

N61165.AR.005688  
CNC CHARLESTON  
5090.3a

UNDERGROUND STORAGE TANK (UST) ASSESSMENT REPORT FOR BUILDING 653 CNC  
CHARLESTON SC  
02/27/1997  
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

00962

L 10.23.97  
Lo 10-23-97

South Carolina Department of Health and Environmental Control (S.C.D.H.E.C.)  
**Underground Storage Tank (UST) Assessment Report**

Date Received  
  
State Use Only

Submit Completed Form to:  
UST Regulatory Section  
SCDHEC  
2600 Bull Street  
Columbia, South Carolina 29201  
Telephone (803) 734-5331

**I. OWNERSHIP OF UST(S)**

Agency/Owner: Southern Division, Naval Facilities Engineering Command, Caretaker Site Office  
Mailing Address: P.O. Box 190010  
City: N. Charleston State: SC Zip Code: 29419-9010  
Area Code: 803 Telephone Number: 743-9985 Contact Person: LCDR Paul Rose

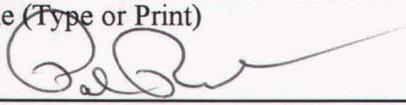
**II. SITE IDENTIFICATION AND LOCATION**

Site I.D. #: Unregulated 00962  
Facility Name: Charleston Naval Base Complex, Building 653  
Street Address: Bordelon Avenue  
City: North Charleston, 29405-2413 County: Charleston

**III. CLOSURE INFORMATION**

Closure Started: 28 Jan 1997 Closure Completed: 27 Feb 1997  
Number of USTs Closed: 1  
N/A Consultant SPORTENVDETCNASN UST Removal Contractor

**IV. CERTIFICATION (Read and Sign after completing entire submittal)**

I certify that I have personally examined and am familiar with the information submitted in this and all attached documents; and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate and complete.  
LCDR Paul Rose  
Name (Type or Print)  
Signature  


**RECEIVED**

JUL 15 1997

Groundwater Assessment  
and Development Section

**V. UST INFORMATION**

- A. Product.....
- B. Capacity.....
- C. Age.....
- D. Construction Material.....
- E. Month/Year of Last Use.....
- F. Depth (ft.) To Base of Tank.....
- G. Spill Prevention Equipment Y/N.....
- H. Overfill Prevention Equipment Y/N.....
- I. Method of Closure Removed/Filled.....
- J. Visible Corrosion or Pitting Y/N.....
- K. Visible Holes Y/N.....

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
Fuel oil						
2,000 gal						
1969						
Steel						
1984						
6'						
N						
N						
R						
Y						
N						

L. Method of disposal for any USTs removed from the ground (attach disposal manifests)

UST 653A was removed, drained, cut open at both ends, and cleaned with a steam cleaner. It was then cut up for recycling as scrap metal. (See Attachment III.)

M. Method of disposal for any liquid petroleum, sludges, or waste waters removed from the USTs (attach disposal manifests)

The residual fuel oil, waste water, and sludge were recycled.

N. If any corrosion, pitting, or holes were observed, describe the location and extent for each UST

UST 653A was moderately corroded and pitted, but no holes were found.

## VI. PIPING INFORMATION

- A. Construction Material.....
- B. Distance from UST to Dispenser.....
- C. Number of Dispensers.....
- D. Type of System P/S.....
- E. Was Piping Removed from the Ground? Y/N....
- F. Visible Corrosion or Pitting Y/N.....
- G. Visible Holes Y/N.....
- H. Age.....

Note 1: The tank provided fuel oil to Building 653.

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
Copper						
44' See note 1						
1 See note 1						
S						
Y						
Y						
N						
1969						

- I. If any corrosion, pitting, or holes were observed, describe the location and extent for each line.

Corrosion was present, but no holes were found.

## VII. BRIEF SITE DESCRIPTION AND HISTORY

NS 653 is a former Enlisted Men's Barracks on the Charleston Naval Base. UST 653A provided heating fuel oil to the building from 1969 to 1984, when it was disconnected and UST 653B was put into service. Tank 653B was removed some time prior to the shipyard's closure and no record of its removal could be found.

While excavating UST 653A, a set of abandoned copper lines was found ending near the tank. And at 6' below ground surface level, an uncapped, open metal pipe 8" in diameter was uncovered. A mixture of water and petroleum drained from the pipe into the UST excavation (~ 8" deep). Groundwater sample SPORT 0326-1 was collected from this water. Storm drain plans of the area indicate Building 653 being serviced by a 6" corrugated metal storm drain branch feeding an 18" reinforced concrete trunk. The storm drain drawings are not per scale and it cannot be determined if the piping which was uncovered in the pit was part of the storm drain system.

Based on relatively high FID readings, which accompanied the excavation samples, more OVA headspace soil samples were taken 2-3 feet beyond the excavation on each side of the tank pit. The samples were obtained by hand augering to a depth of approximately 4 feet below ground surface level. The FID readings ranged between 4 and 230 ppm and no additional excavation of the tank pit was performed. After the sample results were obtained, it was decided to further excavate below the two piping runs in the area of sample SPORT 0326-6 in an effort to remove the most contaminated area of soil. Approximately 5 cubic yards of contaminated soil was removed from an area about 7 feet in diameter and about 3 feet deeper than the original 3 foot piping trench excavation. Moved to Bldg 1601 for bioremediation.





## X. SAMPLING METHODOLOGY

**Provide a detailed description of the methods used to collect and store (preserve) the samples.**

Soil and groundwater samples were taken after the removal of UST 653A. Sampling was performed in accordance with SC DHEC R.61-92 Part 280 and SC DHEC UST Assessment Guidelines.

Sample jars were prepared by the testing laboratory. The grab method was utilized to fill the sample containers leaving as little head space as possible and immediately capped. Soil samples were extracted at the tank ends just above groundwater level. UST piping soil samples were taken under the piping at the mechanical connections. The groundwater sample was taken from the bottom center of the excavation. Biased composite samples were taken from the excavation dirt piles to characterize the soil for reuse or remediation.

The samples were marked, logged, and immediately placed in sample coolers packed with ice to maintain an approximate temperature of 4° C. Tools were thoroughly cleaned and decontaminated with organic-free soap and water after each sample.

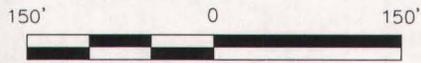
The samples remained in the custody of SPORTENVDETHASN until they were transferred to General Engineering Laboratories for analysis as documented in the attached Chain-of-Custody Record.



**SITE MAP**

You must supply a scaled site map. It should include all buildings, road names, utilities, tank and pump island locations, sample locations, extent of excavation, and any other pertinent information.

Site Maps 1, 2, 3, and 4  
Photographs 1 and 2

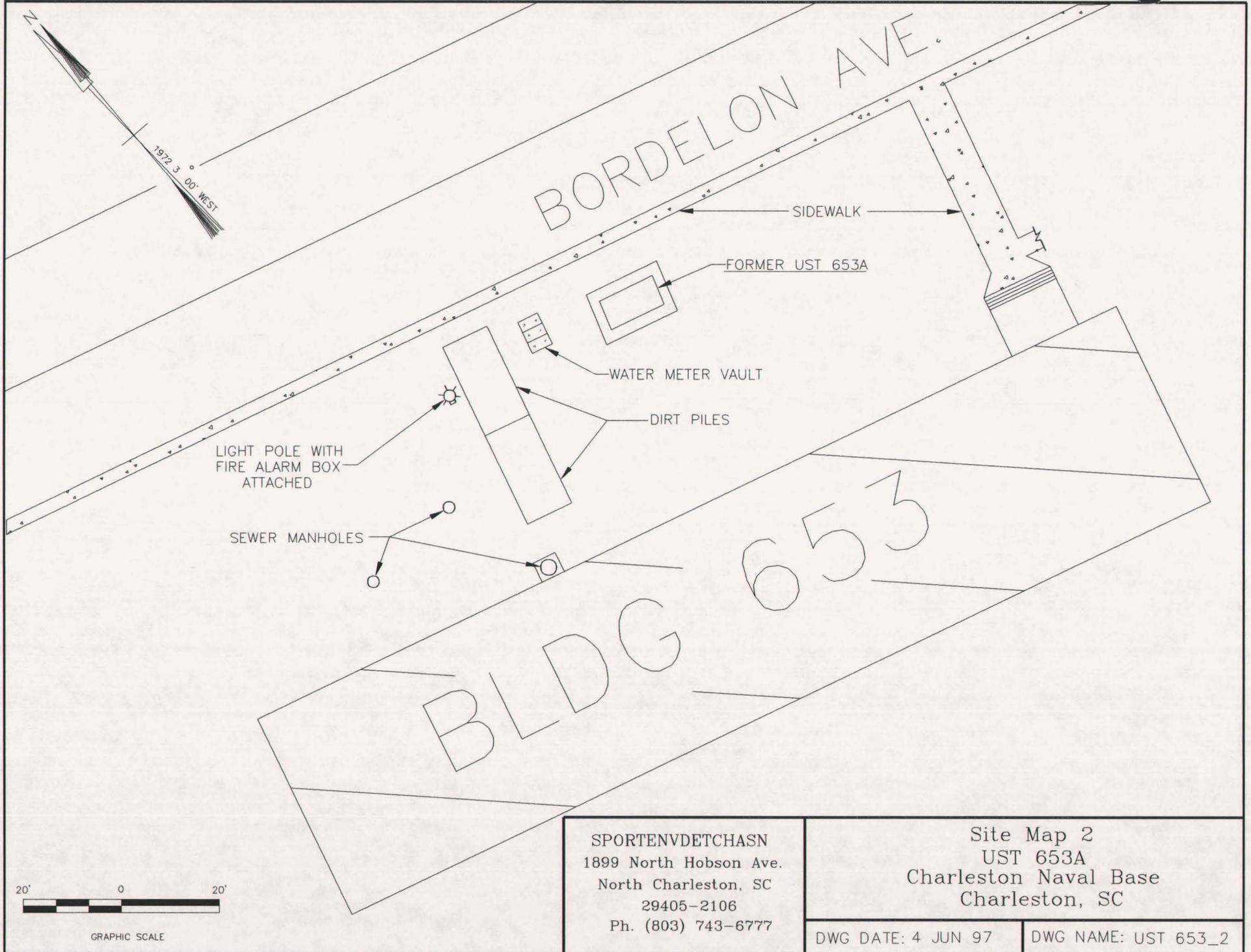


GRAPHIC SCALE

SPORTENVDETHASN  
 1899 North Hobson Ave.  
 North Charleston, SC 29405-2106  
 Ph. (803) 743-6777

Site Map 1  
 UST 653A  
 Charleston Naval Base  
 Charleston, SC

DWG DATE: 3 JUN 97 | DWG NAME: UST 653\_1



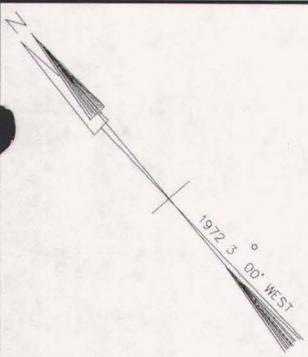
SPORTENVDETCHASN  
 1899 North Hobson Ave.  
 North Charleston, SC  
 29405-2106  
 Ph. (803) 743-6777

Site Map 2  
 UST 653A  
 Charleston Naval Base  
 Charleston, SC

DWG DATE: 4 JUN 97

DWG NAME: UST 653\_2

BORDELON AVE.  
SIDEWALK



NOTE:  
A MIXTURE OF PRODUCT & WATER CAME FROM AN OPENED 8" DRAIN PIPE AND EMPTIED INTO EXCAVATION DURING WORK CYCLE.

8" DRAIN PIPE ENDS IN EXCAVATION 6' BELOW GROUND

ELECTRICAL CONDUIT 18" BELOW GROUND

UST EXCAVATION 18'x11'x7' DEEP

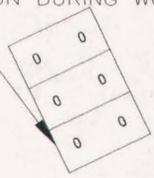
FORMER UST 653A

1-1/4" FIXED VENT AT TANK

3" FILL CONN.

1/2" OD. COPPER, SUPPLY & RETURN PIPES, 18" BELOW GROUND

(2) 1/2" OD. & (2) 5/8" OD. COPPER SUPPLY & RETURN ABANDON PIPES, 18" BELOW GROUND.



WATER METER VAULT

3/8" OD. COPPER, SUPPLY & RETURN PIPES, 18" BELOW GROUND

PIPE EXCAVATION

DIRT PILE (EAST)

DIRT PILE (WEST)

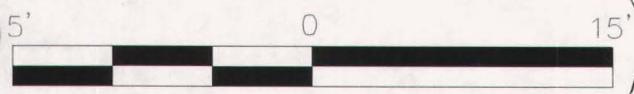
EXPANDED PIPE EXCAVATION 7' DIAMETER X 6" BELOW GSL

BLDG 653

SPORTENVDETHASN  
1899 North Hobson Ave.  
North Charleston, SC 29405-2106  
Ph. (803) 743-6777

Site Map 3  
UST 653A  
Charleston Naval Base  
Charleston, SC

DWG DATE: 5 JUN 97 | DWG NAME: UST 653\_3



GRAPHIC SCALE

BORDELON AVE.

SIDEWALK

S.S. SPORT 0326-2,  
DARK SOIL, HEAVY ODOR,  
OVA = 5205 ppm

UST EXCAVATION  
18'x11'x7' DEEP

GROUNDWATER,  
10'x4'x8" DEEP

OVA=220 ppm  
@ 4' DEEP

S.S. SPORT 0326-3,  
DARK SOIL, LIGHT ODOR,  
OVA = 1643 ppm

GW. SPORT 0326-1

PIPE EXCAVATION

OVA=270 ppm  
@ 4' DEEP

OVA=4 ppm  
@ 4' DEEP

OVA=30 ppm  
@ 4' DEEP

S.S. SPORT 0326-4,  
DARK SOIL, LIGHT ODOR,  
OVA = 713 ppm

S.S. SPORT 0327-1,  
SANDY SOIL, NO ODOR,  
OVA = 1.2 ppm

S.S. SPORT 0354-1,  
DARK SOIL, LIGHT ODOR,  
DEPTH @ 6 FT.

S.S. SPORT 0326-6,  
SANDY SOIL, NO ODOR,  
OVA = 26 ppm,  
DEPTH @ 2 FT.

S.S. SPORT 0326-7,  
SANDY SOIL, NO ODOR,  
OVA = 70 ppm,  
DEPTH @ 2 FT.

EXPANDED PIPE EXCAVATION  
7' DIAMETER X 6' BELOW GSL

WATER METER VAULT

DIRT PILE  
(EAST)

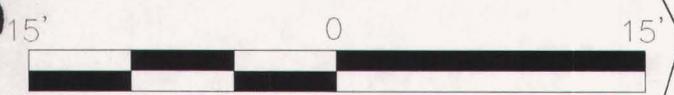
DIRT PILE  
(WEST)

S.S. SPORT 0326-5,  
DARK SOIL, LIGHT ODOR,  
OVA = 316 ppm

BLDG 653

LEGEND

GW. - GROUNDWATER  
S.S. - SOIL SAMPLE



GRAPHIC SCALE

SPORTENVDETCHASN  
1899 North Hobson Ave.  
North Charleston, SC 29405-2106  
Ph. (803) 743-6777

Site Map 4  
UST 653A  
Charleston Naval Base  
Charleston, SC

DWG DATE: 6 JUN 97 DWG NAME: UST 653\_4

**UST 653A**



Photo 1: UST 653A prior to being removed from the excavation.



Photo 2: UST 653A being readied for transport to the cutting and cleaning pad.

**ANALYTICAL RESULTS**

You must submit the laboratory report and chain-of-custody form for the samples. These samples must be analyzed by a South Carolina certified laboratory.

Certified Analytical Results  
Chain-of-Custody



# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

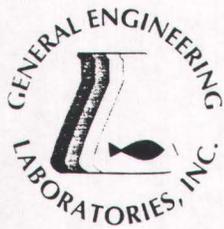
Report Date: February 10, 1997

Page 1 of 3

Sample ID : SPORT0326-1  
 Lab ID : 9701582-01  
 Matrix : GroundH2O  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatle Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	10.0	20.0	ug/l	10.	RMB	02/07/97	1432	97505	1
Ethylbenzene	U	0.00	10.0	20.0	ug/l	10.					
Toluene	U	0.00	10.0	20.0	ug/l	10.					
Xylenes (TOTAL)	U	0.00	10.0	20.0	ug/l	10.					
Methyl Tert Butyl Ether	U	0.00	10.0	20.0	ug/l	10.					
Naphthalene		199	10.0	20.0	ug/l	10.					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene		817	59.0	118	ug/l	10.	WAM	02/05/97	1830	97218	2
Acenaphthylene	U	0.00	59.0	118	ug/l	10.					
Anthracene		1100	59.0	118	ug/l	10.					
Benzo(a)anthracene		1300	59.0	118	ug/l	10.					
Benzo(a)pyrene		785	59.0	118	ug/l	10.					
Benzo(b)fluoranthene		897	59.0	118	ug/l	10.					
Benzo(ghi)perylene		269	59.0	118	ug/l	10.					
Benzo(k)fluoranthene		658	59.0	118	ug/l	10.					
Chrysene		1040	59.0	118	ug/l	10.					
Dibenzo(a,h)anthracene	U	0.00	59.0	118	ug/l	10.					
Fluoranthene		7360	590	1180	ug/l	100	WAM	02/07/97	0035	97218	2
Fluorene		1160	59.0	118	ug/l	10.	WAM	02/05/97	1830	97218	2
Indeno(1,2,3-c,d)pyrene		290	59.0	118	ug/l	10.					
Naphthalene		761	59.0	118	ug/l	10.					
Phenanthrene		7870	590	1180	ug/l	100	WAM	02/07/97	0035	97218	2
Pyrene		5400	590	1180	ug/l	100					





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FL	E87156/87294	E87472/87
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SC	10120	10582
TN	02934	02934

**Client:** Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 3

Sample ID : SPORT0326-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
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**The following prep procedures were performed:**

GC/MS Base/Neutral Compounds

GWL 02/01/97 1500 97218 3

**Comments:**

A dilution was required for Volatile Organics due to matrix interference.  
 As a result, the detection limits are elevated.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	0.00*	(43.0 - 108.)
Nitrobenzene-d5	M610	0.00*	(35.0 - 111.)
p-Terphenyl-d14	M610	0.00*	(33.0 - 125.)
Bromofluorobenzene	BTEX-8260	97.2	(73.8 - 128.)
Dibromofluoromethane	BTEX-8260	98.0	(63.9 - 139.)
Toluene-d8	BTEX-8260	111.	(77.1 - 121.)
Bromofluorobenzene	MTBE-8260	97.2	(73.8 - 128.)
Dibromofluoromethane	MTBE-8260	98.0	(63.9 - 139.)
Toluene-d8	MTBE-8260	111.	(77.1 - 121.)
Bromofluorobenzene	NAP-8260	97.2	(73.8 - 128.)
Dibromofluoromethane	NAP-8260	98.0	(63.9 - 139.)
Toluene-d8	NAP-8260	111.	(77.1 - 121.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3510



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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

**Client:** Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

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Sample ID : SPORT0326-1

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**M = Method**

**Method-Description**

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### Notes:

The qualifiers in this report are defined as follows:

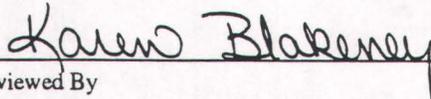
ND indicates that the analyte was not detected at a concentration greater than the detection limit.

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

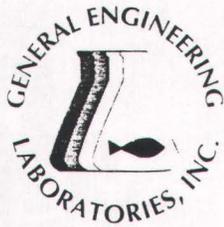
U indicates that the analyte was not detected at a concentration greater than the detection limit.

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

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

  
\_\_\_\_\_  
Reviewed By





# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8.
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 3

Sample ID : SPORT0326-2  
 Lab ID : 9701582-02  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	10.0	20.0	ug/kg	10.	JAC	02/04/97	1903	97389	1
Ethylbenzene	U	2.60	10.0	20.0	ug/kg	10.					
Toluene	U	0.00	10.0	20.0	ug/kg	10.					
Xylenes (TOTAL)	U	0.00	10.0	20.0	ug/kg	10.					
Naphthalene		678	10.0	20.0	ug/kg	10.					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	J	3150	1640	3280	ug/kg	10.	WAM	02/05/97	2222	97266	2
Acenaphthylene	U	0.00	1640	3280	ug/kg	10.					
Anthracene		4530	1640	3280	ug/kg	10.					
Benzo(a)anthracene		5120	1640	3280	ug/kg	10.					
Benzo(a)pyrene	J	2790	1640	3280	ug/kg	10.					
Benzo(b)fluoranthene	J	2660	1640	3280	ug/kg	10.					
Benzo(ghi)perylene	U	0.00	1640	3280	ug/kg	10.					
Benzo(k)fluoranthene	J	3080	1640	3280	ug/kg	10.					
Chrysene		4130	1640	3280	ug/kg	10.					
Dibenzo(a,h)anthracene	U	0.00	1640	3280	ug/kg	10.					
Fluoranthene		17500	1640	3280	ug/kg	10.					
Fluorene		4460	1640	3280	ug/kg	10.					
Indeno(1,2,3-c,d)pyrene	U	0.00	1640	3280	ug/kg	10.					
Naphthalene	J	2850	1640	3280	ug/kg	10.					
Phenanthrene		19000	1640	3280	ug/kg	10.					
Pyrene		13000	1640	3280	ug/kg	10.					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/03/97 1000 97266 3

PO Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407

(803) 556-8171 • Fax (803) 766-1178

\*9701582-02\*



Printed on recycled paper.





# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 3

Sample ID : SPORT0326-2

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
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#### Comments:

A dilution was required for Extractable Organics due to matrix interference. As a result, the detection limits are elevated.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	0.00*	(30.0 - 115.)
Nitrobenzene-d5	M610	0.00*	(23.0 - 120.)
p-Terphenyl-d14	M610	0.00*	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	102.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	84.4	(63.4 - 136.)
Toluene-d8	BTEX-8260	94.3	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	102.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	84.4	(63.4 - 136.)
Toluene-d8	NAP-8260	94.3	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

#### Notes:

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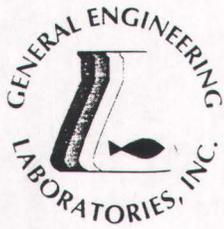
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U indicates that the analyte was not detected at a concentration greater than the detection limit.

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





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TN	02934	02934

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1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 3 of 3

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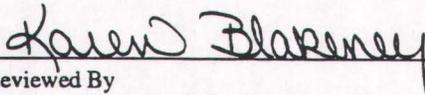
Sample ID : SPORT0326-2

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### M = Method

### Method-Description

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

  
\_\_\_\_\_  
Reviewed By





# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 2

Sample ID : SPORT0326-3  
 Lab ID : 9701582-03  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	5.00	10.0	ug/kg	5.0	JAC	02/06/97	1455	97389	1
Ethylbenzene	U	0.00	5.00	10.0	ug/kg	5.0					
Toluene	U	0.00	5.00	10.0	ug/kg	5.0					
Xylenes (TOTAL)	U	0.00	5.00	10.0	ug/kg	5.0					
Naphthalene		162	5.00	10.0	ug/kg	5.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	U	0.00	163	330	ug/kg	1.0	WAM	02/05/97	2254	97266	2
Acenaphthylene	U	0.00	163	330	ug/kg	1.0					
Anthracene	U	0.00	163	330	ug/kg	1.0					
Benzo(a)anthracene		443	163	330	ug/kg	1.0					
Benzo(a)pyrene	J	218	163	330	ug/kg	1.0					
Benzo(b)fluoranthene	J	218	163	330	ug/kg	1.0					
Benzo(ghi)perylene	U	0.00	163	330	ug/kg	1.0					
Benzo(k)fluoranthene	J	241	163	330	ug/kg	1.0					
Chrysene		388	163	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	163	330	ug/kg	1.0					
Fluoranthene		2100	163	330	ug/kg	1.0					
Fluorene	U	0.00	163	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	0.00	163	330	ug/kg	1.0					
Naphthalene	U	0.00	163	330	ug/kg	1.0					
Phenanthrene	J	293	163	330	ug/kg	1.0					
Pyrene		1540	163	330	ug/kg	1.0					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/03/97 1000 97266 3

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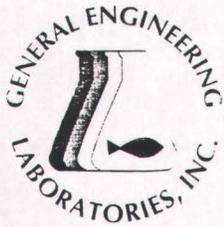
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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 2

Sample ID : SPORT0326-3

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	79.9	(30.0 - 115.)
Nitrobenzene-d5	M610	78.9	(23.0 - 120.)
p-Terphenyl-d14	M610	84.7	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	93.6	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	103.	(63.4 - 136.)
Toluene-d8	BTEX-8260	96.0	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	93.6	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	103.	(63.4 - 136.)
Toluene-d8	NAP-8260	96.0	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

### Notes:

The qualifiers in this report are defined as follows:

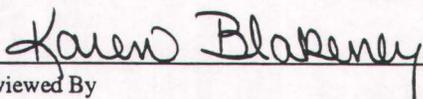
ND indicates that the analyte was not detected at a concentration greater than the detection limit.

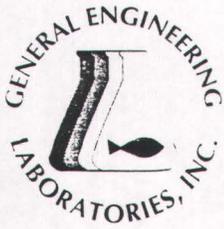
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

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

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

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

  
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# GENERAL ENGINEERING LABORATORIES

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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 2

Sample ID : SPORT0326-4  
 Lab ID : 9701582-04  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	JAC	02/06/97	1106	97389	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene		503	165	330	ug/kg	1.0	WAM	02/05/97	2326	97266	2
Acenaphthylene	U	0.00	165	330	ug/kg	1.0					
Anthracene		826	165	330	ug/kg	1.0					
Benzo(a)anthracene		1170	165	330	ug/kg	1.0					
Benzo(a)pyrene		734	165	330	ug/kg	1.0					
Benzo(b)fluoranthene		658	165	330	ug/kg	1.0					
Benzo(ghi)perylene		375	165	330	ug/kg	1.0					
Benzo(k)fluoranthene		721	165	330	ug/kg	1.0					
Chrysene		855	165	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	165	330	ug/kg	1.0					
Fluoranthene		2880	165	330	ug/kg	1.0					
Fluorene		740	165	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene		385	165	330	ug/kg	1.0					
Naphthalene	J	316	165	330	ug/kg	1.0					
Phenanthrene		3360	165	330	ug/kg	1.0					
Pyrene		2320	165	330	ug/kg	1.0					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

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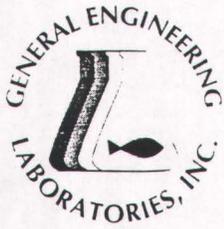
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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8.
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 2

Sample ID : SPORT0326-4

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	79.6	(30.0 - 115.)
Nitrobenzene-d5	M610	77.4	(23.0 - 120.)
p-Terphenyl-d14	M610	83.4	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	106.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	104.	(63.4 - 136.)
Toluene-d8	BTEX-8260	113.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	106.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	104.	(63.4 - 136.)
Toluene-d8	NAP-8260	113.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

### Notes:

The qualifiers in this report are defined as follows:

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

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

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

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

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

Karen Blakeney  
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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 3

Sample ID : SPORT0326-5  
 Lab ID : 9701582-05  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	5.00	10.0	ug/kg	5.0	JAC	02/06/97	1242	97389	1
Ethylbenzene	U	0.00	5.00	10.0	ug/kg	5.0					
Toluene	U	0.00	5.00	10.0	ug/kg	5.0					
Xylenes (TOTAL)	U	0.00	5.00	10.0	ug/kg	5.0					
Naphthalene	U	0.00	5.00	10.0	ug/kg	5.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	U	0.00	165	330	ug/kg	1.0	WAM	02/05/97	2358	97266	2
Acenaphthylene	U	0.00	165	330	ug/kg	1.0					
Anthracene	U	0.00	165	330	ug/kg	1.0					
Benzo(a)anthracene	U	0.00	165	330	ug/kg	1.0					
Benzo(a)pyrene	U	0.00	165	330	ug/kg	1.0					
Benzo(b)fluoranthene	U	0.00	165	330	ug/kg	1.0					
Benzo(ghi)perylene	U	0.00	165	330	ug/kg	1.0					
Benzo(k)fluoranthene	U	0.00	165	330	ug/kg	1.0					
Chrysene	U	0.00	165	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	165	330	ug/kg	1.0					
Fluoranthene	U	0.00	165	330	ug/kg	1.0					
Fluorene	U	0.00	165	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	0.00	165	330	ug/kg	1.0					
Naphthalene	U	0.00	165	330	ug/kg	1.0					
Phenanthrene	U	0.00	165	330	ug/kg	1.0					
Pyrene	U	0.00	165	330	ug/kg	1.0					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/03/97 1000 97266 3

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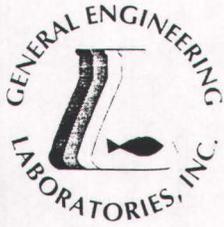
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\*9701582-05\*



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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 3

Sample ID : SPORT0326-5

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
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**Comments:**

A dilution was required for Volatile Organics due to matrix interference.  
 As a result, the detection limits are elevated.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	78.4	(30.0 - 115.)
Nitrobenzene-d5	M610	83.6	(23.0 - 120.)
p-Terphenyl-d14	M610	94.7	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	98.9	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	102.	(63.4 - 136.)
Toluene-d8	BTEX-8260	101.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	98.9	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	102.	(63.4 - 136.)
Toluene-d8	NAP-8260	101.	(72.1 - 137.)

**M = Method**

**Method-Description**

M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

**Notes:**

The qualifiers in this report are defined as follows:

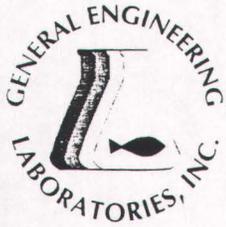
ND indicates that the analyte was not detected at a concentration greater than the detection limit.

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

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

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





# GENERAL ENGINEERING LABORATORIES

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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

**Client:** Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

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Sample ID : SPORT0326-5

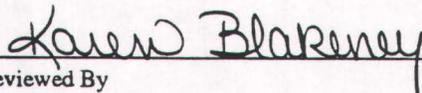
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**M = Method**

**Method-Description**

---

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

  
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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 3

Sample ID : SPORT0326-6  
 Lab ID : 9701582-06  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	JAC	02/06/97	1039	97389	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	J	2200	1640	3280	ug/kg	10.	WAM	02/06/97	0031	97266	2
Acenaphthylene	U	0.00	1640	3280	ug/kg	10.					
Anthracene		4760	1640	3280	ug/kg	10.					
Benzo(a)anthracene		8100	1640	3280	ug/kg	10.					
Benzo(a)pyrene		6430	1640	3280	ug/kg	10.					
Benzo(b)fluoranthene		6430	1640	3280	ug/kg	10.					
Benzo(ghi)perylene		3640	1640	3280	ug/kg	10.					
Benzo(k)fluoranthene		5710	1640	3280	ug/kg	10.					
Chrysene		8300	1640	3280	ug/kg	10.					
Dibenzo(a,h)anthracene	U	0.00	1640	3280	ug/kg	10.					
Fluoranthene		17400	1640	3280	ug/kg	10.					
Fluorene	J	2950	1640	3280	ug/kg	10.					
Indeno(1,2,3-c,d)pyrene		3480	1640	3280	ug/kg	10.					
Naphthalene	U	0.00	1640	3280	ug/kg	10.					
Phenanthrene		15600	1640	3280	ug/kg	10.					
Pyrene		12800	1640	3280	ug/kg	10.					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/03/97 1000 97266 3

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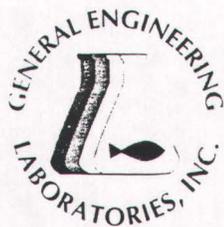
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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 3

Sample ID : SPORT0326-6

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
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### Comments:

A dilution was required for Extractable Organics due to matrix interference. As a result, the detection limits are elevated.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	0.00*	(30.0 - 115.)
Nitrobenzene-d5	M610	0.00*	(23.0 - 120.)
p-Terphenyl-d14	M610	102.	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	95.3	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	99.3	(63.4 - 136.)
Toluene-d8	BTEX-8260	103.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	95.3	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	99.3	(63.4 - 136.)
Toluene-d8	NAP-8260	103.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

### Notes:

The qualifiers in this report are defined as follows:

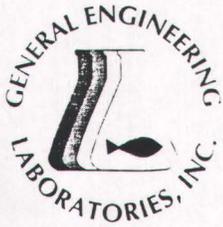
ND indicates that the analyte was not detected at a concentration greater than the detection limit.

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

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

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





# GENERAL ENGINEERING LABORATORIES

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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

**Client:** Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 3 of 3

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Sample ID : SPORT0326-6

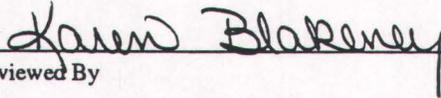
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### M = Method

### Method-Description

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874.
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 2

Sample ID : SPORT0326-7  
 Lab ID : 9701582-07  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	JAC	02/04/97	1653	97389	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0	JAC	02/06/97	0944	97389	1
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	U	0.00	164	330	ug/kg	1.0	WAM	02/06/97	0103	97266	2
Acenaphthylene	U	0.00	164	330	ug/kg	1.0					
Anthracene	U	0.00	164	330	ug/kg	1.0					
Benzo(a)anthracene	U	0.00	164	330	ug/kg	1.0					
Benzo(a)pyrene	U	0.00	164	330	ug/kg	1.0					
Benzo(b)fluoranthene	U	0.00	164	330	ug/kg	1.0					
Benzo(ghi)perylene	U	0.00	164	330	ug/kg	1.0					
Benzo(k)fluoranthene	U	0.00	164	330	ug/kg	1.0					
Chrysene	U	0.00	164	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	164	330	ug/kg	1.0					
Fluoranthene	U	0.00	164	330	ug/kg	1.0					
Fluorene	U	0.00	164	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	0.00	164	330	ug/kg	1.0					
Naphthalene	U	0.00	164	330	ug/kg	1.0					
Phenanthrene	U	0.00	164	330	ug/kg	1.0					
Pyrene	U	0.00	164	330	ug/kg	1.0					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/03/97 1000 97266 3

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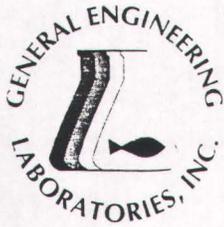
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\*9701582-07\*



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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers  
 Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 2

Sample ID : SPORT0326-7

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	81.6	(30.0 - 115.)
Nitrobenzene-d5	M610	86.0	(23.0 - 120.)
p-Terphenyl-d14	M610	91.6	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	132.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	92.0	(63.4 - 136.)
Toluene-d8	BTEX-8260	120.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	132.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	92.0	(63.4 - 136.)
Toluene-d8	NAP-8260	120.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

**Notes:**

The qualifiers in this report are defined as follows:

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

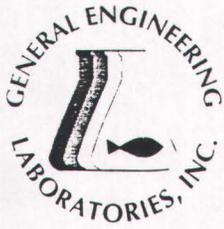
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

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

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

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

*Karen Blakeney*  
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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 2

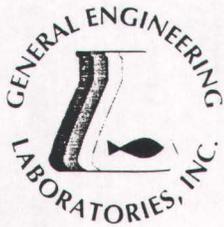
Sample ID : SPORT0326-8  
 Lab ID : 9701582-08  
 Matrix : Soil  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	JAC	02/06/97	1011	97389	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Methyl Tert Butyl Ether	U	0.00	1.00	2.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0					

Surrogate Recovery	Test	Percent%	Acceptable Limits
Bromofluorobenzene	BTEX-8260	91.7	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	101.	(63.4 - 136.)
Toluene-d8	BTEX-8260	102.	(72.1 - 137.)
Bromofluorobenzene	MTBE-8260	91.7	(53.5 - 154.)
Dibromofluoromethane	MTBE-8260	101.	(63.4 - 136.)
Toluene-d8	MTBE-8260	102.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	91.7	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	101.	(63.4 - 136.)
Toluene-d8	NAP-8260	102.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260





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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 2

---

Sample ID : SPORT0326-8

---

M = Method

Method-Description

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### Notes:

The qualifiers in this report are defined as follows:

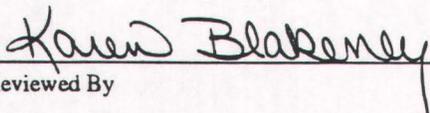
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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 1 of 2

Sample ID : SPORT0326-9  
 Lab ID : 9701582-09  
 Matrix : GroundH2O  
 Date Collected : 01/29/97  
 Date Received : 01/30/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/l	1.0	RMB	02/06/97	1539	97505	1
Ethylbenzene	U	0.00	1.00	2.00	ug/l	1.0					
Toluene	U	0.00	1.00	2.00	ug/l	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/l	1.0					
Methyl Tert Butyl Ether	U	0.00	1.00	2.00	ug/l	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/l	1.0					

Surrogate Recovery	Test	Percent%	Acceptable Limits
Bromofluorobenzene	BTEX-8260	94.8	(73.8 - 128.)
Dibromofluoromethane	BTEX-8260	107.	(63.9 - 139.)
Toluene-d8	BTEX-8260	114.	(77.1 - 121.)
Bromofluorobenzene	MTBE-8260	94.8	(73.8 - 128.)
Dibromofluoromethane	MTBE-8260	107.	(63.9 - 139.)
Toluene-d8	MTBE-8260	114.	(77.1 - 121.)
Bromofluorobenzene	NAP-8260	94.8	(73.8 - 128.)
Dibromofluoromethane	NAP-8260	107.	(63.9 - 139.)
Toluene-d8	NAP-8260	114.	(77.1 - 121.)

M = Method	Method-Description
M 1	EPA 8260





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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/1
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 10, 1997

Page 2 of 2

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Sample ID : SPORT0326-9

---

M = Method

Method-Description

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### Notes:

The qualifiers in this report are defined as follows:

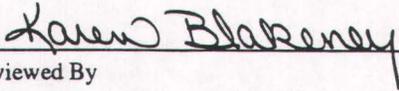
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Reviewed By



N 00000196

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 2040 Savage Road  
 Charleston, South Carolina 29414  
 P.O. Box 30712  
 Charleston, South Carolina 29417  
 (803) 556-8171

# CHAIN OF CUSTODY RECORD

Page 1 of 1

9701582

Client Name/Facility Name				SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods														Remarks									
SPORTENYDETHASN				pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide		Coliform - specify type	BTEX + NAPTH	PAH						
Collected by/Company				# OF CONTAINERS																							
SPORTENYDETHASN				WELL	SOIL	COMP	GRAB																				
SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	BTEX + NAPTH	PAH	Remarks		
01	1/29/97	1400				X	5																	X	X	UST NS653-1 GW .1	
02	1/29/97	1410		X			2																		a	X	UST NS653-2 SOIL .2
03	1/29/97	1420		X			2																		a	X	UST NS653-3 SOIL .2
04	1/29/97	1430		X	X		2																		a	X	UST NS653-4 SOIL .2
05	1/29/97	1440		X	X		2																		a	X	UST NS653-5 SOIL .2
06	1/29/97	1450		X			2																		a	X	UST NS653-6 SOIL .2
07	1/29/97	1500		X			2																		a	X	UST NS653-7 SOIL .2
08	1/29/97	1117		X			1																		X		TRIP UST NS653 BLANK SOIL .3
09	1/29/97	1117					3																		X		TRIP UST NS653 BLANK WATER .4
																											a) BTEX + NAPTH

Relinquished by: <i>Nancy Jenkins</i>	Date: 1/30/97	Time: 0945	Received by: <i>Crystal Henderson</i>	Relinquished by: <i>Crystal Henderson</i>	Date: 1/30/97	Time: 1440	Received by: <i>Crystal Henderson</i>
Relinquished by: <i>Crystal Henderson</i>	Date: 1-30-97	Time: 15:15	Received by lab by: <i>Dionne Francois</i>	Date: 1/30/97	Time: 15:15	Remarks:	

White = sample collector    Yellow = file    Pink = with report



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### Laboratory Certification

STATE	QEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

**Client:** Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

**Contact:** Mr. Bill Hiers

**Project Description:** SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 12, 1997

Page 1 of 2

Sample ID : SPORT0327-1  
 Lab ID : 9702026-01  
 Matrix : Soil  
 Date Collected : 01/31/97  
 Date Received : 02/03/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	SHJ	02/10/97	1713	97652	1
Ethylbenzene	J	1.66	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Naphthalene		2.84	1.00	2.00	ug/kg	1.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	U	0.00	165	330	ug/kg	1.0	JCB	02/07/97	1918	97421	2
Acenaphthylene	U	0.00	165	330	ug/kg	1.0					
Anthracene	U	0.00	165	330	ug/kg	1.0					
Benzo(a)anthracene	U	0.00	165	330	ug/kg	1.0					
Benzo(a)pyrene	U	0.00	165	330	ug/kg	1.0					
Benzo(b)fluoranthene	U	0.00	165	330	ug/kg	1.0					
Benzo(ghi)perylene	U	0.00	165	330	ug/kg	1.0					
Benzo(k)fluoranthene	U	0.00	165	330	ug/kg	1.0					
Chrysene	U	0.00	165	330	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	0.00	165	330	ug/kg	1.0					
Fluoranthene	U	0.00	165	330	ug/kg	1.0					
Fluorene	U	0.00	165	330	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	0.00	165	330	ug/kg	1.0					
Naphthalene	U	0.00	165	330	ug/kg	1.0					
Phenanthrene	U	0.00	165	330	ug/kg	1.0					
Pyrene	U	0.00	165	330	ug/kg	1.0					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

MS 02/06/97 1200 97421 3

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FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 12, 1997

Page 2 of 2

Sample ID : SPORT0327-1

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	81.2	(30.0 - 115.)
Nitrobenzene-d5	M610	76.6	(23.0 - 120.)
p-Terphenyl-d14	M610	92.3	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	113.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	100.	(63.4 - 136.)
Toluene-d8	BTEX-8260	101.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	113.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	100.	(63.4 - 136.)
Toluene-d8	NAP-8260	101.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA 3550

**Notes:**

The qualifiers in this report are defined as follows:

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

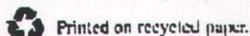
This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

*Karen Blakeney*  
 Reviewed By

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# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 12, 1997

Page 1 of 2

Sample ID : SPORT0327-2  
 Lab ID : 9702026-02  
 Matrix : Soil  
 Date Collected : 01/31/97  
 Date Received : 02/03/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	SHJ	02/10/97	1557	97652	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	U	0.00	1.00	4.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0					

Surrogate Recovery	Test	Percent%	Acceptable Limits
Bromofluorobenzene	BTEX-8260	101.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	96.1	(63.4 - 136.)
Toluene-d8	BTEX-8260	92.4	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	101.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	96.1	(63.4 - 136.)
Toluene-d8	NAP-8260	92.4	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260

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# GENERAL ENGINEERING LABORATORIES

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## Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	213	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
SUPSHIP-Portsmouth Detachment-Env.  
1899 North Hobson Ave.  
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: February 12, 1997

Page 2 of 2

Sample ID : SPORT0327-2

M = Method

Method-Description

### Notes:

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

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

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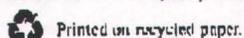


Reviewed By

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\*9702026-02\*







# GENERAL ENGINEERING LABORATORIES

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### Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/874
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion  
 SUPSHIP-Portsmouth Detachment-Env.  
 1899 North Hobson Ave.  
 North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00196

Report Date: March 05, 1997

Page 1 of 3

Sample ID : SPORT0354-1  
 Lab ID : 9702511-01  
 Matrix : Soil  
 Date Collected : 02/24/97  
 Date Received : 02/25/97  
 Priority : Routine  
 Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
<b>Volatile Organics</b>											
<i>BTEX - 4 items</i>											
Benzene	U	0.00	1.00	2.00	ug/kg	1.0	SHJ	02/28/97	1251	98465	1
Ethylbenzene	U	0.00	1.00	2.00	ug/kg	1.0					
Toluene	U	0.00	1.00	2.00	ug/kg	1.0					
Xylenes (TOTAL)	J	1.14	1.00	4.00	ug/kg	1.0					
Naphthalene	U	0.00	1.00	2.00	ug/kg	1.0					
<b>Extractable Organics</b>											
<i>Polynuclear Aromatic Hydrocarbons - 16 items</i>											
Acenaphthene	U	0.00	165	329	ug/kg	10.	WAM	02/27/97	2012	98365	2
Acenaphthylene	U	0.00	165	329	ug/kg	10.					
Anthracene	U	0.00	165	329	ug/kg	10.					
Benzo(a)anthracene		691	165	329	ug/kg	10.					
Benzo(a)pyrene	U	59.2	165	329	ug/kg	10.					
Benzo(b)fluoranthene	U	118	165	329	ug/kg	10.					
Benzo(ghi)perylene	U	0.00	165	329	ug/kg	10.					
Benzo(k)fluoranthene	U	0.00	165	329	ug/kg	10.					
Chrysene	U	0.00	165	329	ug/kg	10.					
Dibenzo(a,h)anthracene	U	0.00	165	329	ug/kg	10.					
Fluoranthene	U	0.00	165	329	ug/kg	10.					
Fluorene	U	0.00	165	329	ug/kg	10.					
Indeno(1,2,3-c,d)pyrene	U	0.00	165	329	ug/kg	10.					
Naphthalene	U	0.00	165	329	ug/kg	10.					
Phenanthrene	U	0.00	165	329	ug/kg	10.					
Pyrene	U	0.00	165	329	ug/kg	10.					

The following prep procedures were performed:  
 GC/MS Base/Neutral Compounds

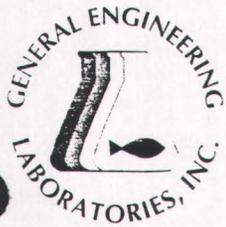
MCS 02/27/97 1306 98365 3

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cc: NPWC00196

Report Date: March 05, 1997

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Sample ID : SPORT0354-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
-----------	-----------	--------	----	----	-------	----	---------	------	------	-------	---

**Comments:**

A dilution was required for Extractable Organics due to matrix interference. As a result, the detection limits are elevated.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610	64.2	(30.0 - 115.)
Nitrobenzene-d5	M610	32.1	(23.0 - 120.)
p-Terphenyl-d14	M610	100.	(37.3 - 128.)
Bromofluorobenzene	BTEX-8260	131.	(53.5 - 154.)
Dibromofluoromethane	BTEX-8260	122.	(63.4 - 136.)
Toluene-d8	BTEX-8260	104.	(72.1 - 137.)
Bromofluorobenzene	NAP-8260	131.	(53.5 - 154.)
Dibromofluoromethane	NAP-8260	122.	(63.4 - 136.)
Toluene-d8	NAP-8260	104.	(72.1 - 137.)

M = Method	Method-Description
M 1	EPA 8260
M 2	EPA 8270
M 3	EPA-3550

**Notes:**

The qualifiers in this report are defined as follows:

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

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

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

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



# GENERAL ENGINEERING LABORATORIES

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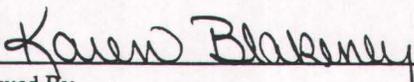
Page 3 of 3

Sample ID : SPORT0354-1

### M = Method

### Method-Description

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Karen Blakeney at (803) 769-7386.

  
Reviewed By



**CHAIN OF CUSTODY RECORD**

Page 1 of 1

9702511

Client Name/Facility Name		Collected by/Company		# OF CONTAINERS	SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods																	Use F or P in the boxes to indicate whether sample was filtered and/or preserved CCL 25874 Remarks			
SAMPLE ID	DATE	TIME	WELL		SOIL	COMP	GRAB	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide		Coliform - specify type	BTEX & NAPHTHALENE	PAH
SPORT 0354-1	2/24/97	1500	X	X		2																	X	X	UST-653 BLANK TRENCH  NOTE: SOIL TRIP BLANK USED FROM AST 655 (SPORT 0351-5)  NOTE: SEE ATTACHED SHEET FOR LEVELS.
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	Relinquished by:		Date:	Time:	Received by:		Date:	Time:	Remarks:									
<i>[Signature]</i>		2/24/97	1535	<i>[Signature]</i>		2/25/97	1430	<i>[Signature]</i>		2/25/97	1450	<i>[Signature]</i>													
Relinquished by:		Date:	Time:	Received by lab by:		Date:	Time:	Remarks:																	
<i>[Signature]</i>		2/25/97	14:55	<i>[Signature]</i>		2/25/97	1450																		

**Attachment III**

Certificate of Disposal (tank)

# UST Certificate of Disposal

## CONTRACTOR

Supervisor of Shipbuilding, Conversion and Repair, USN  
Portsmouth, VA  
Environmental Detachment Charleston  
1899 North Hobson Avenue  
North Charleston 29405-2106

Telephone (803) 743-6482

## TANK ID & LOCATION

653A; Building 653, Bordelon Ave., Charleston Naval Base, N. Charleston, SC

## DISPOSAL LOCATION

Bldg. 1601 Tank Cleaning  
& Disposal Area  
Charleston Naval Complex

### TYPE OF TANK

Fuel oil

### SIZE (GAL)

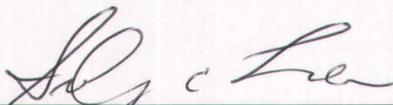
2,000 gal.

## CLEANING/DISPOSAL METHOD

The tank was cut open on both ends, cleaned with a steam cleaner, cut into sections, and disposed of as recyclable scrap metal.

## DISPOSAL CERTIFICATION

I certify that the above tank has been properly cleaned and disposed of as recyclable scrap metal.

  
\_\_\_\_\_  
Sidney E. Ladson

6/4/97  
\_\_\_\_\_  
(Date)