 28, 38, and between probes 33 and 34, to better define the horizontal and vertical extent of soil contamination in the unsaturated zone. The results of this analysis are included in table 3-A (attachment 4). A soil sample obtained at

each of these locations was also analyzed for EPA methods 8020 and 8100. A summary of the results of this analysis is contained in table 6-A (attachment 5).

The results of the supplemental soil assessment, as well as soil assessment performed during the original CAR, indicate that two areas of soil contamination exist outside the boundary fence around the fuel farm (see Supplemental Executive Summary Map, attachment 2). One area at the western-most corner of the facility runs approximately 250 feet along the boundary fence, approximately 30 to 40 feet outside the fence. This area of contamination is apparently related to an adjacent area inside the fence, which was previously described in reports by Geraghty and Miller in 1982 and 1987, and in a PCAR by E.C. Jordan Co. in 1989. The source of this contamination is believed to be product seepage from the northwest corner of Gas Hill, due to past leaks or spills.

The other area is located on the eastern boundary of the fuel farm near the drainage ditch outfall which runs under Catapult Road. Although EPA 8100 analysis of a previous soil sample (JAX-159-S-3) from this area indicated a total PAH concentration of 2,090 ppb, several supplemental OVA headspace borings (159-20 through 159-22) did not indicate significant OVA values, and no odors were noted in the samples. The lack of significant OVA values however, may have been due to the high water table in the area at the time of the analysis, causing any soil contamination to be temporarily below the water table. This contamination is also most likely associated with an adjacent area of soil contamination inside the fence, previously identified in reports by Geraghty and Miller, and E.C. Jordan.

4. To better define the extent of ground-water contamination, nine additional monitoring wells (JAX-159-GH-14 through JAX-159-GH-22) were installed at the site as shown on the Supplemental Executive Summary Map (attachment 2). Although FDEP requested six shallow wells and one intermediate well, one additional shallow and one additional intermediate well were installed. The additional shallow well (JAX-159-GH-22) was installed beyond one of the requested shallow wells (JAX-159-GH-15), after contamination was discovered in the first well, to determine the outer limit of contamination. The additional intermediate well (JAX-159-GH-20) was installed on the down-gradient (east) side of the fuel farm to better determine the limits of any down-gradient, deeper contamination. The location and depth of this well was coordinated with FDEP before it was installed. Pertinent data on all site monitoring wells is contained in table 1-A (attachment 8). Logs of the nine supplemental monitoring wells are located in attachment 9.

5. OVA headspace analysis was performed on soil samples during installation of the supplemental wells. Due to the shallow depth of the water table during this period, only one soil headspace reading was taken just above the water table at each well location. None of the headspace readings indicated soil contamination at these locations (see table 3-A, attachment 4).

6. After installation of the nine supplemental monitoring wells, a complete round of sampling and analysis for EPA Methods 602 (including MTBE) and 610 was performed. A summary of the results of this analysis is shown in table 5-A (attachment 6).

Analytical results of samples from shallow monitoring wells (screen intervals approximately 1 to 10 feet deep) JAX-159-1 through JAX-159-11, JAX-159-GH-1 through JAX-159-GH-10, JAX-159-GH-13 through JAX-159-GH-19, and JAX-159-GH-22 indicated total BTEX parameters ranging from 1.2 to 1294 ppb, and naphthalene ranging from 77 to 140 ppb. These results, as well as that of previous work at the site, indicate that an area (approximately 600 by 70 feet) of shallow ground-water contamination exists outside the boundary fence, along the southwestern edge of the fuel farm (see Supplemental Executive Summary Map, attachment 2). Deep well JAX-159-21 indicates the contamination in this area does not extend to the 30 to 35-foot level. This contamination is believed to be a result of the 1988, overfilling of tank 159-C, when an estimated 15,400 gallons of JP-5 fuel was released onto the ground surface. A significant portion of this spill flowed downhill to the shallow drainage ditch which runs along the boundary fence in this area. Although some of the fuel was observed flowing down the ditch, some was undoubtedly absorbed into the surficial soils.

Analytical results of samples from deep (screen intervals approximately 29 to 35 feet deep) monitoring wells JAX-159-GH-11, JAX-159-GH-12, JAX-159-GH-20 and JAX-159-GH-21 were BDL for all parameters with the exception of well JAX-159-GH-11, which indicated acenaphthene at 86 ppb and naphthalene at 150 ppb.

Analytical values for all monitoring wells are shown in plan view on the Supplemental Executive Summary Map, (attachment 2). Values for representative shallow and deep wells are also shown on geologic cross sections A-A', B-B' and C-C' (figures 4-A, 4-B and 4-C, attachment 7). The locations of sections A-A', B-B' and C-C' are shown on figure 2-A, (attachment 3)

7. An additional sediment grab sample (JAX-159-GRAB-3) was obtained from the drainage ditch on the northeast side of Gas Hill. Analytical results for EPA 8100 parameters indicated the sample to be BDL for PAHs. The elevated detection limit (1300 ppb) for these parameters is believed to be a result of the low solids content (high water content) of the sample.

8. The location of the drainage ditch around the perimeter of Gas Hill is now shown on the Executive Summary Map. The drainage ditch outfall which runs under Catapult Road on the east side of the site is also shown.

SUMMARY OF SUPPLEMENTAL ASSESSMENT

Supplemental assessment of soil and ground water at the Gas Hill Fuel Farm has confirmed that there are apparently several areas of fuel contamination which lie outside the perimeter fence around the facility. Two of these areas consist of soil contamination immediately outside the fence, both of which are apparently extensions of contaminated areas inside the fence. A third area consists of ground-water contamination along the outside of the fence at the southwestern corner of the fuel farm, which is likely a result of a previous fuel spill. Also, sediment samples collected from the drainage ditch along the north and east sides of the fuel farm, during previous site assessment for the CAR, indicate sediments in the ditch contain some PAHs.

Several fuel spills or leaks, which actually extended outside the boundary fence, have occurred at known locations on Gas Hill. However, site assessment work performed at the fuel farm to date has been conducted under the assumption that various areas on the interior of Gas Hill are contaminated to various degrees with fuel, the vertical and horizontal extent of which is yet undetermined. The specific source or sources of this fuel are also unknown. Free product petroleum is known to exist within the embankment on the north side of the Hill in the area of monitoring well JAX-159-2, where up to 0.3 feet of product has occasionally accumulated in the well and free product has been observed seeping from the embankment above the well at times of high rainfall.

Although petroleum sheens are rarely noticed in the ditch around the north and east sides of the Hill, seepage of free product from the Hill during times of high rainfall undoubtedly causes contaminants to occasionally enter the ditch. The ditch is usually at least partially filled with water, which indicates that due to the shallow water table (1.5 to 3.0 feet bls) the ditch receives a portion of its baseflow from shallow ground water. The shallow water table in the Gas Hill area is a result of the site's low elevation, and proximity to adjacent wetlands and the St. Johns River. At times of high rainfall, the water table rises and sometimes remains at the ground surface for days. These fluctuating water table conditions make it difficult to perform soil assessment at the site and very likely drag contaminants up and down through the vadose zone.

Various measures are presently being used to reduce the chance of contaminants leaving the perimeter of Gas Hill by way of surface water. Absorbent pads have been placed in the drainage ditch on the upstream side of the ditch outfall which runs under Catapult Road, and an absorbent boom has been placed across the outfall. These absorbents are replaced at least monthly, and more frequently if needed. A permanent underflow weir is also being designed to be placed at the outfall. The weir is expected to be completed by the end of June 1994.

Monitoring wells located in areas of known free product (JAX-159-1, JAX-159-2, JAX-159-7, and JAX-159-11) will be monitored on a monthly basis. Any free product found in the wells will be removed by bailing and properly disposed of.

As a result of a meeting between personnel from FDEP, SOUTHDIV and the Savannah District Corps of Engineers (see attachment 11), it was agreed that upon FDEP's review and approval of the CAR and Addendum for Gas Hill, an "interim" Monitoring Only Plan (MOP) will be submitted. The MOP will be for a period of two years, and in addition to the reporting of quarterly analytical data from monitoring wells, will require semi-annual reports from SOUTHDIV on the current and future use of the facility.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT
- ATTACHMENT 2 - SUPPLEMENTAL EXECUTIVE SUMMARY MAP
- ATTACHMENT 3 - FIGURE 2-A, SUPPLEMENTAL SITE PLAN
- ATTACHMENT 4 - TABLE 3-A, SUMMARY OF SOIL HEADSPACE ANALYSIS
- ATTACHMENT 5 - TABLE 6-A, SUMMARY OF SUPPLEMENTAL SOIL/SEDIMENT ANALYTICAL RESULTS
- ATTACHMENT 6 - TABLE 5-A, SUMMARY OF SUPPLEMENTAL GROUND-WATER ANALYTICAL RESULTS
- ATTACHMENT 7 - FIGURES 4-A, 4-B AND 4-C, SUPPLEMENTAL GEOLOGIC CROSS SECTIONS A-A', C-C' AND D-D'
- ATTACHMENT 8 - TABLE 1-A, SUPPLEMENTAL MONITORING WELL DATA
- ATTACHMENT 9 - SUPPLEMENTAL MONITORING WELL LOGS
- ATTACHMENT 10 - SUPPLEMENTAL LABORATORY ANALYTICAL DATA
- ATTACHMENT 11 - MEMORANDUM OF MEETING WITH FDEP

ATTACHMENT 1

FDEP COMMENTS AND REQUEST FOR SUPPLEMENTAL ASSESSMENT

RVW W/ CARD/CAZY/ DAVE F/ KSL (JMEM) 1/4/93

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

December 14, 1992

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Carl Loop
Code 18237
Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Post Office Box 10068
Charleston, South Carolina 26411

Dear Mr. Loop:

Department personnel have completed the technical review of the Contamination Assessment Report for Facility 159-Gas Hill Fuel Farm, NAS Jacksonville. I have enclosed a memorandum addressed to me from Mr. Jorge Caspary. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-0190.

Sincerely,

Eric S. Nuzie

Eric S. Nuzie
Federal Facilities Coordinator

ESN/bb

Enclosure

cc: Jorge Caspary
Brian Cheary
Lynn Griffin
John Mitchell
Jerry Young
James Hudson
✓Kevin Gartland

Recycled Paper

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: Dr. James Crane, PGIII/Administrator
Technical Review Section JRC

FROM: Jorge R. Caspary, PGI/Base Coordinator
Technical Review Section J.R.C.

DATE: December 7, 1992

SUBJECT: Review of Contamination Assessment Report. Facility 159-Gas Hill Fuel Farm. Naval Air Station Jacksonville.

I have reviewed the Contamination Assessment Report (CAR) dated September, 1992 (received October 9, 1992), submitted for this site. In order to meet the requirements of Chapter 17-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

1.- Has the structural integrity of the existing product storage/distribuition system recently been tested for tightness?. If not, the structural integrity of the existing product storage/ distribution system should be established via separate tank and line tightness tests in accordance with Chapter 17-761, F.A.C.. If the system has been tested, please submit a copy of the tank and line tightness tests performed in accordance with Chapter 17-761, F.A.C., to establish the structural integrity of the current product storage/distribution system.

- Please show the area excavated during removal of Tanks J and K. The area should be indicated (showing the approximate locations where the samples collected to determine the degree of soil contamination were obtained), and the OVA readings should be summarized in a table. Depending on the available documentation, supplemental soil assessment in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" may be required.

Recycled Paper

3.- Due to the inconclusive soil gas probe results, supplemental soil assessment in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" should be performed around soil gas probes 12, 28, 38, and between 34 and 33 to establish the horizontal and vertical extent of soil contamination in the unsaturated zone. The soil samples should be analyzed for EPA methods 8020 and 8100. The results should be summarized in a table, and the approximate extent of soil contamination if any, should be represented in graphic form.

4.- Due to an undefined horizontal and vertical extent of groundwater contamination and the distance between monitoring wells, seven additional, permanent monitoring wells should be installed as follows to define the horizontal and vertical extent of the groundwater contamination:

a. Six water table monitoring wells to be located in the following locations: a shallow water table well located next to soil head space sample 159-11, next to soil gas probe sample 25, next to soil gas probe 28, between soil gas probes 31 and 32, between soil gas probes 31 and 34, approximately 50 feet southeast of soil gas probe 38; and

b. An intermediate depth well next to MW-JAX GH-1 (constructed so as not to allow contamination to migrate along the borehole) screened from 25 to 30 feet below land surface, to define the horizontal and vertical extent of the plume in that stratum of the aquifer.

5.- As the wells are drilled, soils should be collected and analyzed by OVA at 1 foot intervals. If inconclusive results are reached as result of the head space analysis, then a discrete soil sample per well should be obtained above the water table and analyzed for EPA Methods 8010 and 8100.

6.- Following installation of the supplemental monitoring wells, a complete round of sampling and analysis for EPA Methods 602 (including MTBE) and 610 should be performed (including compliance monitoring wells), so that this review can be completed and a Remedial Action Plan (RAP) can be prepared based on current data. Note, additional monitoring wells should be installed if significant contaminant concentrations are detected at perimeter monitoring wells of any affected stratum or at the vertical extent well.

7.- Since the results of Polynuclear Aromatic Hydrocarbons (PAHs) analysis showed that the NOAA threshold concentrations

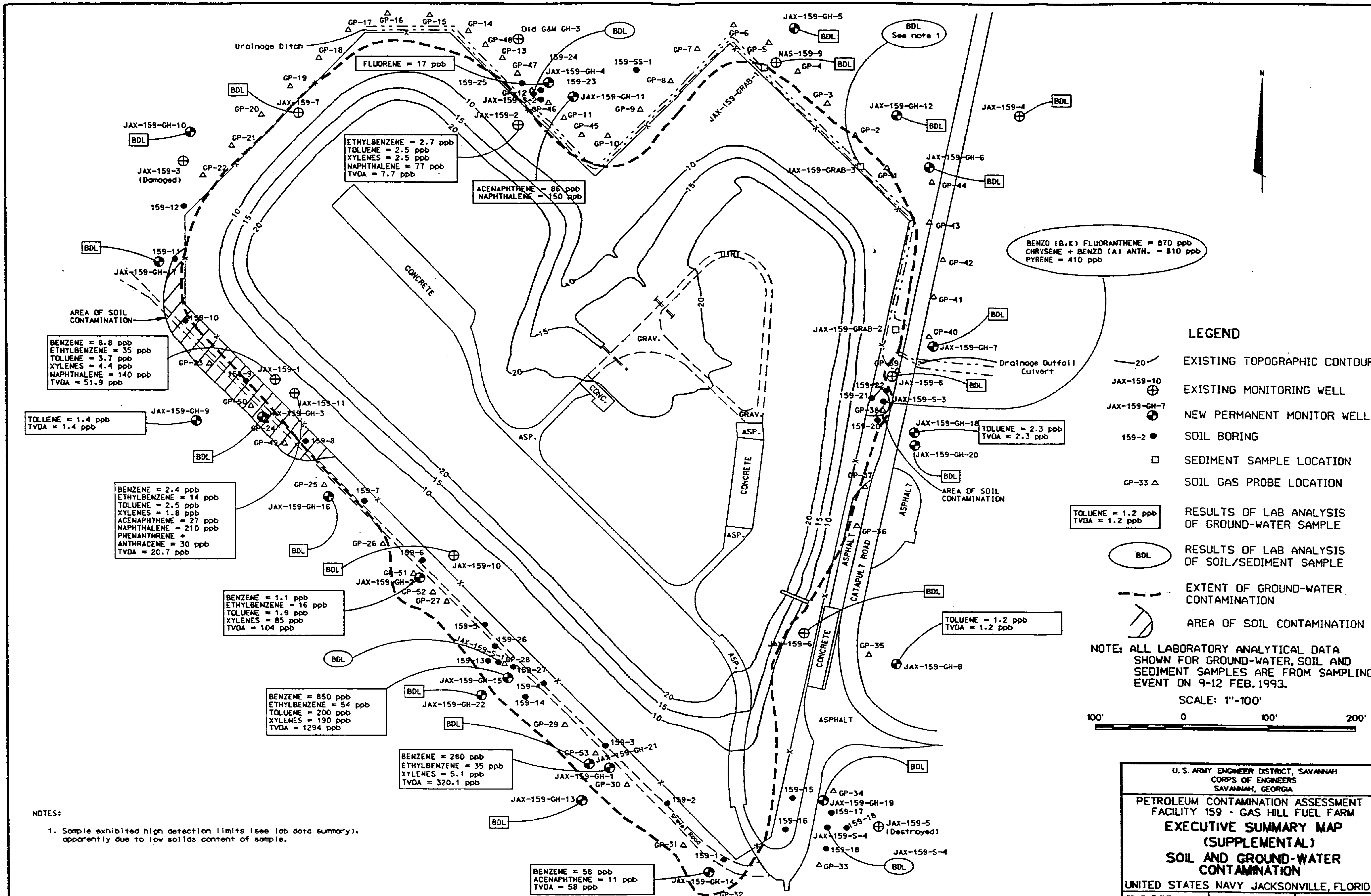
Recycled Paper

for sediments were exceeded, a grab sample should be obtained between sediment grab sample 1 and sediment grab sample 2 to adequately characterize the extent of PAH contamination in the drainage ditch. The sample should be analyzed for EPA Method 8100.

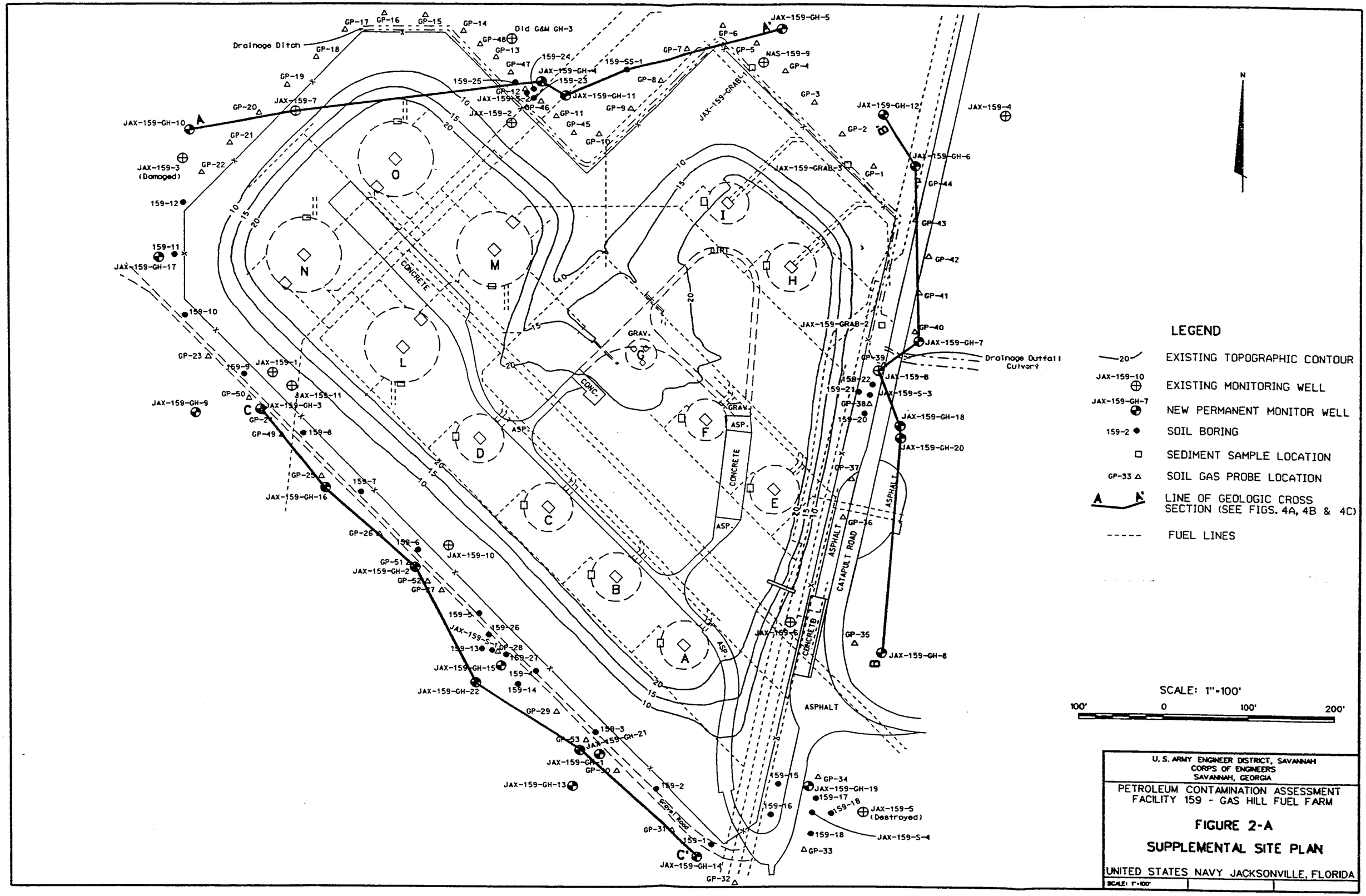
8.- Please provide an accurate picture of the location of the drainage ditch that surrounds the site. The location of discharge outfall is not clear.

The Navy should provide the results of the supplemental assessment to this section within sixty (60) days of receipt of this request. If additional time is needed, a time extension request should be submitted, in accordance with the Navy's Petroleum Contamination Agreement Site Management Plan. If there are any questions concerning this review, please contact Jorge R. Caspary at (904) 488-0190.

Recycled Paper



Drainage Ditch
Old G&M GH-3
BDL
BDL
See note 1
FLUORENE = 17 ppb
ETHYLBENZENE = 2.7 ppb
TOLUENE = 2.5 ppb
XYLENES = 2.5 ppb
NAPHTHALENE = 77 ppb
TVOA = 7.7 ppb
ACENAPHTHENE = 86 ppb
NAPHTHALENE = 150 ppb
BENZO (B,K) FLUORANTHENE = 870 ppb
CHRYSENE + BENZO (A) ANTH. = 810 ppb
PYRENE = 410 ppb
JAX-159-3
(Damaged)
AREA OF SOIL CONTAMINATION
BENZENE = 8.8 ppb
ETHYLBENZENE = 35 ppb
TOLUENE = 3.7 ppb
XYLENES = 4.4 ppb
NAPHTHALENE = 140 ppb
TVOA = 51.9 ppb
TOLUENE = 1.4 ppb
TVOA = 1.4 ppb
BENZENE = 2.4 ppb
ETHYLBENZENE = 14 ppb
TOLUENE = 2.5 ppb
XYLENES = 1.8 ppb
ACENAPHTHENE = 27 ppb
NAPHTHALENE = 210 ppb
PHENANTHRENE + ANTHRACENE = 30 ppb
TVOA = 20.7 ppb
BENZENE = 1.1 ppb
ETHYLBENZENE = 16 ppb
TOLUENE = 1.9 ppb
XYLENES = 85 ppb
TVOA = 104 ppb
BENZENE = 850 ppb
ETHYLBENZENE = 54 ppb
TOLUENE = 200 ppb
XYLENES = 190 ppb
TVOA = 1294 ppb
BENZENE = 280 ppb
ETHYLBENZENE = 35 ppb
XYLENES = 5.1 ppb
TVOA = 320.1 ppb
BENZENE = 58 ppb
ACENAPHTHENE = 11 ppb
TVOA = 58 ppb
TOLUENE = 2.3 ppb
TVOA = 2.3 ppb
TOLUENE = 1.2 ppb
TVOA = 1.2 ppb
CONCRETE
CONC.
ASP.
GRAV.
DIRT
ASPHALT
ASPHALT ROAD
CATAPULT ROAD
Gravel Road
Drainage Outfall Culvert
JAX-159-5 (Destroyed)
NOTES:
1. Sample exhibited high detection limits (see lab data summary), apparently due to low solids content of sample.
LEGEND
EXISTING TOPOGRAPHIC CONTOUR
EXISTING MONITORING WELL
NEW PERMANENT MONITOR WELL
SOIL BORING
SEDIMENT SAMPLE LOCATION
SOIL GAS PROBE LOCATION
RESULTS OF LAB ANALYSIS OF GROUND-WATER SAMPLE
RESULTS OF LAB ANALYSIS OF SOIL/SEDIMENT SAMPLE
EXTENT OF GROUND-WATER CONTAMINATION
AREA OF SOIL CONTAMINATION
NOTE: ALL LABORATORY ANALYTICAL DATA SHOWN FOR GROUND-WATER, SOIL AND SEDIMENT SAMPLES ARE FROM SAMPLING EVENT ON 9-12 FEB. 1993.
SCALE: 1"=100'
100' 0 100' 200'
U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA
PETROLEUM CONTAMINATION ASSESSMENT
FACILITY 159 - GAS HILL FUEL FARM
EXECUTIVE SUMMARY MAP (SUPPLEMENTAL)
SOIL AND GROUND-WATER CONTAMINATION
UNITED STATES NAVY JACKSONVILLE, FLORIDA
SCALE: 1"=100'


LEGEND
EXISTING TOPOGRAPHIC CONTOUR
EXISTING MONITORING WELL
NEW PERMANENT MONITOR WELL
SOIL BORING
SEDIMENT SAMPLE LOCATION
SOIL GAS PROBE LOCATION
LINE OF GEOLOGIC CROSS SECTION (SEE FIGS. 4A, 4B & 4C)
FUEL LINES
SCALE: 1"=100'
100' 0 100' 200'
Drainage Ditch
Old G&M GH-3
Drainage Outfall Culvert
CONCRETE
ASPHALT
CATAPULT ROAD
GRAV.
DIRT
JAX-159-GRAB-1
JAX-159-GRAB-2
JAX-159-GRAB-3
JAX-159-3 (Damaged)
JAX-159-5 (Destroyed)
General Road
U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA
PETROLEUM CONTAMINATION ASSESSMENT
FACILITY 159 - GAS HILL FUEL FARM
FIGURE 2-A
SUPPLEMENTAL SITE PLAN
UNITED STATES NAVY JACKSONVILLE, FLORIDA
SCALE: 1"=100'

ATTACHMENT 3

FIGURE 2-A, SUPPLEMENTAL SITE PLAN

ATTACHMENT 2

SUPPLEMENTAL EXECUTIVE SUMMARY MAP

ATTACHMENT 4

TABLE 3-A, SUMMARY OF SOIL HEADSPACE ANALYSIS

TABLE 3-A (SUPPLEMENTAL)

SUMMARY OF SOIL HEADSPACE ANALYSIS

FACILITY 159 - GAS HILL FUEL FARM
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

Sample No.	Depth (feet)	OVA Headspace Reading	OVA Headspace Reading With Carbon Filter	Corrected OVA Headspace Reading (*)	PID Reading
159-1	1.0-1.5	4.4	NR	--	0
159-2	1.0-1.5	0.2	NR	--	0
159-3	1.0-1.5	0.6	NR	--	0
159-4	1.0-1.5	1.5	NR	--	0
159-5	1.0-1.5	460	NR	--	0
159-6	1.0-1.5	15	NR	--	6.1
159-7	1.0-1.5	3.9	NR	--	3.3
159-8	1.0-1.5	28***	NR	--	4.2
159-9	1.0-1.5	270***	NR	--	19.3
159-10	1.0-1.5	295***	NR	--	8.6
159-11	1.0-1.5	510***	NR	--	12.8
159-12	1.0-1.5	1.2	NR	--	9.3
159-13	1.5-2.0	680	650	30	NR
159-14	1.5-2.0	800	780	20	NR
159-15	1.0-1.5	5.0	5.0	--	NR
159-16	1.0-1.5	3.2	3.0	0.2	NR
159-17	1.0-1.5	1.6	1.0	0.6	NR
159-18	1.0-1.5	5.6	5.0	0.6	NR
159-19	1.0-1.5	1.9	1.9	0	NR
159-20	1.0-1.5	105	96	9	NR
159-21	1.0-1.5	70	65	5	NR
159-22	1.0-1.5	200	200	0	NR
159-23	1.0-1.5	166	160	6	NR
159-24	1.0-1.5	92	90	2	NR
159-25	1.0-1.5	112	108	4	NR
159-26	1.0-1.5	3.2	NR	--	NR
159-27	1.0-1.5	1.2	NR	--	NR

TABLE 3-A (SUPPLEMENTAL)

SUMMARY OF SOIL HEADSPACE ANALYSIS

FACILITY 159 - GAS HILL FUEL FARM
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

Sample No.	Depth (feet)	OVA Headspace Reading	OVA Headspace Reading With Carbon Filter	Corrected OVA Headspace Reading (*)	PID Reading
JAX-159-GH-1	1.0-1.5	80	NR	--	1.4
JAX-159-GH-2	1.0-1.5	0.2	NR	--	1.0
JAX-159-GH-3	1.5-2.0	20***	NR	--	9.7
JAX-159-GH-4	1.5-2.0	350	NR	--	2.0
JAX-159-GH-5	1.0-1.5	1.2	NR	--	1.3
JAX-159-GH-6	1.0-1.5	0.6	NR	--	1.3
JAX-159-GH-7	1.0-1.5	0.4	NR	--	1.0
JAX-159-GH-8	1.0-1.5	0	NR	--	2.2
JAX-159-GH-9	1.0-1.5	0.5	NR	--	2.0
JAX-159-GH-10	1.0-1.5	2.9	NR	--	13
JAX-159-GH-11	1.0-1.5	1.8	NR	--	4.2
JAX-159-GH-12	1.0-1.5	0	NR	--	2.6
JAX-159-GH-13	1.0-1.5	2.4	NR	--	716
JAX-159-GH-14	1.5-2.0	0	NR	--	NR
JAX-159-GH-15	1.5-2.0	0	--	--	NR
JAX-159-GH-16	1.5-2.0	0	--	--	NR
JAX-159-GH-17	1.5-2.0	0	--	--	NR
JAX-159-GH-18	1.5-2.0	0.3	--	--	NR
JAX-159-GH-19	1.5-2.0	0.1	--	--	NR
JAX-159-GH-20	1.5-2.0	1.0	--	--	NR
JAX-159-GH-21	1.5-2.0	0.3	--	--	NR
JAX-159-GH-22	1.5-2.0	NR	--	--	NR
JAX-159-S-3	1.5-2.0	100***	90	10	NR

Notes:
- All units in parts per million (ppm)
- NR = Not Recorded
- OVA = Organic Vapor Analyzer (Century OVA-128)
- (*) = Difference between OVA reading without carbon filter and OVA reading with carbon filter
- PID = Photoionizing Device (Thermo-Ennvironmental OVM or Photo-vac Micro-tip)
- (**)= Suspected high methane content
- (***)= petroleum odor

11/17/93
ovadat.tbl

ATTACHMENT 5

TABLE 6-A. SUMMARY OF SUPPLEMENTAL SOIL/SEDIMENT ANALYTICAL RESULTS

TABLE 6-A (SUPPLEMENTAL)

SUMMARY OF SOIL/SEDIMENT ANALYTICAL RESULTS

BUILDING 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9 FEBRUARY 1993

PARAMETER	SAMPLE NUMBER								
	JAX-159-S-1 2-93	JAX-159-S-2 2-93	JAX-159-S-3 2-93	JAX-159-S-4 2-93	JAX-159-S-4 DUPLICATE 2-93	JAX-159-GRAB-3 2-93			
Aromatic Volatiles (8020)									
Benzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Chlorobenzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
1,2 - Dichlorobenzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
1,3 - Dichlorobenzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
1,4 - Dichlorobenzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Ethylbenzene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Toluene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Xylenes, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Total Volatile Organic Aromatics, ug/kg dw	BDL	BDL	BDL	BDL	BDL	NA			
Polynuclear Aromatic Hydrocarbons (8100)									
Acenaphthene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Acenaphthylene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Benzo (a) pyrene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Benzo (g,h,i) perylene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Benzo (b,k) fluoranthene, ug/kg dw	BDL	BDL	870	BDL	BDL	BDL			
Chrysene + Benzo (a) Anthracene, ug/kg dw	BDL	BDL	810	BDL	BDL	BDL			
Fluoranthene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Fluorene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL			
Naphthalene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Phenanthrene + Anthracene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Pyrene, ug/kg dw	BDL	BDL	410	BDL	BDL	BDL			
1-Methylnaphthalene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
2-Methylnaphthalene, ug/kg dw	BDL	BDL	BDL	BDL	BDL	BDL			
Total Polynuclear Aromatic Hydrocarbons, ug/kg dw	BDL	BDL	2,090	BDL	BDL	BDL			
Percent Solids, %	82	78	85	88	88	25			

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed

ATTACHMENT 6

TABLE 5-A, SUMMARY OF SUPPLEMENTAL GROUND-WATER ANALYTICAL RESULTS

TABLE 5-A (SUPPLEMENTAL)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

FACILITY 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

PARAMETER	MONITOR WELL NUMBER									
	JAX-159-GH-1 2-93	JAX-159-GH-1 DUPLICATE 2-93	JAX-159-GH-2 2-93	JAX-159-GH-3 2-93	JAX-159-GH-3 DUPLICATE 2-93	JAX-159-GH-4 2-93	JAX-159-GH-5 2-93	JAX-159-GH-6 2-93	JAX-159-GH-7 2-93	Regulatory Standard
Purgeable Aromatics (602)										
Benzene, ug/l	230	280	1.1	BDL	BDL	BDL	BDL	BDL	BDL	1
Chlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Ethylbenzene, ug/l	30	35	16	BDL	BDL	BDL	BDL	BDL	BDL	
Toluene, ug/l	6.5	BDL	1.9	BDL	BDL	BDL	BDL	BDL	BDL	
Xylenes, ug/l	BDL	5.1	85	BDL	BDL	BDL	BDL	BDL	BDL	
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Volatile Organic Aromatics, ug/l	266.5	320.1	104	BDL	BDL	BDL	BDL	BDL	BDL	50
Polynuclear Aromatic Hydrocarbons (610/8100)										50
Acenaphthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Acenaphthylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (a) pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (g,h,i) perylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (b,k) fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chrysene + Benzo (a) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluorene, ug/l	BDL	BDL	BDL	BDL	BDL	17	BDL	BDL	BDL	
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Naphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Phenanthrene + Anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Naphthalenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	100

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed
- Shaded values indicate value exceeds regulatory standard

TABLE 5-A SUPPLEMENTAL (CONTINUED)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

FACILITY 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

MONITOR WELL NUMBER

PARAMETER	JAX-159-GH-8 2-93	JAX-159-GH-9 2-93	JAX-159-GH-10 2-93	JAX-159-GH-11 2-93	JAX-159-GH-12 2-93	JAX-159-GH-13 2-93	JAX-159-GH-13 DUPLICATE 2-93	JAX-159-GH-14 2-93	JAX-159-GH-15 2-93	Regulatory Standard
Purgeable Aromatics (602)										
Benzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	58	850	1
Chlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Ethylbenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	54	
Toluene, ug/l	1.2	1.4	BDL	BDL	BDL	BDL	BDL	BDL	200	
Xylenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	190	
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	50
Total Volatile Organic Aromatics, ug/l	1.2	1.4	BDL	BDL	BDL	BDL	BDL	58	1294	50
Polynuclear Aromatic Hydrocarbons (610/8100)										
Acenaphthene, ug/l	BDL	BDL	BDL	86	BDL	BDL	BDL	11	BDL	
Acenaphthylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (a) pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (g,h,i) perylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (b,k) fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chrysene + Benzo (a) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluorene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Naphthalene, ug/l	BDL	BDL	BDL	150	BDL	BDL	BDL	BDL	BDL	
Phenanthrene + Anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Naphthalenes, ug/l	BDL	BDL	BDL	150	BDL	BDL	BDL	BDL	BDL	100

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed
- Shaded values indicate value exceeds regulatory standard

TABLE 5-A SUPPLEMENTAL (CONTINUED)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

FACILITY 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

PARAMETER	MONITOR WELL NUMBER									
	JAX-159-GH-16 2-93	JAX-159-GH-17 2-93	JAX-159-GH-18 2-93	JAX-159-GH-19 2-93	JAX-159-GH-20 2-93	JAX-159-GH-21 2-93	JAX-159-GH-22 2-93	JAX-159-1 2-93	JAX-159-2 2-93	Regulatory Standard
Purgeable Aromatics (602)										
Benzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.8	BDL	1
Chlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Ethylbenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	35	2.7	
Toluene, ug/l	BDL	BDL	2.3	BDL	BDL	BDL	BDL	3.7	2.5	
Xylenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.4	2.5	
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	50
Total Volatile Organic Aromatics, ug/l	BDL	BDL	2.3	BDL	BDL	BDL	BDL	51.9	7.7	50
Polynuclear Aromatic Hydrocarbons (610/8100)										
Acenaphthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Acenaphthylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (a) pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (g,h,i) perylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (b,k) fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chrysene + Benzo (a) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluorene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Naphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	140	77	
Phenanthrene + Anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Naphthalenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	140	77	100

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed
- Shaded values indicate value exceeds regulatory standard

TABLE 5-A SUPPLEMENTAL (CONTINUED)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

FACILITY 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

MONITOR WELL NUMBER

PARAMETER	JAX-159-4 2-93	JAX-159-6 2-93	JAX-159-7 2-93	JAX-159-8 2-93	JAX-159-9 2-93	JAX-159-10 2-93	JAX-159-11 2-93	PRE-CLEANED BLANK 2-93	FIELD CLEANED BLANK 1 2-93	Regulatory Standard
Purgeable Aromatics (602)										
Benzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	2.4	BDL	BDL	1
Chlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Ethylbenzene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	14	BDL	BDL	
Toluene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	2.5	BDL	BDL	
Xylenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	1.8	BDL	BDL	
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	50
Total Volatile Organic Aromatics, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	20.7	BDL	BDL	50
Polynuclear Aromatic Hydrocarbons (610/8100)										
Acenaphthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Acenaphthylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (a) pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (g,h,i) perylene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Benzo (b,k) fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Chrysene + Benzo (a) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluoranthene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Fluorene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Naphthalene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Phenanthrene + Anthracene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Pyrene, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
Total Naphthalenes, ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	100

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed
- Shaded values indicate value exceeds regulatory standard

TABLE 5-A SUPPLEMENTAL (CONTINUED)

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

FACILITY 159
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

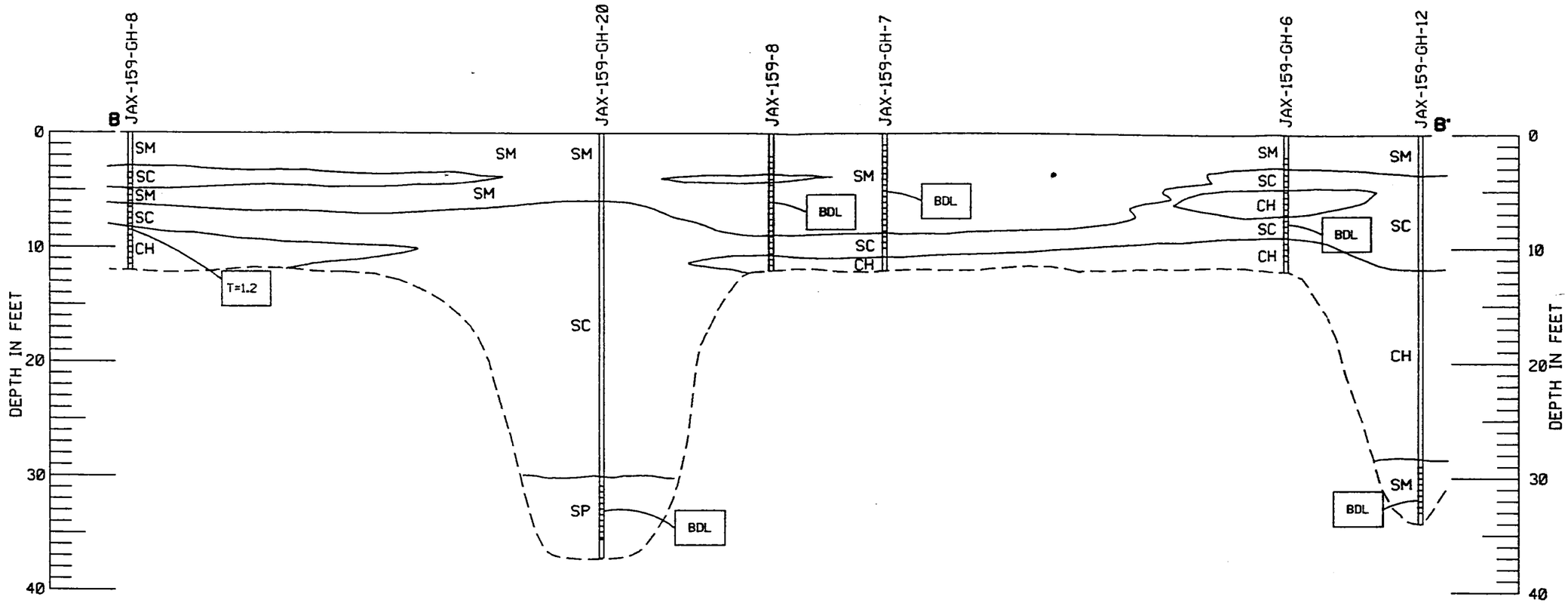
MONITOR WELL NUMBER

PARAMETER	FIELD CLEANED BLANK 2 2-93	TRIP BLANK 1 2-93	TRIP BLANK 2 2-93							Regulatory Standard
Purgeable Aromatics (602)										
Benzene, ug/l	BDL	BDL	BDL							
Chlorobenzene, ug/l	BDL	BDL	BDL							1
1,2-Dichlorobenzene, ug/l	BDL	BDL	BDL							
1,3-Dichlorobenzene, ug/l	BDL	BDL	BDL							
1,4-Dichlorobenzene, ug/l	BDL	BDL	BDL							
Ethylbenzene, ug/l	BDL	BDL	BDL							
Toluene, ug/l	BDL	BDL	BDL							
Xylenes, ug/l	BDL	BDL	BDL							
Methyl-Tert-Butyl-Ether (MTBE), ug/l	BDL	BDL	BDL							
Total Volatile Organic Aromatics, ug/l	BDL	BDL	BDL							50
Polynuclear Aromatic Hydrocarbons (610/8100)		NA	NA							50
Acenaphthene, ug/l	BDL	NA	NA							
Acenaphthylene, ug/l	BDL	NA	NA							
Benzo (a) pyrene, ug/l	BDL	NA	NA							
Benzo (g,h,i) perylene, ug/l	BDL	NA	NA							
Benzo (b,k) fluoranthene, ug/l	BDL	NA	NA							
Chrysene + Benzo (a) anthracene, ug/l	BDL	NA	NA							
Fluoranthene, ug/l	BDL	NA	NA							
Fluorene, ug/l	BDL	NA	NA							
Indeno (1,2,3-cd) pyrene+Dibenzo (a,h) anthracene, ug/l	BDL	NA	NA							
Naphthalene, ug/l	BDL	NA	NA							
Phenanthrene + Anthracene, ug/l	BDL	NA	NA							
Pyrene, ug/l	BDL	NA	NA							
Total Naphthalenes, ug/l	BDL	NA	NA							100

Notes: - BDL = Below Detection Limit
- NA = Not Analyzed
- Shaded values indicate value exceeds regulatory standard

ATTACHMENT 7

FIGURES 4-A, 4-B AND 4-C, SUPPLEMENTAL GEOLOGIC CROSS SECTIONS A-A', C-C' AND D-D'



SCALE: 1"=10' VERT.
1"=60' HORIZ.

LEGEND

SC	CLAYEY SAND
SM	SILTY SAND
CH	FAT CLAY
BDL	RESULTS OF LAB ANALYSIS OF GROUND-WATER SAMPLE WITH:

A=ACENAPTHENE
B=BENZENE
E=ETHYLBENZENE
N=NAPHTHALENE
T=TOLUENE
X=XYLENE
BDL=BELOW DETECTION LIMIT
(ALL UNITS IN PPB)

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 159

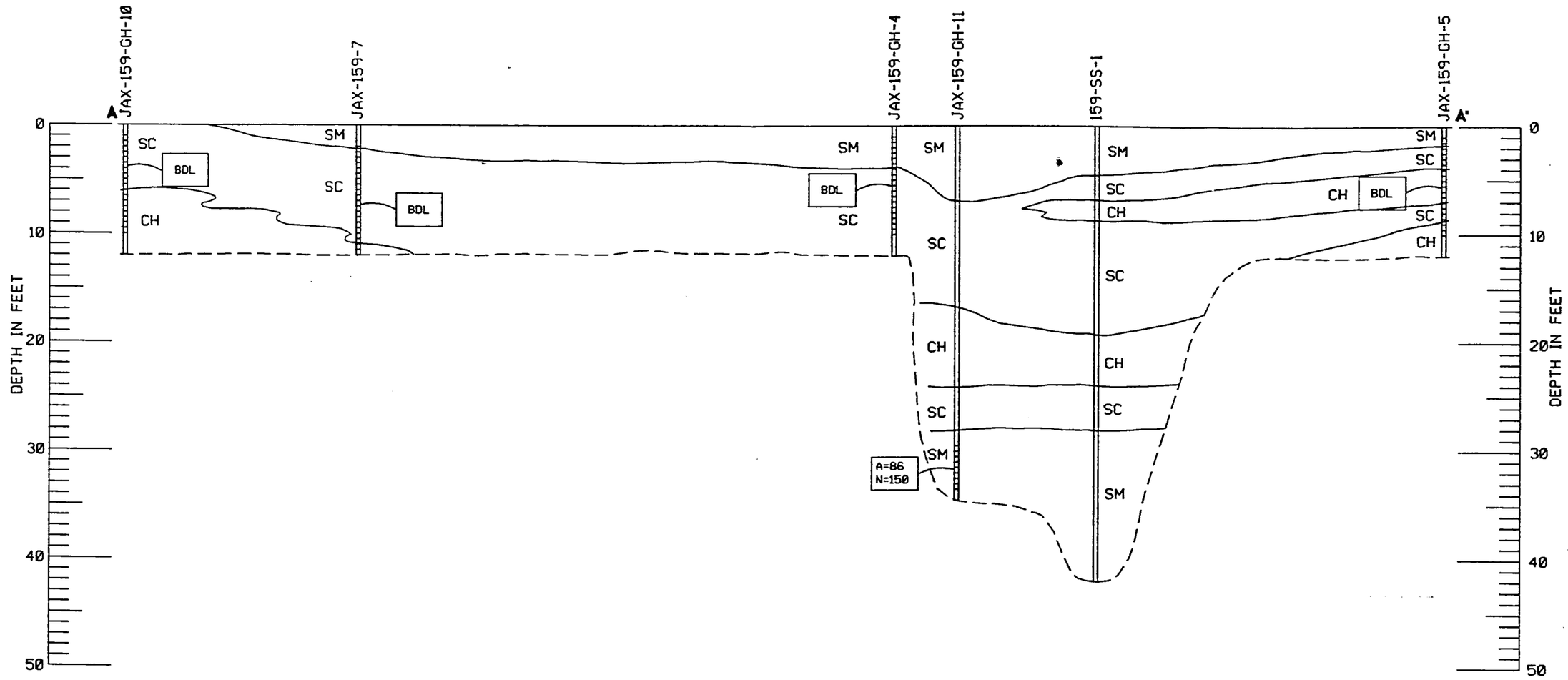
FIGURE 4B

GEOLOGIC CROSS SECTION B-B'

UNITED STATES NAVY JACKSONVILLE, FLORIDA

SCALE: AS SHOWN

J:\JAXMS\JAX159\CROSSEC.DGN



SCALE: 1"=10' VERT.
1"=60' HORIZ.

LEGEND

SC	CLAYEY SAND
SM	SILTY SAND
CH	FAT CLAY
BDL	RESULTS OF LAB ANALYSIS OF GROUND-WATER SAMPLE WITH:

A=ACENAPTHENE
B=BENZENE
E=ETHYLBENZENE
N=NAPHTHALENE
T=TOLUENE
X=XYLENE
BDL=BELOW DETECTION LIMIT
(ALL UNITS IN PPB)

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 159

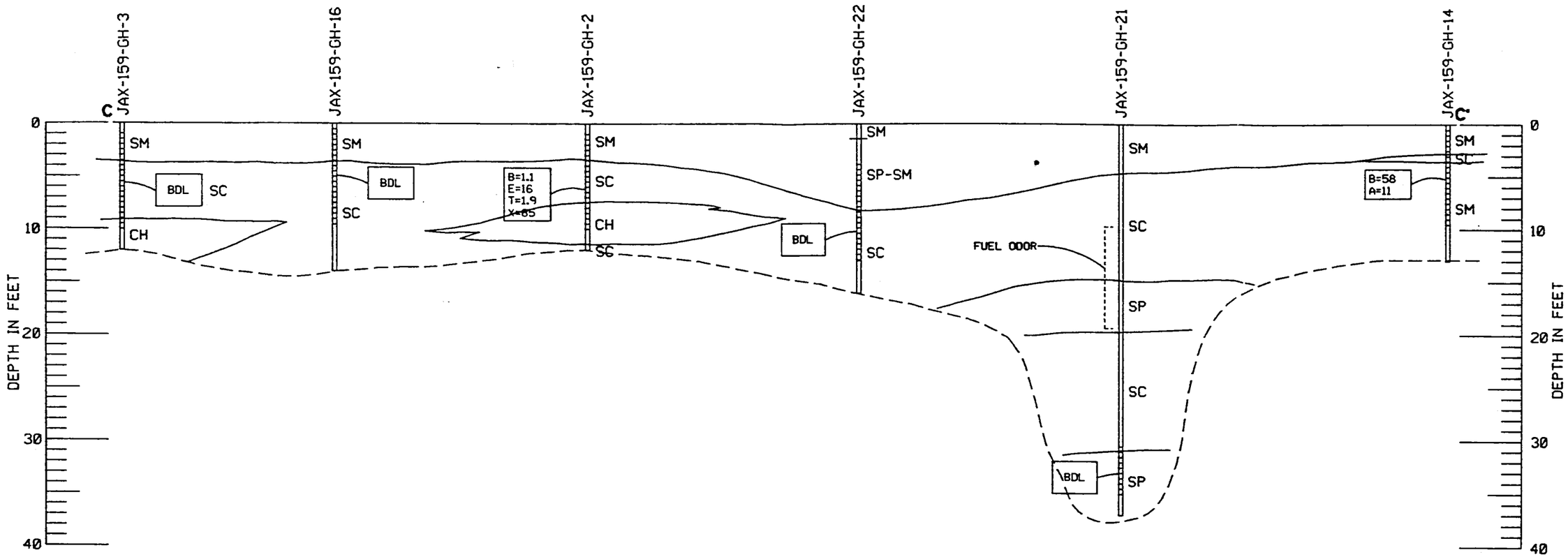
FIGURE 4A

GEOLOGIC CROSS SECTION A-A'

UNITED STATES NAVY JACKSONVILLE, FLORIDA

SCALE: AS SHOWN

J:\JAXNAS\JAX159\CROSSEC.DGN



SCALE: 1"=10' VERT.
1"=60' HORIZ.

LEGEND

SC	CLAYEY SAND
SM	SILTY SAND
CH	FAT CLAY
SP	POORLY GRADED SAND
BDL	RESULTS OF LAB ANALYSIS OF GROUND-WATER SAMPLE WITH:

A=ACENAPTHENE
B=BENZENE
E=ETHYLBENZENE
N=NAPHTHALENE
T=TOLUENE
X=XYLENE
BDL=BELOW DETECTION LIMIT
(ALL UNITS IN PPB)

U. S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

PETROLEUM CONTAMINATION ASSESSMENT
BLDG. 159

FIGURE 4C

GEOLOGIC CROSS SECTION C-C'

UNITED STATES NAVY JACKSONVILLE, FLORIDA

SCALE: AS SHOWN

J:\JAXNAS\JAX159\CROSSEC.DGN

ATTACHMENT 8

SUPPLEMENTAL MONITORING WELL DATA

TABLE 1-A (SUPPLEMENTAL)

MONITOR WELL DATA

FACILITY 159 - GAS HILL FUEL FARM
NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

9-12 FEBRUARY 1993

Well No.	Total Depth of Well bls (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (msl) *	Screened Interval Depth (ft.)	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (msl) *
JAX-159-GH-1	10.00	NR	10.22	1.0 - 10.0	4.62	5.60
JAX-159-GH-2	10.00	NR	10.49	1.0 - 10.0	4.46	6.03
JAX-159-GH-3	10.00	NR	9.58	1.0 - 10.0	4.28	5.30
JAX-159-GH-4	10.00	flush	6.56	1.0 - 10.0	0.78	5.78
JAX-159-GH-5	10.00	flush	6.87	1.0 - 10.0	1.44	5.43
JAX-159-GH-6	11.00	flush	6.79	2.0 - 11.0	2.48	4.31
JAX-159-GH-7	10.00	NR	5.94	1.0 - 10.0	2.53	3.41
JAX-159-GH-8	12.50	NR	11.34	3.5 - 12.5	9.15	2.19
JAX-159-GH-9	10.00	NR	9.25	1.0 - 10.0	4.87	4.38
JAX-159-GH-10	10.00	NR	8.17	1.0 - 10.0	3.81	4.36
JAX-159-GH-11	33.50	flush	7.29	29.5 - 33.5	2.44	4.85
JAX-159-GH-12	33.00	flush	7.12	29.0 - 33.0	2.69	4.43
JAX-159-GH-13	10.00	NR	10.44	1.0 - 10.0	4.50	5.94
JAX-159-GH-14	10.55	3.25	9.55	0.6 - 9.6	4.87	4.68
JAX-159-GH-15	10.73	2.87	9.36	0.7 - 9.7	3.54	5.82
JAX-159-GH-16	10.13	2.97	9.32	0.6 - 9.6	3.46	5.86
JAX-159-GH-17	11.6	3.03	8.59	1.6 - 10.6	5.04	3.55
JAX-159-GH-18	11.83	flush	5.78	1.8 - 10.8	1.95	3.83
JAX-159-GH-19	10.83	flush	6.38	0.8 - 9.8	1.01	5.37
JAX-159-GH-20	36.0	flush	5.89	30.9 - 35.4	1.76	4.13
JAX-159-GH-21	35.67	3.53	10.01	30.6 - 35.1	NR	---
JAX-159-GH-22	13.92	4.11	10.04	3.9 - 12.9	4.10	5.94
JAX-159-1	Damaged	---	---	---	5.08	---

ATTACHMENT 9

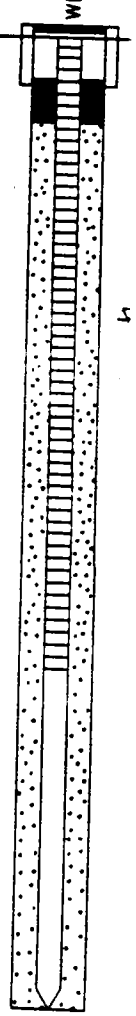
SUPPLEMENTAL MONITORING WELL LOGS

SOUTHERN DIVISION NAVAL FACILITIES E
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-16	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 22 JAN 93	**COMPLTD:** 25 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 0.1'-9.1'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.32	**MONITOR INST.:** OVA	**TOT. DEPTH:** 14.0'	**DEPTH TO ∇** 4.1'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SM) Brown, fine, silty SAND with roots.		SM		
					Gray.				
					(SC) Gray, fine, clayey SAND.		SC		
5									
10									
15					BOTTOM OF HOLE 14.0'				
20									

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.



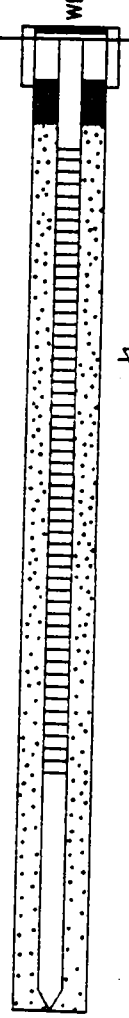
i:\eng\smith\jax159\weliog16.dgn

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-17	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 25 JAN 93	**COMPLTD:** 25 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 1.6'-10.6'	**PROTECTION LEVEL:** D
TOC ELEV.: 8.59	**MONITOR INST.:** OVA	**TOT. DEPTH:** 14.0'	**DEPTH TO ▽** 4.6'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SM) Light gray, fine, silty SAND with nodules of yellow clayey sand.		SM		
					Gray, slightly clayey.				
5									
10									
					BOTTOM OF HOLE 14.0'				
15									
20									

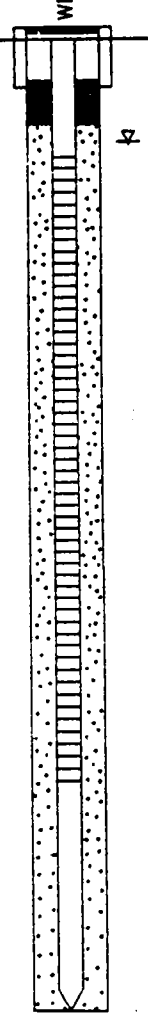
NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.



SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-18	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 25 JAN 93	**COMPLTD:** 27 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 1.7'-10.7'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.78	**MONITOR INST.:** OVA	**TOT. DEPTH:** 14.0'	**DEPTH TO ▽** 1.5'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SM) Gray, fine, silty SAND.		SM		
5									
10									
					BOTTOM OF HOLE 14.0'				
15									
20									



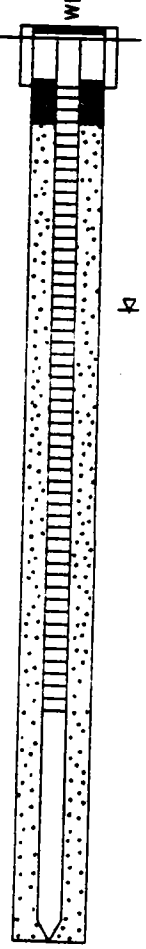
NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

\eng\smith\jax159\weilog18.dgn

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-15	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 22 JAN 93	**COMPLTD:** 22 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 0.7'-9.7'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.36	**MONITOR INST.:** OVA	**TOT. DEPTH:** 13.0'	**DEPTH TO ∇** 3.9'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					(SM) Dark brown, fine, silty SAND with roots.		SM		
5									
10									
					BOTTOM OF HOLE 13.0'				
15									
20									



NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

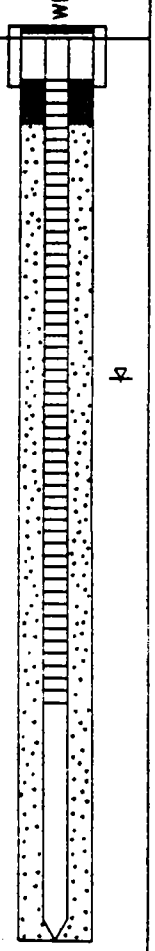
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-14	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 22 JAN 93	**COMPLTD:** 22 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 0.6'-9.6'	**PROTECTION LEVEL:** D
TOC ELEV.: 9.55	**MONITOR INST.:** OVA	**TOT. DEPTH:** 13.0'	**DEPTH TO** ▽ 4.9'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					(SM) Dark brown, fine, silty SAND with roots.		SM	
					(SC) Gray, fine, clayey SAND.		SC	
					(SM) Dark brown, fine, silty SAND with roots.		SM	
5								
10								
					BOTTOM OF HOLE 13.0'			
15								
20								

NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

WELL DATA



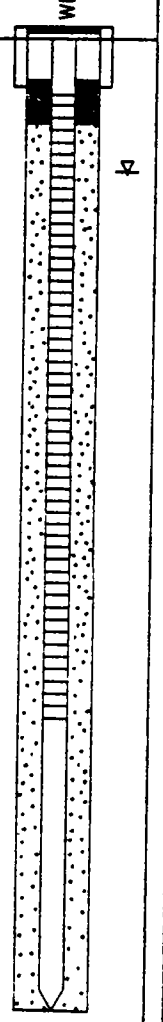
i:\eng\smith\jax159\welllog14.dgn

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-19	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 27 JAN 93	**COMPLTD:** 27 JAN 93
METHOD: 6 X 10 HSA	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 0.8'-9.8'	**PROTECTION LEVEL:** D
TOC ELEV.: 6.38	**MONITOR INST.:** OVA	**TOT. DEPTH:** 14.0'	**DEPTH TO ∇** 1.9'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					(SM) Grayish brown, fine, silty SAND.		SM	
					Dark brown.			
					Light brown.			
5					(SC) Gray, clayey SAND, stiff.		SC	
10								
15					BOTTOM OF HOLE 14.0'			
20								

WELL DATA



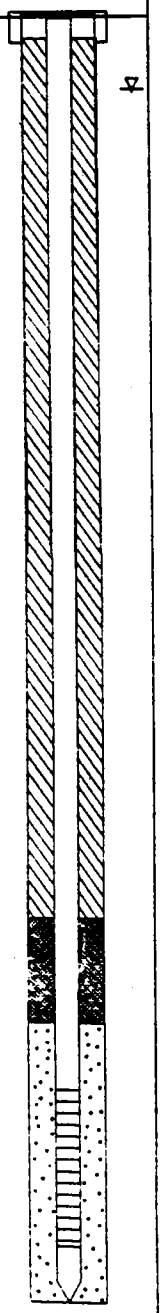
NOTE:
SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-20	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 28 JAN 93	**COMPLTD:** 30 JAN 93
METHOD: 6" CASING/WASHING	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 30.9'-35.4'	**PROTECTION LEVEL:** D
TOC ELEV.: 5.89	**MONITOR INST.:** OVA	**TOT. DEPTH:** 37.0'	**DEPTH TO ∇** 2.1'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					(SM) Dark gray, fine, silty SAND.		SM	
					Dark brown.			
5					Brown with trace of decomposed roots.			
					(SC) Gray, fine, clayey SAND.		SC	
10								
15					With lenses of yellow and brown fine sand.			
20					NOTE: INSTALLED 8" SCH. 40 PVC PIPE TO A DEPTH OF 21.0'. GROUTED WITH CEMENT AND BENTONITE MIXTURE TO SURFACE. ROCKBIT THROUGH 8" SCH. 40 PVC TO 21.0'. INSTALLED 6" ALUMINUM CASING TO 34.0'. CLEANED OUT BORING WITH CLEAR WATER. INSTALLED MONITOR WELL TO SPECIFICATIONS.			
25								
30					(SP) Gray, fine, poorly graded SAND.			
35					NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.			
40					BOTTOM OF HOLE 37.0'			

WELL DATA



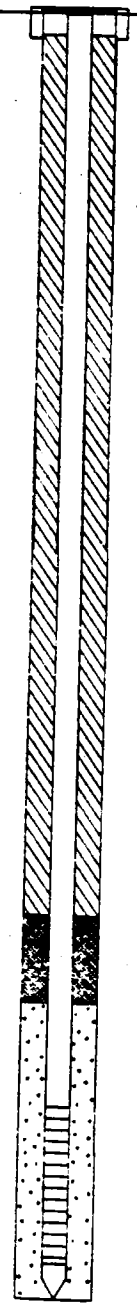
i:\eng\smith\jax159\wellog20.dgn

SOUTHERN DIVISION NAVAL FACILITIES
GROUNDWATER MONITORING WELL INSTALLATION REPORT

TITLE: Jacksonville Naval Air Station Building 159		**LOG of WELL:** JAX-159-GH-21	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:**
CONTRACTOR: USACE - Sav. District		**DATE STARTED:** 30 JAN 93	**COMPLTD:** 31 JAN 93
METHOD: 6" CASING/WASHING	**CASE SIZE:** 2" PVC	**SCREEN INT.:** 31.5'-36.0'	**PROTECTION LEVEL:** D
TOC ELEV.: 10.01	**MONITOR INST.:** OVA	**TOT. DEPTH:** 37.0'	**DEPTH TO ▽** 5.6'
LOGGED BY: G. ANDERSON	**WELL DEVELOPMENT DATE:** 3 FEB 93		**SITE:** Bld. 159

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					(SM) Brown, fine, silty SAND, with fuel odor.		SM	
5					(SC) Gray, fine, clayey SAND.		SC	
10					Slightly clayey.			
15					(SP) Light gray, fine, poorly graded SAND, with slight fuel odor.		SP	
20					(SC) Gray, slightly clayey SAND.		SC	
25					NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.			
30					Greenish gray.			
					(SP) Gray, fine, poorly graded SAND.		SP	
35					NOTE: INSTALLED 8" SCH. 40 PVC PIPE TO A DEPTH OF 21.0'. GROUTED WITH CEMENT AND BENTONITE MIXTURE TO SURFACE. ROCKBIT THROUGH 8" SCH. 40 PVC TO 21.0'. INSTALLED 6" ALUMINUM CASING TO 34.0'. CLEANED OUT BORING WITH CLEAR WATER. INSTALLED MONITOR WELL TO SPECIFICATIONS.			
40					BOTTOM OF HOLE 37.0'			

WELL DATA



I:\eng\smith\jax159\welloga1.dgn

ATTACHMENT 10

SUPPLEMENTAL LABORATORY ANALYTICAL DATA

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-1	Precleaned Equip.Blk-159-2-93	02-09-93
40868-2	JAX-159-GH-21-2-93	02-09-93
40868-3	JAX-159-GH-15-2-93	02-09-93
40868-4	JAX-159-GH-8-2-93	02-09-93
40868-5	JAX-159-GH-20-2-93	02-09-93

PARAMETER	40868-1	40868-2	40868-3	40868-4	40868-5
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	<1.0	850	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<10	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<10	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<10	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<10	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	54	<1.0	<1.0
Toluene, ug/l	<1.0	<1.0	200	1.2	<1.0
Xylenes, ug/l	<1.0	<1.0	190	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<100	<10	<10
Date Analyzed	02.20.93	02.20.93	02.23.93	02.23.93	02.19.93
Surrogate - Trifluoro - toluene % Rec	111	105	131	104	101

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-1	Precleaned Equip.Blk-159-2-93	02-09-93
40868-2	JAX-159-GH-21-2-93	02-09-93
40868-3	JAX-159-GH-15-2-93	02-09-93
40868-4	JAX-159-GH-8-2-93	02-09-93
40868-5	JAX-159-GH-20-2-93	02-09-93

PARAMETER	40868-1	40868-2	40868-3	40868-4	40868-5
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibe nzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.27.93	02.27.93	02.27.93	02.27.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec.	52	60	63	50	60

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-6	JAX-159-GH-18-2-93	02-09-93
40868-7	JAX-159-8-2-93	02-09-93
40868-8	JAX-159-GH-7-2-93	02-09-93
40868-9	JAX-159-GH-6-2-93	02-10-93
40868-10	JAX-159-4-2-93	02-10-93

PARAMETER	40868-6	40868-7	40868-8	40868-9	40868-10
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene, ug/l	2.3	<1.0	<1.0	<1.0	<1.0
Xylenes, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.19.93	02.19.93	02.20.93	02.20.93	02.22.93
Surrogate - Trifluoro - toluene % Rec	94	98	108	110	127

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-6	JAX-159-GH-18-2-93	02-09-93
40868-7	JAX-159-8-2-93	02-09-93
40868-8	JAX-159-GH-7-2-93	02-09-93
40868-9	JAX-159-GH-6-2-93	02-10-93
40868-10	JAX-159-4-2-93	02-10-93

PARAMETER	40868-6	40868-7	40868-8	40868-9	40868-10
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibe nzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.27.93	02.27.93	02.27.93	02.27.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec	50	54	45	83	69

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-11	JAX-159-GH-12-2-93	02-10-93
40868-12	NAS-159-9-2-93	02-10-93
40868-13	JAX-159-GH-5-2-93	02-10-93
40868-14	JAX-159-GH-11-2-93	02-10-93
40868-15	JAX-159-GH-4-2-93	02-10-93

PARAMETER	40868-11	40868-12	40868-13	40868-14	40868-15
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.20.93	02.19.93	02.20.93	02.23.93	02.19.93
Surrogate - Trifluoro - toluene % Rec	105	97	109	109	95

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-11	JAX-159-GH-12-2-93	02-10-93
40868-12	NAS-159-9-2-93	02-10-93
40868-13	JAX-159-GH-5-2-93	02-10-93
40868-14	JAX-159-GH-11-2-93	02-10-93
40868-15	JAX-159-GH-4-2-93	02-10-93

PARAMETER	40868-11	40868-12	40868-13	40868-14	40868-15
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	86	<10
Acenaphthylene, ug/l	<10	<10	<10	<50	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<50	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<50	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<50	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<50	<10
Fluoranthene, ug/l	<10	<10	<10	<50	<10
Fluorene, ug/l	<10	<10	<10	<50	17
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	<10	<10	<50	<10
Naphthalene, ug/l	<10	<10	<10	150	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<50	<10
Pyrene, ug/l	<10	<10	<10	<50	<10
Date Analyzed	02.27.93	02.27.93	02.27.93	03.01.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec	68	58	63	166*	51

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-16	JAX-159-GH-10-2-93	02-10-93
40868-17	JAX-159-GH-17-2-93	02-10-93
40868-18	JAX-159-GH-3-2-93	02-11-93
40868-19	JAX-159-GH-3-DUP-2-93	02-11-93
40868-20	JAX-159-GH-2-2-93	02-11-93

PARAMETER	40868-16	40868-17	40868-18	40868-19	40868-20
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0	1.1
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene ug/l	<1.0	<1.0	<1.0	<1.0	16
Toluene, ug/l	<1.0	<1.0	<1.0	<1.0	1.9
Xylenes, ug/l	<1.0	<1.0	<1.0	<1.0	85
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.19.93	02.19.93	02.24.93	02.23.93	02.23.93
Surrogate - Trifluoro - toluene % Rec	100	91	91	87	126

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-16	JAX-159-GH-10-2-93	02-10-93
40868-17	JAX-159-GH-17-2-93	02-10-93
40868-18	JAX-159-GH-3-2-93	02-11-93
40868-19	JAX-159-GH-3-DUP-2-93	02-11-93
40868-20	JAX-159-GH-2-2-93	02-11-93

PARAMETER	40868-16	40868-17	40868-18	40868-19	40868-20
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.27.93	02.27.93	02.27.93	02.27.93	02.26.93
Surrogate - 2-Fluorobiphenyl, % Rec	66	76	117	119	82

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-21	FIELD CLD EQP BLK-I-159-2-93	02-11-93
40868-22	JAX-159-GH-22-2-93	02-11-93
40868-23	JAX-159-GH-13-2-93	02-11-93
40868-24	JAX-159-GH-13-DUP-2-93	02-11-93
40868-25	JAX-159-GH-1-2-93	02-11-93

PARAMETER	40868-21	40868-22	40868-23	40868-24	40868-25
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	<1.0	<1.0	<1.0	230
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<5.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<5.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<5.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<5.0
Ethylbenzene, ug/l	<1.0	<1.0	<1.0	<1.0	30
Toluene, ug/l	<1.0	<1.0	<1.0	<1.0	6.5
Xylenes, ug/l	<1.0	<1.0	<1.0	<1.0	<5.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<50
Date Analyzed	02.19.93	02.19.93	02.19.93	02.19.93	02.24.93
Surrogate - Trifluoro - toluene % Rec	99	101	91	118	122

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-21	FIELD CLD EQP BLK-I-159-2-93	02-11-93
40868-22	JAX-159-GH-22-2-93	02-11-93
40868-23	JAX-159-GH-13-2-93	02-11-93
40868-24	JAX-159-GH-13-DUP-2-93	02-11-93
40868-25	JAX-159-GH-1-2-93	02-11-93

PARAMETER	40868-21	40868-22	40868-23	40868-24	40868-25
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<10	<10	<10	<10
Acenaphthylene, ug/l	<10	<10	<10	<10	<10
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<10
Fluoranthene, ug/l	<10	<10	<10	<10	<10
Fluorene, ug/l	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene+Dibe nzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<10
Naphthalene, ug/l	<10	<10	<10	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<10
Pyrene, ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.26.93	02.26.93	02.26.93	02.26.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec	87	88	80	79	80

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-26	JAX-159-GH-1-DUP-2-93	02-11-93
40868-27	JAX-159-GH-14-2-93	02-11-93
40868-28	JAX-159-GH-19-2-93	02-11-93
40868-29	FIELD CLD EQP BLKII-159-2-93	02-11-93
40868-30	JAX-159-2-2-93	02-12-93

PARAMETER	40868-26	40868-27	40868-28	40868-29	40868-30
Purgeable Aromatics (602)					
Benzene, ug/l	280	58***	<1.0	<1.0	<2.0
Chlorobenzene, ug/l	<5.0	<25	<1.0	<1.0	<2.0
1,2-Dichlorobenzene, ug/l	<5.0	<25	<1.0	<1.0	<2.0
1,3-Dichlorobenzene, ug/l	<5.0	<25	<1.0	<1.0	<2.0
1,4-Dichlorobenzene, ug/l	<5.0	<25	<1.0	<1.0	<2.0
Ethylbenzene, ug/l	35	<25	<1.0	<1.0	2.7
Toluene, ug/l	<5.0	<25	<1.0	<1.0	2.5
Xylenes, ug/l	5.1	<25	<1.0	<1.0	2.5
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<50	<250	<10	<10	<20
Date Analyzed	02.24.93	02.24.93	02.20.93	02.20.93	02.24.93
Surrogate - Trifluoro - toluene % Rec	126	96	107	112	124

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-26	JAX-159-GH-1-DUP-2-93	02-11-93
40868-27	JAX-159-GH-14-2-93	02-11-93
40868-28	JAX-159-GH-19-2-93	02-11-93
40868-29	FIELD CLD EQP BLKII-159-2-93	02-11-93
40868-30	JAX-159-2-2-93	02-12-93

PARAMETER	40868-26	40868-27	40868-28	40868-29	40868-30
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	11	<10	<10	<40
Acenaphthylene, ug/l	<10	<10	<10	<10	<40
Benzo(a)pyrene, ug/l	<10	<10	<10	<10	<40
Benzo(g,h,i)perylene, ug/l	<10	<10	<10	<10	<40
Benzo(b,k)fluoranthene, ug/l	<10	<10	<10	<10	<40
Chrysene + Benzo(a)anthracene, ug/l	<10	<10	<10	<10	<40
Fluoranthene, ug/l	<10	<10	<10	<10	<40
Fluorene, ug/l	<10	<10	<10	<10	<40
Indeno(1,2,3-cd)pyrene+Dibe nzo(a,h)anthracene, ug/l	<10	<10	<10	<10	<40
Naphthalene, ug/l	<10	<10	<10	<10	77
Phenanthrene + Anthracene, ug/l	<10	<10	<10	<10	<40
Pyrene, ug/l	<10	<10	<10	<10	<40
Date Analyzed	02.27.93	02.27.93	02.27.93	02.26.93	02.28.93
Surrogate - 2-Fluorobiphenyl, % Rec	81	76	79	83	**

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-31	JAX-159-7-2-93	02-12-93
40868-32	JAX-159-1-2-93	02-12-93
40868-33	JAX-159-11-2-93	02-12-93
40868-34	JAX-159-10-2-93	02-12-93
40868-35	JAX-159-6-2-93	02-12-93

PARAMETER	40868-31	40868-32	40868-33	40868-34	40868-35
Purgeable Aromatics (602)					
Benzene, ug/l	<1.0	8.8*	2.4	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	35	14	<1.0	<1.0
Toluene, ug/l	<1.0	3.7	2.5	<1.0	<1.0
Xylenes, ug/l	<1.0	4.4	1.8	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10	<10	<10	<10
Date Analyzed	02.23.93	02.23.93	02.24.93	02.23.93	02.24.93
Surrogate - Trifluoro - toluene % Rec	91	117	127	106	112

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-31	JAX-159-7-2-93	02-12-93
40868-32	JAX-159-1-2-93	02-12-93
40868-33	JAX-159-11-2-93	02-12-93
40868-34	JAX-159-10-2-93	02-12-93
40868-35	JAX-159-6-2-93	02-12-93

PARAMETER	40868-31	40868-32	40868-33	40868-34	40868-35
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	<10	<20	27	<10	<10
Acenaphthylene, ug/l	<10	<20	<20	<10	<10
Benzo(a)pyrene, ug/l	<10	<20	<20	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<20	<20	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<20	<20	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<20	<20	<10	<10
Fluoranthene, ug/l	<10	<20	<20	<10	<10
Fluorene, ug/l	<10	<20	<20	<10	<10
Indeno(1,2,3-cd)pyrene+Dibe nzo(a,h)anthracene, ug/l	<10	<20	<20	<10	<10
Naphthalene, ug/l	<10	140	210	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<20	30	<10	<10
Pyrene, ug/l	<10	<20	<20	<10	<10
Date Analyzed	02.27.93	02.28.93	02.27.93	02.27.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec	110	69	72	109	82

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-36	JAX-159-GH-9-2-93	02-11-93
40868-37	JAX-159-GH-16-2-93	02-11-93

PARAMETER	40868-36	40868-37
Purgeable Aromatics (602)		
Benzene, ug/l	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0
Toluene, ug/l	1.4	<1.0
Xylenes, ug/l	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10
Date Analyzed	02.20.93	02.19.93
Surrogate - Trifluoro - toluene % Rec	104	92

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-36	JAX-159-GH-9-2-93	02-11-93
40868-37	JAX-159-GH-16-2-93	02-11-93

PARAMETER	40868-36	40868-37
Polynuclear Aromatics (610/8100)		
Acenaphthene, ug/l	<10	<10
Acenaphthylene, ug/l	<10	<10
Benzo(a)pyrene, ug/l	<10	<10
Benzo(g,h,i)perylene, ug/l	<10	<10
Benzo(b,k)fluoranthene, ug/l	<10	<10
Chrysene + Benzo(a)anthracene, ug/l	<10	<10
Fluoranthene, ug/l	<10	<10
Fluorene, ug/l	<10	<10
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	<10	<10
Naphthalene, ug/l	<10	<10
Phenanthrene + Anthracene, ug/l	<10	<10
Pyrene, ug/l	<10	<10
Date Analyzed	02.27.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec	81	86

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
40868-38	TRIP BLANK I	02-09-93
40868-39	TRIP BLANK II	02-09-93

PARAMETER	40868-38	40868-39
Purgeable Aromatics (602)		
Benzene, ug/l	<1.0	<1.0
Chlorobenzene, ug/l	<1.0	<1.0
1,2-Dichlorobenzene, ug/l	<1.0	<1.0
1,3-Dichlorobenzene, ug/l	<1.0	<1.0
1,4-Dichlorobenzene, ug/l	<1.0	<1.0
Ethylbenzene, ug/l	<1.0	<1.0
Toluene, ug/l	<1.0	<1.0
Xylenes, ug/l	<1.0	<1.0
Methyl-Tert-Butyl-Ether (MTBE), ug/l	<10	<10
Date Analyzed	02.18.93	02.19.93
Surrogate - Trifluoro - toluene % Rec	95	96

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
40868-40	Detection Limits-Water
40868-41	Method Blank Results-Water
40868-42	Lab Control Standard Result/Duplicate
40868-43	LCS Expected Value
40868-44	LCS % Recovery/Duplicate

PARAMETER	40868-40	40868-41	40868-42	40868-43	40868-44
Purgeable Aromatics (602)					
Benzene, ug/l	1.0	<1.0	9.3/9.3	10	93/93 %
Chlorobenzene, ug/l	1.0	<1.0	7.1/7.1	10	71/71 %
1,2-Dichlorobenzene, ug/l	1.0	<1.0	---	---	---
1,3-Dichlorobenzene, ug/l	1.0	<1.0	---	---	---
1,4-Dichlorobenzene, ug/l	1.0	<1.0	---	---	---
Ethylbenzene, ug/l	1.0	<1.0	---	---	---
Toluene, ug/l	1.0	<1.0	10.2/10.2	10	102/102 %
Xylenes, ug/l	1.0	<1.0	---	---	---
Methyl-Tert-Butyl-Ether (MTBE), ug/l	10	<10	---	---	---

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
40868-40	Detection Limits-Water
40868-41	Method Blank Results-Water
40868-42	Lab Control Standard Result/Duplicate
40868-43	LCS Expected Value
40868-44	LCS % Recovery/Duplicate

PARAMETER	40868-40	40868-41	40868-42	40868-43	40868-44
Polynuclear Aromatics (610/8100)					
Acenaphthene, ug/l	10	<10	38/39	50	76/79 %
Acenaphthylene, ug/l	10	<10	---	---	---
Benzo(a)pyrene, ug/l	10	<10	42/40	50	83/80 %
Benzo(g,h,i)perylene, ug/l	10	<10	---	---	---
Benzo(b,k)fluoranthene, ug/l	10	<10	---	---	---
Chrysene + Benzo(a)anthracene, ug/l	10	<10	---	---	---
Fluoranthene, ug/l	10	<10	---	---	---
Fluorene, ug/l	10	<10	37/40	50	74/80 %
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/l	10	<10	---	---	---
Naphthalene, ug/l	10	<10	36/37	50	72/73 %
Phenanthrene + Anthracene, ug/l	10	<10	---	---	---
Pyrene, ug/l	10	<10	42/42	50	84/84 %

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
40868-45	LCS Control Limits
40868-46	LCS % RPD
40868-47	% RPD Control Limits
40868-48	Date Extracted-Water
40868-49	Date Analyzed-Water

PARAMETER	40868-45	40868-46	40868-47	40868-48	40868-49
Purgeable Aromatics (602)					
Benzene, %	61-131 %	0.0 %	<25 %	---	2.18-24.93
Chlorobenzene, %	54-136 %	0.0 %	<24 %	---	2.18-24.93
Toluene, %	64-144 %	0.0 %	<29 %	---	2.18-24.93
Polynuclear Aromatics (610/8100)					
Acenaphthene, %	38-111 %	3.9 %	<21 %	02.16.93	2.27-01.93
Benzo(a)pyrene, %	24-132 %	3.7 %	<78 %	02.16.93	2.27-01.93
Fluorene, %	39-115 %	7.8 %	<23 %	02.16.93	2.27-01.93
Naphthalene, %	34-103 %	1.4 %	<25 %	02.16.93	2.27-01.93
Pyrene, %	36-124 %	0 %	<37 %	02.16.93	2.27-01.93

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
40868-50	JAX-159-S-1-2-93	02-09-93
40868-51	JAX-159-S-2-2-93	02-09-93
40868-52	JAX-159-S-3-2-93	02-09-93
40868-53	JAX-159-S-4-2-93	02-09-93
40868-54	JAX-159-S-4-2-93-DUP	02-09-93

PARAMETER	40868-50	40868-51	40868-52	40868-53	40868-54
Aromatic Volatiles (8020)					
Benzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
Chlorobenzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
1,2-Dichlorobenzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
1,3-Dichlorobenzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
1,4-Dichlorobenzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
Ethylbenzene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
Toluene, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
Xylenes, ug/kg dw	<6.1	<6.4	<5.9	<5.7	<5.7
Date Analyzed	02.22.93	02.22.93	02.22.93	02.22.93	02.22.93
Surrogate - Trifluoro - toluene % Rec, %	121	117	109	107	107

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
40868-50	JAX-159-S-1-2-93	02-09-93
40868-51	JAX-159-S-2-2-93	02-09-93
40868-52	JAX-159-S-3-2-93	02-09-93
40868-53	JAX-159-S-4-2-93	02-09-93
40868-54	JAX-159-S-4-2-93-DUP	02-09-93

PARAMETER	40868-50	40868-51	40868-52	40868-53	40868-54
Polynuclear Aromatic HC (8100)					
Acenaphthene, ug/kg dw	<400	<420	<390	<380	<380
Acenaphthylene, ug/kg dw	<400	<420	<390	<380	<380
Benzo(a)pyrene, ug/kg dw	<400	<420	<390	<380	<380
Benzo(g,h,i)perylene, ug/kg dw	<400	<420	<390	<380	<380
Benzo(b,k)fluoranthene, ug/kg dw	<400	<420	870	<380	<380
Chrysene + Benzo(a)anthracene, ug/kg dw	<400	<420	810	<380	<380
Fluoranthene, ug/kg dw	<400	<420	<390	<380	<380
Fluorene, ug/kg dw	<400	<420	<390	<380	<380
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/kg dw	<400	<420	<390	<380	<380
Naphthalene, ug/kg dw	<400	<420	<390	<380	<380
Phenanthrene + Anthracene, ug/kg dw	<400	<420	<390	<380	<380
Pyrene, ug/kg dw	<400	<420	410	<380	<380
1-Methylnaphthalene, ug/kg dw	<400	<420	<390	<380	<380
2-Methylnaphthalene, ug/kg dw	<400	<420	<390	<380	<380
Date Analyzed	02.27.93	02.27.93	02.28.93	02.27.93	02.27.93
Surrogate - 2-Fluorobiphenyl, % Rec.	69 %	64 %	72 %	55 %	71 %
Percent Solids, %	82	78	85	88	88

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
40868-55	JAX-159-GRAB-3-2-93	02-09-93

PARAMETER	40868-55
Polynuclear Aromatic HC (8100)	
Acenaphthene, ug/kg dw	<1300
Acenaphthylene, ug/kg dw	<1300
Benzo(a)pyrene, ug/kg dw	<1300
Benzo(g,h,i)perylene, ug/kg dw	<1300
Benzo(b,k)fluoranthene, ug/kg dw	<1300
Chrysene + Benzo(a)anthracene, ug/kg dw	<1300
Fluoranthene, ug/kg dw	<1300
Fluorene, ug/kg dw	<1300
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/kg dw	<1300
Naphthalene, ug/kg dw	<1300
Phenanthrene + Anthracene, ug/kg dw	<1300
Pyrene, ug/kg dw	<1300
1-Methylnaphthalene, ug/kg dw	<1300
2-Methylnaphthalene, ug/kg dw	<1300
Date Analyzed	02.28.93
Surrogate - 2-Fluorobiphenyl, % Rec.	66 %
Percent Solids, %	25

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
40868-56	Detection Limits-Soil
40868-57	Method Blank Results-Soil
40868-58	Lab Control Standard Result/Duplicate
40868-59	LCS Expected Value
40868-60	LCS % Recovery/Duplicate

PARAMETER	40868-56	40868-57	40868-58	40868-59	40868-60
Aromatic Volatiles (8020)					
Benzene, ug/kg dw	5.0	<5.0	10.0/10.4	10	100/104 %
Chlorobenzene, ug/kg dw	5.0	<5.0	9.4/9.6	10	94/96 %
1,2-Dichlorobenzene, ug/kg dw	5.0	<5.0	---	---	---
1,3-Dichlorobenzene, ug/kg dw	5.0	<5.0	---	---	---
1,4-Dichlorobenzene, ug/kg dw	5.0	<5.0	---	---	---
Ethylbenzene, ug/kg dw	5.0	<5.0	---	---	---
Toluene, ug/kg dw	5.0	<5.0	9.1/9.5	10	91/95 %
Xylenes, ug/kg dw	5.0	<5.0	---	---	---

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
40868-56	Detection Limits-Soil
40868-57	Method Blank Results-Soil
40868-58	Lab Control Standard Result/Duplicate
40868-59	LCS Expected Value
40868-60	LCS % Recovery/Duplicate

PARAMETER	40868-56	40868-57	40868-58	40868-59	40868-60
Polynuclear Aromatic HC (8100)					
Acenaphthene, ug/kg dw	330	<330	1230/1240	1670	74/74 %
Acenaphthylene, ug/kg dw	330	<330	---	---	---
Benzo(a)pyrene, ug/kg dw	330	<330	1150/1110	1670	69/67 %
Benzo(g,h,i)perylene, ug/kg dw	330	<330	---	---	---
Benzo(b,k)fluoranthene, ug/kg dw	330	<330	---	---	---
Chrysene + Benzo(a)anthracene, ug/kg dw	330	<330	---	---	---
Fluoranthene, ug/kg dw	330	<330	---	---	---
Fluorene, ug/kg dw	330	<330	1190/1270	1670	71/76 %
Indeno(1,2,3-cd)pyrene+Dibenzo(a,h)anthracene, ug/kg dw	330	<330	---	---	---
Naphthalene, ug/kg dw	330	<330	1100/1160	1670	66/70 %
Phenanthrene + Anthracene, ug/kg dw	330	<330	---	---	---
Pyrene, ug/kg dw	330	<330	1330/1320	1670	80/79 %
1-Methylnaphthalene, ug/kg dw	330	<330	---	---	---
2-Methylnaphthalene, ug/kg dw	330	<330	---	---	---

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-40868
Revision 1
Received: 13 FEB 93

Mr. Cardwell Smith
U.S. Army Engineer District, Savh
P. O. Box 889
Savannah, Georgia 31402-0889

Contract: DACW21-93-M0262

Project: JAX NAS FAC 159
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
40868-61	LCS Control Limits
40868-62	LCS % RPD
40868-63	% RPD Control Limits
40868-64	Date Extracted-Soil
40868-65	Date Analyzed-Soil

PARAMETER	40868-61	40868-62	40868-63	40868-64	40868-65
Aromatic Volatiles (8020)					
Benzene, %	63-133 %	3.9 %	<27 %	---	02.22.93
Chlorobenzene, %	69-129 %	2.1 %	<27 %	---	02.22.93
Toluene, %	70-130 %	4.3 %	<26 %	---	02.22.93
Polynuclear Aromatic HC (8100)					
Acenaphthene, %	37-115 %	0 %	<32 %	02.19.93	2.27-28.93
Benzo(a)pyrene, %	21-125 %	2.9 %	<45 %	02.19.93	2.27-28.93
Fluorene, %	36-117 %	6.8 %	<33 %	02.19.93	2.27-28.93
Naphthalene, %	29-111 %	5.9 %	<45 %	02.19.93	2.27-28.93
Pyrene, %	35-123 %	1.3 %	<32 %	02.19.93	2.27-28.93

Methods: EPA SW-846 and 40 CFR Part 136.
Savannah Environmental Laboratory HRS Cert. #87052
Savannah Drinking Water HRS Cert. #87279
* Surrogate was elevated due to a coeluting matrix interference in the sample.
** Surrogates were not recovered due to sample dilution.
*** Sample was analyzed at a dilution of 1:25. Lower dilutions exhibited matrix interference with internal standard.

Steven J. White

Steven J. White

Final Page Of Report

ATTACHMENT 11

MEMORANDUM OF MEETING WITH FDEP

SL ANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PO NUMBER:
PROJECT NUMBER:
PROJECT NAME: JAX NAS FAC 159
CLIENT NAME: US Army Corps Eng
TELEPHONE/FAX NO.: (912) 652-5311
CLIENT ADDRESS: PO Box 889
CITY, STATE, ZIP CODE: Savannah, Ga 31402
SAMPLER(S) NAME(S): J Smith
CLIENT PROJECT MANAGER: Carolyn Smith

REQUIRED ANALYSES: LEVEL II REPORTING

PAGE ___ OF ___

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE ___
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	602+MTBE	610	NUMBER OF CONTAINERS SUBMITTED									
2/9/93		Trip Blank I	X				4											
2/9/93		Trip Blank II	X				4											
2/9/93	11:00	Precleaned Equip Blk-159-2-93	X				4	2										
2/9/93	09:00	JAX-159-GH-21-2-93	X				4	2										
2/9/93	09:24	JAX-159-GH-15-2-93	X				4	2										
2/9/93	11:13	JAX-159-GH-8-2-93	X				4	2										
2/9/93	14:56	JAX-159-GH-20-2-93	X				4	2										
2/9/93	14:24	JAX-159-GH-18-2-93	X				4	2										
2/9/93	16:20	JAX-159-8-2-93	X				4	2										
2/9/93	16:55	JAX-159-GH-7-2-93	X				4	2										
2/10/93	08:10	JAX-159-GH-6-2-93	X				4	2										
2/10/93	09:00	JAX-159-4-2-93	X				4	2										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[illegible]	2/10/93	8:00						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible]	02/10/93	12:00	[illegible]	2/13/93	14:15			

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
L Johnson	2/13/93	2:15	☑ YES ☐ NO		40868	

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

JOB NUMBER:
PROJECT NUMBER:
PROJECT NAME: JAXNAS FAC 159
CLIENT NAME: US Army CoE
TELEPHONE/FAX NO.: (912) 652-5311
CLIENT ADDRESS: PO Box 889
CITY, STATE, ZIP CODE: Savannah, Ga 31402
SAMPLER(S) NAME(S): J Smith
CLIENT PROJECT MANAGER: Caldwell Smith

MATRIX TYPE: AQUEOUS MATRIX / NONAQUEOUS MATRIX / OIL MATRIX / AIR MATRIX

REQUIRED ANALYSES: 602 + MTBE; 610

LEVEL II REPORTING

PAGE ___ OF ___

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE ___
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	602 + MTBE	610
2/10/93	10:50	JAX-159-GH-12-2-93	X				4	2
2/10/93	13:40	~~JAX 159~~ NAS-159-9-2-93	X				4	2
2/10/93	14:15	JAX-159-GH-5-2-93	X				4	2
2/10/93	15:45	JAX-159-GH-11-2-93	X				4	2
2/10/93	15:15	JAX-159-GH-4-2-93	X				4	2
2/10/93	16:30	JAX-159-GH-10-2-93	X				4	2
2/10/93	17:05	JAX-159-GH-17-2-93	X				4	2
2/11/93	08:40	JAX-159-GH-9-2-93	X				4	2
2/11/93	09:20	JAX-159-GH-3-2-93	X				4	2
2/11/93	09:20	JAX-159-GH-3-Dup-2-93	X				4	2
2/11/93	10:05	JAX-159-GH-16-2-93	X				4	2
2/11/93	10:56	JAX-159-GH-2-2-93	X				4	2

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	2/12	6:10						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	02/09	12:00	[signature]	2/13/93	14:15			

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
[signature]	2/13/93	2:15	☑ YES ☐ NO		40868	

SL - SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PO NUMBER:
PROJECT NUMBER:
PROJECT NAME: JAXNAS FAC 159
CLIENT NAME: US Army C o E
TELEPHONE/FAX NO.: (912) 652-5311
CLIENT ADDRESS: Po Box 889
CITY, STATE, ZIP CODE: Savannah Ga 31402
SAMPLER(S) NAME(S): J Smith
CLIENT PROJECT MANAGER: Cardwell Smith

MATRIX TYPE: AQUEOUS MATRIX / NONAQUEOUS MATRIX / OIL MATRIX / AIR MATRIX

REQUIRED ANALYSES: 602 + MTBE / 610

LEVEL II REPORTING

PAGE ___ OF ___

☐ STANDARD TAT
☐ EXPEDITED TAT *

REPORT DUE DATE _____

* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	NUMBER OF CONTAINERS SUBMITTED (602 + MTBE)	NUMBER OF CONTAINERS SUBMITTED (610)
2/11/93	08:20	Field Clo Eqp Blk I-159-2-93	X				4	2
2/11/93	11:40	JAX-159-GH-22-2-93	X				4	2
2/11/93	12:20	JAX-159-GH-13-2-93	X				4	2
2/11/93	12:20	JAX-159-GH-13-Dup-2-93	X				4	2
2/11/93	14:51	JAX-159-GH-1-2-93	X				4	2
2/11/93	14:51	JAX-159-GH-1-Dup-2-93	X				4	2
2/11/93	15:00	JAX-159-GH-14-2-93	X				4	2
2/11/93	16:25	JAX-159-GH-19-2-93	X				4	2
2/11/93	14:30	Field Clo Eqp Blk II-159-2-93	X				4	2
2/12/93	08:15	JAX-159-2-2-93	X				4	2
2/12/93	08:50	JAX-159-7-2-93	X				4	2
2/12/93	09:45	JAX-159-1-2-93	X				4	2

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[illegible]	02/03	8:00	[illegible]					
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible]	02/09	12:00	[illegible]	2/13/93	14:15			

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
L Johnson	2/13/93	2:15	☑ YES ☐ NO		40868	

SL VANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PO NUMBER:
PROJECT NUMBER:
PROJECT NAME: JAX NAS FAC 159
CLIENT NAME: US Army C of E
TELEPHONE/FAX NO.: (912) 652-5311
CLIENT ADDRESS: PO Box 889
CITY, STATE, ZIP CODE: Savannah, Ga 31402
SAMPLER(S) NAME(S): J Smith
CLIENT PROJECT MANAGER: Caldwell Smith

PAGE ___ OF ___

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE ___
* SUBJECT TO RUSH FEES

REQUIRED ANALYSES: 602 + MTBE; 610

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	602 + MTBE	610
2/12/93	10:10	JAX-159-11-2-93	X				4	2
2/12/93	11:05	JAX-159-10-2-93	X				4	2
2/12/93	13:00	JAX-159-6-2-93	X				4	2

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	02/03	5:00	[signature]	02/09	1300

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	2/13/93	14:15	[signature]	2/13/93	2:15

FOR SAVANNAH LABORATORY USE ONLY

CUSTODY INTACT: ☑ YES ☐ NO
CUSTODY SEAL NO.:
S.L. LOG NO.: 40868
LABORATORY REMARKS:

SL 'ANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax (912) 352-0165
☐ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax (904) 878-9504
☐ 414 Southwest 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax (813) 885-7049

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PO NUMBER:
PROJECT NUMBER:
PROJECT NAME: JAX NAS FAC 159
CLIENT NAME: US Army Corp of Eng
TELEPHONE/FAX NO.: (912) 652-5311
CLIENT ADDRESS: PO Box 889
CITY, STATE, ZIP CODE: Savannah, GA 31402
SAMPLER(S) NAME(S): Caldwell Smith
CLIENT PROJECT MANAGER: Caldwell Smith

REQUIRED ANALYSES: LEVEL II REPORTING

PAGE ___ OF ___

☐ STANDARD TAT
☐ EXPEDITED TAT *
REPORT DUE DATE ___
* SUBJECT TO RUSH FEES

SAMPLING DATE	SAMPLING TIME	SAMPLE IDENTIFICATION	AQUEOUS MATRIX	NONAQUEOUS MATRIX	OIL MATRIX	AIR MATRIX	8100	8020
2/9/93	10:25	JAX-159-S-1-2-93	X				1	1
2/9/93	10:50	JAX-159-S-2-2-93	X				1	1
2/9/93	11:10	JAX-159-GRAB-3-2-93	X				1	*
2/9/93	11:25	JAX-159-S-3-2-93	X				1	1
2/9/93	11:45	JAX-159-S-4-2-93	X				1	1
2/9/93	11:45	JAX-159-S-4-2-93DUP	X				1	1

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	2/9/93	[illegible]	[signature]		
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
[signature]	02/09	12:06	[signature]	2/13/93	14:15

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

FOR SAVANNAH LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	S.L. LOG NO.	LABORATORY REMARKS
[signature]	2/13/93	2:15	☑ YES ☐ NO		40868	

Memorandum For Record

By: Cardwell Smith

Date: May 21, 1993

Subject: Meeting With FDER on CAR for Facility 159 (Gas Hill) - Jacksonville NAS, Jackson FL

On May 21, 1993 a meeting was held in Tallahassee Florida between representatives of the Florida Department of Environmental Regulation (FDER), Navy (SOUTHDIV), and the U.S. Army Corps of Engineers, Savannah District. The following persons were in attendance:

Tim J. Bahr	FDER
Thomas Douglas	FDER
Jorge R. Caspary	FDER
David M. Clowes	FDER
Tim Larson	FDER
Carl Loop	SOUTHDIV
Cardwell Smith	COE

The meeting consisted of a discussion of supplemental site work performed at Facility 159 as a result of FDER comments (dated 14 December 1992) on the CAR submitted by COE to NAVFAC and FDER.

The discussion on the site consisted of a review of FDER's comments and requests for supplemental work at the site. Card Smith explained that nine additional monitoring wells were installed at the site during the week of 25-30 Jan. 1993. Although FDER asked for six shallow and one intermediate well, one additional shallow well and one additional intermediate well were installed. The additional shallow well was installed beyond one of the requested shallow wells, after contamination was discovered in the first well, to determine the outer limit of contamination. The additional intermediate well was installed on the down-gradient (east) side of the fuel farm to better determine the limits of any down-gradient, deeper contamination. The location and depth of this well was coordinated with FDER before it was installed. Additional OVA headspace analysis and laboratory analysis (EPA 8020 and 8100) of soils was also performed as requested by FDER. The results of this work, as well as that of previous site work, indicate that an area (approximately 600 by 70 feet) of ground-water contamination exists outside the boundary fence, along the southwestern edge of the fuel farm. Two smaller areas of apparent soil contamination also exist outside the boundary fence; one at the western corner of the fuel farm and the other on the eastern boundary of the fuel farm near the drainage ditch outfall which runs under Catapult

Road. The new intermediate well (JAX-159-20) installed on the down-gradient (east) side of the fuel farm was BDL for contaminants.

Carl Loop explained that the Navy is uncertain at this point what the future of Gas Hill will be. He said indications are, that the Navy should know within a year or so whether the facility would be moved, rebuilt or eliminated. He asked that the site be granted a monitor only (MO) status until such time that the future of Gas Hill is decided.

FDER representatives agreed to grant an "interim" monitor only status for the site, pending review and approval of the final CAR addendum and submittal of a Monitoring Only Plan (MOP). This "interim" status will be allowed for a period of two years. The MOP should stipulate that all site monitoring wells will be sampled on a quarterly basis, with results reported to FDER within sixty days of collection of samples. The plan should also list those occurrences which would necessitate a change in the MO status. A semi-annual report on the status of the facility's current and future use should also be submitted.

COE will complete analysis and compilation of all supplemental site data, and forward the completed CAR Addendum and MOP to SOUTHDIV as soon as possible.