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CORRECTIVE MEASURES STUDY WORK PLAN AND RATIONALE FOR NO FURTHER ACTION AT DRMO STORAGE AND LEAD CONTAMINATION AREAS SOLID WASTE MANAGEMENT UNITS 1 AND 2 (SWMU 1) (SWMU 2) ZONE A CNC CHARLESTON SC

6/1/2001

CH2M HILL

CORRECTIVE MEASURES STUDY WORK PLAN

Rationale for No Further Action

DRMO Storage and Lead Contamination Areas, SWMUs 1 & 2, Zone A

Charleston Naval Complex
North Charleston, South Carolina

SUBMITTED TO
U.S. Navy Southern Division
Naval Facilities Engineering Command

PREPARED BY
CH2M-Jones

June 2001

Revision 0
Contract N62467-99-C-0960
158814.ZA.PR.02

Certification Page for the Corrective Measures Study Work Plan (Revision 0) for DRMO Storage Area and Lead Contamination Area, SWMUs 1 and 2, Zone A

Rationale for No Further Action

I, Dean Williamson, certify that this report has been prepared under my direct supervision. The data and information are, to the best of my knowledge, accurate and correct, and the report has been prepared in accordance with current standards of practice for engineering.

South Carolina

Temporary Permit No. T2000342

Dean Williamson, P.E.

6/13/2001

Date

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
CH2M HILL, INC.
No. C00201

Contents

Acronyms and Abbreviations

AOC	Area of Concern
BCT	BRAC Clean-Up Team
BEQ	benzo(a)pyrene equivalent
BRAC	Base Realignment and Closure Act
BRC	background reference concentration
CA	Corrective Action
CMS	Corrective Measures Study
CMS WP	Corrective Measures Study Work Plan
CNC	Charleston Naval Complex
COC	chemical of concern
COPC	chemical of potential concern
CSAP	Comprehensive Sampling and Analysis Plan
DAF	dilution attenuation factor
DET	Environmental Detachment Charleston
DPT	direct-push technology
EnSafe	EnSafe Inc.
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
ft bls	feet below land surface
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient

1	ILCR	incremental lifetime excess cancer risk
2	IM	Interim Measure
3	IM WP	Interim Measure Work Plan
4	µg/kg	micrograms per kilogram
5	µg/L	micrograms per liter
6	MCL	maximum contaminant limit
7	mg/kg	milligrams per kilogram
8	NAVBASE	Naval Base
9	NFA	no further action
10	OWS	oil-water separator
11	PAH	polynuclear aromatic hydrocarbon
12	RAB	Restoration Advisory Board
13	RBC	risk-based concentration
14	RCRA	Resource Conservation and Recovery Act
15	RFA	RCRA Facility Assessment
16	RFI	RCRA Facility Investigation
17	SCDHEC	South Carolina Department of Health and Environmental Control
18	SMCL	secondary maximum contaminant limit
19	SOUTHDIV	Southern Division Naval Facilities Engineering Command
20	SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair
21	SSL	Soil Screening Level
22	SWMU	Solid Waste Management Unit
23	UST	underground storage tank

SECTION 1.0

Introduction

1.0 Introduction

In 1993, Naval Base (NAVBASE) Charleston was added to the list of bases scheduled for closure as part of the Defense Base Realignment and Closure Act (BRAC), which regulates closure and transition of property to the community. The Charleston Naval Complex (CNC) was formed as a result of the dis-establishment of the Charleston Naval Shipyard and NAVBASE on April 1, 1996.

CNC Corrective Action (CA) activities are being conducted under the Resource Conservation and Recovery Act (RCRA); the South Carolina Department of Health and Environmental Control (SCDHEC) is the lead agency for CA activities at the site. All RCRA CA activities are performed in accordance with the Final Permit (Permit No. SC0 170 022 560).

In April 2000, CH2M-Jones was awarded a contract to provide environmental investigation and remediation services at CNC. This submittal has been prepared by CH2M-Jones to document the basis for no further action (NFA) at Solid Waste Management Unit (SWMU) 2, which includes SWMU 1, in Zone A of the CNC.

1.1 Background and Summary for Interim Measure Work Plan

As part of RCRA CA activities, a RCRA Facility Investigation (RFI) report was finalized for Zone A (EnSafe Inc. [EnSafe], 1998). Zone A is located in the northern-most portion of CNC on the west side of the Cooper River. It is bounded by the base boundary to the north and west, the Cooper River to the east, and Noisette Creek to the south.

Figure 1-1 shows the location of SWMUs 1 and 2 within Zone A and illustrates the location of Zone A with respect to the CNC. Figure 1-2 is an aerial photograph of SWMUs 1 and 2. Detailed figures depicting SWMU 2 are presented in Section 2.0 of this Corrective Measures Study Work Plan (CMS WP).

The data and conclusions from the RFI Report pertaining to SWMUs 1 and 2 are discussed in Section 2.0.

Several constituents for surface soil at SWMU 2 were identified as chemicals of concern (COCs) in the RFI report. The primary COC was lead. An interim measure (IM) was conducted at SWMU 2 to remove lead-contaminated surface soil above 400 milligrams per kilogram (mg/kg). The excavation included several locations where arsenic and antimony were detected above their respective risk-based concentrations (RBCs) in surface soil. Evaluation of current site data, including data collected during the IM, indicates that surface soil COCs have been adequately remediated at SWMU 2.

The Zone A RFI Report did not identify COCs in subsurface soil at SWMUs 1 and 2.

Several groundwater COCs were identified by EnSafe in SWMU 2 groundwater in the Zone A RFI Report. Evaluation of the groundwater data collected in and around SWMU 2 indicates that COCs identified in the RFI Report are currently present in groundwater at concentrations below their respective maximum contaminant levels (MCLs), or at levels considered to be consistent with background concentrations.

After reviewing the data collected during the RFI and subsequent IM, CH2M-Jones has concluded that surface soil has been remediated to a level suitable for unrestricted land use. Because no subsurface soil COCs were identified during the RFI, and because groundwater COCs were either not detected above applicable comparative criteria (MCLs or tap water RBCs) or were consistent with background reference concentrations (BRCs), CH2M-Jones recommends SWMUs 1 and 2 for NFA.

Prior to changing the status of any site to NFA in the CNC RCRA CA permit, the BRAC Clean-Up Team (BCT) agrees that the following issues should be considered:

- Status of the RFI
- Presence of metals (inorganics) in groundwater
- Potential linkage of SWMU/ AOC to SWMU 37 (investigated sanitary sewers)
- Potential linkage of SWMU/AOC to AOC 699 (investigated stormwater sewers)
- Potential linkage of SWMU/AOC to AOC 504 (investigated railroad lines)
- Potential linkage to surface water bodies (Zone J)
- Potential contamination associated with oil-water separators (OWSs)
- Relevance or need for land-use controls at the site

Information regarding these issues is also provided in this CMS WP to expedite the evaluation of site closure.

Once the above issues have been adequately addressed, and the BCT concurs that NFA is appropriate for the site, a Statement of Basis will be prepared. In accordance with SCDHEC policy, the Statement of Basis will be made available for public comment, allowing the public to participate in the final remedy selection. In addition, the BCT will inform the Restoration Advisory Board (RAB) of its intent to change the status of SWMUs 1 and 2 to NFA. The RAB may also then provide comments to the BCT on behalf of the public concerning the proposed change of status.

1.3 Document Organization

This CMS WP consists of the following five sections, including this introductory section:

1.0 Introduction – Presents the purpose of the CMS WP and background information pertaining to the site.

2.0 Brief Overview of Site and Previous Investigations – Provides a brief overview of the site and previous investigations.

3.0 Interim Measure for Remediation of Lead-Contaminated Soil – Provides a brief overview of the Environmental Detachment Charleston (DET)'s delineation sampling and subsequent IM.

4.0 Review and Refinement of COCs – Provides a review of COCs identified in the RFI Report and re-evaluation of RFI data and evaluation data collected after the RFI to refine the COC list.

5.0 Summary of Information Related to Site Closeout Issues – Summarizes the site closeout issues.

6.0 References – Lists the references used in this document.

Appendix A contains excerpts from Section 10.2 (SWMU 2) of the Zone A RFI Report.

Appendix B contains Section 10.1 (SWMU 1) of the Zone A RFI Report.

Appendix C contains the DET's IM Completion Report.

Appendix D contains the data from the DET's delineation sampling and the IM confirmatory sampling.

Appendix E contains boring logs for select monitor wells and Figures 3.1A and 3.1B from EnSafe's CMS Technical Memorandum illustrating local aquifer physical characteristics.

Appendix F contains a list of known OWSs.

Tables and figures appear at the end of their respective sections.

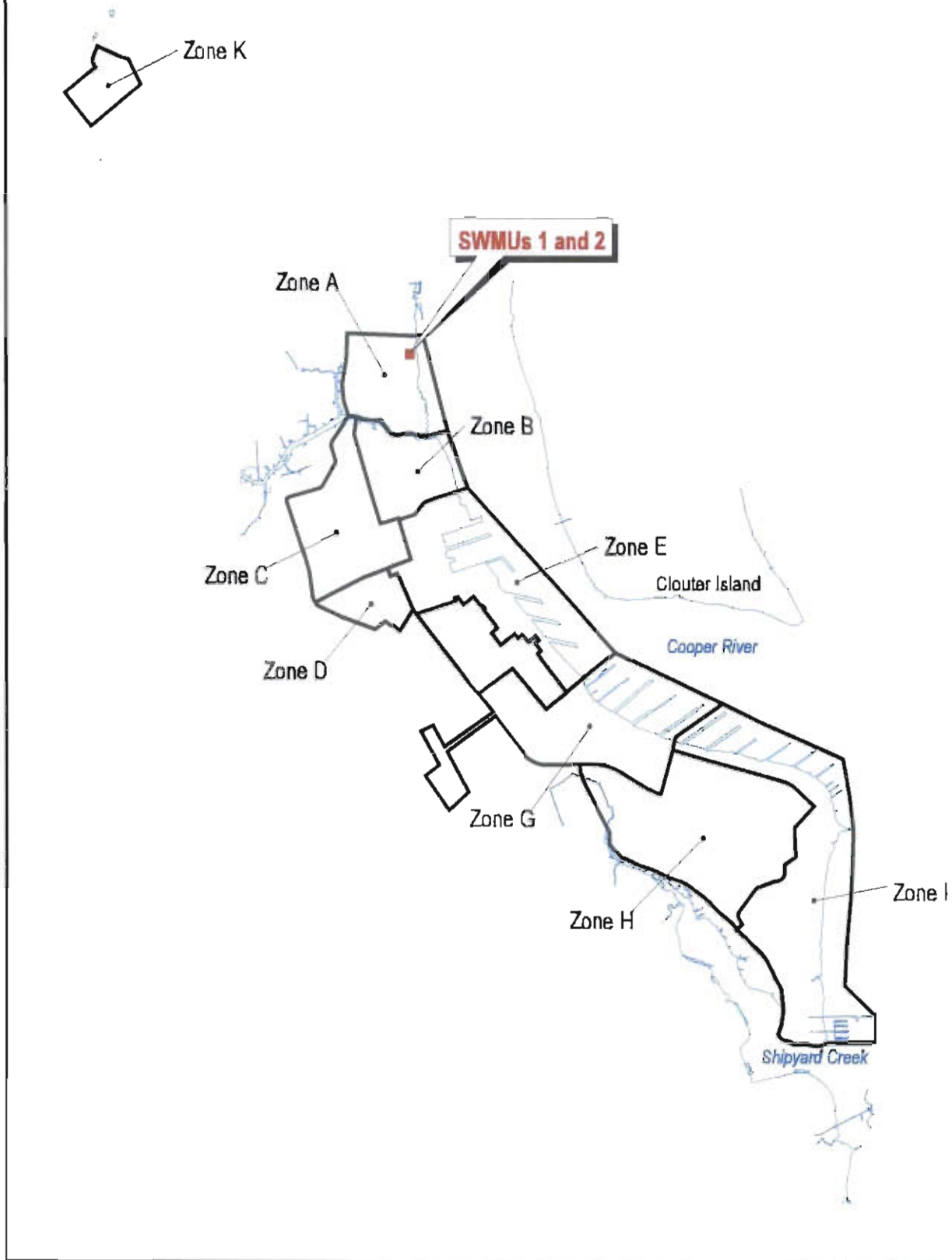

Figure 1-1
SWMUs 1 and 2, Zone A
Site Location Map
Charleston Naval Complex

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Fence
Railroads
Roads
Bridges
Shoreline
AOC Boundary
SWMU Boundary
Zone Boundary
Intermittent Wetland Boundary

N

0 100 200 Feet

Note: original figure was produced in color

Figure 1-2
Aerial Photograph of SWMUs 1 and 2
Charleston Naval Complex
North Charleston, SC

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SECTION 2.0

Brief Overview of Site and Previous Investigations

2.0 Brief Overview of Site and Previous Investigations

Located within SWMU 2, in the northeast corner of Zone A, SWMU 1 was used by the Defense Reutilization Marketing Office (DRMO) to store excess military property. The stored property included products that could not be re-utilized by other commands and were consequently classified as waste. Those wastes that were considered hazardous were stored in Building 1617. Building 1617, which no longer exists, was a covered storage shed and was used until the early 1990s.

Materials of concern at SWMU 1, identified in the *Final Zones A and B RFI Work Plan*, were VOCs, hydrazine, metals, and characteristic wastes. SWMU 1 was identified as an area with potential contamination in the RCRA Facility Assessment (RFA) completed by EBASCO.

SWMU 2, Lead Contamination Area, is located in the same area as SWMU 1. It consists of salvage bin No. 3 and the adjacent paved ground surface at the DRMO facility. The area was formerly used to store recovered lead from lead-acid submarine batteries from the mid-1960s until 1984. Electrodes and associated internal metallic components were removed from the battery jars in the battery electrode treatment area, SWMU 5 in Zone E. Recovered materials were then placed on a railcar and transferred to the DRMO area for storage and eventual sale to a salvage contractor. Extensive sampling has been conducted at SWMU 2 from 1986 to present. Due to potential contaminant migration via surface water runoff, the investigation area for SWMU 2 was expanded to cover a larger area, as shown in Figure 1-2. Figure 1-2 also illustrates SWMU 1.

To the southwest of SWMU 2, there is a small area where, prior to 1998, an intermittent wetland area was located. The approximate area of the intermittent wetland is illustrated in Figure 2-1. This area is not believed to be a natural wetland. The area was reportedly flooded during EnSafe's initial site visit in 1995, but was only intermittently wet during subsequent visits. Apparently, the water source for this area was a leaking underground water line. Since the line was repaired in 1998, the area has become dry.

The intermittent wetland was evaluated in the ecological risk assessment (ERA), Section 8 of the RFI Work Plan. The ERA results that relate to SWMU 2 are presented in Section 4.1 of this CMS WP.

Materials of concern at SWMU 2, identified in the *Final Zones A and B RFI Work Plan*, were lead-acid batteries. SWMU 2 was identified as an area with potential contamination in the RFA completed by EBASCO.

SWMUs 1 and 2 are evaluated jointly in this CMS WP, and are generally referred to as SWMU 2.

Based on the investigations completed at SWMU 2, lead was identified as being present in site soil at concentrations above the generally accepted level for unrestricted land use. Other constituents were reported in soil at concentrations that exceeded their BRCs, but no significant source areas of these constituents were identified at SWMU 2.

An IM was conducted at SWMU 2 to remove lead-impacted soil above the typical residential cleanup level of 400 mg/kg. As a result of this removal, COCs identified in the RFI Work Plan are considered to have been adequately remediated.

2.1 RFI Status and Conclusions

The status of the *Zone A RCRA Facility Investigation Report* is final (EnSafe, 1998). Results of the RFI for SWMUs 1 and 2 were presented in Sections 10.1 and 10.2, respectively, of the *Zone A Final RFI Report*. The RFI Report included the data collected prior to and as part of the RFI.

2.1.1 Brief Summary of Soil Samples from the Zone A RFI

Extensive soil sampling has been conducted to delineate the extent of contamination at SWMU 2. A brief summary of the sampling activities is provided below.

1986 Sampling Event

The Zone A RFI Report indicated that, in 1986, Environmental Science and Engineering collected 71 samples from the DRMO site; 35 samples consisted of surficial soil (surface to 6 inches), and the remaining 36 samples were collected at various depth intervals from 10

separate soil borings (total depth of 7.5 feet to 10 feet below land surface [ft bgs]) (Environmental Science and Engineering, 1986). The RFI concluded that, because this sampling was conducted outside of the RFI process, and lacked detailed quality assurance/quality control (QA/QC) documentation, and because Hurricane Hugo may have altered lead distribution of the site in 1993, the lead concentrations from these samples could only be used as "screening" data. Therefore, EnSafe conducted several soil sampling events to delineate the nature and extent of contamination.

1993 Sampling Event

In 1993, after Hurricane Hugo potentially impacted the lead distribution in soil in 1989 due to the heavy rains it deposited at the CNC, samples were collected to further investigate soil and groundwater near SWMU 2. Twenty-five soil borings and 6 shallow monitor wells were installed. Twenty-four surface and 22 subsurface soil samples were submitted for metals and cyanide analysis. Additionally, 11 sediment samples were collected from the Cooper River and the storm sewer system in the vicinity.

1995-1997 Sampling Event

The *Final Zones A and B RFI Work Plan* proposed collecting 30 soil samples from the upper or surface interval (0 to 1 foot) and 30 samples from the lower interval (3 to 5 feet) for the SWMU 2 investigation area in 1995. Six of the proposed boring locations at SWMU 2 (near the former storage bin) were postponed until 1997. The 1997 soil sampling event was expanded to include 10 additional soil borings in areas that exhibited elevated lead concentrations during the 1986 sampling event.

During the 1997 sampling of the intermittent wetland area, southwest of SWMU 2, three sediment locations (A002M0003, A002M0004, and A002M0005) were sampled for metals analysis. One of these samples, A002M000401, was analyzed for the Appendix IX list of parameters at DQO Level IV to investigate other potential constituents that could have migrated to the intermittent wetland area. Because this area is no longer a wetland, data from these sediment samples have been incorporated as soil data.

Including these samples as surface soil samples, 44 samples were collected from the upper interval (surface soil) in the 1995/97 sampling effort (68 total RFI surface soil samples). Thirty-five lower-interval samples were collected during the 1995/97 sampling effort (57

total RFI subsurface soil samples). Six of the lower-interval samples were not collected due to a water table less than 5 ft bls; saturated samples were not submitted for analysis. All 79 soil samples were submitted for metals analysis. Table 10.2.6 of the Zone A RFI Report summarizes soil sample results for both the 1993 and 1995/97 investigations at SWMU 2 (see Appendix A-1).

A summary of soil sampling locations completed during the RFI is shown on Figure 2-1.

2.1.2 Surface Soil

Results of surface soil analyses were compared in the RFI to applicable screening criteria (U.S. Environmental Protection Agency [EPA] Region III RBCs or Zone A BRCs.

Analytes that exceeded the screening criteria were considered to be chemicals of potential concern (COPCs) and were further evaluated in the risk assessment to determine which of these parameters were considered COCs (page 10.1.39 of the SWMU 1 investigation [see Appendix B] and page 10.2.107 of the SWMU 2 investigation [see Appendix A-2] summarize the findings of the human health risk assessment [HHRA]). This analysis resulted in the identification of the following preliminary COCs for SWMU 2 for future residential land use:

- Aluminum
- Antimony
- Aroclor 1260
- Arsenic
- Benzo(a)pyrene equivalents (BEQs)
- Beryllium
- Lead
- Thallium

Benzo(a)pyroene equivalents (BEQs) were identified as a COC for SWMUs 1 and 2. Data from both sites are included in the evaluation of the combined site.

Table 2-1 presents a summary of the surface soil COC data identified in the Zone A RFI Report for surface soil samples collected at SWMU 2; Figure 2-1 illustrates the sample

locations. Each of the analytes identified as COCs in the Zone A RFI Report is discussed in Section 4.0.

Because SWMU 2 was a lead storage area, lead in surface soil was generally the focus of investigations at SWMU 2. Figure 10.2.5 of the SWMU 2 investigation illustrates the reported lead concentrations at the site and is included in Appendix A-3. Figure 2-2 re-creates the information provided in the Zone A RFI Report, based on the data in the CNC GIS system.

2.1.3 Subsurface Soil

Results of subsurface soil analyses in the RFI were compared to applicable screening criteria (EPA soil screening levels [SSLs] or BRCs). Analytes detected in subsurface soils were either not detected above their respective SSLs or not reliably identified in shallow groundwater above their reference concentration or MCL, indicating that existing soil concentrations are protective of surficial groundwater. Pages 10.2.42 and 10.2.45 of the Zone A RFI Report are included in Appendix A-4. Based on these data, the risk assessment did not identify any COCs for subsurface soil at SWMUs 1 or 2.

2.1.4 Groundwater

Results of ground water analyses were compared in the RFI to BRCs and tap water RBCs as screening criteria.

Analytes that exceeded the screening criteria were considered COPCs and were further evaluated in the risk assessment to determine which of these parameters were considered COCs. Page 10.1.39 and Table 10.1.16 of the SWMU 1 investigation (Appendix B), and page 10.2.108 and Table 10.2.27 (Appendix A-5) of the SWMU 2 investigation, present the screening results. This analysis resulted in the identification of the following COCs for SWMU 2 groundwater for future residential use:

- Arsenic
- Manganese
- Silver

The Zone A RFI Report for SWMU 1 indicated manganese as the sole COC for site groundwater. These data will be evaluated along with the SWMU 2 data as a single site (SWMU 2).

Table 2-2 presents a summary of the groundwater COC data for samples collected at SWMU 2; Figure 2-3 illustrates the locations of the monitor wells used in the SWMU 2 analysis. Each of the COCs is discussed in Section 3.0.

The Zone A RFI Report concluded that: *"Based on the analytical results and the risk assessment, COCs requiring further evaluation through the CMS process were identified for surface soil and shallow groundwater. Detections of COCs in the subsurface soil also justify inclusion in the CMS process."*

The Zone A RFI Report presented potential corrective measures for the impacted media and respective COCs.

TABLE 2-1
Surface Soil Data for Selected Compounds
CMS Work Plan, SWMU 2, Zone A. CNC

Sample				Aluminum		Antimony		Arsenic		Beryllium		Lead		Thallium		BEQs		Aroclor-1260	
Station	ID	Date		Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier
			RBC	78,000		31		0.43		160		400		6.3		0.087		0.32	
			RC	12,600		NC		9.44		NC		140		NC		1304		NRC	
			SSL	555,074		2.7		15		32		400		0.36		NSSL		1	
A001SB001	001SB00101	10-Oct-95		2,730	=	11.5	UJ	0.88	U	0.23	U	6.4	J	0.88	U	0.8666	U	0.014	U
A002SB001	002SB00101	10-Oct-95		7,260	=	12.8	UJ	**12.7**	=	0.28	J	233	J	0.98	U	NA		NA	
A002SB002	002SB00201	10-Oct-95		6,810	=	12.1	UJ	3.7	=	0.24	U	6.7	J	0.95	U	NA		NA	
A002SB003	002SB00301	10-Oct-95		14,000	=	12.8	UJ	8.5	=	0.25	U	10.9	J	1	U	NA		NA	
A002SB004	002SB00401	10-Oct-95		11,000	=	11.6	UJ	8.5	=	0.23	U	29.9	J	0.92	U	NA		NA	
A002SB005	002SB00501	10-Oct-95		10,200	=	11.5	UJ	5.8	=	0.22	U	8	J	0.9	U	NA		NA	
A002SB006	002SB00601	10-Oct-95		17,400	=	13.3	UJ	**15.4**	=	0.36	J	36.7	J	1.1	U	NA		NA	
A002SB007	002SB00701	10-Oct-95		5,870	=	10.3	UJ	3.9	=	0.2	U	186	J	0.82	U	NA		NA	
A002SB008 *	002SB00801	10-Oct-95		10,000	=	11.8	UJ	3.5	=	0.23	U	8.1	J	0.93	U	NA		NA	
A002SB009 *	002SB00901	10-Oct-95		5,630	=	18	J	**9.5**	=	0.45	J	**1,170**	J	0.97	U	NA		NA	
A002SB010	002SB01001	10-Oct-95		9,290	=	11.9	UJ	2.7	=	0.23	U	76.6	J	0.93	U	NA		NA	
A002SB011 *	002SB01101	10-Oct-95		12,800	=	11.8	UJ	9.3	=	0.23	U	11.4	J	0.93	U	NA		NA	
A002SB012	002SB01201	10-Oct-95		11,600	=	11.2	UJ	5.6	=	0.22	U	14.4	J	0.86	UJ	NA		NA	
A002SB013	002SB01301	10-Oct-95		10,700	=	11.1	UJ	5	=	0.22	U	37.7	J	0.86	U	NA		NA	
A002SB014 *	002SB01401	10-Oct-95		9,330	=	12.6	UJ	2.6	=	0.25	U	8.3	J	0.99	U	NA		NA	
A002SB015 *	002SB01501	10-Oct-95		3,240	=	13.3	J	**14.5**	=	0.62	J	**657**	J	1	U	NA		NA	
A002SB016	002SB01601	30-Jan-97		8,190	=	2.9	U	6.2	=	0.1	J	97.6	J	2.8	=	NA		NA	
A002SB017	002SB01701	30-Jan-97		2,860	=	2	U	2.1	U	0.05	J	6.2	=	0.41	U	NA		NA	
A002SB018	002SB01801	30-Jan-97		8,780	=	1.3	U	7.1	=	0.08	J	6.5	=	2.3	=	NA		NA	
A002SB019	002SB01901	10-Oct-95		10,100	=	11.3	UJ	7.1	=	0.22	U	18.2	J	0.89	U	NA		NA	
A002SB020	002SB02001	29-Jan-97		7,380	=	**54.4**	=	5.6	=	0.21	J	**3,870**	=	0.6	J	NA		NA	
A002SB021	002SB02101	29-Jan-97		5,920	=	5.2	J	3.8	=	0.11	J	**584**	=	0.69	J	NA		NA	
A002SB022	002SB02201	28-Jan-97		7,050	=	7.6	=	3.5	=	0.13	J	162	=	0.38	U	NA		NA	
A002SB023 *	002SB02301	10-Oct-95		5,780	=	11.7	UJ	**29.4**	=	0.33	J	**427**	J	0.92	U	NA		NA	
A002SB024	002SB02401	10-Oct-95		13,300	=	11.9	UJ	7.7	=	0.23	U	3.7	J	0.94	U	NA		NA	
A002SB025	002SB02501	10-Oct-95		7,260	=	11.1	UJ	5.9	=	0.22	U	31.7	J	0.87	U	NA		NA	
A002SB026	002SB02601	10-Oct-95		8,140	=	11.7	UJ	**11**	=	0.23	U	75.4	J	0.92	U	NA		NA	
A002SB027	002SB02701	10-Oct-95		1,280	=	10.9	UJ	2.5	=	2.4	U	6.8	J	0.85	U	NA		NA	
A002SB028	002SB02801	9-Oct-95		40,100	=	56.4	U	**21.5**	=	1.1	U	**1,500**	=	4.4	U	NA		NA	
A002SB029	002SB02901	9-Oct-95		12,100	=	28.2	U	**13.6**	=	0.55	U	**1,050**	=	2.3	U	NA		NA	
A002SB030	002SB03001	29-Mar-96		4,360	=	0.34	UJ	2.4	=	0.08	J	7.5	J	0.39	U	NA		NA	
A002SB031	002SB03101	30-Jan-97		8,540	=	0.36	U	3	U	0.07	J	6.5	=	1.1	J	NA		NA	
A002SB033 *	002SB03301	28-Jan-97		5,830	=	1.2	J	8.3	=	0.17	J	35.2	=	0.49	J	NA		NA	
A002SB034	002SB03401	28-Jan-97		4,120	=	3	J	2.7	–	0.2	J	190	=	0.4	U	NA		NA	
A002SB035 *	002SB03501	29-Jan-97		5,060	=	2.7	J	0.93	J	0.23	J	184	=	0.41	U	NA		NA	

TABLE 2-1
Surface Soil Data for Selected Compounds
CMS Work Plan, SWMU 2, Zone A. CNC

Sample				Aluminum		Antimony		Arsenic		Beryllium		Lead		Thallium		BEQs		Aroclor-1260	
Station	ID	Date		Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier
			RBC	78,000		31		0.43		160		400		6.3		0.087		0.32	
			RC	12,800		NC		9.44		NC		140		NC		1304		NRC	
			SSL	555,074		2.7		15		32		400		0.36		NSSL		1	
A002SB036 *	002SB03601	29-Jan-97		7,540	=	**470**	=	7.9	=	0.37	=	**89,000**	=	0.42	U	NA		NA	
A002SB037	002SB03701	29-Jan-97		6,270	=	1.5	J	**21.5**	=	0.39	=	62.7	=	0.5	U	NA		NA	
A002SB038	002SB03801	29-Jan-97		6,320	=	2.7	J	7.5	=	0.12	J	12	J	0.41	U	NA		NA	
A002SB039 *	002SB03901	28-Jan-97		10,700	=	3.4	J	9.2	=	0.27	=	326	=	1.5	=	NA		NA	
A002SB040	002SB04001	29-Jan-97		8,300	=	0.43	J	3.3	=	0.11	J	15.7	=	0.4	U	NA		NA	
A002SB041	002SB04101	29-Jan-97		7,500	=	0.37	J	6.1	=	0.18	J	6.3	=	0.38	U	NA		NA	
A002SBC01	002SBC0101	29-Mar-99		NA		NA		NA		NA		81	=	NA		NA		NA	
A002SBC02	002SBC0201	29-Mar-99		NA		NA		NA		NA		**3,980**	=	NA		NA		NA	
A002SBC03	002SBC0301	29-Mar-99		NA		NA		NA		NA		**45,700**	=	NA		NA		NA	
A002SBC04	002SBC0401	29-Mar-99		NA		NA		NA		NA		18.6	=	NA		NA		NA	
AS01SB001	S01SB00101	6-Oct-93		2,500	=	5.7	UJ	1.1	UJ	0.57	U	7.1	J	1.1	UJ	NA		NA	
AS01SB002	S01SB00201	27-Oct-93		7,630	=	17.5	J	9.4	=	0.59	U	228	U	1.2	U	0.3375	=	0.039	U
AS02SB001	S02SB00101	5-Oct-93		4,300	=	6.1	UJ	7.6	J	0.61	U	160	J	1.2	UJ	NA		NA	
AS02SB002	S02SB00201	6-Oct-93		6,100	=	5.8	UJ	3.2	=	0.58	U	31	J	5.8	UJ	NA		NA	
AS02SB003	S02SB00301	6-Oct-93		5,600	=	5.4	UJ	2.8	=	0.54	U	17	J	1.1	UJ	NA		NA	
AS02SB006	S02SB00601	6-Oct-93		8,200	=	6.1	UJ	3.9	=	0.61	U	44	J	1.2	UJ	NA		NA	
AS02SB007	S02SB00701	6-Oct-93		5.7	=	0.0056	UJ	0.0071	=	0.00056	U	0.31	J	0.0011	UJ	NA		NA	
AS02SB008	S02SB00801	6-Oct-93		3.0	=	0.0059	UJ	0.0084	=	0.00059	U	0.039	J	0.0059	UJ	NA		NA	
AS02SB009 *	S02SB00901	6-Oct-93		2,700	=	11	J	**12.0**	=	0.56	U	**570**	J	1.1	UJ	NA		NA	
AS02SB010	S02SB01001	6-Oct-93		8,300	=	6.2	UJ	**12.0**	=	0.62	U	40	J	1.2	UJ	NA		NA	
AS02SB011 *	S02SB01101	6-Oct-93		4,400	=	**40**	J	**20.0**	=	0.66	U	**1,600**	J	1.3	UJ	NA		NA	
AS02SB012	S02SB01201	7-Oct-93		5,400	=	5.5	UJ	3.6	=	0.55	U	160	J	1.1	UJ	NA		NA	
AS02SB013	S02SB01301	7-Oct-93		1,800	=	5.5	UJ	5.2	J	0.55	U	79	J	5.5	U	NA		NA	
AS02SB014	S02SB01401	7-Oct-93		3,700	=	6.1	UJ	2.2	J	0.61	U	29	J	1.2	U	NA		NA	
AS02SB015	S02SB01501	25-Oct-93		3,800	=	8.5	J	6.9	J	0.54	UJ	**1,400**	J	1.1	UJ	NA		NA	
AS02SB016	S02SB01601	26-Oct-93		4,500	=	23	J	2.8	J	0.57	UJ	**1,100**	J	NA		NA		NA	
AS02SB017	S02SB01701	26-Oct-93		7,500	=	5.7	UJ	2.3	J	0.57	UJ	14	=	1.8	U	NA		NA	
AS02SB018	S02SB01801	26-Oct-93		1,500	=	8.3	J	**20**	J	0.56	UJ	85	J	1.1	U	NA		NA	
AS02SB019	S02SB01901	26-Oct-93		6,500	=	5.4	UJ	1.3	U	0.54	UJ	14	=	1.1	U	NA		NA	
AS02SB020	S02SB02001	26-Oct-93		3,400	=	5.8	UJ	4.1	=	0.58	U	8.6	=	5.8	U	NA		NA	
AS02SB021 *	S02SB02101	26-Oct-93		1,300	=	6.1	UJ	**9.9**	=	0.61	U	**480**	J	1.2	UJ	NA		NA	
AS02SB022	S02SB02201	26-Oct-93		3,000	=	5.4	UJ	4.6	=	0.54	U	28	=	1.1	U	NA		NA	
A002M0003	002M000301	29-Mar-96		11,300	=	11.50	J	**19.6**	=	0.69	=	1,110	J	1.10	U	NA		NA	
A002M0004	002M000401	29-Mar-96		3,000	=	6.60	J	**18.3**	=	0.44	J	**876**	J	1.20	J	NA		0.50	=
A002M0005	002M000501	29-Mar-96		27,000	=	1.80	J	9.0	=	2.10	=	**441**	J	1.60	U	NA		NA	

TABLE 2-1
Surface Soil Data for Selected Compounds
CMS Work Plan, SWMU 2, Zone A, CNC

Sample				Aluminum		Antimony		Arsenic		Beryllium		Lead		Thallium		BEQs		Aroclor-1260	
Station	ID	Date		Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier
			RBC	78,000		31		0.43		160		400		6.3		0.087		0.32	
			RC	12,800		NC		9 44		NC		140		NC		1304		NRC	
			SSL	555,074		2.7		15		32		400		0.36		NSSL		1	

Bolded and outlined values are exceedances of both the RBCs and background values.

*	Sample location was excavated during DET's IM.
=	The analyte was detected; the reported value is equal to the sample concentration.
J	The analyte was detected; the reported value is an estimated concentration.
BEQ	Benzo(a)pyrene equivalent
BRC	Background reference concentration
NA	Analyte was not analyzed for in the sample
NC	A BRC was not calculated because more than 90 percent of the samples collected for the BRC were reported as nondetect.
NCG	No reference concentration is available because the constituent is not a naturally occurring element.
NRC	An SSL was not calculated for the constituent(s).
NSSL	A cleanup goal is not available or not appropriate.
RBC	Risk-based concentration.
SSL	Soil screening level.
U	The analyte was not detected; the reported value is the detection limit.
UJ	The analyte was not detected; the reported value is an estimated detection limit.

TABLE 2-2
Groundwater Analytical Results for Selected Compounds
CMS Work Plan, SWMU 2, Zone A. CNC

Sample				Antimony		Arsenic*		Thallium		Lead		Manganese*		Silver*	
Station	ID	Date		Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier
			BRC	NC		7.4		NC		4.7		9.33		NC	
			MCL/RBC	6		50		2		15		577		180	
A002GW001	S02G000101	11/15/1993		50.00	U	10.00	U	10.00	U	5.0	U	51.0	=	10.0	U
	CNSGW00101	09/28/1995		51.00	U	4.00	U	4.00	UJ	3.0	U	373.0	=	3.0	U
	002GW00102b	04/22/1996		5.40	U	2.00	U	3.00	UJ	2.0	U	496.0	=	7.0	U
	002GW00103	06/20/1996		9.00	U	2.00	U	3.00	U	2.0	U	1990.0	=	6.0	U
	002GW00104	10/07/1996		2.00	U	2.10	U	3.10	U	1.4	U	219.0	=	1.0	U
A002GW002	S02G000201	11/15/1993		50.00	U	10.00	UJ	50.00	UJ	5.0	UJ	**3,370**	J	10.0	U
	CNSGW00201	09/29/1995		51.00	U	4.00	U	4.00	UJ	3.0	UJ	**3,210**	=	3.0	U
	002GW00202	04/23/1996		6.60	U	2.00	U	3.00	UJ	2.0	U	**3,350**	=	7.0	U
	002GW00203	06/19/1996		9.00	U	2.00	U	3.00	UJ	2.8	J	**3,000**	=	6.0	U
	002GW00204	10/04/1996		2.00	U	2.10	U	3.10	U	1.4	U	**3,410**	=	1.0	U
	002GW002C1	10/15/1998		18.00	U	1.00	U	1.60	U	1.2	U	**2,450**	J	4.5	U
A002GW003	S02G000301	11/15/1993		50.00	U	10.00	U	10.00	U	5.0	U	320.0	=	10.0	U
	CNSGW00301b	09/28/1995		51.00	U	4.00	U	4.00	UJ	3.0	U	262.0	=	3.0	U
	002GW00302	04/22/1996		6.80	U	2.00	U	3.00	U	2.0	U	291.0	=	7.0	U
	002GW00303	06/19/1996		9.00	U	2.00	U	3.00	U	2.0	U	307.0	=	6.0	U
	002GW00304	10/04/1996		2.00	U	2.20	J	3.10	U	1.5	U	294.0	=	1.0	U
	002GW003C1	10/15/1998		18.00	U	3.50	J	1.60	U	1.2	U	280.0	J	4.5	U
A002GW004	S02G000401	11/15/1993		50.00	U	10.00	U	50.00	U	5.0	U	150.0	=	10.0	U
	CNSGW00401	09/29/1995		51.00	U	5.80	J	4.00	UJ	3.0	U	108.0	=	3.0	U
	002GW00402	04/23/1996		4.00	U	7.00	U	3.00	UJ	2.0	U	119.0	=	7.0	U
	002GW00403	06/19/1996		9.00	U	4.60	J	3.00	U	2.0	U	168.0	=	6.0	U
	002GW00404	10/04/1996		2.00	U	10.30	J	3.10	U	1.4	U	241.0	=	39.8	=
	002GW004C1	10/15/1998		18.00	U	7.00	J	1.60	U	1.2	U	128.0	J	4.5	U
A002GW005	S02G000501	11/15/1993		50.00	U	**89.00**	=	100.00	U	**910.0**	J	510.0	=	10.0	U
	CNSGW00501b	09/28/1995		51.00	U	4.00	U	4.00	UJ	15.0	U	26.5	=	3.0	U
	002GW00502	04/23/1996		4.90	U	2.00	U	3.00	UJ	**18.9**	=	28.3	U	7.0	U
	002GW00503	06/20/1996		9.00	U	2.00	U	3.00	U	2.0	U	28.1	U	6.0	U
A002GW007	002GW007C1	10/19/1998		18.00	U	4.80	J	1.60	U	12.3	=	130.0	=	4.5	U
A002GW008	002GW008C1	10/19/1998		18.00	U	1.30	J	1.60	U	1.2	U	536.0	=	4.5	U
A039GW006	039GW00604	10/10/1996		NS		NS		NS		2.9	J	47.3	J	1.0	UJ
	039GW00606	10/04/1997		1.60	U	5.60	J	5.00	U	0.9	U	62.8	=	1.0	U
	039GW006C1	10/15/1998		18.00	U	2.80	J	1.60	U	1.2	U	45.8	J	4.5	U
A039GW007	039GW00704	10/11/1996		NA		3.30	J	NA		NS		41.5	J	1.0	UJ
	039GW00706	10/05/1997		1.60	U	9.60	J	5.00	U	0.9	U	58.4	=	1.0	U
	039GW007C1	10/15/1998		18.00	U	6.00	J	1.60	U	1.2	U	55.7	J	4.5	U

TABLE 2-2
Groundwater Analytical Results for Selectec Compounds
CMS Work Plan, SWMU 2, Zone A. CNC

Sample				Antimony		Arsenic*		Thallium		Lead		Manganese*		Silver*	
Station	ID	Date		Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier
			BRC	NC		7.4		NC		4.7		9.33		NC	
			MCL/RBC	6		50		2		15		577		180	

Bolded and outlined values are exceedances of background reference concentrations (BRCs) and MCLs/RBCs (RBC used when MCL is not available).

* Groundwater COCs identified in RFI.

= Analyte was detected; the reported value is equal to the sample concentration.

J Analyte was detected; the reported value is an estimated concentration.

MCL Maximum Contaminant Level

NA Analyte was not analyzed for in the sample.

NC No BRC was calculated due to large number of non-detects.

U Analyte was not detected; the reported value is the detection limit.

UJ Analyte was not detected; the reported value is an estimated detection limit.

Figure 2-1
RFI Soil Sample Locations
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL

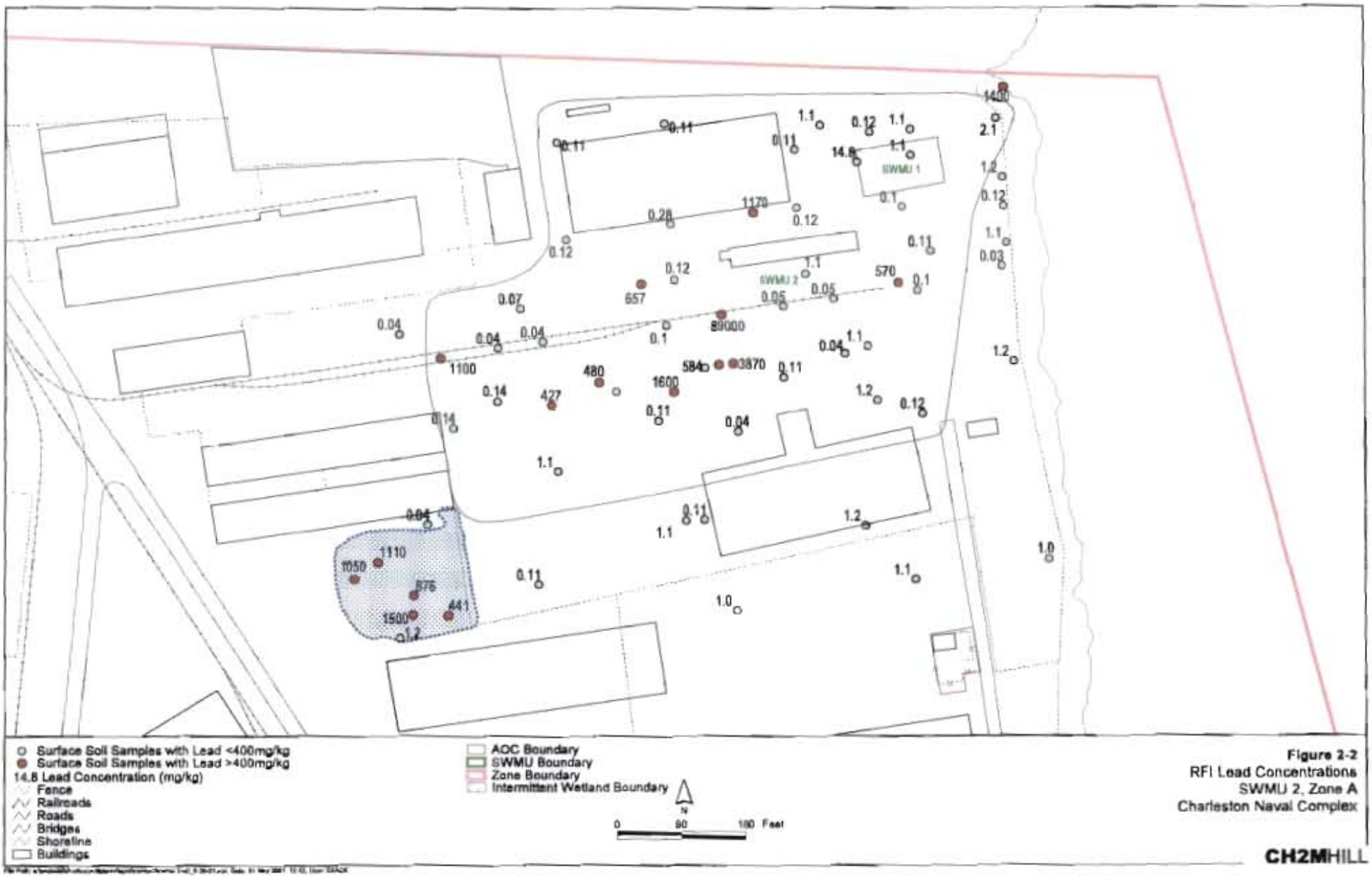
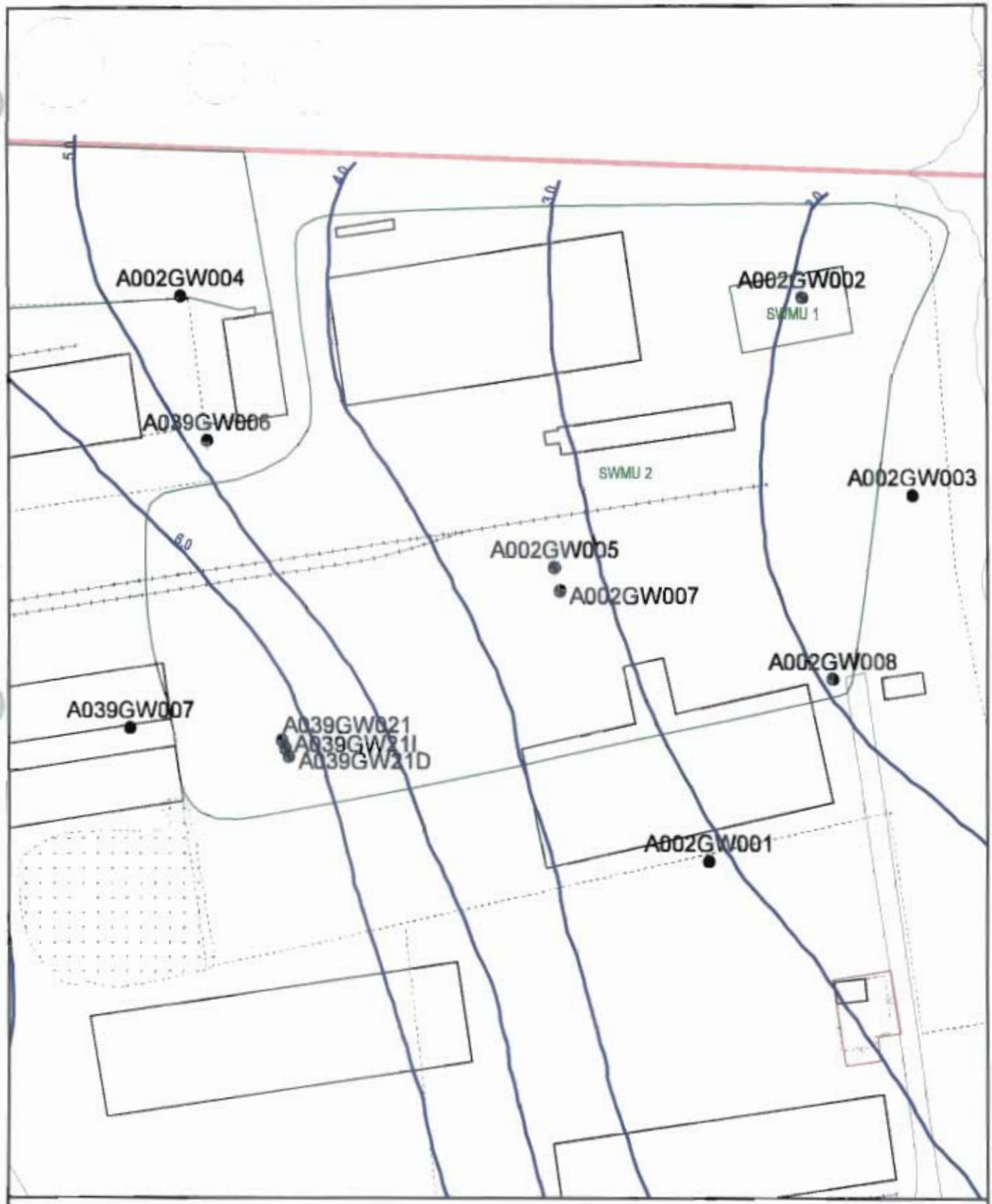


Figure 2-2
RFI Lead Concentrations
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL



Note: original figure was produced in color

Figure 2-3
Groundwater Sample Locations
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL

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SECTION 3.0

Interim Measure for Remediation of Lead-Contaminated Soil

3.0 Interim Measure for Remediation of Lead-Contaminated Soil

This section provides information on the delineation sampling and the subsequent IM conducted by the DET at SWMU 2.

Following completion of the RFI, the Southern Division Naval Facilities Engineering Command (SOUTHDIV) decided that an IM would be performed by the Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), United States Navy (USN), Portsmouth, Virginia, DET. In 1998, at the request of the Navy, the DET first collected additional samples to further delineate lead concentrations in surface soil exceeding the residential cleanup level of 400 mg/kg. The DET collected approximately 335 soil samples in a grid configuration around sample locations identified in the Zone A RFI Report as exceeding the residential cleanup level. In the sample-grid system, samples were collected every 20 feet in the north-south and east-west directions. Because this effort was initiated after the completion of the Zone A RFI, these data were not included in the Zone A RFI Report. Figure 2 of the DET's Completion Report illustrates the sample locations. The delineation sample locations used to define the excavation area are shown on Figure 3-1. The DET's completion report is included in Appendix C. It includes a full-sized drawing illustrating the DET's sample location and results; the data for the delineation samples are included Appendix D-1. A brief explanation of the method for identifying these data is also presented in the front of Appendix D.

The DET found that the grid samples collected by the DET generally appeared to correlate with the RFI sampling results. However, lead samples collected in the southwest area of the site, near the former intermittent wetland area, varied significantly between the 1998 DET sampling event and earlier sampling events. Five samples collected from the intermittent wetland area during the 1995 RFI sampling effort contained lead in concentrations ranging from 441 to 1,500 mg/kg. Of the 60 samples collected in the area of the intermittent wetland (see Figure 3-1) by the DET in 1998, the maximum concentration was reported at 120 mg/kg.

In 1999, after completion of the delineation sampling, the IM was performed with the objective to remove and dispose of lead-contaminated soil with concentrations above 400 mg/kg. The area of the soil removal was determined based on the results of the delineation sampling conducted by the DET in 1998 (described above).

The IM removed approximately 9,600 tons of lead-contaminated soil and concrete. Of this total, 8,300 tons were disposed of as hazardous waste; 1,300 tons were disposed of as non-hazardous debris. The excavated areas appear to have included the locations of 13 RFI soil boring locations (A002SB008; A002SB009; A002SB011; A002SB014; A002SB015; A002SB023; A002SB033; A002SB035; A002SB036; A002SB039; AS02SB009; AS02SB011; and AS02SB021). The removal areas and the excavated sample locations are illustrated on Figure 3-2. Figure 3-2 also provides the reported lead concentrations of the RFI surface soil samples.

Following the removal of the contaminated soil, confirmatory samples were collected by the DET along the sidewalls and the bottom of the excavation. The locations of the confirmatory samples are illustrated on Figure 3 of the IM Completion Report (see Appendix C). The DET reported that confirmatory sample results indicated that remaining site soil met the IM objective of removing lead-contaminated soil with concentrations above 400 mg/kg (DET, 1997). The confirmation data are presented in Appendix D-2. A brief explanation of the method to identify this data is also presented in the front of Appendix D.

Review of the DET's confirmation sample results collected from the bottom of the excavation indicate that all of the confirmation samples contained lead concentrations below the cleanup level of 400 mg/kg, except samples Sport0228-5 (565 mg/kg) and Sport0215-2 (657 mg/kg) collected on July 14, 1999, and July 7, 1999, respectively. Sample Sport0234-1 was collected very close to Sport0228-5 six days later (July 20, 1999) and indicated a lead concentration of 1.2 mg/kg. This information suggests that, after sample Sport0228-5 was reported, additional excavation activities were performed and a second confirmatory sample (Sport0234-1) was collected. Based on this information, the soil at this location meets the cleanup goal of 400 mg/kg.

Sample Sport0226-1 was collected near Sport0215-2 six days later (July 13, 1999). Figure 3 of the DET's completion report shows the excavation boundary ending at Sport 215-2 and confirmation sample Sport0226-1 outside the excavation. It is likely that, after the results of

Sport0215-2 were reported, additional excavation was performed and another confirmation sample (Sport0226-1) was collected. The results of Sport0226-1 indicate that remaining soil in this area meets the cleanup goal of 400 mg/kg.

Based on this information, remaining soil at SWMU 2 meets the cleanup criteria, and existing subsurface lead concentrations are below levels that would be expected to impact groundwater. Confirmation sample locations and results are illustrated on Figure 3-3.

Figure 3-1
Delineation Samples and Excavation Boundary
SWMU 2, Zone A
Charleston Naval Complex
CH2MHILL

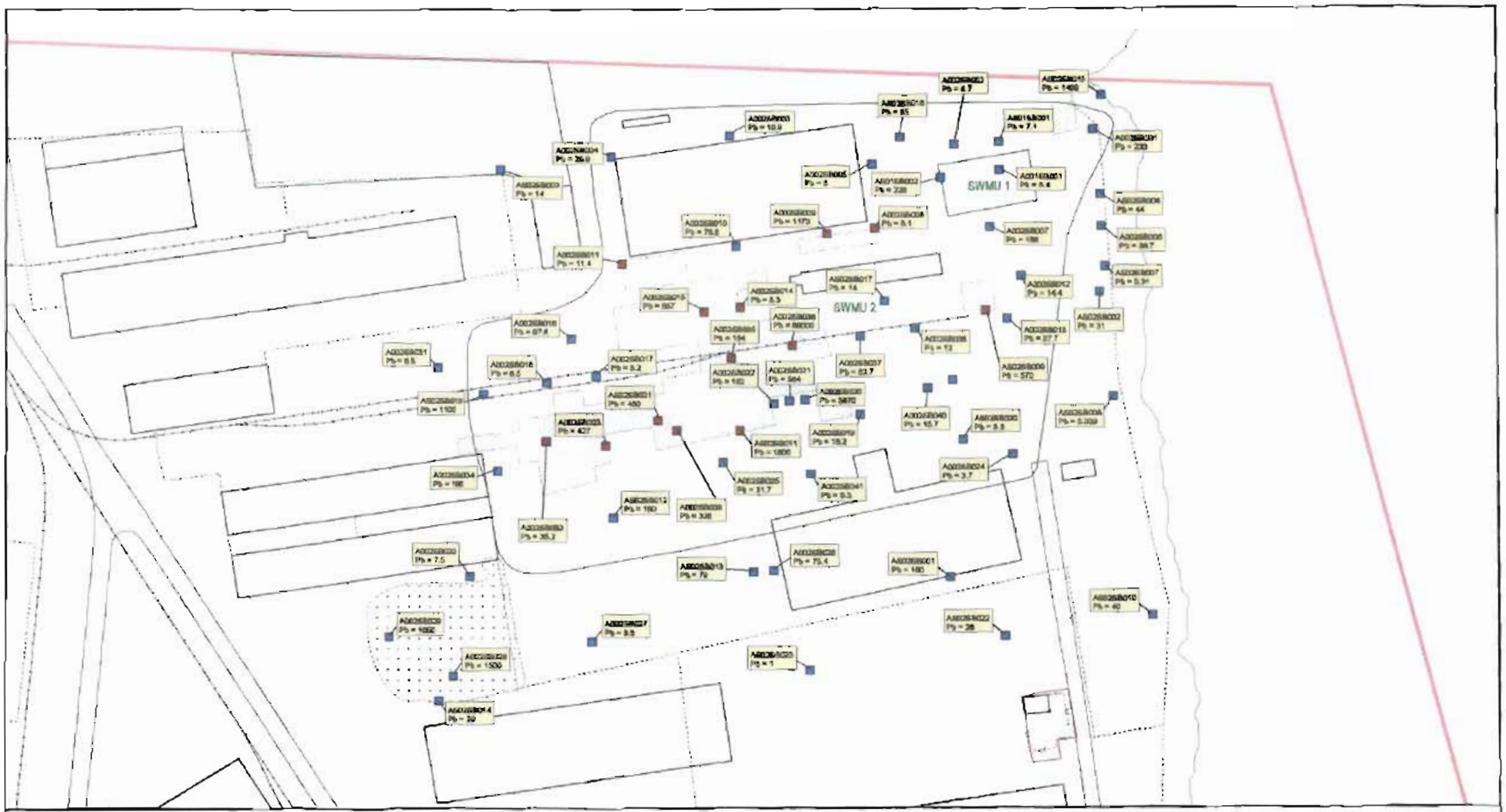


Figure 3-2
Approximate Area of DET's IM Excavation and RFI Sample Locations
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL

Confirmation Samples
- 1.2 - 200 mg/kg Pb
- 200 - 400
- 400 - 650

18.2 Lead Concentration (mg/kg)
Buildings
AOC Boundary
SWMU Boundary
Zone Boundary
Fence
Railroads
Roads
Intermittent Wetland Boundary
Approximate Area of DET's IM Excavation

N
0 90 180 Feet

Note: original figure was produced in color.

Figure 3-3
DET Confirmation Samples
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL

SECTION 4.0

Review and Refinement of COCs

4.0 Review and Refinement of COCs

4.1 Surface Soil

Surface soil COCs identified during the RFI are further discussed in this section. Where appropriate, this section also includes data that were collected after completion of the RFI.

4.1.1 Lead

Lead was detected in 67 of 68 surface soil samples collected and analyzed for lead as part of the RFI at SWMU 2. It was detected at concentrations above the generally accepted residential cleanup level (400 mg/kg) in 16 sample locations and the adult (site worker) soil cleanup level of 1,000 mg/kg in 9 samples. Lead-contaminated soil was removed as part of an IM conducted by the DET in 1999. The IM is discussed in Section 2.3 of this CMS WP.

The limits of the DET's IM excavation were determined based on 335 soil samples collected by the DET in 1998 for lead delineation. Nine sample locations (AS02SB015; AS02SB016; A002SB020; A002SB021; A002SB028; A002SB029; A002M003; A002M004; and A002M005) identified in the RFI as exceeding the residential cleanup level were outside the footprint of the soil excavation IM performed by the DET. The lead concentrations at these locations, as well as other RFI samples, are presented on Figure 4-1.

Former Intermittent Wetland Area

Five of these samples (A002SB028; A002SB029; A002M003; A002M004; and A002M005) were collected in the intermittent wetland located to the southwest of SWMU 2 (see Figure 2-1 for sample locations). The DET collected 60 grid samples in this area with no results reported above 120 mg/kg. The location of these samples is shown on Figure 4-2.

The lead clean up standard is established using EPA's Integrated Exposures and Uptake Biokinetic (IEUBK) Model, which estimates blood lead concentrations based on exposure averages. Based on application of the IEUBK, a mean exposure concentration was calculated for a one-half acre exposure area around these sample locations, as recommended by the EPA. Excavated sample locations were not included in the calculation; however, delineation

samples that were used to define the extent of the excavation were used. Delineation samples that were outside the area of the excavation were also used, in addition to the RFI data.

The mean lead concentration in the intermittent wetland area was calculated to be 105.6 mg/kg, which is below the 400 mg/kg cleanup level. Figure 4-2 illustrates the exposure area and samples associated with the exposure area. Table 4-1 lists the sample IDs and corresponding analytical results that were used for the calculation. Based on this information, no significant source area of lead is present in the intermittent wetland area to the southwest of SWMU 2.

Additionally, the intermittent wetland area was evaluated in Section 8, ecological risk assessment (ERA) section of the Zone A RFI Report (EnSafe, 1998). The intermittent wetland was identified as subzone A-1 in the ERA. The ERA found that existing concentrations of metals, including lead, and PAHs were not indicative of excessive risk to representative terrestrial wildlife species, invertebrates, or plants. The conclusion of the ERA was: *"Based on the assessment of risk to ecological receptors from soil/sediment exposure found within subzone A-1, no further work is recommended."* Based on this information, a significant source of lead is not present in the intermittent wetland area regardless of whether the area is considered a wetland.

Other Samples Exceeding 400 mg/kg

Two residual RFI sample locations adjacent to the major area excavated by the DET (A002SB020 and A002SB021) reported lead concentrations of 3,870 and 584 mg/kg, respectively. The DET's delineation effort collected extensive samples around these locations with no adjacent sample reporting lead concentrations above the residential cleanup level, indicating a limited area of approximately 730 square feet of soil with lead concentrations above 400 mg/kg. The calculated mean lead concentration for the half-acre area around these locations is 304 mg/kg. Figure 4-3 illustrates the exposure area and samples associated with the exposure area. Table 4-2 lists the sample IDs and corresponding analytical results that were used for the calculation. The mean lead concentration is below the residential cleanup level. Based on this information, no significant source area of lead is present at this location.

Sample AS02SB016 (1,100 J mg/kg) was collected between the railroad tracks near the location of former Building 1608A. The DET collected 24 grid-based samples centered on this location. The lead concentrations in the DET's delineation sampling were all reported at levels (from 2.25 mg/kg to 351 mg/kg) below the residential cleanup level of 400 mg/kg. Based on these data, the area of lead-impacted soil above 400 mg/kg is estimated to be approximately 565 square feet. The calculated mean lead concentration for a half-acre area around soil boring AS02SB16 is 92.9 mg/kg, which is also below the residential cleanup level. Figure 4-4 illustrates the exposure area and samples associated with the exposure area. Table 4-3 lists the sample IDs and corresponding analytical results that were used for the calculation. Based on these data, a significant source area of lead is not present at this location.

Sample AS02SB015 (1,400 J mg/kg) was collected at the northeast corner of SWMU 2. The delineation sampling conducted by the DET included six samples collected near this location. Two of the DET's samples (06-01: 862 mg/kg and 02-01: 429 mg/kg) reported lead concentrations above 400 mg/kg. These two sample locations were excavated as part of the DET's IM. Soil at soil boring AS02SB015 was not removed. To further investigate this sample location, a CH2M-Jones field team visited the site to locate soil boring AS02SB015 using a global positioning system (GPS). The field team determined that this sample location is below the water level of the Cooper River during high tide. As such, this sample should be considered a sediment sample and included in the Zone J investigation. Based on this information, the surface soil in the northeast corner of SWMU 2 is considered to have been adequately remediated by the DET's IM.

4.1.2 Arsenic

Arsenic was identified as a COC based on the projected child non-carcinogenic hazard quotient (HQ) of 0.48 (see Appendix A-5, Table 10.2.27 of the Zone A RFI Report) and the projected future resident incremental lifetime cancer risk (ILCR) of 2.1E-6. Arsenic was detected above the RBC of 0.43 mg/kg, HI=1, in 14 surface soil samples collected at SWMU 2 and the Zone A BRC of 9.4 mg/kg (see Table 2-1). Of these, six sample locations (A002SB006; A002SB023; A002SB028; A002SB037; AS02SB011; and AS02SB018) were reported above the SSL of 15 mg/kg using a dilution attenuation factor (DAF) of 10.

The DET's IM excavation area (see Figure 2-3) included 6 of the 14 locations where arsenic was detected above its surface soil BRC of 9.4 mg/kg. Eight surface soil sample locations (A002SB001: 12.7 mg/kg; A00SB006: 15.4 mg/kg; A002SB026: 11 mg/kg; A00SB028: 21.5 mg/kg; A002SB029: 13.6 mg/kg; A00SB037: 21.5 mg/kg; AS02SB010: 12 mg/kg; and AS02SB018: 20 J mg/kg) and two sediment sample locations (A002M0003: 19.6 mg/kg and A002M0004: 18.3 mg/kg) remain that contained arsenic concentrations above the BRC. As previously discussed, these sediment samples were included as surface soil samples because the area is no longer saturated. Figure 4-5 illustrates the residual arsenic concentrations at SWMU 2.

Arsenic concentrations ranged from 1.7 J mg/kg to 30.1 mg/kg in the grid-based (background) samples collected from Zone A. Reported residual arsenic concentrations at SWMU 2 are all within or below the range of background concentration. Additionally, arsenic was not reliably detected in site groundwater above its MCL of 50 µg/L, indicating that existing soil concentrations are protective of surficial groundwater. Based on this information, arsenic is not considered a COC at SWMU 2.

4.1.3 Antimony

Antimony was identified as a COC based on the projected child non-carcinogenic HQ of 0.41 (see Appendix A-5, Table 10.2.27 of the Zone A RFI Report). Arsenic was detected in 23 of 68 surface soil samples collected at SWMU 2. Three samples (A002SB03601: 470 mg/kg; A002SB02001: 54.4 mg/kg; and A002SB01101: 40.0 mg/kg) were reported above the RBC (HI=1) of 31 mg/kg.

The DET's IM excavation area (see Figure 3-2) included two of the three locations where antimony was detected above its RBC of 31 mg/kg, including the highest reported concentration (A002SB036, 470 mg/kg). The only remaining location where antimony was detected above its RBC is A002SB020 (54.4 mg/kg). Figure 4-6 illustrates the residual antimony concentrations at SWMU 2. Reported antimony concentrations in residual samples collected near A002SB020 were all less than half the RBC value, indicating a small area of impacted soil (less than 450 square feet [0.01 acre]).

An upper threshold limit (UTL) for antimony was not calculated for Zone A due to a large percentage (>90%) of non-detects. For the purpose of comparison, two times the mean and a UCL_{95} calculation (assuming a normal distribution of data) was compared to the RBC of 31 mg/kg. These methods are considered appropriate because the UTL calculation assuming a log-normal data distribution and the non-parametric method both default to the maximum detected value as a UTL for small data sets. This would be appropriate for calculating a background UTL; however, an individual at SWMU 2 would not be exposed continuously to the maximum concentration.

Sample results within a half-acre area around A002SB020 are considered as the exposure area, as recommended by the EPA. Sample locations that were removed as part of the IM were not included in the analysis. Samples included in the analysis were A002SB019 (11.3 U mg/kg); A002SB020 (54.4 mg/kg); A002SB021 (5.2 J mg/kg); A002SB022 (7.6 mg/kg); A002SB025(11.1 U mg/kg); and A002SB041(0.37 J mg/kg). The mean antimony concentration of these residual samples was calculated to be 13.13 mg/kg using one-half the detection limit for non-detects ("U" data). Twice the mean concentration is 26.26 mg/kg, which is below the RBC of 31 mg/kg.

Calculation of the UCL_{95} is based on the same exposure area, and the same samples are included in the analysis. The UCL_{95} was calculated to be 29.3 mg/kg. This value is similar to the results obtained from the two times the mean calculation and is also below the RBC of 31 mg/kg.

Based on the above information, antimony is not considered a surface soil COC at SWMU 2

4.1.4 Aluminum

Aluminum is a naturally occurring metal and is abundant in the environment. It is not considered a carcinogen. Aluminum was identified as a COPC based on its RBC exceedances. Aluminum was detected in all 68 samples (see Appendix A-1, Table 10.2.6 of the Zone A RFI Report) collected at SWMU 2 and exceeded the residential RBC of 7,800 mg/kg, based on an HI of 0.1 in 20 of 62 samples. Aluminum concentrations were reported to range from 1,280 to 40,100 mg/kg in SWMU 2 surface soil. These concentrations were compared to a RBC of 7,800 mg/kg in the RFI (see Appendix A-2, page 10.2.107 of the Zone

A RFI). This RBC corresponds to a HI of 0.1 to provide a conservative screening criterion. The RBC is 78,000 mg/kg, based on a HI of 1. None of the surface soil concentrations exceeded the RBC for aluminum corresponding to a HI of 1.

The range of aluminum background concentrations was between 3,640 to 11,800 mg/kg for 13 grid-based samples from Zone A. SWMU 2 aluminum background levels are considered to be consistent with these background concentrations. Throughout the CNC, aluminum background levels ranged from 261 to 55,500 mg/kg. Comparison to the basewide background concentrations is appropriate because aluminum BRCs in site surface soil would be expected to correlate with basewide BRCs if an equal number of samples were collected from the site as from the CNC. No samples collected at SWMU 2 reported aluminum concentrations above 55,500 mg/kg.

Based on the above information, detected levels of aluminum appear to be within the range of aluminum background concentrations and below the health-based RBC based on a HI of 1. Therefore, aluminum is not considered a COC at SWMU 2.

4.1.5 Aroclor 1260

The polychlorinated biphenyl (PCB) Aroclor 1260 was identified as a COC, based on the projected future resident ILCR of 1.6E-6. Aroclor 1260 was detected above its RBC of 0.32 mg/kg in one sample (A002M000401, 0.5 mg/kg) collected at SWMU 2. This sample does not exceed the PCB action level for residential land use of 1 mg/kg (1,000 µg/kg) [*Requirements for PCB Spill Cleanup*, 40 CFR 761.125 (c)(4)(v)]. Therefore, Aroclor 1260 is not considered a COC at SWMU 2.

4.1.6 BEQs

Polynuclear aromatic hydrocarbons (PAHs), expressed as BEQs, were identified as a COC in SWMU 2, based on exceedances of the RBC of 88 micrograms per kilogram (µg/kg) (see Appendices A-3 and A-5, page 10.2.107 and Table 10.2.27 of the Zone A RFI Report, respectively). PAHs were detected in one sample (A002M000401, 90.9 µg/kg) at a concentration that resulted in the calculated BEQ concentration exceeding the RBC.

PAHs are routinely detected in non-impacted as well as impacted areas of the CNC. The detected PAHs, and resulting calculated BEQs, in the non-impacted areas (grid-based

samples) of the CNC were used to calculate a BEQ value to be used as a basewide reference concentration. The data and analysis were presented to the BCT in the *Background PAHs Study Report - Technical Information for Development of Background BEQ Values*, Revision 0 (CH2M HILL, February 2001). The BEQ reference concentration is 1,304 µg/kg for surface soil. The BEQ concentration at SWMU 2 is well below this background value. Therefore, BEQs are not considered a COC in surface soils at SWMU 2.

4.1.7 Beryllium

Beryllium was identified as a COC at SWMU 2, based on exceedances of the RBC of 0.15 mg/kg at the time the RFI was completed. However, review of site data and comparison to the most recent EPA RBC (EPA Region III RBC Table, April 13, 2000) value of 160 mg/kg for beryllium (see Table 2-1) indicates that beryllium does not exceed the current RBC value at any location within SWMU 2. Therefore, beryllium is not considered a COC in surface soil at SWMU 2.

4.1.8 Thallium

Thallium was identified as a COC, based on the projected child non-carcinogenic HQ of 0.13 (see Appendix A-5, Table 10.2.27 of the Zone A RFI Report). Thallium was not detected above its RBC (6.3, HI=1) in any of the 68 surface soil samples collected at SWMU 2. Therefore, thallium is not considered a COC in surface soils at SWMU 2.

4.2 Subsurface Soil

Because the RFI did not identify any subsurface COCs, no discussion of subsurface soil is warranted.

4.3 Groundwater

This section presents a detailed discussion of COCs identified in SWMUs 1 and 2 groundwater. Groundwater data for COCs are presented in Table 2-2.

4.3.1 Arsenic

Arsenic was detected in 4 of 29 groundwater samples collected at SWMU 2 as part of the RFI. One sample from monitor well A002G000501 (November 1996, 89 µg/L) was reported

above the MCL of 50 µg/L. Arsenic was not detected in any of the 3 subsequent sampling events at the same well. Based on these data, arsenic is not considered a COC in groundwater at SWMU 2.

4.3.2 Manganese

Manganese was reported to have been detected in 25 of 29 samples collected at SWMU 2 as part of the RFI and 6 of 6 samples collected after the RFI. Manganese exceeded its BRC of 577 µg/L and its RBC of 840 µg/L in six occasions at two locations (A002GW001: 1,990 µg/L; A002GW002: 3,370 J µg/L, 3,210 µg/L, 3,350 µg/L, 3,000 µg/L, and 3,410 µg/L). It was also detected above its BRC and RBC at A002GW002 (2,450 J µg/L) in the October 1998 sampling effort that was performed after the completion of the RFI.

The detected concentrations of manganese in these wells appear consistent with the range of background concentrations (183 – 2,660 µg/L) from the Zone A deep grid wells. The deep groundwater BRC was established at 2,660 µg/L, based on the deep groundwater grid-based sample results. A comparison with the deep groundwater BRC is warranted because review of the well boring logs for monitor wells A039GW017 (shallow, intermediate, and deep) and A039GW021 (shallow, intermediate, and deep), in addition to the results of the SWMU 39 CMS Technical Memorandum (EnSafe, 1999) indicate that Quaternary interbedded sands and clays in this area comprise a single unconfined aquifer system that overlies the Tertiary Ashley Formation. The boring logs for monitor wells A039GW017 and A039GW021 and Figure 3.1B from the technical memorandum are provided in Appendix E.

Because the shallow and deeper aquifer zones in Zone A appear interconnected, the concentrations of manganese reported in monitor wells A002GW001 and A002GW002 were likely associated with aquifer background concentrations observed in deep monitor wells. The detected concentrations were also comparable to the background range of nearby Zone B (shallow: 21.1 – 3,430 µg/L; deep: 31.8 – 894 µg/L). Based on this information, the detected concentrations of manganese appear consistent with background values. Therefore, manganese is not considered a COC at SWMU 2.

4.3.3 Silver

Silver was identified as a COC at SWMU 2, based on comparison of the single detected concentration to its RBC of 18 µg/L (based on an HI of 0.1). Silver was detected in one (A002GW004: 39.8 µg/L) of 19 samples collected at SWMU 2 as part of the RFI. It did not exceed its secondary MCL (SMCL) of 100 µg/L in any site groundwater sample. Silver did not exceed its RBC, based on a HI of 1, in any sample collected at SWMU 2.

Silver was not detected in any of the other five samples collected from monitor well A002GW004, including the most recent sample (October 1998, 4.5 U µg/L) that was collected after the completion of the RFI. Therefore, the single detection of silver in groundwater is considered anomalous. Because silver was not detected above its RBC (HI=1) or its SMCL in any groundwater sample collected at SWMU 2, it is not considered a groundwater COC.

4.4 Summary

Surface soil samples collected as part of the SWMU 2 investigation were found to contain lead, arsenic, and antimony at concentrations above their RBCs or BRCs, but below levels that represent a risk to shallow groundwater. Residual arsenic concentrations were determined to be within the range of background concentrations within Zone A. The calculated exposure concentrations of antimony (2 x mean and UCL_{95}) are below its RBC. Lead was identified above its residential cleanup level of 400 mg/kg, but was adequately removed as part of the IM completed at SWMU 2. The excavation also included two of the locations where antimony was detected and six locations where arsenic was detected.

Aluminum was identified as a COC in the Zone A RFI Report for site surface soil. Aluminum concentrations were found to be within the range of background concentrations. Aroclor 1260 was detected in site surface soil at concentrations that exceeded its RBC, but below the action level of 1 mg/kg. BEQs were detected above the RBC, but below the basewide BRC. Both beryllium and thallium were found at concentrations below their respective RBCs (HI=1).

Site groundwater was found to contain several metals above conservative screening criteria. However, after evaluating these constituents, no COCs were identified in site groundwater.

With the reduction of arsenic, antimony, and lead levels at SWMU 2 as part of the DET's IM in 1999, SWMUs 1 and 2 are suitable for future unrestricted land use. As such, CH2M-Jones recommends NFA for SWMUs 1 and 2.

TABLE 4-1
Mean Lead Concentration Calculation - Intermittent Wetland Area
CMS Work Plan, SWMU 2, Zone A, CNC

Samples	ID		Concentration (mg/kg)
RFI Samples			
	A002SB028		1,500
	A002SB029		1,050
	A002M003		1,110
	A002M004		876
	A002M005		441
DET Delineation Samples	NBCA002xxxx	SPORT	
	226-01	0639-60	6.1
	227-01	0639-64	15.6
	228-01	0639-63	18.9
	229-01	0639-62	15.4
	231-01	0639-70	10.6
	232-01	0639-69	7.04
	233-01	0639-67	26.5
	234-01	0639-65	27.1
	236-01	0639-74	18
	237-01	0639-76	20.8
	238-01	0639-75	6.24
	239-01	0639-73	12.9
	240-01	0639-71	73.4
	242-01	0639-80	14
	243-01	0639-83	10.9
	244-01	0639-84	12.1
	245-01	0639-82	9.39
	246-01	0639-79	13.1
	247-01	0639-77	12.2
	248-01	0642-22	10.8
	249-01	0639-86	8.49
	250-01	0642-6	6.08
	251-01	0642-10	11.8
	252-01	0642-7	7.54
	253-01	0642-3	5.04
	254-01	0639-87	11.8
	255-01	0639-85	7.9
	256-01	0642-23	12.8
	257-01	0642-11	9.16
	258-01	0642-9	22.9
	259-01	0642-8	19.6
	260-01	0642-5	7.96
	261-01	0642-4	15.6
	262-01	0642-2	21
	263-01	0642-1	108
	264-01	0642-24	8.17
	265-01	0642-13	22.8
	266-01	0642-25	7.86
	267-01	0642-26	12.6
	268-01	0642-15	7.67

TABLE 4-1
Mean Lead Concentration Calculation - Intermittent Wetland Area
CMS Work Plan, SWMU 2, Zone A, CNC

Samples	ID		Concentration (mg/kg)
	269-01	0642-16	5.09
	270-01	0642-14	7.19
	271-01		
	272-01	0642-27	120
	273-01	0642-12	6.84
	274-01	0642-19	10.8
	275-01	0642-20	11.3
	276-01	0642-17	5.04
	277-01	0642-18	6.43
	278-01	0642-28	9.12
	279-01	0642-29	36.5
	280-01	0642-30	40.1
Number of Samples =	56	Mean =	105.6

TABLE 4-2
Mean Lead Concentration Calculation
Samples Collected Near A002SB020 and A002SB021
CMS Work Plan, SWMU 2, Zone A, CNC

Samples	ID		Concentration (mg/kg)
RFI Samples			
	A002SB020		3,870
	A002SB021		584
DET Delineation Samples	NBCA002xxxx	SPORT	
	058-01	0636-13	7.55
	059-01	0636-15	4.71
	060-01	0636-17	2.7
	069-01	0636-35	23.9
	074-01	0636-45	68.6
	083-01	0639-8	13.2
	084-01	0639-9	25.9
	085-01	0639-10	5.45
	090-01	0639-15	24.3
	091-01	0639-16	22.3
	092-01	0639-17	390
	093-01	0639-18	46.8
	095-01	0639-21	781
	096-01	0639-22	187
	097-01	0639-23	2230
	098-01	0639-24	5.22
	099-01	0639-25	172
	100-01	0639-26	0.536
	101-01	0639-27	0.938
	103-01	0639-29	7.51
	104-01	0639-30	6.51
	105-01	0639-31	19.8
	106-01	0639-32	8.19
	107-01	0639-33	0.543
	108-01	0639-34	0.705
	109-01	0639-35	1.85
Number of Samples =	28	Mean =	304.0

TABLE 4-3
Mean Lead Concentration Calculation - Samples Collected Near AS02SB016
CMS Work Plan, SWMU 2, Zone A, CNC

Samples	ID		Concentration (mg/kg)
RFI Samples			
	AS002SB016		1,100
DET Delineation Samples	NBCA002xxxx	SPORT	
	196-01	0639-37	4.83
	197-01	0639-38	4.58
	198-01	0639-39	4.8
	199-01	0639-41	58.2
	202-01	0639-42	21.9
	203-01	0639-43	17.6
	204-01	0639-44	14.6
	205-01	0639-45	2.25
	206-01	0639-46	71.1
	207-01	0639-47	10.3
	208-01	0639-48	145
	209-01	0639-49	40.7
	210-01	0639-50	351
	211-01	0639-51	15.2
	212-01	0639-52	24.3
	213-01	0639-53	4.7
	214-01	0639-54	11.9
	215-01	0639-55	101
	216-01	0639-56	10.5
	217-01	0639-57	27.4
	218-01	0639-58	59.2
	219-01	0639-59	34.8
Number of Samples =	23	Mean =	92.9

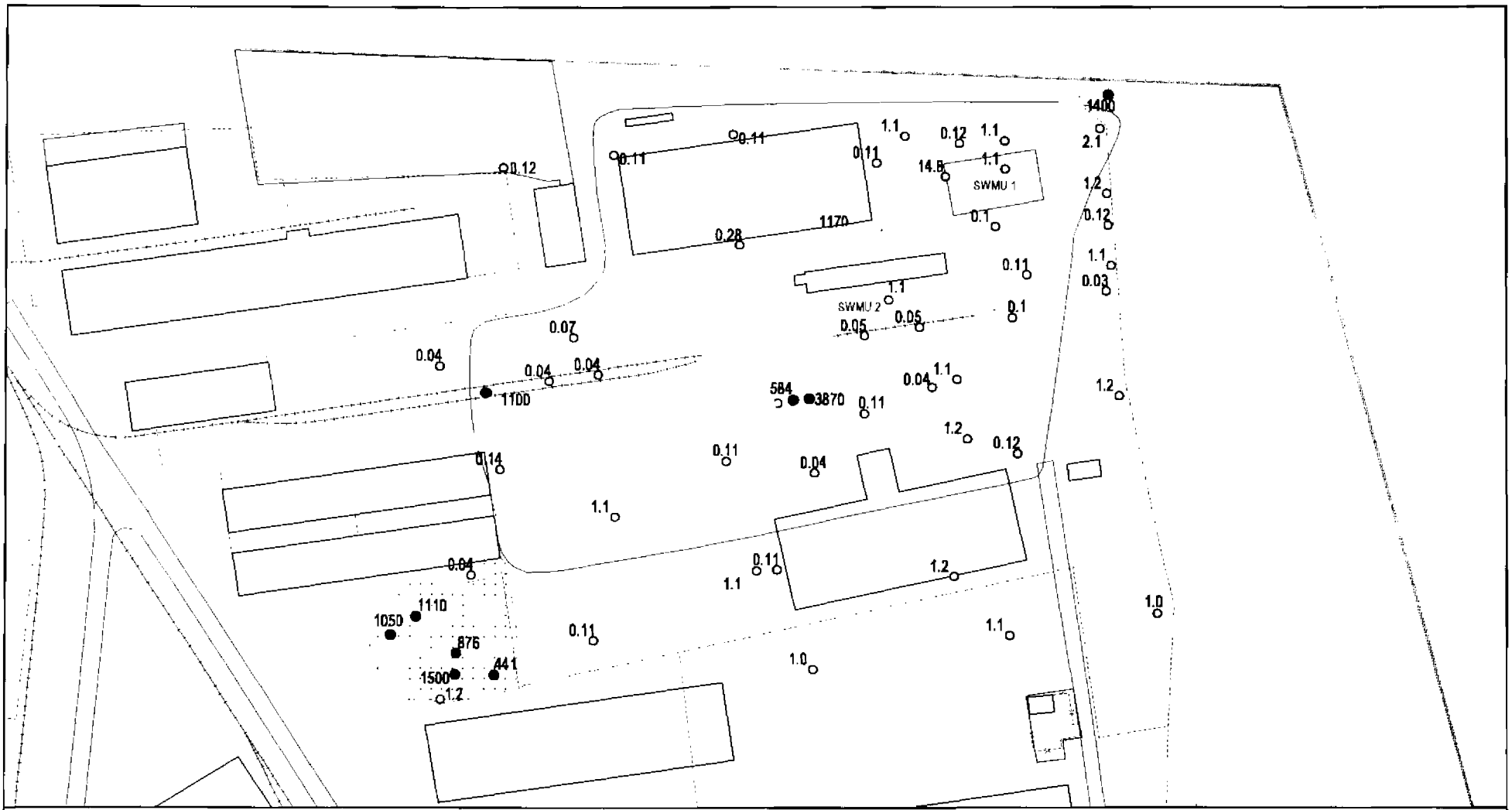
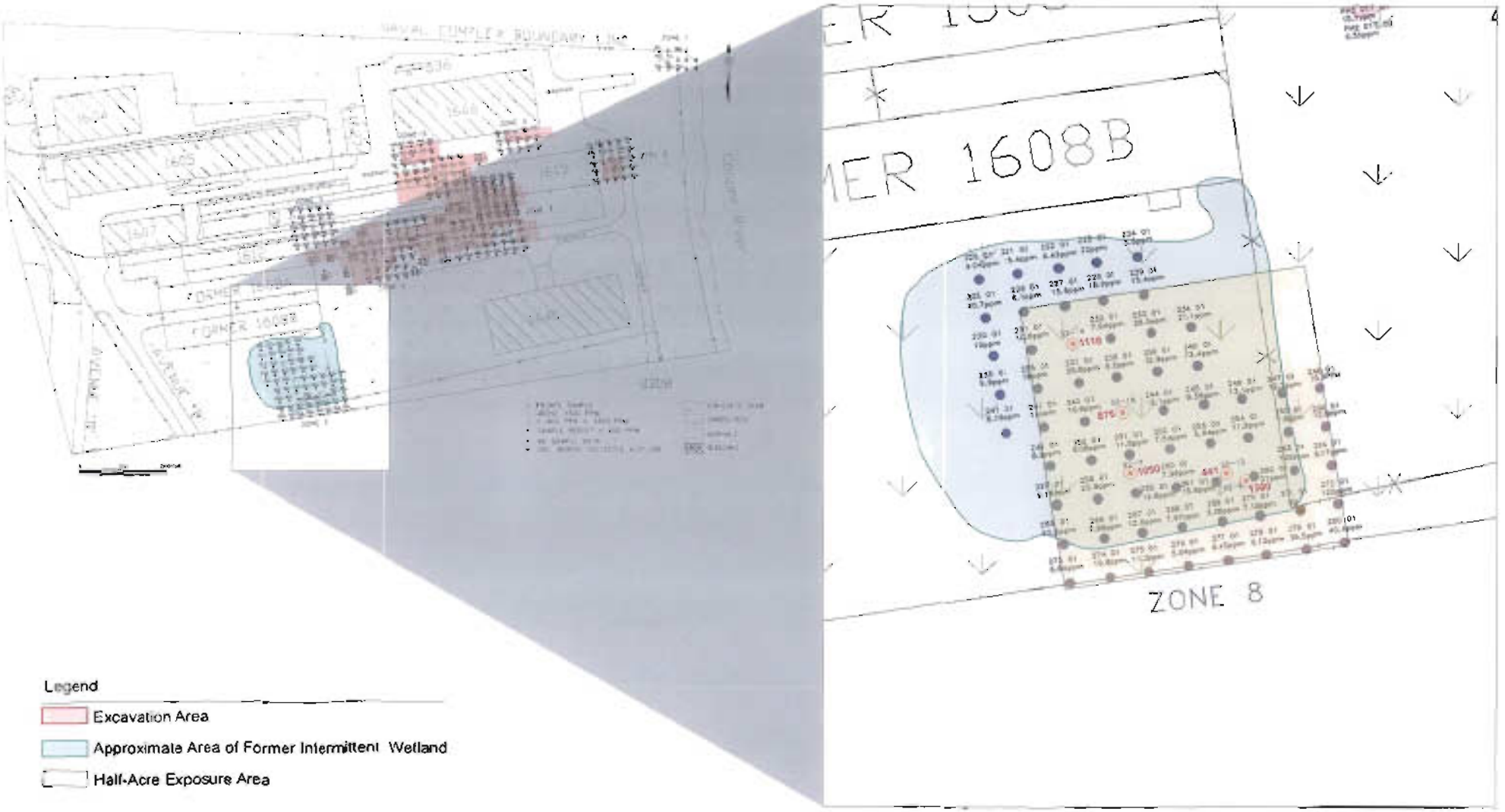


Figure 4-1
Residual Lead Concentrations
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL



Source: Environmental Detachment Charleston, SC. Figure 2 SWMU 2 1998 Boring Locations and Results

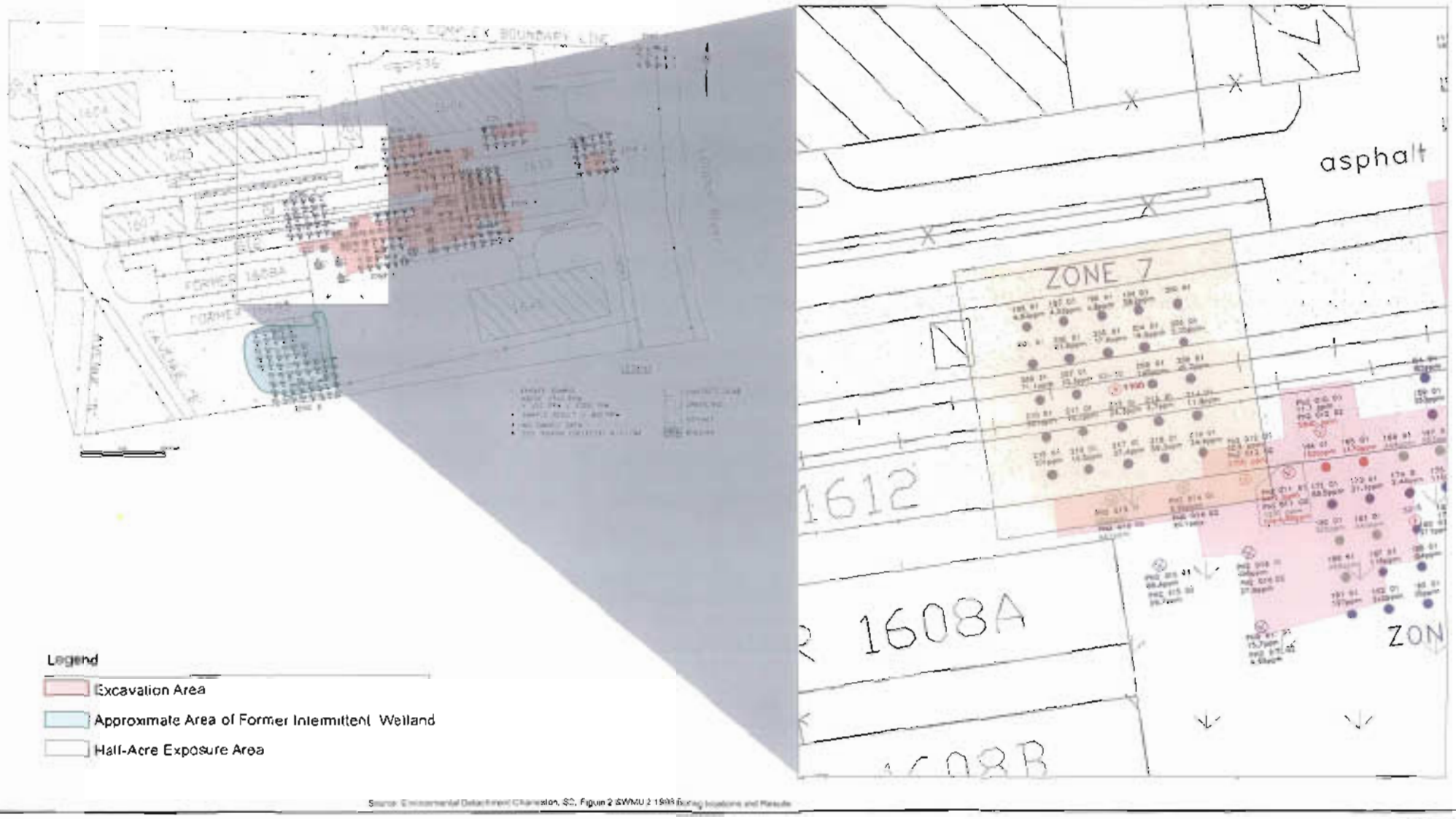
0 50 100 Feet

Figure 4-2
Half-Acre Exposure Area and Lead Sample Results from Former Intermittent Wetland Area
SWMU 2, Zone A
Charleston Naval Complex

CH2MHILL

Source: Environmental Department Charleston, SC. Figure 2 SWMU 2 Well Boring locations and Results

Figure 4-3
Half-Acre Exposure Area and Lead Sample Results Collected Near A002SB020 and A00SB021
SWMU 2, Zone A
Charleston Naval Complex
CH2MHILL



Source: Environmental Detachment Charleston, SC. Figure 2 SWMU 2 1998 Boring locations and Results

Figure 4-4
Half-Acre Exposure Area and Lead Sample Results Collected Near AS02SB016
SWMU 2, Zone A
Charleston Naval Complex

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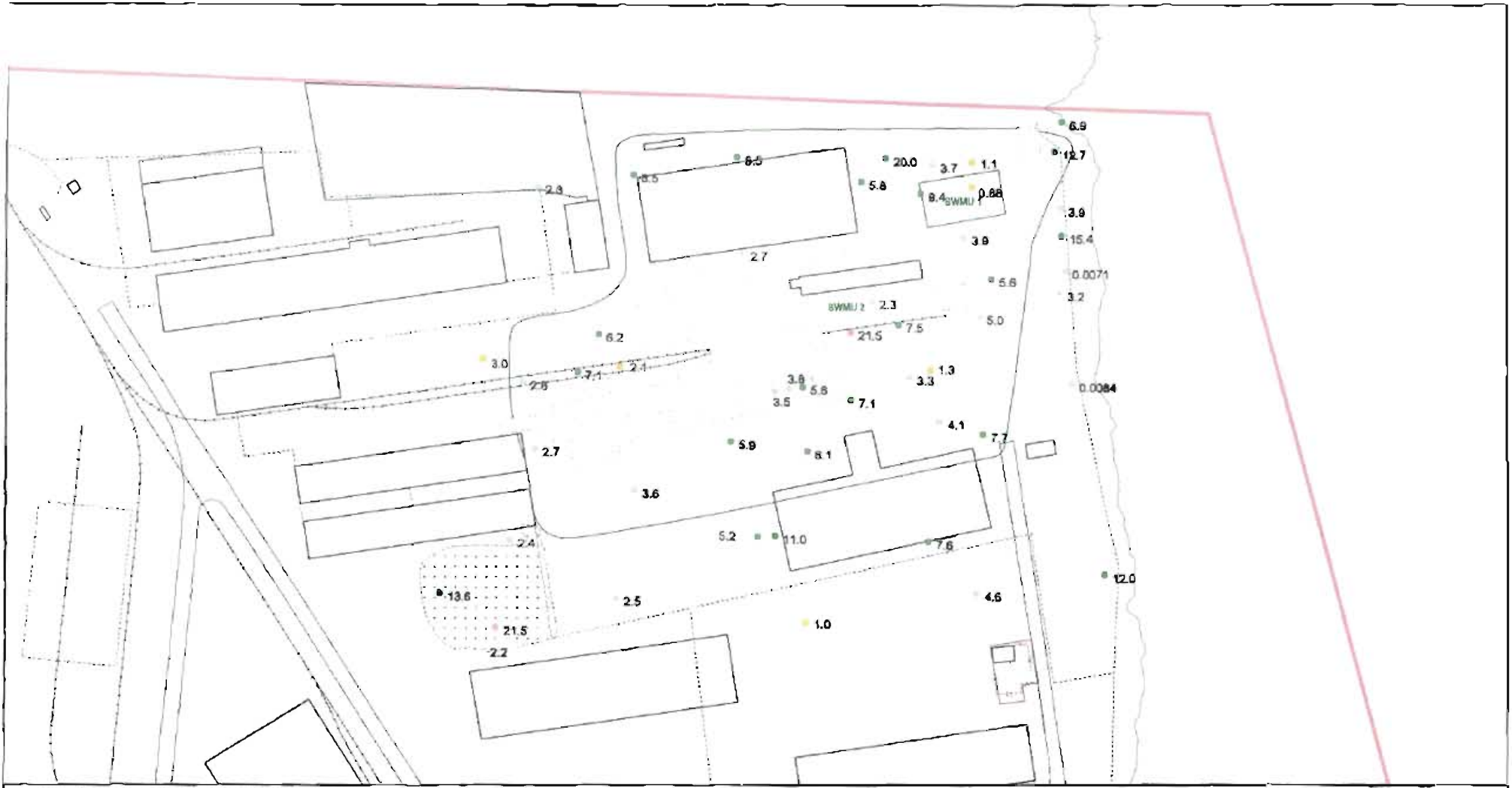

Figure 4-6
Residual Arsenic Concentrations
Surface Soil, SWMU 2, Zone A
Charleston Naval Complex

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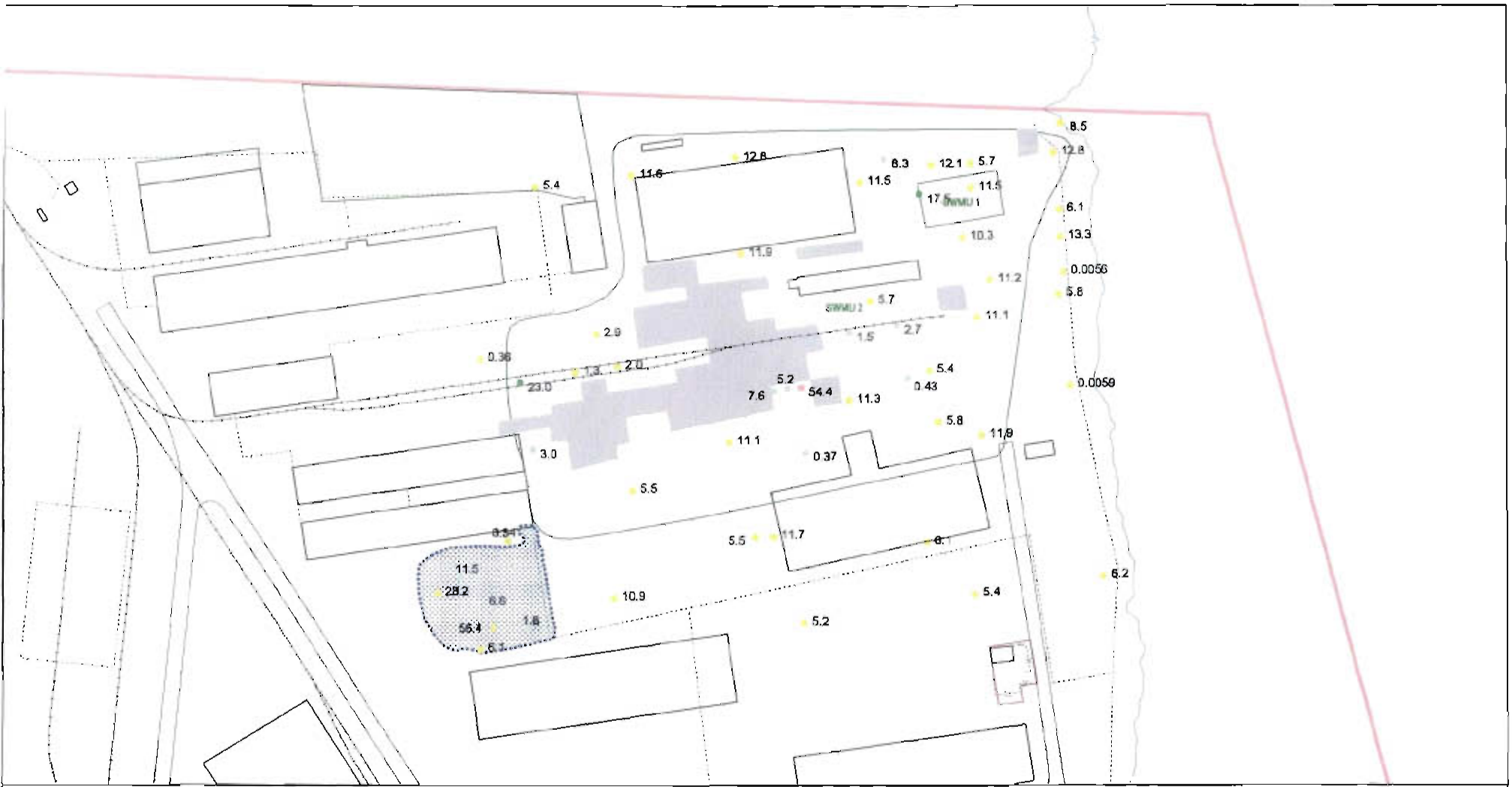

Approximate Area of DET's IM Excavation
Buildings
AOC Boundary
SWMU Boundary
Zone Boundary
Roads
Fence
Railroads

Sb (non-detects, U)
0.37 - 15 (Sb, mg/kg)
15 - 31 (Residential RBC)
31 - 55
> 55 mg/kg
6.1 Antimony Concentration (mg/kg)

N
0 100 200 Feet

Note: Original figure produced in color.

Figure 4-6
Residual Antimony Concentrations
SWMU 2, Zone A
Charleston Naval Complex

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SECTION 5.0

Summary of Information Related to Site Closeout Issues

5.0 Summary of Information Related to Site Closeout Issues

5.1 Presence of Inorganics in Groundwater

For the purpose of site closeout documentation, the inorganics in groundwater issue refers to the occasional or intermittent detection of several metals, primarily arsenic, thallium, and antimony, in groundwater at concentrations above the applicable MCL, preceded or followed by detections of these same metals below the MCL, or below the practical quantitation limit.

Groundwater samples collected in the SWMU 2 vicinity (A002GW001 to –005; A002GW007; A002GW008; A039GW006; and A039GW007) were evaluated groundwater quality as part of this CMS WP. Monitor well A039GW021 is also located within SWMU 2, but samples collected from this well were not analyzed for metals. DPT groundwater samples were also collected near SWMU 2, but were not compared to groundwater criteria as they contained suspended solids. (Suspended solids can cause elevated results that are not representative of actual groundwater quality.) The DPT samples collected near SWMU 2 are also hydraulically upgradient of the site. Data from the groundwater wells are presented in Table 5-1. A brief discussion of the presence of these analytes is presented below.

5.1.1 Arsenic

As discussed in Section 3.3, arsenic was not reliably detected in groundwater samples at SWMU 2. As such, further investigation of arsenic in groundwater is not warranted.

5.1.2 Antimony

The data presented in Table 5-1 indicate that antimony was not detected in any groundwater sample collected at SWMU 2. Therefore, antimony in groundwater does not require further evaluation at SWMU 2.

5.1.3 Thallium

Thallium was not detected in any groundwater sample collected at SWMU 2 (see Table 5-1). Therefore, further evaluation of thallium at SWMU 2 is not warranted.

5.2 Potential Linkage to Sanitary Sewers (SWMU 37)

The investigation of the sanitary sewer was designed to include segments of the sewer where releases of contamination were known or considered likely to have occurred. There were no investigated sanitary sewer lines near SWMU 2. There are no known connections of SWMUs 1 or 2 to the sanitary sewer. The nearest investigated sanitary sewer line is located more than 400 feet to the south of SWMU 2. Consequently, further evaluation of a potential linkage of SWMU 2 to the sanitary sewers is not warranted.

5.3 Potential Linkage to Storm Sewers (AOC 699)

Potential linkage of a SWMU or AOC to the storm sewer refers to the possibility of a groundwater plume at a SWMU or AOC migrating into a stormwater sewer from within which it would subsequently migrate to the water bodies around the CNC or to the presence of a cross-connection between the sanitary sewer and storm sewer, which could transport pollutants directly to surface waters. Regarding the first of these potential linkages, because the most recent data suggest that there are no contaminants currently present above their respective MCLs in site groundwater, there is no excessively contaminated groundwater plume to migrate to a storm sewer. Therefore, no potential linkage of this SWMU to a storm sewer exists.

Regarding the second potential linkage issue, there is no data or information indicating that SWMU 2 has impacted the sanitary sewer. The nearest investigated storm sewer line is approximately 3,500 feet to the south of SWMU 2. Therefore, there is no data indicating that a cross-connection exists between the sanitary and storm sewers. As such, further evaluation of a potential linkage between SWMU 2 and the storm sewers is not warranted.

5.4 Potential Linkage to Railroad Lines (AOC 504)

The potential linkage of a SWMU or AOC to a railroad potentially applies only to SWMUs or AOCs at which an investigated portion of the railroad system, identified as AOC 504 in the *Zone L RFI Work Plan*, passes through or directly adjacent to the AOC or SWMU.

Although investigated railroad lines are present within SWMU 2, additional samples were not proposed for this segment of the railroad as part of the AOC 504 investigation in the *Zone L RFI Work Plan*. The SWMU 2 investigative sampling was considered sufficient to characterize this section of the railroad (AOC 504-AQ, *Zone L RFI Work Plan*). Because SWMU 2 data were used in the evaluation of the railroad (AOC 504), it is unlikely that any linkage between the SWMU and the railroad line could be overlooked.

The data analyzed as part of the SWMU 2 investigation did not indicate the presence of contamination at concentrations that would require remedial action. Additionally, the only COC identified in the Zone L (Subzone A) RFI was BEQs. BEQs were identified as a COC in the SWMU 2 investigation; however, they were based on a single exceedance (A002M000401: 90.9 µg/kg) of the RBC (88 µg/kg). Subsequent analysis of basewide BEQ values indicated that this concentration was below the newly established BRC for BEQs (1,304 µg/kg). Based on this information, further evaluation of a potential linkage between the AOC 504 and the subject site is not necessary.

5.5 Potential Migration Pathways to Surface Water Bodies

Surface water was studied separately as part of the *Zone J Draft RCRA Facility Investigation Report* (EnSafe, 2000). The *Zone J Draft RCRA Facility Investigation Report* includes the investigated surface water bodies. The nearest investigated surface water body to SWMU 2 is the Cooper River, which is adjacent to the site, towards the east.

There are two possible migration pathways for contaminants to affect surface water: overland flow via stormwater runoff and subsurface flow via groundwater. The fact that a significant source area of contamination is not currently present at SWMU 2 indicates that surface water runoff from SWMU 2 would not be an ecological concern at the Cooper River.

Therefore, further evaluation of a potential pathway for contaminant migration via stormwater runoff is not warranted.

A groundwater contaminant plume above applicable MCLs was not reliably identified at SWMU 2. Therefore, further evaluation of a potential contaminant migration via groundwater migration is not warranted.

5.6 Potential Contamination in OWSs

The potential contamination of OWSs issue refers to the possible presence of an OWS that has not yet been investigated at a SWMU or AOC as part of the RCRA or underground storage tank (UST) process.

Neither the RFA nor the RFI refers to the presence or possible presence of an OWS at SWMU 2. Additionally, as part of a sitewide evaluation of the presence of OWSs, during 2000, the Navy completed a comprehensive review of its records and facilities to identify the presence of OWSs. A list of 27 known OWSs was provided to the BCT members, including DHEC staff, at the BCT meeting in September 2000. A copy of this list is provided in Appendix F. This lists represents all known OWSs at the CNC. No OWS was identified at SWMU 2. On this basis, further evaluation of this issue for SWMU 2 is not warranted.

5.7 Land-Use Control Management Plan

Evaluation of the data associated with SWMU 2 indicates that contaminant concentrations are consistent with levels that are considered acceptable for unrestricted use. Therefore, land-use controls are not expected to be necessary at SWMU 2.

TABLE 5-1
Inorganics in Groundwater Analytical Results
CMS Work Plan, SWMU 2, Zone A, CNC

Sample			Antimony		Arsenic		Thallium	
Station	ID	Date	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier	Result (mg/L)	Qualifier
		BRC MCL	6		50		2	
A002GW001	S02G000101	11/15/1993	50.00	U	10.00	U	10.00	U
	CNSGW00101	09/28/1995	51.00	U	4.00	U	4.00	UJ
	002GW00102b	04/22/1996	5.40	U	2.00	U	3.00	UJ
	002GW00103	06/20/1996	9.00	U	2.00	U	3.00	U
	002GW00104	10/07/1996	2.00	U	2.10	U	3.10	U
A002GW002	S02G000201	11/15/1993	50.00	U	10.00	UJ	50.00	UJ
	CNSGW00201	09/29/1995	51.00	U	4.00	U	4.00	UJ
	002GW00202	04/23/1996	6.60	U	2.00	U	3.00	UJ
	002GW00203	06/19/1996	9.00	U	2.00	U	3.00	UJ
	002GW00204	10/04/1996	2.00	U	2.10	U	3.10	U
	002GW002C1	10/15/1998	18.00	U	1.00	U	1.60	U
A002GW003	S02G000301	11/15/1993	50.00	U	10.00	U	10.00	U
	CNSGW00301b	09/28/1995	51.00	U	4.00	U	4.00	UJ
	002GW00302	04/22/1996	6.80	U	2.00	U	3.00	U
	002GW00303	06/19/1996	9.00	U	2.00	U	3.00	U
	002GW00304	10/04/1996	2.00	U	2.20	J	3.10	U
	002GW003C1	10/15/1998	18.00	U	3.50	J	1.60	U
A002GW004	S02G000401	11/15/1993	50.00	U	10.00	U	50.00	U
	CNSGW00401	09/29/1995	51.00	U	5.80	J	4.00	UJ
	002GW00402	04/23/1996	4.00	U	7.00	U	3.00	UJ
	002GW00403	06/19/1996	9.00	U	4.60	J	3.00	U
	002GW00404	10/04/1996	2.00	U	10.30	J	3.10	U
	002GW004C1	10/15/1998	18.00	U	7.00	J	1.60	U
A002GW005	S02G000501	11/15/1993	50.00	U	**89.00**	=	100.00	U
	CNSGW00501b	09/28/1995	51.00	U	4.00	U	4.00	UJ
	002GW00502	04/23/1996	4.90	U	2.00	U	3.00	UJ
	002GW00503	06/20/1996	9.00	U	2.00	U	3.00	U
A002GW007	002GW007C1	10/19/1998	18.00	U	4.80	J	1.60	U
A002GW008	002GW008C1	10/19/1998	18.00	U	1.30	J	1.60	U
A039GW006	039GW00604	10/10/1996	NS		NS		NS	
	039GW00606	10/04/1997	1.60	U	5.60	J	5.00	U
	039GW006C1	10/15/1998	18.00	U	2.80	J	1.60	U

TABLE 5-1
Inorganics in Groundwater Analytical Results
CMS Work Plan, SWMU 2, Zone A, CNC

Sample			Antimony		Arsenic		Thallium	
Station	**ID**	**Date**	**Result (mg/L)**	**Qualifier**	**Result (mg/L)**	**Qualifier**	**Result (mg/L)**	**Qualifier**
		BRC						
		MCL	6		50		2	
A039GW007	039GW00704	10/11/1996	NA		3.30	J	NA	
	039GW00706	10/05/1997	1.60	U	9.60	J	5.00	U
	039GW007C1	10/15/1998	18.00	U	6.00	J	1.60	U

Bolded and outlined values are exceedances of background reference concentrations (BRCs) and MCLs.

=	Analyte was detected; the reported value is equal to the sample concentration.
J	Analyte was detected; the reported value is an estimated concentration.
MCL	Maximum Contaminant Level
NA	Analyte was not analyzed for in the sample.
U	Analyte was not detected; the reported value is the detection limit.
UJ	Analyte was not detected; the reported value is an estimated detection limit.

SECTION 6.0

References

6.0 References

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APPENDIX A

Section 10.2 (SWMU 2) Excerpts from Zone A RFI

A-1

Table 10.2.6
SWMU 2
Inorganics Detected in Soil

Element	Sample Interval	Frequency of Detection	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding'
Inorganics (125 samples collected: 68 upper interval and 57 lower interval, 12 samples duplicated)							
Aluminum	Upper	68/68	1,280 - 40,100	7,500	12,800	78,000	0
	Lower	57/57	2,400 - 95,000	9,470	28,240	NA	1
Antimony	Upper	23/68	0.37 - 470	31.0	**	31	3
	Lower	8/57	0.51 - 13	3.8	**	NA	NA
Arsenic	Upper	62/68	0.93 - 29.4	8.3	9.4	0.43	18
	Lower	54/57	1.1 - 26.5	5.1	9.8	NA	2
Barium	Upper	67/68	3.6 - 260	39.6	53.0	5,500	0
	Lower	57/57	6.8 - 58.0	16.7	40.0	NA	2
Beryllium	Upper	25/68	0.05 - 2.1	0.83	**	0.15	16
	Lower	17/57	0.05 - 0.85	0.23	**	NA	NA
Cadmium	Upper	32/68	0.12 - 7.8	2.7	**	39	0
	Lower	8/57	0.09 - 6.3	1.1	**	NA	NA
Calcium	Upper	68/68	529 - 356,000	43,600	NA	NA	NA
	Lower	57/57	361 - 316,000	66,400	NA	NA	NA
Chromium	Upper	67/68	3.2 - 112	21.3	50.4	390	0
	Lower	57/57	3.9 - 150	25.5	63.4	NA	4
Chromium (hexavalent)	Upper	4/5	0.026 - 0.10	0.053	NA	390	0
	Lower	1/2	0.020	NA	NA	NA	NA
Cobalt	Upper	49/68	0.24 - 66.9	6.2	4.4	4,700	0
	Lower	21/57	0.32 - 2.5	1.1	1.7	NA	4
Copper	Upper	66/68	0.78 - 972	75	169	3,100	0
	Lower	20/57	0.83 - 99.5	17	30.7	NA	1
Iron	Upper	68/68	490 - 34,200	10,200	NA	NA	NA
	Lower	57/57	2,700 - 24,200	8,350	NA	NA	NA
Lead	Upper	67/68	1.9 - 57,800	1,500	140	400	48
	Lower	5/57	3.4 - 1,020	35.6	22.1	NA	1

Table 10.2.6
SWMU 2
Inorganics Detected in Soil

Element	Sample Interval	Frequency of Detection	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding[a]
Inorganics (125 samples collected: 68 upper interval and 57 lower interval, 12 samples duplicated)							
Magnesium	Upper	67/68	96.1 - 5,300	1,110	NA	NA	NA
	Lower	57/57	160 - 9,970	2,180	NA	NA	NA
Manganese	Upper	68/68	3.1 - 2,380	96.4	98.1	1,800	1
	Lower	57/57	3.9 - 308	48.0	65.5	NA	0
Mercury	Upper	41/68	0.015 - 15	1.1	0.30	23	0
	Lower	21/57	0.018 - 0.250	0.061	**	NA	NA
Nickel	Upper	59/68	1.0 - 168	12.6	13.6	1,600	0
	Lower	39/57	0.89 - 33.9	12.1	33.0	NA	0
Potassium	Upper	61/68	68.9 - 2,760	444	NA	NA	NA
	Lower	51/57	110 - 1,620	541	NA	NA	NA
Selenium	Upper	28/68	0.43 - 1.7	1.1	1.2	390	0
	Lower	26/57	0.45 - 5.9	1.8	1.7	NA	7
Silver	Upper	5/68	0.36 - 7.8	2.3	**	390	0
	Lower	0/57	NA	NA	**	NA	NA
Sodium	Upper	61/68	72.1 - 1,110	253	NA	NA	NA
	Lower	55/57	57.1 - 6,200	512	NA	NA	NA
Thallium	Upper	9/68	0.48 - 2.3	1.2	**	6.3	0
	Lower	7/57	0.43 - 3.3	1.2	**	NA	NA
Tin	Upper	31/68	1.2 - 9.5	2.4	2	47,000	0
	Lower	11/57	1.2 - 10.1	2.4	2	NA	NA
Vanadium	Upper	68/68	1.6 - 114	20.9	29.2	550	0
	Lower	57/57	5.5 - 47.8	22.2	77.3	NA	0
Zinc	Upper	68/68	3.2 - 1,460	210	20.5	23,000	0
	Lower	57/57	1.2 - 23.1	20.1	18.5	NA	0

Notes:
a = Number of samples exceeding both RBC and RC in upper interval or number of samples exceeding the reference concentration (RC) in the lower interval.
b = RBC not available for lead. USEPA (1994f) residential soil cleanup level used for comparison (OSWER Directive 9355.4-12).
** = Number of nondetects prevented determination of UTL.

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Surface Soils

Hypothetical Site Residents

Aluminum, antimony, Aroclor 1260, arsenic, benzo(a)pyrene equivalents, beryllium, and thallium were identified as the soil pathway COCs based on their contribution to cumulative ILCR and/or HI projections. Lead was identified as a soil COC based on the Lead Model results.

Hypothetical Site Workers

Arsenic was identified as the a pathway COC based on its contribution to cumulative ILCR projections. Lead was identified as a soil COC based on the results of the Adult Lead Model.

The extent of the COCs identified in surface soil is briefly discussed below. To facilitate this discussion of the extent of COC concentrations, residential soil RBCs were compared to each reported concentration for each COC identified above. Aluminum was detected above its residential RBC (7,800 mg/kg) in 20 of 62 surface soil samples, and was detected above its background concentration (12,800 mg/kg) in only four surface soil samples. Antimony was detected above its residential RBC in 13 of 62 surface soil samples. Arsenic was detected above its residential soil RBC (0.43 mg/kg) in 60 of 62 surface soil samples. However, the background concentration for arsenic was exceeded only 15 times and the mean concentration for SWMU 2 surface-soil (7.7 mg/kg) is less than the background concentration (9.44 mg/kg). Beryllium was detected above its residential soil RBC in 12 of 62 surface soil samples. Surface soil concentrations of lead exceeded both the residential soil cleanup level of 400 mg/kg (16 of 68 samples) and the adult (site worker) soil cleanup level of 1,300 mg/kg (5 of 62 samples). Thallium was detected above its residential RBC in only six of 68 surface soil samples. One surface soil sample collected from the former wetland area was analyzed for organic parameters. The concentrations of Aroclor 1260 and benzo(a)pyrene equivalents reported in this sample exceeded their respective residential RBCs. Risk maps are presented in Section 10.2.8.7, Risk Summary, that illustrate the extent of the surface soil COCs.

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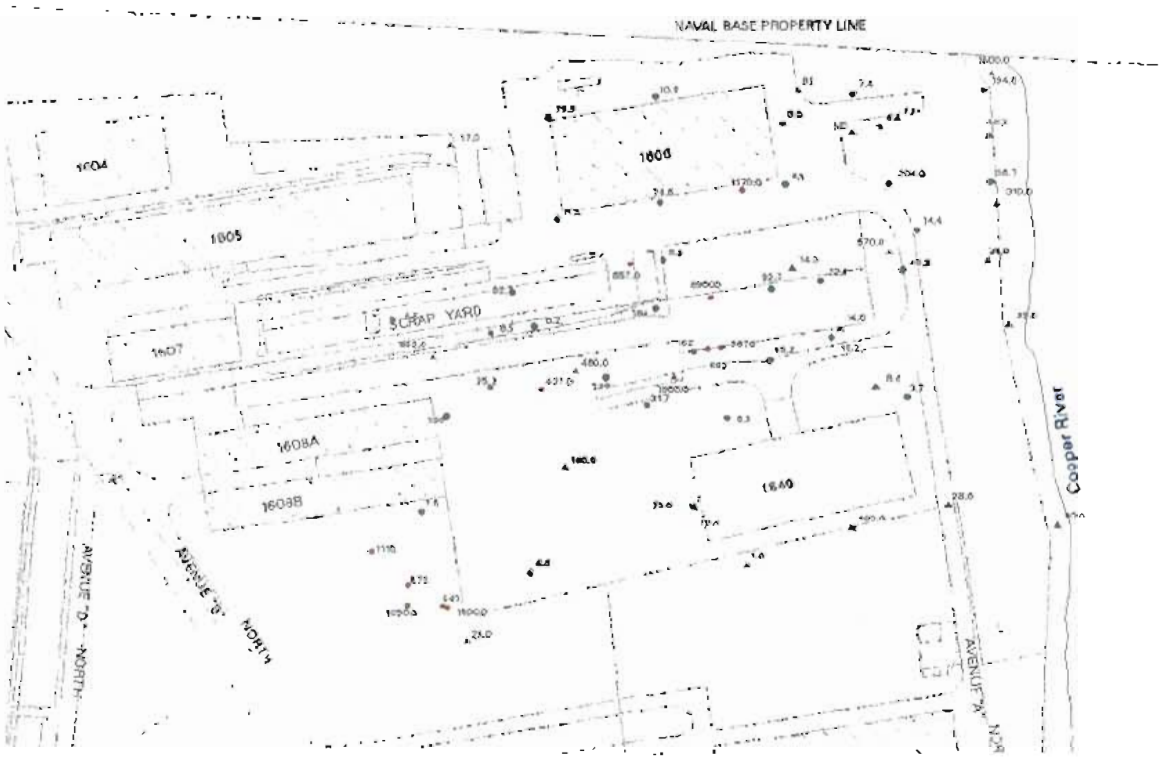
Figure 10.2.5

Hess Oil Tank Farm



0 200 feet

LEGEND

- • 1995/97 Boring Location
- ▲ 1993 Boring Location
- ▲12.3 - Lead Concentration Value (ppm)
- ▲ Red Indicates Concentration Exceeds USEPA Residential Soil Cleanup Level (400 ppm)

Zone A RCRA Facility Investigation Report
Naval Base Charleston
Charleston, SC

FIGURE 10.2.5 - SWMU 2
Soil Sample Lead Results

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Pages 10.2.42 and 10.2.45

10.2.7 Fate and Transport Assessment for SWMU 2 (includes SWMU 1)

SWMU 1 was formerly used by the Defense Reutilization and Marketing Office (DRMO) as a storage area for waste material amassed as a result of local armed forces activities. The portion of this waste considered hazardous was stored in a shed formerly known as Building 1617. SWMU 2 was formerly used to store lead recovered from lead-acid submarine batteries. Both SWMU 1 and SWMU 2 were the foci of previous investigations. SWMU 1 was granted clean closure for soils in 1993 based on human health risk-based clean-up goals developed in *Risk Assessment and Development of Risk-based Clean-up Goals for the Charleston Naval Shipyard* (Gradient 1991 and subsequent revisions). Results from the SWMU 1 soil and groundwater samples collected during the Zone A RFI substantiated the 1993 clean closure decision. SWMU 2 lead contamination was investigated in 1986 and again in 1993 in addition to the RFI.

10.2.7.1 SWMU 2 - Soil to Groundwater Cross-Media Transport

Tables 10.2.11 and 10.2.12 compare the maximum detected concentrations of organic and inorganic chemicals reported in soil (68 surface samples and 57 subsurface samples) to the risk-based soil screening levels considered protective of groundwater. As shown on Table 10.2.11, none of the organic constituents was reported at a concentration exceeding its soil-to-groundwater SSL. As shown on Table 10.2.12, ten inorganics — antimony, arsenic, cadmium, chromium, lead, manganese, mercury, nickel, selenium, and thallium — were identified for further evaluation of soil-to-groundwater migration based on the screening process presented in Section 6. Except for lead and manganese, none of these inorganics was detected in SWMU 2 groundwater (including all four quarters) at a concentration above its tap water RBC or background reference concentration. Soil-to-groundwater SSL exceedences were noted in more surface soil samples than subsurface soil samples for antimony (18 surface soil and two subsurface soil samples), arsenic (eight surface soil and one subsurface soil samples), cadmium (seven surface soil and one subsurface soil samples), and lead (16 surface soil and one subsurface soil samples). Soil-to-groundwater exceedences for manganese (one exceedence), nickel (one exceedence), and

mercury (five exceedences) were reported from only a few surface soil samples. Exceedences of selenium were found in only three subsurface soil samples. Antimony, mercury, and selenium were not detected in groundwater through four quarters of sampling. Groundwater concentrations of arsenic, cadmium, and nickel were reported below their tap water RBCs or background reference concentrations. Lead was reported in only one groundwater sample (the second-quarter sample from well NBCA-002-005) at a concentration above its TTAL. Manganese was reported in groundwater sampled during all four quarters at concentrations exceeding both its tap water RBC and its background reference concentration. These findings indicate that soil concentrations of antimony, arsenic, cadmium, lead, mercury, nickel, and selenium do not present a substantial or widespread threat to SWMU 2 groundwater. Although manganese was reported in SWMU 2 groundwater at levels exceeding screening concentrations, soil is not a likely source for these concentrations because the only manganese SSL exceedance was in surface soil. Additionally, it is not uncommon to find naturally occurring manganese in groundwater in the esturine environments of NAVBASE.

Thallium was reported in nine surface soil samples and seven subsurface soil samples at concentrations exceeding its soil-to-groundwater SSL; however, it was reported as nondetect in groundwater (including all four quarters). Similarly, chromium was reported in 27 surface soil samples and 23 subsurface soil samples but was not detected in groundwater at concentrations exceeding its tap water RBC (including all four quarters). Chromium was screened assuming it to be hexavalent, a more soluble (and toxic) form of chromium. Trivalent chromium is considered by USEPA's Soil Screening Guidance to be highly immobile. Surface and subsurface soil samples analyzed for hexavalent chromium indicate that it comprises a very small percentage of total chromium. As a result, soil concentrations of chromium and thallium do not present a substantial threat to groundwater.

Figures 10.2.9 through 10.2.16 summarize all SSL exceedances and groundwater detections for the ten metals discussed in this section.

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Page 10.2.108 and Table 10.2.27

Groundwater

Hypothetical Site Residents (future land use)

Arsenic, manganese, and silver were identified as shallow groundwater COCs based on their contribution to cumulative risk and/or hazard index.

Hypothetical Site Workers (future land use)

Arsenic was identified as a shallow groundwater COC based on its contribution to cumulative ILCR.

The extent of the COCs identified in shallow groundwater is briefly discussed below. Arsenic was detected in 4 of 19 groundwater samples with the highest concentrations in samples collected from monitoring well NBCA-002-004 during the first, third and fourth quarters. Manganese was detected in 17 of 19 groundwater samples with the highest concentrations in samples collected from monitoring well NBCA-002-002. Silver was detected in only one of 19 groundwater samples; specifically, the fourth quarter sample collected from monitoring well NBCA-002-004.

10.2.8.6 Risk Uncertainty

Characterization of Exposure Setting and Identification of Exposure Pathways

The potential for high bias is introduced through the exposure setting and pathway selection due to the highly conservative assumptions (i.e., future residential use) recommended by USEPA Region IV when assessing potential future and current exposure. The exposure assumptions made in the site worker scenario are highly protective and would tend to overestimate exposure.

Residential use of the site would not be expected, based on current site uses and the nature of surrounding buildings. Current reuse plans call for continued commercial/industrial use of Zone A, specifically as a marine cargo terminal. If this area were to be used as a residential site, the buildings and other structures would be demolished, and the surface soil conditions would

Table 10.2.27
Summary of Risk and Hazard-based COCs
SWMU 2
NAVBASE - Charleston , Zone A
Charleston, South Carolina

Medium	Exposure Pathway		Future Resident Adult Hazard Quotient	Future Resident Child Hazard Quotient	Future Resident Iwa ILCR	Site Worker Hazard Quotient	Site Worker ILCR	Identification of COCs
Surface Soil	Incidental Ingestion	**Inorganics**						
		Aluminum	0.012	0.11	ND	0.0043	ND	1
		Antimony	0.044	0.41	ND	0.016	ND	1
		Arsenic	0.051	0.48	2.6E-05	0.018	3.0E-06	1 2 4
		Beryllium	0.000085	0.00080	2.1E-06	0.000031	2.3E-07	2
		Cadmium	0.0035	0.032	ND	0.0012	ND	
		Chromium	0.000035	0.00032	ND	0.000012	ND	
		Lead	ND	ND	ND	ND	ND	*
		Manganese	0.0032	0.030	ND	0.0012	ND	
		Mercury	0.0023	0.021	ND	0.00081	ND	
		Nickel	0.0016	0.015	ND	0.00056	ND	
		Thallium	0.014	0.13	ND	0.0050	ND	1
		Vanadium	0.005	0.047	ND	0.0018	ND	
		Carcinogenic PAHs/PCBs						
		Aroclor 1260	ND	ND	1.6E-06	ND	1.7E-07	2
		Benzo(a)pyrene equivalents	ND	ND	1.0E-06	ND	1.2E-07	2
	Dermal Contact	**Inorganics**						
		Aluminum	0.0025	0.0081	ND	0.0018	ND	
		Antimony	0.0090	0.030	ND	0.0064	ND	
		Arsenic	0.0105	0.035	3.0E-06	0.0075	1.2E-06	2
		Beryllium	0.000018	0.000058	2.4E-07	0.000013	9.6E-08	
		Cadmium	0.00071	0.0023	ND	0.00051	ND	
		Chromium	0.0000071	0.000023	ND	0.0000051	ND	
		Manganese	0.00067	0.0022	ND	0.00048	ND	
		Mercury	0.00046	0.0015	ND	0.00033	ND	
		Nickel	0.00032	0.0011	ND	0.00023	ND	
		Thallium	0.0029	0.0095	ND	0.0020	ND	
		Vanadium	0.00102	0.0034	ND	0.00073	ND	
		Carcinogenic PAHs/PCBs						
		Aroclor 1260	ND	ND	7.0E-07	ND	2.9E-07	
		Benzo(a)pyrene equivalents	ND	ND	4.7E-07	ND	1.9E-07	
Surface Soil Pathway Sum			0.2	1	4E-05	0.07	5E-06	
Groundwater	Ingestion	Arsenic (As)	0.55	1.3	1.4E-04	0.20	4.37E-05	1 2 4
		Manganese (Mn)	1.9	4.4	ND	0.7	ND	1
		Silver (Ag)	0.065	0.15	ND	0.023	ND	1
Groundwater Pathway Sum			3	6	1E-04	1	4E-05	
Sum of All Pathways			3	7	2E-04	1	5E-05	

Notes:
ND Indicates not determined due to the lack of available risk information.
ILCR Indicates incremental excess lifetime cancer risk
HI Indicates hazard index
1- Chemical is a COC by virtue of projected child residence noncarcinogenic hazard.
2- Chemical is a COC by virtue of projected future resident lifetime ILCR.
3- Chemical is a COC by virtue of projected site worker noncarcinogenic hazard.
4- Chemical is a COC by virtue of projected site worker ILCR.
* - Lead identified as a COC based future residential and current commercial exposure scenarios

APPENDIX B

Section 10.2 (SWMU 1) from Zone A RFI

10.1 SWMU 1, DRMO Storage

SWMU 1 was used by the Defense Reutilization and Marketing Office to store property turned in from local armed forces activities. The property included some products that could not be reutilized by other commands and were consequently classified as waste. Those which were considered hazardous waste were stored until the early 1990s in a covered storage shed formerly known as Building 1617, which no longer exists.

Materials of concern at SWMU 1, identified in the *Final Zones A and B RFI Work Plan*, are VOCs, hydrazine, metals, and characteristic hazardous wastes. Potential receptors include current and future site users involved in invasive activities. The Cooper River is also a potential receptor of contaminated surface water runoff and groundwater discharges.

Soil and groundwater were sampled in accordance with the *Final Zones A and B RFI Work Plan* and as discussed in Section 3 of this report to fulfill RFI objectives for SWMU 1.

10.1.1 Soil Sampling and Analysis

Previous investigations of SWMU 1 culminated in the certification of clean closure for soil of the DRMO Storage Shed. However, documentation is not available to verify that closure certification sampling was conducted in a manner acceptable for risk assessment procedures.

Therefore, additional samples were collected to corroborate the results of the earlier sampling event. In the autumn of 1993, this confirmatory sampling was conducted in the vicinity of SWMU 1. Two soil borings, with two samples each (upper interval and lower interval), were sampled for the complete TCL/TAL list. As outlined in the *Final Zones A and B RFI Work Plan*, one additional soil boring was installed in 1995 at SWMU 1 for the collection of both upper and lower interval samples. All SWMU 1 soil sample locations are shown on Figure 10.1.1.

The 1995 soil samples from within the SWMU 1 boundary were analyzed for the standard suite of parameters, which includes: metals, VOCs, SVOCs, cyanide, pesticides, and PCBs at DQO Level III. Table 10.1.1 summarizes soil sampling at SWMU 1.

Table 10.1.1
SWMU 1
Soil Sampling Summary

Interval	Samples Proposed	Samples Collected	Analyses Proposed	Analyses Performed	Deviations
1995 RFI SAMPLING EVENT					
Upper (0' to 1')	1	1	Standard Suite[a]	Standard Suite[a]	None
Lower (3' to 5')	1	1	Standard Suite[a]	Standard Suite[a]	None
1993 SAMPLING EVENT					
Upper (0' to 1')	2	2	Standard Suite[a]	Standard Suite[a]	NA
Lower (3' to 5')	2	2	Standard Suite[a]	Standard Suite[a]	NA

Notes:
a = Standard suite includes VOCs, SVOCs, metals, cyanide, pesticides, and PCBs.
NA = Not applicable.

2

10.1.2 Nature and Extent of Contamination in Soil

Organic compound analytical results for soil are summarized in Table 10.1.2. Inorganic analytical results are summarized in Table 10.1.3. Appendix D is a complete analytical data report for all Zone A samples collected.

Table 10.1.2
SWMU 1
Organic Compounds Detected in Soil

Compound	Sample Interval	Frequency of Detection	Range of Detections (µg/kg)	Mean of Detections (µg/kg)	RBC (µg/kg)	Number of Samples Exceeding RBC
Volatile Organic Compounds (6 samples collected: 3 upper interval and 3 lower interval)						
Acetone	Upper	1/3	90	NA	7,800,000	0
	Lower	2/3	44 - 110	77	NA	NA
2-butanone (MEK)	Upper	2/3	3.3 - 14	8.6	47,000,000	0
	Lower	1/3	8.6	NA	NA	NA
Carbon disulfide	Upper	0/3	NA	NA	7,800,000	0
	Lower	1/3	2	NA	NA	NA
Chlorobenzene	Upper	1/3	29	NA	1,600,000	0
	Lower	1/3	39	NA	NA	NA
Methylene chloride	Upper	1/3	1.8	NA	85,000	0
	Lower	0/3	NA	NA	NA	NA
Toluene	Upper	1/3	2.9	NA	16,000,000	0
	Lower	1/3	8.9	NA	NA	NA
1,1,1-Trichloroethane	Upper	1/3	2.9	NA	1,600,000	0
	Lower	1/3	8.3	NA	NA	NA
Xylenes (total)	Upper	1/3	2.6	NA	160,000,000	0
	Lower	1/3	5.0	NA	NA	NA

Table 10.1.2
SWMU 1
Organic Compounds Detected in Soil

Compound	Sample Interval	Frequency of Detection	Range of Detections (μg/kg)	Mean of Detections (μg/kg)	RBC (μg/kg)	Number of Samples Exceeding RBC
Semivolatile Organic Compounds (6 samples collected: 3 upper interval and 3 lower interval)						
BEQ[a]	Upper	1/3	148	NA	88	1
Benzo(a)anthracene	Upper	1/3	120	NA	880	0
	Lower	0/3	NA	NA	NA	NA
Benzo(a)pyrene	Upper	1/3	110	NA	88	1
	Lower	0/3	NA	NA	NA	NA
Benzo(b)fluoranthene	Upper	1/3	150	NA	880	0
	Lower	0/3	NA	NA	NA	NA
Benzo(g,h,i)perylene	Upper	1/3	98	NA	3,100,000[b]	0
	Lower	0/3	NA	NA	NA	NA
Benzo(k)fluoranthene	Upper	1/3	67	NA	8,800	0
	Lower	0/3	NA	NA	NA	NA
Chrysene	Upper	1/3	140	NA	88,000	0
	Lower	0/3	NA	NA	NA	NA
Fluoranthene	Upper	1/3	240	NA	3,100,000	0
	Lower	0/3	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	Upper	1/3	97	NA	880	0
	Lower	0/3	NA	NA	NA	NA
Phenanthrene	Upper	1/3	100	NA	3,100,000[b]	0
	Lower	0/3	NA	NA	NA	NA
Pyrene	Upper	1/3	300	NA	2,300,000	0
	Lower	0/3	NA	NA	NA	NA

Table 10.1.2
SWMU 1
Organic Compounds Detected in Soil

Compound	Sample Interval	Frequency of Detection	Range of Detections (µg/kg)	Mean of Detections (µg/kg)	RBC (µg/kg)	Number of Samples Exceeding RBC
Pesticides/PCBs (6 samples collected: 3 upper interval and 3 lower interval)						
4,4'-DDE	Upper	1/3	4.1	NA	1,900	0
	Lower	0/3	NA	NA	NA	NA
4,4'-DDT	Upper	1/3	12.0	NA	1,900	0
	Lower	0/3	NA	NA	NA	NA

Notes:
a = Calculated from method described in USEPA *Interim Supplemental Guidance to RAGS: Region IV Bulletins, Human Health Risk Assessment*, Bulletin No. 2, November 1995.
b = RBC not available for this compound; fluoranthene RBC used as surrogate.
NA = Not applicable

Table 10.1.3
SWMU 1
Inorganics Detected in Soil

Element	Sample Interval	Frequency of Detection	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding[a]
Inorganic (6 samples collected: 3 upper interval and 3 lower interval)							
Aluminum	Upper	3/3	2,500 - 7,630	4,290	12,800	78,000	0
	Lower	3/3	4,400 - 8,010	6,150	28,240	NA	0
Antimony	Upper	1/3	17.5	NA	**	31	0
	Lower	0/3	NA	NA	**	NA	NA
Arsenic	Upper	1/3	9.4	NA	9.4	0.43	0
	Lower	2/3	1.8 - 5.6	3.7	9.8	NA	0
Barium	Upper	3/3	7.0 - 98.4	38.1	53.0	5,500	0
	Lower	3/3	10.0 - 19.6	14.5	40.0	NA	0
Cadmium	Upper	1/3	1.2	NA	**	39	0
	Lower	0/3	NA	NA	**	NA	NA

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Table 10.1.3
SWMU 1
Inorganics Detected in Soil

Element	Sample Interval	Frequency of Detection	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding[a]
Inorganic (6 samples collected: 3 upper interval and 3 lower interval)							
Calcium	Upper	3/3	2,900 - 38,100	14,700	NA	NA	NA
	Lower	3/3	38,000 - 254,000	143,000	NA	NA	NA
Chromium	Upper	3/3	3.5 - 38.7	15.5	50.4	390	0
	Lower	3/3	8.8 - 53.0	28.2	63.4	NA	0
Cobalt	Upper	1/3	1.9	NA	4.4	4,700	0
	Lower	0/3	NA	NA	1.7	NA	NA
Copper	Upper	2/3	2.0 - 443	222	165	3,100	0
	Lower	3/3	3.5 - 16.8	9.3	33.7	NA	0
Iron	Upper	3/3	490 - 8,470	3,210	NA	NA	NA
	Lower	3/3	4,100 - 5,740	5,010	NA	NA	NA
Lead	Upper	2/3	6.4 - 7.1	6.8	140	400[b]	0
	Lower	3/3	5.4 - 10.4	8.3	22.0	400[b]	0
Magnesium	Upper	2/3	110 - 165	138	NA	NA	NA
	Lower	3/3	840 - 7,040	3,530	NA	NA	NA
Manganese	Upper	3/3	3.1 - 109	38.9	98.1	1,800	0
	Lower	3/3	40 - 83	62	85.5	NA	0
Mercury	Upper	2/3	0.03 - 14.8	7.4	0.30	23	0
	Lower	2/3	0.02 - 0.24	0.13	**	NA	NA
Nickel	Upper	2/3	3.5 - 9.0	6.3	13.6	1,600	0
	Lower	3/3	4.9 - 26.7	15.4	35.0	NA	0
Potassium	Upper	1/3	466	NA	NA	NA	NA
	Lower	3/3	200 - 1,140	600	NA	NA	NA
Selenium	Upper	0/3	NA	NA	1.2	390	0
	Lower	1/3	1.4	NA	1.7	NA	0
Sodium	Upper	2/3	227 - 252	240	NA	NA	NA
	Lower	3/3	230 - 1,000	680	NA	NA	NA

Table 10.1.3
SWMU 1
Inorganics Detected in Soil

Element	Sample Interval	Frequency of Detection	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding[a]
Inorganic (6 samples collected: 3 upper interval and 3 lower interval)							
Vanadium	Upper	3/3	1.6 - 55	19.6	29.2	550	0
	Lower	3/3	8.5 - 30.2	17.4	77.3	NA	0
Zinc	Upper	3/3	7.1 - 369	242	208	23,000	0
	Lower	3/3	9.4 - 65.3	44.6	165	NA	0

Notes:

a = Number of samples exceeding both RBC and RC in upper interval or number of samples exceeding the reference concentration (RC) in the lower interval.

b = RBC not available for lead. USEPA (1994f) residential soil cleanup level used for comparison (OSWER Directive 9355.4-12).

** = Number of nondetects prevented determination of UTL.

Volatile Organic Compounds in Soil

No VOCs were detected above their respective RBC in upper-interval soil at SWMU 1. Also, none of the lower-interval detections exceeded the respective SSL.

Semivolatile Organic Compounds in Soil

Benzo(a)pyrene was detected above the RBC in one soil sample at SWMU 1, sample number S01SB00201. This location is shown on Figure 10.1.1 earlier in this section. In accordance with recent USEPA cPAH guidance and Section 7 of this report, BEQs were calculated for cPAHs at SWMU 1. BEQs for sample S01SB00201 exceeded the benzo(a)pyrene RBC of 88 μg/kg with a detection of 148 μg/kg. Also, no SVOCs were detected in lower-interval samples.

Pesticides/PCBs

No pesticides or PCBs were detected above their respective RBC at SWMU 1. Also, no pesticides or PCBs were detected in lower-interval samples.

Inorganics in Soil

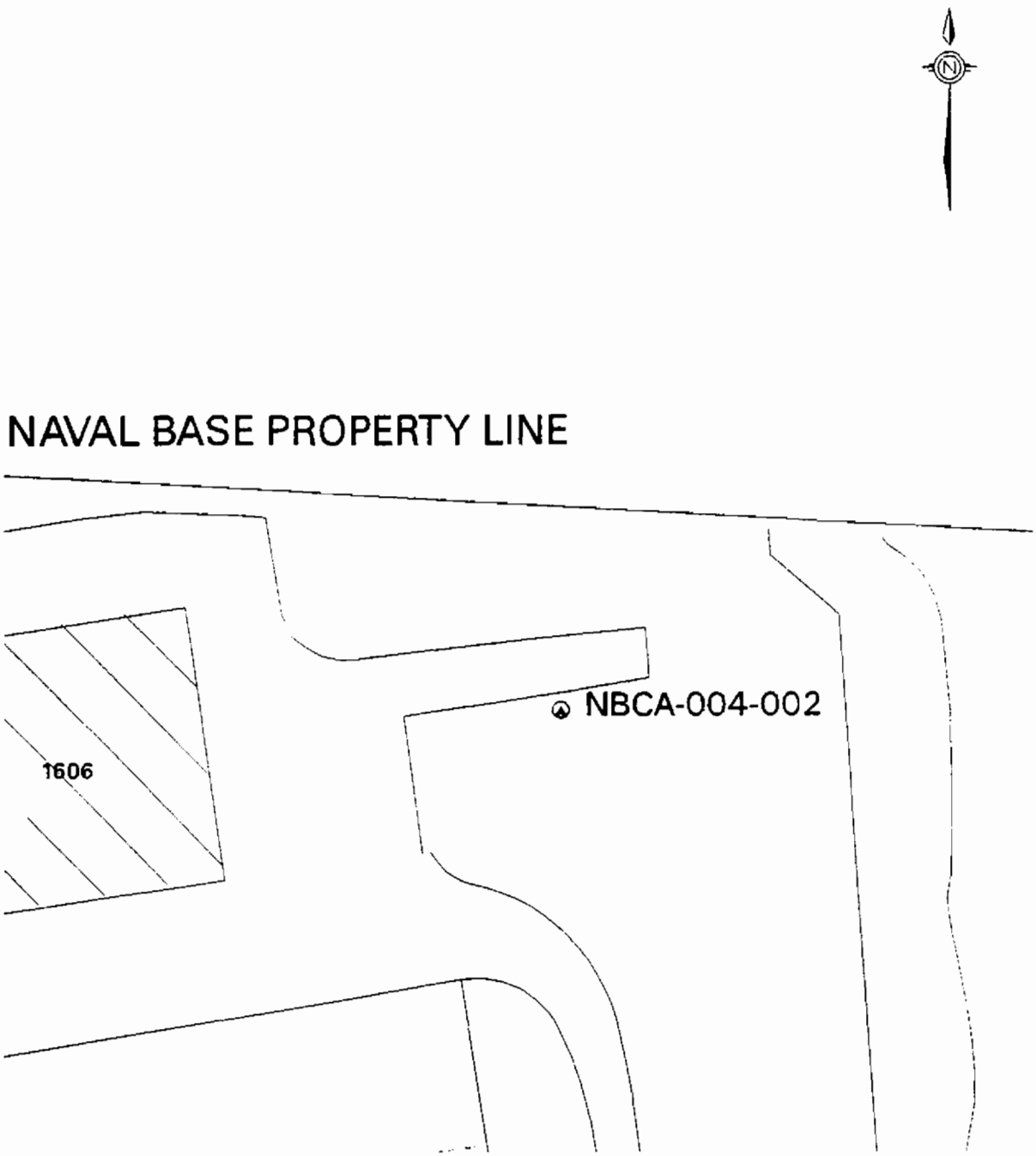
Twenty metals were detected in soil samples collected at SWMU 1. One (arsenic) was detected at concentrations greater than its RBC and equal to its RC (for upper interval only). Also, no lower-interval metals detections exceeded both the RC and SSL.

Arsenic was detected in sample S01SB00201 at a concentration of 9.4 mg/kg, which is greater than the RBC (0.43 mg/kg) and equal to the RC (9.4 mg/kg).

10.1.3 Groundwater Sampling and Analysis

The *Final Zones A and B RFI Work Plan* proposed redeveloping and sampling the one existing shallow monitoring well installed at SWMU 1 during the 1993 investigation at SWMU 2. Figure 10.1.2 illustrates the location of this well, NBCA-002-002. A permit application was submitted in 1996 to SCDHEC to change this monitoring well ID to the current format. For example, this well that was installed as CNSY-02-02 is now NBCA-002-002.

There have been five groundwater sampling events to date at SWMU 1. Table 10.1.4 summarizes this sampling. The first sampling event was conducted after installation of the well in November 1993. The sample was submitted for the standard suite of analyses which includes VOCs, SVOCs, metals, pesticides, PCBs, and cyanide.



0 60 feet

LEGEND

NBCA-004-002 Shallow Monitoring Well

Zone A RCRA Facility Investigation Report
Naval Base Charleston
Charleston, SC

FIGURE 10.1.2 - SWMU 1

After redeveloping the well in September 1995, the first round RFI sample was collected. NBCA-002-002 was again sampled for the standard suite. Because metals were the only constituents detected in this well, second- and third- quarter samples were collected for metals analysis only. The fourth-quarter sample was collected for metals, TDS, sulfate, and chloride.

Second-, third-, and fourth-round samples were collected by the Charleston Environmental and Engineering Remediation Detachment (CEERD) in April, June, and October 1996, respectively.

Table 10.1.4
SWMU 1
Groundwater Sampling Summary

Event	Samples Proposed	Samples Collected	Analyses Proposed	Analyses Performed	Deviations
Nov. 1993	1	1	Standard Suite[a]	Standard Suite[a]	None
Sept. 1995 (1st round)	1	1	Standard Suite[a]	Standard Suite[a]	None
Apr. 1996 (2nd round)	1	1	Metals[b]	Metals[b]	None
Jun. 1996 (3rd round)	1	1	Metals[b]	Metals[b]	None
Oct. 1996 (4th round)	1	1	Metals, TDS, sulfate, chloride	Metals, TDS, sulfate, chloride	None

Notes:
a = VOCs, SVOCs, metals, cyanide, pesticides, and PCBs
b = Second- and third-quarter sampling analyses were based on detections in the first quarter.

This shallow monitoring well was installed at 15 feet bgs in the upper sand aquifer. The well was installed as described in Section 3.3 of this report.

10.1.4 Nature and Extent of Contamination in Groundwater

No organic compounds were detected in any groundwater samples from SWMU 1. Table 10.1.5 summarizes groundwater inorganic analytical results. Appendix D is a complete analytical data report for all samples collected in Zone A, including those collected at SWMU 1.

Volatile Organic Compounds in Groundwater

No VOCs were detected in groundwater at SWMU 1.

Semivolatile Organic Compounds in Groundwater

No SVOCs were detected in groundwater at SWMU 1.

Pesticides and PCBs in Groundwater

No pesticides or PCBs were detected in groundwater at SWMU 1.

Inorganics in Groundwater

Sixteen metals were detected in groundwater samples collected at SWMU 1. One metal (manganese) was detected at concentrations greater than both its RBC and RC.

10.1.5 Fate and Transport for SWMU 1

SWMU 1 was formerly used by the Defense Reutilization and Marketing Office (DRMO) as a storage area for waste material amassed as a result of local armed forces activities. The portion of this waste considered hazardous was stored in a shed formerly known as Building 1617. SWMU 1 was granted clean closure for soils in 1993 based on human health risk-based clean-up goals developed in *Risk Assessment and Development of Risk-based Clean-up Goals for the Charleston Naval Shipyard* (Gradient 1991 and subsequent revisions). Results from the SWMU 1 soil and groundwater samples collected during the Zone A RFI substantiated the 1993 clean closure decision.

Table 10.1.5
SWMU 1
Inorganics Detected in Groundwater

Compound	Nov. 93 Detection (µg/L)	Sep. 95 Detection (µg/L)	Apr. 96 Detection (µg/L)	Jun. 96 Detection (µg/L)	Oct. 96 Detection (µg/L)	Mean of Detections (µg/L)	Reference Conc. (µg/L)	RBC (µg/L)	Number of Samples Exceeding both RC and RBC
Metals (1 sample collected during each event, 1 duplicate collected)									
Aluminum	ND	50	ND	ND	ND	NA	3,210	37,000	0
Barium	56.6	26.6	ND	27.9	34.1	36.3	104	2,600	0
Cadmium	ND	ND	ND	ND	0.48	NA	**	18	0
Calcium	156,500	93,600	92,600	88,400	108,000	107,800	NA	NA	NA
Chromium	ND	ND	ND	ND	5.2	NA	8.7	180	0
Cobalt	ND	ND	ND	6.3	1.5	3.9	**	2,200	0
Copper	ND	3	ND	ND	4.2	3.6	15.7	1,500	0
Iron	2,940	3,430	2,220	2,520	3,900	3,000	NA	NA	NA
Lead	ND	ND	ND	2.8	ND	NA	4.7	15*	0
Magnesium	87,150	71,100	69,600	65,100	75,200	73,600	NA	NA	NA
Manganese	3,340	3,210	3,350	3,000	3,410	3,260	577	840	5
Nickel	ND	36.4	ND	ND	13	24.7	**	730	0
Potassium	33,200	28,100	25,800	28,400	67,500	36,600	NA	NA	NA
Sodium	504,000	414,000	445,000	434,000	492,000	458,000	NA	NA	NA

Table 10.1.5
SWMU 1
Inorganics Detected in Groundwater

Compound	Nov. 93 Detection (µg/L)	Sep. 95 Detection (µg/L)	Apr. 96 Detection (µg/L)	Jun. 96 Detection (µg/L)	Oct. 96 Detection (µg/L)	Mean of Detections (µg/L)	Reference Conc. (µg/L)	RBC (µg/L)	Number of Samples Exceeding both RC and RBC
Tin	ND	ND	ND	ND	33.6	NA	**	22,000	0
Zinc	170	228	204	155	242	200	83.2	11,000	0
Other Parameters (Collected only during fourth quarter event)									
Chloride (mg/L)	—	—	—	—	847	NA	NA	NA	NA
Sulfate (mg/L)	—	—	—	—	334	NA	NA	NA	NA
TDS (mg/L)	—	—	—	—	2,150	NA	NA	NA	NA

Notes:
a = Lead does not have an RBC or MCL. Therefore, the USEPA Treatment Technique Action Level (TTAL) of 15 µg/L has been substituted for the RBC.
** = Number of nondetects prevented determination of UTL.
NA = Not applicable.
— = Parameter not sampled.

10.1.5.1 SWMU 1 - Soil to Groundwater Cross-Media Transport

As shown on Table 10.1.6, none of the organic constituents was reported at a concentration exceeding its soil-to-groundwater SSL. As shown on Table 10.1.7, three inorganics — antimony, chromium, and mercury — were identified for further evaluation of soil-to-groundwater migration based on the screening process presented in Section 6. None of these inorganics were detected in SWMU 1 groundwater (including all four quarters) at a concentration above its tap water RBC or background reference concentration. Antimony and mercury were each detected in a single surface soil sample at a concentration exceeding its SSL, but neither was detected in groundwater. Chromium was detected in surface and subsurface soil at concentrations exceeding its SSL, however, it was not reported at concentrations exceeding its background reference concentration in any soil sample. These findings indicate that soil concentrations of antimony, chromium, and mercury do not present a substantial or widespread threat to SWMU 1 groundwater.

10.1.5.2 SWMU 1 — Groundwater to Surface Water Cross-Media Transport

For purposes of fate and transport analysis, analytical results from the samples collected at SWMU 1 during 1993 were not evaluated along with those from the 1995-1996 sampling rounds because of the time-dependence of groundwater concentrations. Tables 10.1.6 and 10.1.7 compare maximum detected groundwater concentrations from four sampling rounds at one shallow well to tap water RBC, saltwater surface water chronic AWQCs, and background reference values for inorganics.

No organic compounds were detected in SWMU 1 groundwater samples. As shown in Table 10.1.7, manganese was detected in SWMU 1 shallow groundwater above both its tap water RBC and its background reference concentration. Additionally, zinc was detected above both its AWQCs and its background reference concentration. Manganese was reported in samples collected from monitoring well NBCA-002-002 in all four quarters at concentrations exceeding both its tap water RBC (840 μg/L) and its background reference value (2,690 μg/L). Zinc was

Table 10.1.6
Organic Compounds Detected in Surface Soil, Subsurface Soil, Sediment, and Shallow Groundwater
Comparison to Cross-media SSLs, Tap Water RBCs, and Saltwater Surface Water Chronic Screening Levels
NAVBASE-Charleston, Zone A: SWMU 1
Charleston, South Carolina

Parameter	Maximum Concentration					Screening Concentration *									
	Surface Soil	Subsurface Soil	Sediment	Shallow GW	Deep GW	Soil to GW	Soil to Air	Tap Water RBC	Saltwater Surf. Wtr. Chronic	Soil Units	Water Units	Leaching Potential	Volatil-ization Potential	Ground-water Migration Concern	Surface Water Migration Concern
Volatile Organic Compounds															
Acetone	90	110	NA	ND	NA	8000	1E+08	3700	NL	UG/KG	UG/L	NO	NO	NO	NO
2-Butanone	14	8.6	NA	ND	NA	3900 c	NDA	1900	NL	UG/KG	UG/L	NO	NO	NO	NO
Carbon disulfide	ND	2	NA	ND	NA	16000	720000	1000	NL	UG/KG	UG/L	NO	NO	NO	NO
Chlorobenzene	29	39	NA	ND	NA	700	130000	39	105	UG/KG	UG/L	NO	NO	NO	NO
Methylene Chloride	1.8	ND	NA	ND	NA	10	13000	4.1	2560	UG/KG	UG/L	NO	NO	NO	NO
Toluene	2.9	8.9	NA	ND	NA	6000	650000	750	37	UG/KG	UG/L	NO	NO	NO	NO
1,1,1-Trichlorethane	2.9	8.3	NA	ND	NA	1000	1200000	540	312	UG/KG	UG/L	NO	NO	NO	NO
Xylene (total)	2.6	5	NA	ND	NA	70000 c	320000	12000	NL	UG/KG	UG/L	NO	NO	NO	NO
Semivolatile Organic Compounds															
Benzo(a)pyrene equivalents															
Benzo(a)anthracene	120	ND	NA	ND	NA	800	NDA	0.092	NL	UG/KG	UG/L	NO	NO	NO	NO
Benzo(a)pyrene	110	ND	NA	ND	NA	4000	NDA	0.0092	NL	UG/KG	UG/L	NO	NO	NO	NO
Benzo(b)fluoranthene	150	ND	NA	ND	NA	2500	NDA	0.092	NL	UG/KG	UG/L	NO	NO	NO	NO
Benzo(k)fluoranthene	67	ND	NA	ND	NA	25000	NDA	0.92	NL	UG/KG	UG/L	NO	NO	NO	NO
Chrysene	140	ND	NA	ND	NA	80000	NDA	9.2	NL	UG/KG	UG/L	NO	NO	NO	NO
Indeno(1,2,3-cd)pyrene	97	ND	NA	ND	NA	7000	NDA	0.092	NL	UG/KG	UG/L	NO	NO	NO	NO
Benzo(g,h,i)perylene	98	ND	NA	ND	NA	120000000 c	NDA	1500	NL	UG/KG	UG/L	NO	NO	NO	NO
Fluoranthene	240	ND	NA	ND	NA	2100000	NDA	1500	1.6	UG/KG	UG/L	NO	NO	NO	NO
Phenanthrene	100	ND	NA	ND	NA	900000 c	NDA	1500	NL	UG/KG	UG/L	NO	NO	NO	NO
Pyrene	300	ND	NA	ND	NA	2100000	NDA	1100	NL	UG/KG	UG/L	NO	NO	NO	NO
Pesticides/PCB Compounds															
4,4'-DDD	8.5	ND	NA	ND	NA	8000	NDA	0.28	0.025	UG/KG	UG/L	NO	NO	NO	NO
4,4'-DDE	140	ND	NA	ND	NA	27000	NDA	0.2	0.14	UG/KG	UG/L	NO	NO	NO	NO
4,4'-DDT	26	ND	NA	ND	NA	16000	1E+09	0.2	0.001	UG/KG	UG/L	NO	NO	NO	NO

Explanations of screening procedures appear in Section 6.2.
Frequency and range of detections, average detected concentrations, and number of screening concentration exceedances appear in Table 10.1.2.

* Screening Concentrations:
Soil to GW - Generic SSLs based on DAF = 10, adapted from USEPA Soil Screening Guidance: Technical Background Document, May 1996 (first preference), or calculated using values from Table 6.2
Soil to Air - From USEPA Soil Screening Guidance: Technical Background Document, May 1996 (first preference), or USEPA Region III Risk-Based Concentration Table, June 1996
Tap Water RBC - From USEPA Region III Risk-Based Concentration Table, October 1997
Salt Water Surface Water Chronic - From USEPA Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment, November 1995, Table 2

c - Calculated soil to groundwater SSL value (See Table 6.2)
GW - Groundwater
NA - Not available
ND - Not detected
NDA - No data available
NL - Not listed
RBC - Risk-based concentration
SSL - Soil screening level
MG/KG - Milligrams per kilogram
NG/KG - Nanograms per kilogram
UG/KG - Micrograms per kilogram
PG/L - Picograms per liter
UG/L - Micrograms per liter

Table 10.1.7
Inorganic Chemicals Detected in Surface Soil, Subsurface Soil, Sediment, and Shallow Groundwater
Comparison to Cross-media SSLs, Tap Water RBCs, Saltwater Surface Water Chronic Screening Levels, and Background Reference Values
NAVBASE-Charleston, Zone A: SWMU 1
Charleston, South Carolina

Parameter	Maximum Concentration				Screening Concentration *								Leaching Potential	Fugitive Particulate Inhalation Concern	Ground-Water Migration Concern	Surface Water Migration Concern
	Surface Soil	Subsurface Soil	Shallow GW	Deep GW	Soil to GW	Soil Background Reference	Soil to Air	Tap Water RBC	GW Background Reference	Saltwater Surf. Wtr. Chronic	Soil Units	Water Units				
Inorganic Chemicals																
Aluminum	7630	8010	50	NA	560000 c	28240	NA	37000	3210	NL	MG/KG	UG/L	NO	NO	NO	NO
Antimony	17.5	ND	ND	NA	2.5	ND	NA	15	ND	NL	MG/KG	UG/L	YES	NO	NO	NO
Arsenic	9.4	5.6	ND	NA	15	9.8	750	0.045	11.1	36	MG/KG	UG/L	NO	NO	NO	NO
Barium	98.4	19.6	34.1	NA	820	53	690000	2600	179	NL	MG/KG	UG/L	NO	NO	NO	NO
Cadmium	1.2	ND	0.48	NA	4	ND	1800	18	ND	9.3	MG/KG	UG/L	NO	NO	NO	NO
Chromium (total)	38.7	53	5.2	NA	19	63.4	270	180	8.7	103	MG/KG	UG/L	YES	NO	NO	NO
Cobalt	1.9	ND	6.3	NA	990 c	4.4	NA	2200	12.1	NL	MG/KG	UG/L	NO	NO	NO	NO
Copper	443	16.8	4.2	NA	5600 c	165	NA	1500	15.7	2.9	MG/KG	UG/L	NO	NO	NO	NO
Lead	7.1	10.4	2.8	NA	400	140	400	15	4.7	8.5	MG/KG	UG/L	NO	NO	NO	NO
Manganese	109	83	3410	NA	550 c	98.1	NA	840	2690	NL	MG/KG	UG/L	NO	NO	YES	NO
Mercury	14.8	0.24	ND	NA	1	0.3	10	11	ND	0.2	MG/KG	UG/L	YES	YES	NO	NO
Nickel	9	26.7	36.4	NA	65	35	13000	730	21.1	42	MG/KG	UG/L	NO	NO	NO	NO
Selenium	ND	1.4	ND	NA	2.5	1.7	NA	180	ND	71	MG/KG	UG/L	NO	NO	NO	NO
Vanadium	55	30.2	ND	NA	3000	77.3	NA	260	10.9	NL	MG/KG	UG/L	NO	NO	NO	NO
Tin	ND	ND	33.6	NA	5500 c	ND	NA	22000	NA	NL	MG/KG	UG/L	NO	NO	NO	NO
Zinc	369	65.3	242	NA	6200	208	NA	11000	83.2	86	MG/KG	UG/L	NO	NO	NO	YES

Explanations of screening procedures appear in Section 6.2.
Frequency and range of detections, average detected concentrations, and number of screening concentration exceedances appear in Tables 10.1.3 and 10.1.5.

* Screening Concentrations:
Soil to GW - Generic SSLs based on DAF = 10, adapted from USEPA Soil Screening Guidance: Technical Background Document, May 1996 (first preference), or calculated using values from Table 6.2
Soil to Air - From USEPA Soil Screening Guidance: Technical Background Document, May 1996 (first preference), or USEPA Region III Risk-Based Concentration Table, June 1996
Tap Water RBC - From USEPA Region III Risk-Based Concentration Table, October 1997
Salt Water Surface Water Chronic - From USEPA Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment, November 1995, Table 2
Background reference values for soil are shown for comparison purposes only.
Maximum groundwater concentrations are screened against the greater of tap water RBCs or corresponding background reference values to determine groundwater migration concern.

c - Calculated soil to groundwater SSL value (See Table 6.2)
GW - Groundwater
NA - Not available/Not applicable
ND - Not detected
NL - Not listed
RBC - Risk-based concentration
SSL - Soil screening level
MG/KG - Milligrams per kilogram
UG/L - Micrograms per liter

reported in samples collected from monitoring well NBCA-002-002 in all four quarters at concentrations exceeding both its AWQC (86 μg/L) and its background reference value (83.2 μg/L).

10.1.5.3 SWMU 1 — Soil to Air Cross-Media Transport

As shown on Table 10.1.7, mercury was reported in surface soil at concentrations exceeding its soil-to-air SSL. Mercury was detected in only one surface soil sample (S01SB002 at 14.8 mg/kg) at concentrations marginally exceeding its soil-to-air SSL (10 mg/kg). As a result, mercury was not considered to be a significant contributor via the soil-to-air pathway.

10.1.5.4 SWMU 1 — Fate and Transport Summary

No significant soil-to-groundwater constituent migration was identified for SWMU 1. Zinc was detected in groundwater at concentrations exceeding its saltwater surface water chronic AWQCs.

10.1.6 Human Health Risk Assessment for SWMU 1

10.1.6.1 Site Background and Investigative Approach

SWMU 1 was formerly used by the Defense Reutilization and Marketing Office (DRMO) as a storage area for waste material amassed as a result of local armed forces activities. The portion of this waste considered hazardous was stored in a shed formerly known as Building 1617. SWMU 1 was granted clean closure for soils in 1993 based on human health risk based clean-up goals developed in *Risk Assessment and Development of Risk-based Clean-up Goals for the Charleston Naval Shipyard* (Gradient 1991 and subsequent revisions). Results from the SWMU 1 soil and groundwater samples collected during the Zone A RFI substantiated the 1993 clean closure decision. Section 10.1.1 contains a soil sampling summary and Section 10.1.3 contains a groundwater sampling summary for SWMU 1.

10.1.6.2 COPC Identification

Soil

Based on the screening comparisons described in Section 7 of this RFI, BEQ and mercury were identified as COPCs.

Groundwater

Manganese was identified as a shallow groundwater COPC for this site.

10.1.6.3 Exposure Assessment

Exposure Setting

The future use of this SWMU is unknown, although it is in a section of NAVBASE currently slated to become a marine cargo terminal in base reuse plans.

Potentially Exposed Populations

Potentially exposed populations are current and future site workers. Additional potentially exposed populations are hypothetical future site residents. Future site resident and worker exposure scenarios were addressed in this risk assessment. The hypothetical future site worker scenario assumed continuous exposure to surface soil conditions and the use of shallow groundwater as a potable water source. Current site workers' exposure would be less than that assumed for the hypothetical future site worker scenario because of their limited soil contact and the fact that groundwater is not currently used onsite as a source of potable or process water. Therefore, future worker assessment is considered to be protective of current site users. The future site resident scenario was built on the premise that current buildings would be removed and replaced with dwellings. In addition, the future site residents were assumed to use the shallow aquifer onsite as a source of drinking water.

Exposure Pathways

Exposure pathways for the site workers are dermal contact, incidental ingestion of surface soils, and ingestion of shallow groundwater through potable use. The exposure pathways for future residential land use are the same as those for the future site worker. In addition, the hypothetical future site worker scenario assumed continuous exposure to surface soil and groundwater conditions. Uniform exposure was assumed for all sample locations. Table 10.1.8 presents the justification for exposure pathways assessed in this HHRA.

Table 10.1.8
Exposure Pathways Summary — SWMU 1
NAVBASE — Zone A
Charleston, South Carolina

Potentially Exposed Population	Medium and Exposure Pathway	Pathway Selected for Evaluation?	Reason for Selection or Exclusion
	Current Land Uses		
Current Site Users/Maintenance	Air, Inhalation of gaseous contaminants emanating from soil	No	No COPCs were identified based on screening comparisons summarized in the Fate and Transport Section.
	Air, Inhalation of chemicals entrained in fugitive dust	No	No COPCs were identified based on screening comparisons summarized in the Fate and Transport Section.
	Shallow groundwater, Ingestion of contaminants during potable or general use	No (Qualified)	Shallow groundwater is not currently used as a source of potable or nonresidential water at SWMU 1. Future land use assessment is considered conservatively representative of current receptors.
	Shallow groundwater, Inhalation of volatilized shallow groundwater contaminants	No (Qualified)	Shallow groundwater is not currently used as a source of domestic or process use water at SWMU 1. Future land use assessment is considered conservatively representative of current receptors.
	Soil, Incidental ingestion	No (Qualified)	Future land use assessment is considered to be conservatively representative of current receptors.
	Soil, Dermal contact	No (Qualified)	Future land use assessment is considered conservatively representative of current receptors.

Table 10.1.8
Exposure Pathways Summary — SWMU 1
NAVBASE — Zone A
Charleston, South Carolina

Potentially Exposed Population	Medium and Exposure Pathway	Pathway Selected for Evaluation?	Reason for Selection or Exclusion
	Future Land Uses		
Future Site Residents (Child and Adult) and Future Site Worker	Air, Inhalation of gaseous contaminants emanating from soil	No	No COPCs were identified based on screening comparisons summarized in the Fate and Transport Section.
	Air, Inhalation of chemicals entrained in fugitive dust	No	No COPCs were identified based on screening comparisons summarized in the Fate and Transport Section.
	Shallow groundwater, Ingestion of contaminants during potable or general use	Yes	COPCs were identified subsequent to risk-based and background screening comparisons.
	Shallow groundwater, Inhalation of volatilized contaminants during domestic use	Yes	COPCs were identified subsequent to risk-based screening comparisons.
	Soil, Incidental ingestion	Yes	COPCs were identified subsequent to risk-based and background screening comparisons.
	Soil, Dermal contact	Yes	COPCs were identified subsequent to risk-based and background screening comparisons.
	Wild game or domestic animals, Ingestion of tissue impacted by media contamination	No	Hunting/taking of game and/or raising livestock is prohibited within the Charleston, South Carolina city limits.
	Fruits and vegetables, Ingestion of plant tissues grown in media	No	The potential for significant exposure via this pathway is low relative to that of other exposure pathways assessed.

Exposure Point Concentrations

As discussed in Section 7 of this RFI, UCLs were calculated for datasets consisting of at least 10 samples. Benzo(a)pyrene equivalents and mercury each had only three sample results, and as a result, the maximum concentration was used as the EPC for these constituents.

One shallow monitoring well was installed at this site and sampled once a quarter for four quarters. The maximum manganese concentration was used as the EPC.

Quantification of Exposure

Soil

CDIs for ingestion and dermal contact with soils are shown in Tables 10.1.9 and 10.1.10, respectively.

Groundwater

The CDIs for groundwater ingestion are presented in Table 10.1.11.

10.1.6.4 Toxicity Assessment

Toxicity assessment terms and methods are discussed in Section 7 of this report. Table 10.1.12 presents toxicological information specific to each COPC identified at SWMU 1. This information was used in the quantification of risk/hazard associated with soil and groundwater contaminants. Brief toxicological profiles for each COPC are provided in the following paragraphs.

Benzo(a)pyrene equivalents include the following list of polynuclear aromatic hydrocarbons:

Benzo(a)anthracene	TEF	0.1
Benzo(b)fluoranthene	TEF	0.1
Dibenz(a,h)anthracene	TEF	1.0
Benzo(k)fluoranthene	TEF	0.01
Benzo(a)pyrene	TEF	1.0
Indeno(1,2,3-cd)pyrene	TEF	0.1
Chrysene	TEF	0.001

Table 10.1.9
Chronic Daily Intakes (CDI)
Incidental Ingestion of Surface Soil
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Chemical	Fraction Ingested from Contaminated Source *	Exposure Point Concentration (mg/kg)	Future Resident adult H-CDI (mg/kg-day)	Future Resident child H-CDI (mg/kg-day)	Future Resident lwa C-CDI (mg/kg-day)	Future Worker adult H-CDI (mg/kg-day)	Future Worker adult C-CDI (mg/kg-day)
Benzo(a)pyrene equivalents	1	0.148	2.03E-07	1.89E-06	2.32E-07	7.24E-08	2.59E-08
Mercury	1	15	2.03E-05	1.89E-04	2.32E-05	7.24E-06	2.59E-06

NOTES:

lwa Lifetime weighted average; used to calculate carcinogenic CDI, RAGS Parts A and B
CDI Chronic Daily Intake in mg/kg-day
H-CDI CDI for hazard quotient
C-CDI CDI for excess cancer risk
* Reflects the estimated fraction of the site impacted by the corresponding COPC.
mg/kg milligrams per kilogram
mg/kg-day milligrams per kilogram per day

Table 10.1.10
Chronic Daily Intakes (CDI)
Dermal Contact with Surface Soil
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Chemical	Exposure Point Concentration (mg/kg)	Fraction Contacted from Contaminated Source *	Dermal Absorption Factor (unitless)	Future Resident adult H-CDI (mg/kg-day)	Future Resident child H-CDI (mg/kg-day)	Future Resident lwa C-CDI (mg/kg-day)	Future Worker adult H-CDI (mg/kg-day)	Future Worker adult C-CDI (mg/kg-day)
Benzo(a)pyrene equivalents	0.148	1	0.01	8.31E-08	2.74E-07	5.20E-08	5.94E-08	2.12E-08
Mercury	14.8	1	0.001	8.31E-07	2.74E-06	5.20E-07	5.94E-07	2.12E-07

NOTES:

CDI Chronic Daily Intake in mg/kg-day
H-CDI CDI for hazard quotient
C-CDI CDI for excess cancer risk
- The dermal absorption factor was applied to the exposure point concentration to reflect the different trans-dermal migration of inorganic versus organic chemicals
* Reflects the estimated fraction of the site impacted by the corresponding COPC.
mg/kg milligrams per kilogram
mg/kg-day milligrams per kilogram per day

Table 10.1.11
Chronic Daily Intakes (CDI)
Ingestion of COPCs in Shallow Groundwater
SWMU 1
Naval Base Charleston, Zone A
Charleston, SC

Chemical	Exposure Point Concentration (mg/liter)	Future Resident adult H-CDI (mg/kg-day)	Future Resident child H-CDI (mg/kg-day)	Future Resident lwa C-CDI (mg/kg-day)	Future Worker adult H-CDI (mg/kg-day)	Future Worker adult C-CDI (mg/kg-day)
Manganese	3.4	9.34E-02	2.18E-01	5.14E-02	3.34E-02	1.64E-02

NOTES:

lwa Lifetime weighted average
CDI Chronic Daily Intake
H-CDI Non-carcinogenic hazard based Chronic Daily Intake
C-CDI Carcinogenic risk based Chronic Daily Intake
mg/kg-day milligrams per kilogram per day

Table 10.1.12
Toxicological Database Information
for Chemicals of Potential Concern
SWMU 1
NAVBASE Charleston, Zone A

Non-Carcinogenic Toxicity Data

Chemical	Oral Reference Dose (mg/kg/day)		Confidence Level	Critical Effect	Uncertainty Factor Oral	Inhalation Reference Dose (mg/kg/day)		Confidence Level	Critical Effect	Uncertainty Factor Inhalation
Benzo(a)pyrene Equivalents	ND				ND	ND				ND
Manganese (food)	0.047	a	NA	neurological effects	1	ND				ND
Manganese (water)	0.023	a	NA	neurological effects	1	1.43E-05	a	M	neurological effects	1000
Mercury	0.0003	b	NA	Autoimmune effects	30	8.6E-05	c			

NOTES:

a Integrated Risk Information System (IRIS)
b Health Effects Assessment Summary Tables (HEAST)
c HEAST alternative method
d USEPA Region III Screening Tables
e EPA Environmental Criteria and Assessment Office - Cincinnati (provisional)
f Withdrawn from IRIS or HEAST
NA Not applicable or not available
ND Not determined due to lack of information

Table 10.1.12 (continued)
Toxicological Database Information
for Chemicals of Potential Concern
SWMU 1
NAVBASE Charleston, Zone

Carcinogenic Toxicity Data

Chemical	Oral Slope Factor [(mg/kg/day)]-1		Inhalation Slope Factor [(mg/kg/day)]-1	Weight of Evidence	Tumor Type
Benzo(a)pyrene Equivalents	7.3	a		B2	mutagen
Manganese (food)	ND		ND	D	
Manganese (water)	ND		ND	D	
Mercury	ND		ND		

NOTES:

a Integrated Risk Information System (IRIS)
b Health Effects Assessment Summary Tables (HEAST)
c HEAST alternative method
d USEPA Region III Screening Tables
e EPA Environmental Criteria and Assessment Office - Cincinnati (provisional)
f Withdrawn from IRIS or HEAST
NA Not applicable or not available
ND Not determined due to lack of information

Some PAHs are toxic to the liver, kidney, and blood. However, the toxic effects of the PAHs above have not been well established. There are no RfDs for the PAHs above due to a lack of data. All PAHs listed above are classified by USEPA as B2 carcinogens, and their carcinogenicity is addressed relative to that of benzo(a)pyrene, having an oral SF 7.3 $(mg/kg\text{-}day)^{-1}$. Toxicity Equivalency Factors, also set by USEPA, are multipliers that are applied to the detected concentrations, which are subsequently used to calculate excess cancer risk. These multipliers are discussed further in the exposure and toxicity assessment sections. Most carcinogenic PAHs have been classified as carcinogenic due to animal studies using large doses of purified PAHs. There is some doubt as to the validity of these listings, and the SFs listed in USEPA's RBC table are provisional. However, these PAHs are carcinogens when the exposure involves a mixture of other carcinogenic substances (e.g., coal tar, soot, cigarette smoke). As listed in IRIS, the basis for the benzo(a)pyrene B2 classification is human data specifically linking benzo(a)pyrene to a carcinogenic effect are lacking. There are, however, multiple animal studies in many species demonstrating benzo(a)pyrene to be carcinogenic by numerous routes.

Benzo(a)pyrene has produced positive results in numerous genotoxicity assays. At the June 1992 CRAVE Work Group meeting, a revised risk estimate for benzo(a)pyrene was verified (see Additional Comments for Oral Exposure). This section provides information on two aspects of the carcinogenic risk assessment for the agent in question: the USEPA classification and quantitative estimates of exposure. The classification reflects a weight-of-evidence judgment of the likelihood that the agent is a human carcinogen. The quantitative risk estimates are presented in application of a low-dose extrapolation procedure and presented as the risk per (mg/kg)-day. The unit risk is the quantitative estimate in terms of either risk per $\mu g/L$ drinking water or risk per $\mu g/m^3$ air breathed. The third form in which risk is presented is drinking water or air concentration providing cancer risks of 1 in 10,000 or 1 in 1,000,000. The Carcinogenicity Background Document provides details on the carcinogenicity values found in IRIS. Users are

referred to the Oral Reference Dose and Reference Concentration sections for information on long-term toxic effects other than carcinogenicity.

As listed in IRIS, the basis for the dibenz(a,h)anthracene and benzo(b)fluoranthene B2 classification is no human data and sufficient data from animal bioassays. Benzo(b)fluoranthene produced tumors in mice after lung implantation, intraperitoneal or subcutaneous injection, and skin painting. As listed in IRIS (search date 6/28/95), the basis for the benzo(a)anthracene B2 classification is no human data and sufficient data from animal bioassays. Benzo(a)anthracene produced tumors in mice exposed by gavage; intraperitoneal, subcutaneous or intramuscular injection; and topical application. Benzo(a)anthracene produced mutations in bacteria and in mammalian cells, and transformed mammalian cells in culture. As listed in IRIS (search date 6/28/95) the basis for the benzo(k)fluoranthene B2 classification is no human data and sufficient data from animal bioassays. Benzo(k)fluoranthene produced tumors after lung implantation in mice and when administered with a promoting agent in skin-painting studies. Equivocal results have been found in a lung adenoma assay in mice. Benzo(k)fluoranthene is mutagenic in bacteria. (Klaassen, et al., 1986).

Other PAHs — those not classified by USEPA as carcinogens — are toxic to the liver, kidney and blood. This group of PAHs includes compounds such as *pyrene*, *acenaphthene, acenaphthylene*, *benzo(g,h,i)perylene*, and *phenanthrene*. USEPA determined RfDs for only two of these compounds: pyrene's RfD_o of 0.03 mg/kg-day is also used as a surrogate RfD_o for phenanthrene. The RfD_o for acenaphthene was 0.06 mg/kg-day.

Manganese is an essential nutrient. Chronic exposure to manganese, 0.8 mg/kg-day, causes mental disturbances and various central nervous system effects. Studies have shown that manganese uptake from water is greater than manganese uptake from food, and the elderly appear to be more sensitive than children. The oral RfD is 0.14 mg/kg-day with uncertainty and

modifying factors of 1. When assessing the potential for adverse health effects from nondietary intakes (ingestion of soil or drinking water) of manganese, a modifying factor of 3 is used which gives an oral RfD of 0.047 mg/kg-day. Inhalation of manganese dust causes neurological effects and increased incidence of pneumonia, and an inhalation RfD was set to 0.0000143 mg/kg-day. According to USEPA, manganese can not be classified as to its carcinogenicity. Therefore, the cancer class for manganese is group D. The typical vitamin supplement dose of manganese is 2.5 mg/day (Klaassen, et al, 1986) (Dreisbach, et al, 1987).

Mercury The major source of this element is the degassing of the earth's crust. Target organs of mercury include the kidney, nervous system, fetus, and neonate. In other words, this inorganic can be toxic to a fetus if the mother is exposed during pregnancy. Mercury is toxic to all cells in the body- it binds to enzymes in the cells and disrupts their function, usually causing the cell to be useless or die. Because this inorganic is concentrated in the kidney prior to excretion, the kidney is a major target organ for mercury ingestion. The primary target of mercury vapor is the brain. USEPA has set an inhalation RfD of 8.6E-05 mg/kg-day. Some forms of mercury are drawn towards fats in the body (such as the nervous system), where the form is changed into its toxic form. This causes the nervous disorder known as Minimata disease, overexposure to mercury through ingestion of contaminated fish. The weight of evidence classification for mercury is "D" not classifiable as to human carcinogenicity. USEPA set mercury's oral RfD to 0.0003 mg/kg-day (mercuric chloride). Mercury is liquid at room temperature, and is poorly absorbed in this form if ingested. Typical daily exposure is less than 1 μg/l-day (Klaassen, et al, 1986) (Dreisbach, et al, 1987).

10.1.6.5 Risk Characterization

Surface Soil Pathways

Exposure to surface soil onsite was evaluated under both residential and site worker scenarios. For these scenarios, incidental ingestion and dermal contact exposure pathways were evaluated.

For noncarcinogenic contaminants evaluated for future site residents, hazard was computed separately to address child and adult exposure. Tables 10.1.13 and 10.1.14 present the computed carcinogenic risks and/or HQs associated with incidental ingestion of and dermal contact with site surface soils, respectively.

Hypothetical Site Residents

The ingestion ILCR (based on the adult and child lifetime weighted average) for SWMU 1 surface soils is 2E-06. The dermal pathway ILCR is 8E-07. Benzo(a)pyrene equivalents were the primary contributors to both the ingestion and dermal pathways.

The computed hazard indices for the adult resident were 0.07 for the soil ingestion pathway and 0.01 for the dermal contact pathway. The computed hazard indices for the child ingestion and dermal contact pathways were 0.6 and 0.05, respectively. The primary contributor to the hazard index was mercury.

Hypothetical Site Workers

Site worker ILCRs are 2E-7 and 3E-7 for the ingestion and dermal contact pathways, respectively. Benzo(a)pyrene equivalents were the primary contributors for each pathway. Hazard indices for the ingestion and dermal pathways were both projected to be less than 0.1 for the hypothetical site worker scenario.

Groundwater Pathways

Exposure to shallow groundwater onsite was evaluated under both residential and industrial scenarios. The ingestion exposure pathway was evaluated assuming that site groundwater will be used for potable and/or domestic purposes and that an unfiltered well, drawing from the corresponding water-bearing zone, will be installed. For noncarcinogenic contaminants evaluated

Table 10.1.13
Hazard Quotients and Incremental Lifetime Cancer Risks
Incidental Surface Soil Ingestion
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Chemical	Oral RfD Used (mg/kg-day)	Oral SF Used (mg/kg-day)-1	Future Resident adult Hazard Quotient	Future Resident child Hazard Quotient	Future Resident lwa ILCR	Future Worker adult Hazard Quotient	Future Worker adult ILCR
Benzo(a)pyrene equivalent	NA	7.3	ND	ND	1.7E-06	ND	1.9E-07
Mercury	0.0003	NA	0.068	0.63	ND	0.024	ND
SUM Hazard Index/ILCR			0.07	0.6	2E-06	0.02	2E-07

NOTES:

NA	Not available
ND	Not Determined due to lack of available information
lwa	Lifetime weighted average; used to calculate excess carcinogenic risk derived from RAGS Part A
ILCR	Incremental Lifetime Cancer Risk
mg/kg-day	milligrams per kilogram per day

Table 10.1.14
-d Quotients and Incremental Lifetime Cancer Risks
..al Contact With Surface Soil
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Chemical	Dermal Adjustment	Oral RfD Used (mg/kg-day)	Oral SF Used (mg/kg-day)-1	Future Resident adult Hazard Quotient	Future Resident child Hazard Quotient	Future Resident lwa ILCR	Future Worker adult Hazard Quotient	Future Worker adult ILCR
Benzo(a)pyrene equivalent	0.5	NA	14.6	ND	ND	7.6E-07	ND	3.1E-07
Mercury	0.2	6E-05	NA	0.014	0.046	ND	0.0099	ND
SUM Hazard Index/ILCR				0.01	0.05	8E-07	0.01	3E-07

NOTES:

NA Not available
ND Not Determined due to lack of available information
lwa Lifetime weighted average; used to calculate excess carcinogenic risk derived from RAGS Part A
ILCR Incremental Lifetime Cancer Risk
- Dermal to absorbed dose adjustment factor is applied to adjust for Oral SF and RfD (i.e., the oral RfD is based on oral absorption efficiency which should not be applied to dermal exposure and dermal CDI)
mg/kg-day milligrams per kilogram per day

relative to future site residents, hazard was computed separately for child and adult receptors. Table 10.1.15 presents the risk and hazard for the ingestion exposure pathways.

Hypothetical Site Residents

The hazard indices for the adult and child resident are 2 and 5, respectively with manganese being the primary contributor to the hazard index.

Hypothetical Site Workers

The hazard index for the ingestion exposure pathway was calculated to be 0.7.

Current Site Workers

Shallow groundwater is not currently used as a potable water source for SWMU 1 or other areas of Zone A. In the absence of a completed exposure pathway, no threat to human health is posed by reported shallow groundwater contamination.

COCs Identified

Chemicals of concern were identified based on cumulative risk and hazard projected for this site, as shown in Table 10.1.16. USEPA has established a generally acceptable risk range of 1E-4 to 1E-6, and a hazard index threshold of 1.0 (unity). In accordance with SCDHEC guidance, a COC was considered to be any chemical contributing to a cumulative risk level of 1E-6 or greater and/or a cumulative hazard index above 1.0, if its individual ILCR exceeds 1E-6 or whose hazard quotient exceeds 0.1. For carcinogens, this approach is relatively conservative, because a cumulative risk level of 1E-4 (and individual ILCR of 1E-6) is recommended by USEPA Region IV as the trigger for establishing COCs. The COC selection method presented was used to provide a more comprehensive evaluation of chemicals contributing to carcinogenic risk or noncarcinogenic hazard during the remedial goal options development process. Table 10.1.16 presents the COCs identified on a medium-specific basis.

Table 10.1.15
Hazard Quotients and Incremental Lifetime Cancer Risks
Shallow Groundwater Ingestion
SWMU 1
Naval Base Charleston, Zone A
Charleston, SC

Chemical	Oral RfD Used (mg/kg-day)	Oral SF Used (mg/kg-day)-1	Future Resident adult Hazard Quotient	Future Resident child Hazard Quotient	Future Resident lwa ILCR	Future Worker adult Hazard Quotient	Future Worker adult ILCR
Manganese	0.047	NA	2.0	4.6	ND	0.71	ND
SUM Hazard Index/ILCR			2	5	ND	0.7	ND

NOTES:

NA	Not available
ND	Not Determined due to lack of available information
lwa	Lifetime weighted average; used to calculate excess carcinogenic risk derived from RAGS Part A
ILCR	Incremental Lifetime Cancer Risk
mg/kg-day	milligrams per kilogram per day

Table 10.1.16
mmary of Risk and Hazard-Based COCs
/MU 1
NAVBASE - Charleston, Zone A
Charleston, South Carolina

Medium	Exposure Pathway		Future Resident Adult Hazard Quotient	Future Resident Child Hazard Quotient	Future Resident Iwa ILCR	Site Worker Hazard Quotient	Site Worker ILCR	Identification of COCs
Surface Soil	Incidental Ingestion	Benzo(a)pyrene equivalents	ND	ND	1.7E-06	ND	1.9E-07	2
		Mercury	0.068	0.63	ND	0.02414	ND	
	Dermal Contact	Benzo(a)pyrene equivalents	ND	ND	7.6E-07	ND	3.1E-07	
		Mercury	0.014	0.046	ND	0.00990	ND	
Surface Soil Pathway Sum			0.1	0.7	2E-06	0.03	5E-07	
Groundwater	Ingestion	Manganese	2.0	4.6	ND	0.71	ND	1
Groundwater Pathway Sum			2	5	ND	0.7	ND	
Sum of All Pathways			2	5	2E-06	0.7	5E-07	

Notes:
ND indicates not determined due to the lack of available risk information.
ILCR indicates incremental lifetime cancer risk
HI indicates hazard index
1- Chemical is a COC by virtue of projected child residence noncarcinogenic hazard.
2- Chemical is a COC by virtue of projected future resident lifetime ILCR.
3- Chemical is a COC by virtue of projected site worker noncarcinogenic hazard.
4- Chemical is a COC by virtue of projected site worker ILCR.

Surface Soils

Hypothetical Site Residents

Benzo(a)pyrene equivalents were identified as the soil pathway COCs based on their contribution to cumulative ILCR projections.

Hypothetical Site Workers

No COCs were identified.

Groundwater

Hypothetical Site Residents (future land use)

Manganese was identified as a shallow groundwater COC based on its contribution to hazard index.

10.1.6.6 Risk Uncertainty

Characterization of Exposure Setting and Identification of Exposure Pathways

The potential for high bias is introduced through the exposure setting and pathway selection due to the highly conservative assumptions (i.e., future residential use) recommended by USEPA Region IV when assessing potential future and current exposure. The exposure assumptions made in the site worker scenario are highly protective and would tend to overestimate exposure.

Residential use of the site would not be expected, based on current site uses and the nature of surrounding buildings. Current reuse plans call for continued commercial/industrial use of Zone A, specifically as a marine cargo terminal. If this area were to be used as a residential site, the buildings and other structures would be demolished, and the surface soil conditions would likely change — the soils would be covered with landscaping soil and/or a house. Consequently, exposure to current surface soil conditions would not be likely under a true future residential scenario. Current site worker's contact with impacted media is much less than is assumed in the

exposure model that is used to assess this pathway. Direct contact to soil is limited due to paved areas and buildings, and groundwater is not currently used as a source of potable or process water. These factors indicate that exposure pathways assessed in this HHRA would generally overestimate the risk and hazard posed to current site workers and future site residents.

A basewide system provides drinking and process water to buildings throughout Zone A. This system is slated to remain in operation under the current base reuse plan. As a result, shallow groundwater would not be expected to be used under future site use scenarios. Therefore, the scenario established to project risk/hazard associated with shallow groundwater exposure is highly conservative, and associated pathways are not expected to be completed in the future.

Determination of Exposure Point Concentrations

The maximum soil and groundwater concentrations were used as the exposure point concentrations for this site. The maximum concentration provides a reasonable upper-bound representation of the exposure point concentration.

Groundwater

Groundwater is not currently used as a potable water source at SWMU 1, nor is it used at NAVBASE or in the surrounding area. Municipal water is readily available. As previously mentioned, it is highly unlikely that the site will be developed as a residential area, and it is unlikely that a potable-use well would be installed onsite. It is probable that, if residences were constructed onsite and an unfiltered well were installed, its salinity and dissolved solids would preclude this aquifer from being an acceptable potable water source.

10.1.6.7 Risk Summary

The risk and hazard posed by contaminants at SWMU 1 were assessed for the hypothetical site worker and the hypothetical future site resident under reasonable maximum exposure assumptions.

In surface soils, the incidental ingestion and dermal contact pathways were assessed in this HHRA. The ingestion pathway was evaluated for shallow groundwater based on four quarters of groundwater monitoring data. Table 10.1.17 presents the risk summary for each pathway/receptor group evaluated for SWMU 1.

10.1.6.8 Remedial Goal Options

Soil

Soil RGOs based on the site resident or site workers are presented in Table 10.1.18.

Groundwater

Groundwater RGOs based on site residents are shown in Table 10.1.19.

10.1.7 Corrective Measures Considerations

For SWMU 1, the environmental media investigated were surface soil and shallow groundwater. Based upon the analytical results, there is no evidence of site-related contamination associated with SWMU 1. Benzo(a)pyrene was detected above the RBC in one soil sample at SWMU 1. BEQs for this sample exceeded the benzo(a)pyrene RBC of 88 μg/kg with a detection of 148 μg/kg. The isolated nature of this exceedance is demonstrated by other samples in the vicinity which were nondetect for BEQs. Given these facts, the risk associated with this individual sample is considered acceptable and will not require further evaluation through the CMS process.

Any COCs that may require further evaluation through the CMS process are metals that can be evaluated along with the greater SWMU 2 area of contamination. Therefore, no further action is recommended for SWMU 1, although further action at SWMU 2 could include this area.

Table 10.1.17
Summary of Risk and Hazard
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Medium	Exposure Pathway	HI (Adult)	HI (Child)	ILCR (LWA)	HI (Worker)	ILCR (Worker)
Surface Soil	Incidental Ingestion	0.07	0.6	2E-06	0.02	2E-07
	Dermal Contact	0.01	0.05	8E-07	0.01	3E-07
Groundwater	Ingestion	2	5	ND	0.7	ND
Sum of All Pathways		2	5	2E-06	0.7	5E-07

Notes:
ILCR Indicates incremental excess lifetime cancer risk
HI Indicates hazard index
LWA Lifetime weighted average

Table 10.1.18
Remedial Goal Options For Surface Soil
AMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Residential-Based Remedial Goal Options

Chemical	Slope Factor (mg/kg-day)-1	Reference Dose (mg/kg-day)	FI/FC Factor	EPC mg/kg	Hazard-Based Remedial Goal Options 3 mg/kg	1 mg/kg	0.1 mg/kg	Risk-Based Remedial Goal Options 1E-06 mg/kg	1E-05 mg/kg	1E-04 mg/kg	Background Concentration mg/kg
Benzo(a)pyrene equivalents	7.3	NA	1	0.1	ND	ND	ND	0.060	0.60	6.0	NA

Worker-Based Remedial Goal Options

Chemical	Slope Factor (mg/kg-day)-1	Reference Dose (mg/kg-day)	FI/FC Factor	EPC mg/kg	Hazard-Based Remedial Goal Options 3 mg/kg	1 mg/kg	0.1 mg/kg	Risk-Based Remedial Goal Options 1E-06 mg/kg	1E-05 mg/kg	1E-04 mg/kg	Background Concentration mg/kg
Benzo(a)pyrene equivalents	7.3	NA	1	0.1	ND	ND	ND	0.30	3.0	30	NA

NOTES:

FI/FC Fraction ingested / fraction contaminated
EPC Exposure point concentration
NA Not applicable
ND Not determined
- Remedial goal options were based on the residential lifetime weighted average for carcinogens and the child resident or site worker for noncarcinogens
mg/kg-day milligrams per kilogram per day
mg/kg milligrams per kilogram

Table 10.1.19
Remedial Goal Options for Shallow Groundwater
SWMU 1
Naval Base Charleston, Zone A
Charleston, South Carolina

Residential-Based Remedial Goal Options

Chemical	Oral SF (mg/kg-day)-1	Oral RfD (mg/kg-day)	EPC mg/l	Hazard-Based Remedial Goal Options 0.1 mg/l	1.0 mg/l	3 mg/l	Risk-Based Remedial Goal Options 1E-06 mg/l	1E-05 mg/l	1E-04 mg/l	MCL mg/l	Background Concentration mg/l
Manganese	NA	0.047	3.41	0.074	0.74	2.2	ND	ND	ND	NA	0.577

NOTES:

EPC Exposure point concentration
NA Not applicable
ND Not determined
- Remedial goal options were based on the residential lifetime weighted average for carcinogens and the child resident for noncarcinogens
mg/kg-day milligrams per kilogram per day
mg/l milligrams per liter

APPENDIX C

DET's IM Completion Report

COMPLETION REPORT

INTERIM MEASURE FOR
SWMU 2
NAVAL BASE CHARLESTON
CHARLESTON, SC

Volume 1 of 3

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

Contract Number: CHNPO9923

Prepared by:

SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 North Hobson Avenue, Bldg. 30
North Charleston, SC 29405-2106

November 29, 1999

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ACRONYMS, ABBREVIATIONS and SYMBOL

AOC	Area of Concern
BLS	Below Land Surface
CMS	Corrective Measure Studies
CY	Cubic Yard
DERP	Defense Environmental Restoration Program
DET	Environmental Detachment Charleston
DON	Department of the Navy
DRMO	Defense Reutilization and Marketing Office
EIC	Engineer-In-Charge
IM	Interim Measure
mg/kg	milligrams/kilogram
IR	Installation Restoration
OSWER	Office of Solid Waste and Environmental Response
Pb	Lead
ppm	Parts per million
RBC	Risk-based Concentration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
ROC	Run-of-Crush
SARA	Superfund Amendments and Reauthorization Act
SCDHEC	South Carolina Department of Health and Environmental Control
SOUTHDIV	Southern Division Naval Facilities Command
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair, USN
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TSDF	Treatment, Storage, Disposal Facility
USN	United States Navy

1. INTRODUCTION

1.1 INSTALLATION RESTORATION PROGRAM. The purpose of the Department of the Navy (DON) Installation Restoration (IR) Program is to identify, assess, characterize and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at Navy and Marine Corps Activities. The Defense Environmental Restoration Program (DERP) is codified in the Superfund Amendments and Reauthorization Act (SARA) Section 211 (10 USC 2701). The IR Program is a component of DERP.

1.1.1 Naval Complex Charleston IR Program. At Naval Complex Charleston, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was prepared which divided the Naval Base into zones and identified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) within each zone. The RFA evaluated each SWMU and AOC and determined which sites required further investigation. Based on the RFA, a RCRA Facility Investigation (RFI) work plan has been or is being prepared for each zone containing SWMUs and AOCs requiring further investigation. On completion of the RFI for each zone, a RFI report will be prepared for that zone. The RFI reports will identify SWMUs and AOCs containing wastes requiring remediation. Eventually, Corrective Measures Studies (CMSs) will be prepared to determine the best means of remediating each site.

1.2 INTERIM MEASURES. Interim Measures (IM) performed as part of the IR Program are intended to eliminate sources of environmental contamination or limit the spread of environmental contaminants prior to the completion of the RFI Corrective Measures Study (CMS).

1.3 HISTORY. SWMU 2 is the site of the former Defense Reutilization and Marketing Office (DRMO) storage area and salvage yard located in Zone A of the Charleston Naval Complex. A site map (Figure 1) showing the SWMU 2 area is included in Appendix A. The approximately 6-acre area was used to store recovered lead from lead-acid submarine batteries from the mid-1960s until

1984. Recovered materials from other areas of the base were placed in rail cars and transferred to the site for storage until it could be sold to a salvage contractor.

Between October of 1995 and January of 1997, Ensafe/Allen & Hoshall conducted investigative sampling as part of the RFI process. The results of the investigation revealed elevated lead levels in the soil above clean levels established for the Naval Complex. Information gathered from the investigation is documented in the August 1998 Zone A RFI Report, Volume II, Section 10. Figure 2 in this document includes Ensafe/Allen & Hoshall sample locations and results as reported in the Zone A RFI report. Lead cleanup levels defined for the Naval Complex was 400 ppm for residential and 1300 ppm for industrial use.

In 1998 the Environmental Detachment Charleston (DET) was tasked by Southern Division Naval Facilities Command (SOUTHDIV) to delineate the areas exceeding clean levels found by Ensafe/Allen & Hoshall. The data gathered from the delineation by the DET was used to define the area for a remedial action. Figure 2 represents the data generated from the site delineation.

1.4 SWMU 2 INTERIM MEASURES. After the completion of the RCRA Facilities Investigation (RFI), it was decided by SOUTHDIV that an Interim Measure would be performed by Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIP), United States Navy (USN), Portsmouth Virginia Environmental Detachment Charleston (DET). The objective of this Interim Measure was to remove soils and concrete greater than 400 ppm (residential clean level) from areas delineated in 1998. Waste characterized as hazardous was to be sent to a landfill certified to handle hazardous wastes. The removal of the source was to continue until the sampling program indicated with reasonable confidence that the concentrations of contaminants analyzed were within limits (residential levels) specified for this site.

This Interim Measure is consistent with the ultimate cleanup objective of the site and is not intended to circumvent the public participation process inherent within environmental cleanup under RCRA authority.

2. INTERIM MEASURE EXECUTION

2.1 ACTIONS REQUIRED BY INTERIM MEASURE WORK PLAN. The required actions per the IM Work Plan were to remove and dispose approximately 6,000 tons of contaminated soil, 850 tons of contaminated concrete and 2,450 tons of non-hazardous debris. Upon project completion, the areas excavated were to be back-filled and graded existing conditions. Excavation of contaminated sources was performed to the maximum extent possible. A total of 8,320.44 tons of contaminated soil and concrete and approximately 1,366 tons of non-hazardous debris were removed at project completion.

2.2 PROJECT SUMMARY

2.2.1 Site Delineation. In 1998, the DET was tasked by SOUTHDIV to delineate soil borings exceeding residential clean levels for lead (400 mg/kg) as reported in the August 1998 RFI Report. Figure 2 shows the locations of RFI soil borings described as "ENSAFE Sample" in the Legend. Soil boring locations exceeding 400 mg/kg were delineated using a sample-grid system. A typical sample-grid included an area encompassing the existing RFI sample location. Samples were collected by the DET within the grid area extending 20' incrementally from the RFI sample location in the X and Y direction. Samples were collected at the first and/or second interval based on the sample areas usage and the RFI investigation results. Grid areas were grouped into eight zones as shown in Figure 2. Statistically, approximately 335 soil borings were collected and tested for Total Lead. Approximately 19 samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) lead to determine the toxicity of the soil for waste characterization. See Figure 2 in Appendix A for soil boring locations and zones.

The data collected during the site delineation in 1998 illustrated the extent of lead contamination present at SWMU 2. This information became the footprint for the removal action at SWMU 2.

2.2.2 Rail Spur. An existing rail spur ran east to west through portions of the excavation boundary. The rail spur was used historically to transfer recovered materials to the site. An approximately 550` section of the rail spur was removed in order to access the contaminated soil. Debris generated from the removal of the rail spur, such as concrete, asphalt, and creosote timbers, was removed, placed in containers and transported to a Subtitle D landfill (Chambers) for disposal.

2.2.3 Concrete/Asphalt Removal. Concrete and asphalt covered approximately 80% of the area requiring soil removal. The project commenced on 02 July 1999 with the process of removing concrete and asphalt in the areas delineated for soil removal. Concrete and asphalt characterized as non-hazardous was placed inside containers, which were transported to Chambers Landfill. A section of concrete slab, characterized as hazardous, was left in place until soil removal operations were to begin.

Observations noted during the concrete/asphalt removal operations, was the uncovering of a small, debris-filled landfill located in the west end of Zone 5. (Refer to Figure 2 for zone locations.) The debris field encompassed an approximately 55` X 30` area and consisted of various types of debris such as scrap metal, rigging equipment, wood, and soil. This debris mixture was approximately 18 inches thick and upon further investigation rested upon another section of concrete slab. The debris field and concrete were subsequently removed and disposed later on in the project.

2.2.4 Excavation. Impacted soil removal began with the excavation of the three isolated areas located northeast and south of Building 1606 (Zones 1 and 3) and the area adjacent to Avenue A North (Zone 2). Soil was excavated to a depth of approximately 28 inches from land surface in each area. Groundwater was not encountered during the excavation of soil.

In Zone 4, based on data collected in 1998, a 7,059 square foot area was excavated to approximately 51 inches from land surface. Creosote pilings were uncovered in the vertical position at approximately 36 inches from land surface. These pilings were left in place. The remaining area of Zone 4 was excavated to depths ranging from 24 to 38 inches from the land surface. Groundwater was not encountered while excavating soil to this depth.

Personnel operating earth-moving equipment encountered numerous creosote timbers and pilings while excavating soil from the Zone 5 area. The debris was removed and disposed accordingly. The area in this zone was excavated to a depth of approximately 28 inches from the land surface. In the process of excavating soil, equipment operators uncovered an abandoned catch basin located approximately 24 inches from the land surface. The catch basin had a resin type seal that was broken during the removal of soil. Inside the catch basin was an approximately 18-inch drain line. Representatives from the Caretaker Site Office (CSO) investigated the catch basin. The CSO determined the 18-inch line could be part of the existing storm drain system. Utility drawings for the Naval Complex, however, did not identify a catch basin or storm drain line existing in the area. Upon recommendations from the CSO, the catch basin vault was backfilled with rock and sealed with a concrete cap. Later in the project, the area was backfilled with soil and graded to existing conditions.

The area in Zone 6 was excavated to depths ranging from 24 to 27 inches from the land surface. Soil removed in this area was performed without incident.

Excavation of soil was not performed in the areas of Zone 7 and 8 based on the results of the 1998 investigation. Data collected in the field during the investigation revealed lead concentrations below residential levels; therefore, soil removal was not conducted in those zones.

Earth moving equipment was required to remove contaminated sources (soil and concrete) from land to inside haul truck trailers or roll-off containers. Haul trucks and containers supplied by Will's Trucking, Inc. transported the waste to Safety-Kleen (Pinewood), Inc., a facility permitted to accept hazardous wastes. See Volume II for copies of completed manifests.

2.3 Plan Modification and Justification. Modifications to the IM Work Plan were not required.

3. INTERIM MEASURE OUTCOME

3.1 SITE CONDITIONS FOLLOWING COMPLETION OF WORK. Following completion of all site work, the DET had accomplished the removal of 8,320.44 tons of contaminated soil and concrete and approximately 1,366 tons of non-hazardous debris. Test results of the remaining soil confirmed that the conditions following the excavation met the objectives of paragraph 1.4 of this report. Site restoration included back-filling the excavations and grading the site to existing conditions with run-of-crush (ROC).

4. SAMPLING

4.1 SAMPLING EVOLUTIONS AND RESULTS.

4.1.1 Investigative Sampling and Analysis. Figure 2 in Appendix A depicts the locations and results of samples collected in 1998. All samples were transferred via a chain-of-custody form to a certified laboratory and tested for Total Lead with a total of nineteen of the samples being tested for TCLP Lead. All samples were collected using stainless steel equipment and transferred inside laboratory certified 8 oz. glass jars sealed with custody seals. See Volume III for copies of Certificates of Analyses for all sampling data.

4.1.2 Confirmatory Soil Sampling and Analysis. The purpose of the confirmatory samples was to investigate and confirm the conditions of the remaining soil vertically and the extents of the excavation horizontally. Eighty-five (85) soil samples collected in 1998 and reporting less than 400 ppm were used during the project to confirm the horizontal extents of the excavation boundaries. The eighty-five sample locations are shown in Figure 3 of Appendix A and are identified as 1998 soil samples. In addition to the 1998 samples, forty-one (41) grab samples were collected during the project from areas illustrated in Figure 3. The samples identified as 1999 confirmatory soil samples were collected to confirm that the conditions of the remaining soil vertically and horizontally met the cleanup goals for this IM.

The samples were collected in the first or second intervals depending on the area. Samples were homogenized in stainless steel bowls with stainless steel spoons and then placed inside laboratory certified 4-oz glass jars sealed with custody seals. After the confirmatory samples were collected, a Chain of Custody Record was completed and the samples transferred to a certified laboratory for analysis of Total Lead. Sample collection and analyses were executed as directed per Reference (d) of the IM Work Plan. See Volume III for copies of Certificates of Analyses for sampling data and Table 1 below for sample results.

Table 1
Confirmation Sample Results (mg/kg)

Sample No.	Result	Sample No.	Result	Sample No.	Results
Sport0215-3	128.0	Sport0228-9	3.270	Sport0233-3	8.450
Sport0215-4	257.0	Sport0228-10	11.60	Sport0233-4	13.10
Sport0224-1	71.40	Sport0228-11	9.770	Sport0233-5	4.050
Sport0226-1	29.20	Sport0229-1	8.670	Sport0233-6	4.100
Sport0226-2	16.60	Sport0229-2	3.680	Sport0233-7	2.940
Sport0226-3	8.150	Sport0229-3	18.20	Sport0233-8	3.400
Sport0228-1	3.740	Sport0232-1	94.20	Sport0233-9	8.450
Sport0228-2	6.570	Sport0232-2	2.550	Sport0234-1	1.200
Sport0228-3	6.640	Sport0232-3	5.990	Sport0236-1	3.140
Sport0228-4	7.470	Sport0232-4	2.730	Sport0239-1	2.240
Sport0228-5	565.0	Sport0232-5	2.920	Sport0239-2	1.810
Sport0228-6	6.070	Sport0232-6	3.400	Sport0239-3	2.130
Sport0228-7	4.020	Sport0233-1	105.0		
Sport0228-8	6.750	Sport0233-2	33.30		

4.1.3. Waste Characterization Sampling and Analysis. Soil samples collected in 1998 were analyzed for TCLP Lead. The analysis was conducted for waste characterization purposes in order to properly dispose the material. The samples were submitted to a certified laboratory via a completed Chain-of-Custody record. The analytical results of the samples indicated TCLP values ranging from 0.02 to 65.4 ppm (see Table 2 below). The average of the TCLP values exceeded the toxicity characteristic for lead (D008) limit of 5.0 mg/L as cited in 40 CFR 261.24. As a result, the soil and a concrete characterized as waste code D008 would have to be treated before disposal into a Subtitle C landfill. Copies of "certificates of analysis" and "chain-of-custodies" are included in Volume III.

Prior to accepting the waste from SWMU 2, the Safety-Kleen (Pinewood) facility collected a composite sample load (18 CY roll-off container) to be analyzed by their facility. Based on the analysis of the composite load, Pinewood determined how to treat the waste to meet land disposal restrictions before placement into a landfill.

Table 2
Soil TCLP Data (mg/L)

Sample No.	Result (ppm)	Zone	Sample No.	Result (ppm)	Zone
Sport0608-29	**8.4**	3	**Sport0636-23**	10.2	**4**
Sport0630-07	**0.2086**	5	**Sport0639-13**	6.70	**4**
Sport0630-25	**51.6**	5	**Sport0667-01**	0.0282	**Btwn 5 & 3**
Sport0632-25	**65.4**	6	**Sport0667-03**	25.9	**Btwn 5 & 4**
Sport0667-07	**24.0**	Btwn 6 & 4	**Sport0667-19**	4.86	**6**

Historically, a section of concrete slab was used to store batteries. Based on this information corings were collected and analyzed for TCLP Lead from select areas of asphalt and concrete slabs targeted for removal. Each coring was crushed and homogenized before placement in a laboratory certified glass jar. A total of seven (7) samples were collected with one sample exceeding the TCLP value for Lead toxicity. Sample Sport0145-1 reported a TCLP value of 19.1 mg/L for a concrete coring collected in the vicinity of battery storage. Based on this result, an approximately 6,081 SF area of concrete was characterized as hazardous (waste code D008). The concrete was microencapsulated and disposed at the Pinewood facility. See TCLP values below in Table 3 for all concrete and asphalt samples. "Certificates of analysis" are in Volume III.

Table 3
Concrete TCLP Data (mg/L)

Sample No.	Result	Material	Sample No.	Result	Material
Sport0145-1	**19.1**	Concrete	**Sport0165-1**	0.352	**Asphalt**
Sport0165-2	**0.234**	Asphalt	**Sport0165-3**	0.0391	**Concrete**
Sport0165-4	**0.0175**	Concrete	**Sport0165-5**	0.279	**Asphalt**
Sport0165-6	**ND**	Concrete			

ND=No Detection of analyte

5. WASTE GENERATION

5.1 NON-HAZARDOUS WASTE.

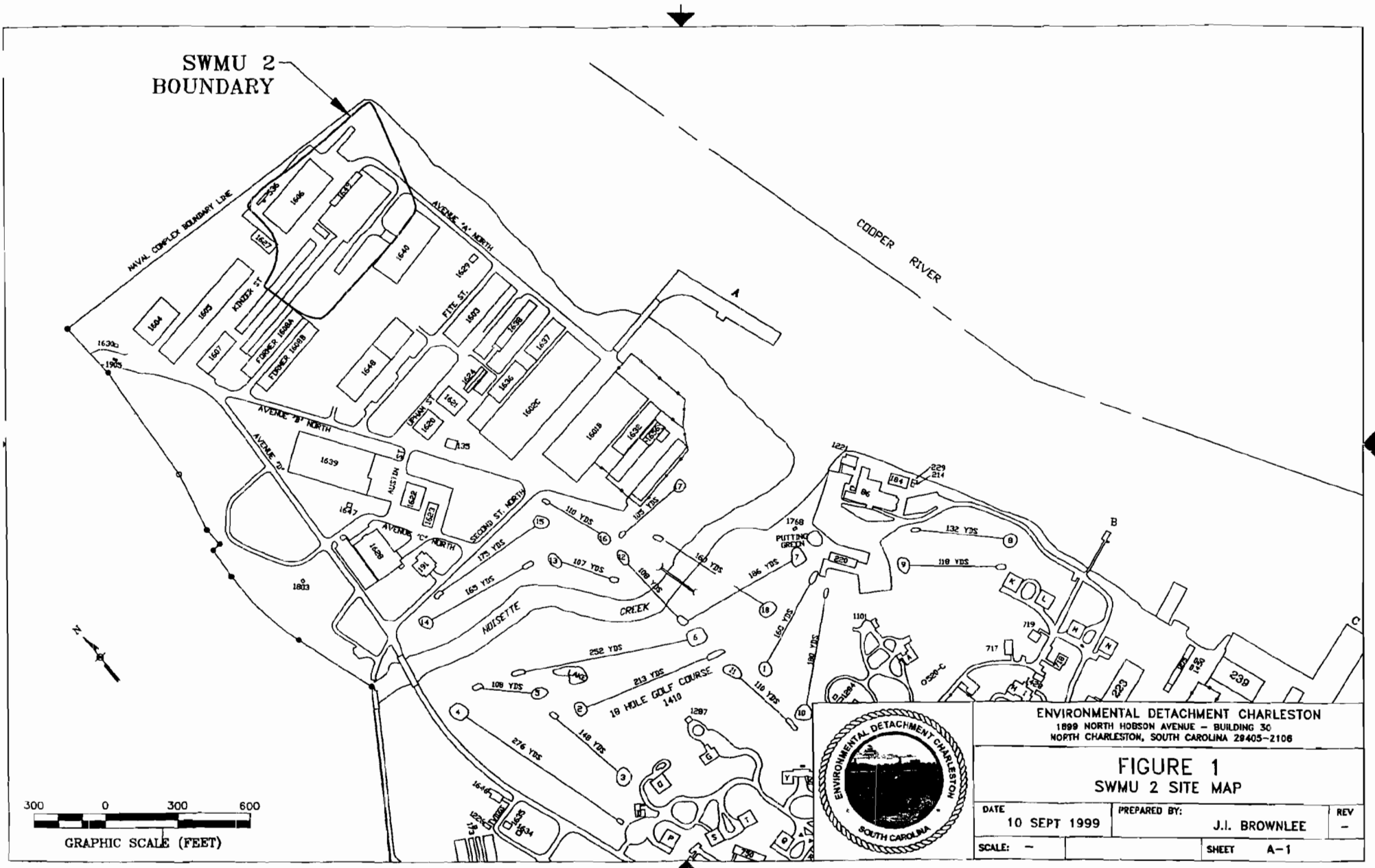
5.1.1 Debris. Approximately 1,366 tons of non-hazardous debris, such as concrete, asphalt, and creosote timbers, were disposed inside 20 or 40 CY roll-off containers and transported by Fennell Container, Co. to Oakridge-Chambers Landfill. Oakridge-Chambers is a licensed Subtitle D landfill permitted to handle special wastes. Copies of completed manifests are located in Volume II.

5.2 HAZARDOUS WASTE.

5.2.1 Soil and Concrete. Will's Trucking, Inc. transported approximately 8320.44 tons of soil and concrete characterized as hazardous (via haul trucks and roll-offs) from the site to Safety-Kleen (Pinewood), Inc. located in Pinewood, South Carolina. Upon arrival at the Pinewood facility, the waste was treated for placement in the facilities landfill. Copies of completed manifests are located in Volume II.

APPENDIX A

FIGURES


SWMU 2
BOUNDARY
NAVAL COMPLEX BOUNDARY LINE
COOPER RIVER
AVENUE "A" NORTH
AVENUE "B" NORTH
AVENUE "C" NORTH
AVENUE "D"
KINDER ST.
FITE ST.
LAYMAN ST.
AUSTIN ST.
SECOND ST. NORTH
FORMER 1606A
FORMER 1606B
1630
1635
1639
1640
1646
1647
1648
1649
1650C
1650B
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1768
1803
1805
1410
1287
1634
1636
PUTTING GREEN
MOISETTE CREEK
19 HOLE GOLF COURSE
110 YDS
132 YDS
107 YDS
109 YDS
135 YDS
150 YDS
165 YDS
175 YDS
186 YDS
252 YDS
213 YDS
148 YDS
276 YDS
A
B
C
GRAPHIC SCALE (FEET)
300 0 300 600
ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE – BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106
FIGURE 1
SWMU 2 SITE MAP
DATE
10 SEPT 1999
PREPARED BY:
J.I. BROWNLEE
REV
–
SCALE: –
SHEET A-1


536
1606
1627
1649
AVENUE "A" NORTH
508A
LEGEND
1999 SOIL SAMPLE CONFIRMING HORIZONTAL BOUNDARIES < 400 PPM
1999 CONFIRMATION SAMPLE LOCATION
RAILROAD
EXCAVATION BOUNDARY
CONCRETE SLAB
BUILDING
CATCH BASIN
0
100
200 Feet

APPENDIX D

DET's Delineation and IM Confirmatory Sampling Data

Data Identification

Because the sample identification numbers on the Form 1s do not always match the sample Ids on the DET's figures, CH2M HILL has provided this brief description on matching analytical results to sample locations.

Delineation Data Identification

The delineation data presented in Appendix D-1 requires some explanation in order to find data for a particular sample location. The Form 1 lists the Sample ID as it appears on the chain of custody. Sample IDs on the DET's figures are labeled using the last four or five digits of the number found in the "Remarks" column of the chain of custody. Generally, the number in the "Remarks" column is in the form of: NBCA002xxxxyzzzz. The first three letters (NBC) refers to the facility (Naval Base Charleston). The fourth character refers to the zone and the fifth through seventh characters refer to the AOC/SWMU. The 8th through the 11th (xxxx) characters appear to denote the sample media and type. Characters 12 through 16 (yzzzz) appear to be sample IDs. When the 12th character (y) is zero (0), it is omitted on the figures. It is not clear why sample locations have more than one sample ID, but as a result of this numbering convention, the chain of custody forms are required to match lab data to sample locations provided on Figure 2 of the DET's IM Completion Report.

Confirmation Data Identification

Unlike the delineation data, the confirmation data in Appendix D-2 uses the last four characters of the sample ID found on the lab reports, and chains of custody, as the sample IDs on the figures. This simplifies finding data for a particular sample location.

D-1

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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-6
Lab ID	: 9804579-08
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		412000	65.2	481	ug/kg	2.0	MBL	04/23/98	1141	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
:viewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29414
(803) 556-8171 • Fax (803) 766-1178

9804579-08

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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-7
Lab ID	: 9804579-09
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10600	64.5	476	ug/kg	2.0	MBL	04/23/98	1146	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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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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9804579-09

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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-7
Lab ID	: 9804579-10
Matrix	: TCLP
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		24000	3.39	25.0	ug/l	5.0	MBL	04/24/98	1128	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/22/98	1840	120655	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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Karen Blakeney
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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-8
Lab ID : 9804579-11
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5110000	332	2450	ug/kg	10.	MBL	04/23/98	1410	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-9
Lab ID	: 9804579-12
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		34000	67.1	495	ug/kg	2.0	MBL	04/23/98	1207	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-10
Lab ID	: 9804579-13
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		767000	64.5	476	ug/kg	2.0	MBL	04/23/98	1213	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-11
Lab ID : 9804579-14
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1400000	63.3	467	ug/kg	2.0	MBL	04/23/98	1218	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-12
Lab ID	: 9804579-15
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1060000	62.8	463	ug/kg	2.0	MBL	04/23/98	1223	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-13
Lab ID : 9804579-16
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4710000	65.8	485	ug/kg	2.0	MBL	04/23/98	1229	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-14
Lab ID	: 9804579-17
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		39100	64.0	472	ug/kg	2.0	MBL	04/23/98	1234	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-15
Lab ID : 9804579-18
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10100	63.3	467	ug/kg	2.0	MBL	04/23/98	1239	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-16
Lab ID	: 9804579-19
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		184000	65.8	485	ug/kg	2.0	MBL	04/23/98	1245	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-17
Lab ID : 9804579-20
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11100	66.4	490	ug/kg	2.0	MBL	04/23/98	1250	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-18
Lab ID	: 9804579-21
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5480000	320	2360	ug/kg	10.	MBL	04/23/98	1415	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-19
Lab ID	: 9804579-22
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3410000	66.4	490	ug/kg	2.0	MBL	04/23/98	1311	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-19
Lab ID : 9804579-23
Matrix : TCLP
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4860	3.39	25.0	ug/l	5.0	MBL	04/24/98	1135	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/22/98	1840	120655	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-20
Lab ID	: 9804579-24
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1220000	64.5	476	ug/kg	2.0	MBL	04/23/98	1317	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
Reviewed By

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9804579-24

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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-21
Lab ID	: 9804579-25
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1540000	64.5	476	ug/kg	2.0	MBL	04/23/98	1257	120653	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120653	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-22
Lab ID : 9804579-26
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		52800	66.4	490	ug/kg	2.0	MBL	04/23/98	1303	120653	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120653	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-23
Lab ID : 9804579-27
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2750000	66.4	490	ug/kg	2.0	MBL	04/23/98	1309	120653	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120653	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9804579-27

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804579% Report Date: April 24, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC501912	BLANK	120626											
Lead						3.10	ug/l				MBL	04/24/98	0849
QC501913	BLANK	120626											
Lead						2.36	ug/l				MBL	04/24/98	0855
QC501914	BLANK	120626											
Lead						2.44	ug/l				MBL	04/24/98	0901
QC502004	BLANK	120652											
Lead						45.6	ug/kg				MBL	04/23/98	1102
QC502009	BLANK	120653											
Lead						52.5	ug/kg				MBL	04/23/98	1233
QC501915	LCS	120626											
Lead			5000			4980	ug/l		99.6	(82.4 - 125.)	MBL	04/24/98	0908
QC502005	LCS	120652											
Lead			131000			140000	ug/kg		107	(77.1 - 116.)	MBL	04/23/98	1108
QC502010	LCS	120653											
Lead			134000			114000	ug/kg		84.7	(77.1 - 116.)	MBL	04/23/98	1239
QC502007	9804579-24MS	120652											
Lead			49000	1220000		9520000	ug/kg		n/a		MBL	04/23/98	1327
QC502012	9804584-11MS	120653											
Lead			48100	5990		57300	ug/kg		92.7	(56.3 - 135.)	MBL	04/23/98	1459
QC502008	9804579-24MSD	120652											
Lead			48500	1220000		2400000	ug/kg		n/a		MBL	04/23/98	1333
QC502013	9804584-11MSD	120653											
Lead			48500	5990		56800	ug/kg	1.81	91.1	(0.00 - 34.0)	MBL	04/23/98	1505
QC502006	9804579-24SERIAL	120652											
Lead				1220000		1260000	ug/kg	2.49			MBL	04/23/98	1322
QC502011	9804584-11SERIAL	120653											
Lead				5990		6080	ug/kg	1.49			MBL	04/23/98	1454

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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NPW... with three day Turnaround

CHAIN OF CUSTODY RECORD

9804579

Page 1 of 2

General Engineering Labs, Inc.
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Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

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 32371

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method Required	SVOC - Specify Method Required	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	TCLP Lead	Remarks	
01	Sport Ø667-1	4/21/98	09:32		X			1							X									X	NBCA 002 S Ph2 001 01	.1
02	Sport Ø667-2	4/21/98	09:37		X			1							X										NBCA 002 S Ph2 001 02	.1
03	Sport Ø667-3	4/21/98	09:52		X			1							X									X	NBCA 002 S Ph2 002 01	.1
04	Sport Ø667-4	4/21/98	10:18		X			1							X										NBCA 002 S Ph2 003 01	.1
05	Sport Ø667-5	4/21/98	10:35		X			1							X										NBCA 002 S Ph2 004 01	.1
06	Sport Ø667-6	4/21/98	10:40		X			1							X										NBCA 002 S Ph2 004 02	.1
07	Sport Ø667-7	4/21/98	10:49		X			1							X									X	NBCA 002 S Ph2 005 01	.1
08	Sport Ø667-8	4/21/98	10:54		X			1							X										NBCA 002 S Ph2 006 02	.1
09	Sport Ø667-9	4/21/98	11:05		X			1							X										NBCA 002 S Ph2 006 01	.1
10	Sport Ø667-10	4/21/98	11:10		X			1							X										NBCA 002 S Ph2 006 02	.1
11	Sport Ø667-11	4/21/98	13:12		X			1							X										NBCA 002 S Ph2 007 01	.1
12	Sport Ø667-12	4/21/98	13:15		X			1							X										NBCA 002 S Ph2 007 02	.1
13	Sport Ø667-13	4/21/98	13:19		X			1							X										NBCA 002 S Ph2 008 01	.1

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matt W. Joffa	4/21/98	15:25	[illegible]	[illegible]	4/22/98	1445	[illegible]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
[illegible]	4/22/98	1510	Bonnie Frances	4/22/98	1510		

White = sample collector | Yellow = file | Pink = with report

three day TU around

CHAIN OF CUSTODY RECORD

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Page 2 of 2

Client Name/Facility Name: Sport Env Dept Chasn
Collected by/Company: Sport Env Dept Chasn

CCL 32371

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD TCP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	TCLP Lead	Remarks
-17	Sport Ø667-14	4/21/98	13:26		X			1							X										NBCA 002 S Ph2 008 02 .1
-18	Sport Ø667-15	4/21/98	13:44		X			1							X										NBCA 002 S Ph2 009 01 .1
-19	Sport Ø667-16	4/21/98	13:47		X			1							X										NBCA 002 S Ph2 009 02 .1
-20	Sport Ø667-17	4/21/98	13:52		X			1							X										NBCA 002 S Ph2 010 01 .1
-21	Sport Ø667-18	4/21/98	13:54		X			1							X										NBCA 002 S Ph2 010 02 .1
-22/23	Sport Ø667-19	4/21/98	13:59		X			1							X									X	NBCA 002 S Ph2 011 01 .12
-24	Sport Ø667-20	4/21/98	14:02		X			1							X										NBCA 002 S Ph2 011 02 .1
-25	Sport Ø667-21	4/21/98	14:02		X			1							X										NBCA 002 C Ph2 001 08 mwd: ~~NBCA 002 I Ph2 001 02~~
-26	Sport Ø667-22	4/21/98	14:08		X			1							X										NBCA 002 S Ph2 012 01 .1
-27	Sport Ø667-23	4/21/98	14:10		X			1							X										NBCA 002 S Ph2 012 02 .1

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matth W. Jeffs	4/21/98	15:25			11/22/98	1453	
Relinquished by: Karen Blakeney	Date: 4/22/98	Time: 1510	Received by lab by: Nonne Franco	Date: 4/22/98	Time: 1520	Remarks:	

White = sample collector Yellow = file Pink = with report

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Laboratory Certifications

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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0669-1 Relog SPORT0632-25
Lab ID	: 9804525-01
Matrix	: TCLP
Date Collected	: 03/25/98
Date Received	: 04/21/98
Priority	. Rush
Collector	· Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		65400	3.39	25.0	ug/l	5.0	MBL	04/24/98	1029	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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9804525-01

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NC	233	
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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0669-2 Relog SPORT0636-23
Lab ID	: 9804525-02
Matrix	: TCLP
Date Collected	: 03/30/98
Date Received	: 04/21/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10200	3.39	25.0	ug/l	5.0	MBL	04/24/98	1035	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0669-3 Relog SPORT0639-13
Lab ID	: 9804525-03
Matrix	: TCLP
Date Collected	: 03/31/98
Date Received	: 04/21/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6740	3.39	25.0	ug/l	5.0	MBL	04/24/98	1041	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

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SC	10120	10582
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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0669-4 Relog SPORT0630-25
Lab ID	: 9804525-04
Matrix	: TCLP
Date Collected	: 03/24/98
Date Received	: 04/21/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		51600	3.39	25.0	ug/l	5.0	MBL	04/24/98	1024	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0669-5 Relog SPORT0608-29
Lab ID : 9804525-05
Matrix : TCLP
Date Collected : 03/23/98
Date Received : 04/21/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8400	3.39	25.0	ug/l	5.0	MBL	04/24/98	1047	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

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

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0669-6 Relog SPORT0630-07
Lab ID : 9804525-06
Matrix : TCLP
Date Collected : 03/24/98
Date Received : 04/21/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		208	3.39	25.0	ug/l	5.0	MBL	04/24/98	1053	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/21/98	1810	120513	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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(803) 556-8171 • Fax (803) 766-1178

Printed on recycled paper

9804525-06

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804525% Report Date: April 24, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC501912	BLANK	120626											
Lead						3.10	ug/l				MBL	04/24/98	0849
QC501913	BLANK	120626											
Lead						2.36	ug/l				MBL	04/24/98	0855
QC501914	BLANK	120626											
Lead						2.44	ug/l				MBL	04/24/98	0901
QC501915	LCS	120626											
Lead			5000			4980	ug/l		99.6	(82.4 - 125.)	MBL	04/24/98	0908
QC502078	9804525-06MS	120626											
Lead			5000	208		5000	ug/l		95.9		MBL	04/24/98	1111

.tes:

The qualifiers in this report are defined as follows:

J indicates presence of analyte < RL (Report Limit)

U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

GENERAL ENGINEERING LABORATORIES
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INIT SC 00194 SPORT-0667

General Engineering Lab[illegible]s, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

9804528

Page 1 of 1

Client Name/Facility Name: SUPSHIP - Env. Detachment

Collected by/Company:

	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			Remarks
01	SPORT 0632-25 R9803642-25	3/25/98	1021												X											TCLP-Pb .1
02	SPORT 0636-23 R9804023-22	3/30/98	1445												X											.1
03	SPORT 0639-13 R9804024-13	3/31/98	0915												X											.1
04	SPORT 0630-25 R9803581-25	3/24/98	1030												X											.1
05	SPORT 0608-29 R9803538-29	3/23/98	1410												X											.1
06	SPORT 0630-07 R9803581-07	3/24/98	0915												X											.1

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 32325

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
			Initialed upon request from client	4/21/98		

White = sample collector Yellow = file Pink = with report

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: NPWC00197 Report Date: May 06, 1998

Sample ID : SPORT0678-1
Lab ID : 9805067-01
Matrix : Soil
Date Collected : 05/04/98
Date Received : 05/04/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		662000	66.4	490	ug/kg	2.0	MBL	05/06/98	0840	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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9805067-01

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Laboratory Certifications

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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: NPWC00197 Report Date: May 06, 1998

Sample ID : SPORT0678-2
Lab ID : 9805067-02
Matrix : Soil
Date Collected : 05/04/98
Date Received : 05/04/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		441000	67.1	495	ug/kg	2.0	MBL	05/06/98	0845	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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9805067-02

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Laboratory Certifications

STATE	GEL	EPI
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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: NPWC00197 Report Date: May 06, 1998

Sample ID : SPORT0678-3
Lab ID : 9805067-03
Matrix : Soil
Date Collected : 05/04/98
Date Received : 05/04/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8940	65.2	481	ug/kg	2.0	MBL	05/06/98	0850	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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Karen Blakeney
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9805067-03

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Laboratory Certifications

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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: NPWC00197 Report Date: May 06, 1998

Sample ID : SPORT0678-4
Lab ID : 9805067-04
Matrix : Soil
Date Collected : 05/04/98
Date Received : 05/04/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		20100	64.5	476	ug/kg	2.0	MBL	05/06/98	0856	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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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: NPWC00197 Report Date: May 06, 1998

Sample ID	: SPORT0678-5
Lab ID	: 9805067-05
Matrix	: Soil
Date Collected	: 05/04/98
Date Received	: 05/04/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		66400	64.0	472	ug/kg	2.0	MBL	05/06/98	0901	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9805067-05

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STATE	GEL	EPI
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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: NPWC00197 Report Date: May 06, 1998

Sample ID	: SPORT0678-6
Lab ID	: 9805067-06
Matrix	: Soil
Date Collected	: 05/04/98
Date Received	: 05/04/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		26700	67.8	500	ug/kg	2.0	MBL	05/06/98	0906	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9805067-06

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Laboratory Certifications

STATE	GEL	EPI
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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: NPWC00197 Report Date: May 06, 1998

Sample ID	: SPORT0678-7
Lab ID	: 9805067-07
Matrix	: Soil
Date Collected	: 05/04/98
Date Received	: 05/04/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		350000	66.4	490	ug/kg	2.0	MBL	05/06/98	0912	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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Karen Blakeney
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9805067-07

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: NPWC00197 Report Date: May 06, 1998

Sample ID : SPORT0678-8
Lab ID : 9805067-08
Matrix : Soil
Date Collected : 05/04/98
Date Received : 05/04/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		27900	67.8	500	ug/kg	2.0	MBL	05/06/98	0917	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
Reviewed By

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9805067-08

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: NPWC00197 Report Date: May 06, 1998

Sample ID	: SPORT0678-9
Lab ID	: 9805067-09
Matrix	: Soil
Date Collected	: 05/04/98
Date Received	: 05/04/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15700	65.2	481	ug/kg	2.0	MBL	05/06/98	0933	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
Reviewed By

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9805067-09

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: NPWC00197 Report Date: May 06, 1998

Sample ID	: SPORT0678-10
Lab ID	: 9805067-10
Matrix	: Soil
Date Collected	05/04/98
Date Received	: 05/04/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6550	65.2	481	ug/kg	2.0	MBL	05/06/98	0939	121463	1
The following prep procedures were performed:											
TRACE							VMM	05/05/98	1500	121463	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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9805067-10

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9805067-01 Report Date: May 06, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC504935	BLANK	121463											
Lead						49.9	ug/kg				MBL	05/06/98	0828
QC504936	LCS	121463											
Lead			132000			127000	ug/kg		96.5	(77.1 - 116.)	MBL	05/06/98	0833
QC504938	9805067-10MS	121463											
Lead			48500	6550		56000	ug/kg		102	(56.3 - 135.)	MBL	05/06/98	0949
QC504939	9805067-10MSD	121463											
Lead			48500	6550		57000	ug/kg	2.04	104	(0.00 - 34.0)	MBL	05/06/98	0955
QC504937	9805067-10SERIAL	121463											
Lead				6550		6250	ug/kg	4.66			MBL	05/06/98	0944

ıtes:
ı he qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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NPW-00191

Three Day Turnaround

CHAIN OF CUSTODY RECORD

9805067-

Page 1 of 1

General Engineering Labs, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

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 32592

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	RCRA TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-01	SPORT0678-1	5/4/98	10:45		X			1							X										NBCA002SPh201301
-02	Sport0678-2	5/4/98	10:50		X			1							X										NBCA002SPh201302
-03	Sport0678-3	5/4/98	11:00		X			1							X										NBCA002SPh201401
-04	Sport0678-4	5/4/98	11:06		X			1							X										NBCA002SPh201402
-05	Sport0678-5	5/4/98	11:16		X			1							X										NBCA002SPh201501
-06	Sport0678-6	5/4/98	11:20		X			1							X										NBCA002SPh201502
-07	Sport0678-7	5/4/98	11:33		X			1							X										NBCA002SPh201601
-08	Sport0678-8	5/4/98	11:37		X			1							X										NBCA002SPh201602
-09	Sport0678-9	5/4/98	11:46		X			1							X										NBCA002SPh201701
-10	Sport0678-10	5/4/98	11:52		X			1							X										NBCA002SPh201702

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	5/4/98	1310	Vivian Washington	Vivian Washington	5/4/98	1415	
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
	5/4/98	1530	Karen Blakeney	5/4/98	1535 1530 RBB		

White = sample collector Yellow = file Pink = with report

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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-72
Lab ID	: 9804024-72
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9900	65.2	481	ug/kg	2.0	MBL	04/06/98	1744	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-73
Lab ID : 9804024-73
Matrix . Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12900	67.8	500	ug/kg	2.0	MBL	04/06/98	1750	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-74
Lab ID : 9804024-74
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		18000	67.8	500	ug/kg	2.0	MBL	04/06/98	1756	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-75
Lab ID : 9804024-75
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6240	65.8	485	ug/kg	2.0	MBL	04/06/98	1802	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-76
Lab ID	: 9804024-76
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		20800	65.8	485	ug/kg	2.0	MBL	04/06/98	1819	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-77
Lab ID	: 9804024-77
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12200	66.4	490	ug/kg	2.0	MBL	04/06/98	1825	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

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Sample ID	: SPORT0639-78
Lab ID	: 9804024-78
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8160	67.8	500	ug/kg	2.0	MBL	04/06/98	1831	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-79
Lab ID	: 9804024-79
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		13100	63.3	467	ug/kg	2.0	MBL	04/06/98	1837	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-80
Lab ID	: 9804024-80
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		14000	62.2	459	ug/kg	2.0	MBL	04/06/98	1842	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-81
Lab ID . 9804024-81
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		14200	62.8	463	ug/kg	2.0	MBL	04/06/98	1848	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-82
Lab ID	: 9804024-82
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9390	63.3	467	ug/kg	2.0	MBL	04/06/98	1854	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-83
Lab ID : 9804024-83
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10900	66.4	490	ug/kg	2.0	MBL	04/06/98	1900	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Contact: Mr. Bill Hiers
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cc: NPWC00197 Report Date: April 08, 1998 Page 1 of 1

Sample ID : SPORT0639-84
Lab ID : 9804024-84
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12100	63.3	467	ug/kg	2.0	MBL	04/06/98	1905	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-85
Lab ID	: 9804024-85
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7900	64.0	472	ug/kg	2.0	MBL	04/06/98	1911	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-86
Lab ID : 9804024-86
Matrix : Soil
Date Collected . 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8490	65.8	485	ug/kg	2.0	MBL	04/06/98	1929	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29414
(803) 556-8171 • Fax (803) 766-1178

9804024-86

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-87
Lab ID	: 9804024-87
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11800	64.5	476	ug/kg	2.0	MBL	04/06/98	1934	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
eviewed By

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9804024-87

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804024% Report Date: April 08, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC497516	BLANK	119394											
Lead						107	ug/kg				MBL	04/03/98	2352
QC497521	BLANK	119395											
Lead						224	ug/kg				MBL	04/05/98	1257
QC497526	BLANK	119396											
Lead						32.7	ug/kg				MBL	04/05/98	1600
QC497531	BLANK	119397											
Lead						42.4	ug/kg				MBL	04/05/98	1853
QC497536	BLANK	119398											
Lead						162	ug/kg				MBL	04/06/98	1709
QC497517	LCS	119394											
Lead			135000			130000	ug/kg		96.4	(77.1 - 116.)	MBL	04/03/98	2357
QC497522	LCS	119395											
Lead			129000			139000	ug/kg		108	(77.1 - 116.)	MBL	04/05/98	13
QC497527	LCS	119396											
Lead			134000			122000	ug/kg		90.9	(77.1 - 116.)	MBL	04/05/98	1605
QC497532	LCS	119397											
Lead			129000			124000	ug/kg		96.0	(77.1 - 116.)	MBL	04/05/98	1858
QC497537	LCS	119398											
Lead			132000			128000	ug/kg		97.3	(77.1 - 116.)	MBL	04/06/98	1714
QC497519	9804024-07MS	119394											
Lead			48500	3770		55300	ug/kg		106	(56.3 - 135.)	MBL	04/04/98	0217
QC497524	9804024-27MS	119395											
Lead			48500	938		49800	ug/kg		101	(56.3 - 135.)	MBL	04/05/98	1533
QC497529	9804024-47MS	119396											
Lead			46700	10300		56400	ug/kg		98.7	(56.3 - 135.)	MBL	04/05/98	1825
QC497534	9804024-67MS	119397											
Lead			49500	26600		69300	ug/kg		86.3	(56.3 - 135.)	MBL	04/05/98	2119
QC497539	9804024-87MS	119398											
Lead			49000	11800		69000	ug/kg		117	(56.3 - 135.)	MBL	04/06/98	1946
QC497520	9804024-07MSD	119394											
Lead			49500	3770		57000	ug/kg	1.27	108	(0.00 - 34.0)	MBL	04/04/98	0223
QC497525	9804024-27MSD	119395											
Lead			46700	938		49900	ug/kg	4.04	105	(0.00 - 34.0)	MBL	04/05/98	1538
QC497530	9804024-47MSD	119396											
Lead			48500	10300		58100	ug/kg	0.202	98.5	(0.00 - 34.0)	MBL	04/05/98	1831
QC497535	9804024-67MSD	119397											
Lead			45900	26600		61500	ug/kg	12.7	76.0	(0.00 - 34.0)	MBL	04/05/98	2
QC497540	9804024-87MSD	119398											

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804024% Report Date: April 08, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Lead			45900	11800		57100	ug/kg	16.7	98.8	(0.00 - 34.0)	MBL	04/06/98	1952
QC497518 9804024-07SERIAL		119394											
Lead				3770		4350	ug/kg	14.3			MBL	04/04/98	0212
QC497523 9804024-27SERIAL		119395											
Lead				938		844	ug/kg	10.6			MBL	04/05/98	1528
QC497528 9804024-47SERIAL		119396											
Lead				10300		10200	ug/kg	1.19			MBL	04/05/98	1820
QC497533 9804024-67SERIAL		119397											
Lead				26600		27500	ug/kg	3.56			MBL	04/05/98	2114
QC497538 9804024-87SERIAL		119398											
Lead				11800		12500	ug/kg	5.62			MBL	04/06/98	1940

.es:
e qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

GENERAL ENGINEERING LABORATORIES
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NPWCOUN1

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

CHAIN OF CUSTODY RECORD

9804024

Client Name/Facility Name: SPORTENDETCHASN
Collected by/Company: SPORTENDETCHASN

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

CCL 32053

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	624, 8240, ICP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-01	SPORT0639-1	3/31/98	0830		X		X	1							X										NBCA00255Z4007601
-02	SPORT0639-2	3/31/98	0835		X		X	1							X										NBCA00255Z4007701
-03	SPORT0639-3	3/31/98	0840		X		X	1							X										NBCA00255Z4007801
-04	SPORT0639-4	3/31/98	0841		X		X	1							X										NBCA00255Z4007901
-05	SPORT0639-5	3/31/98	0845		X		X	1							X										NBCA00255Z4008001
-06	SPORT0639-6	3/31/98	0850		X		X	1							X										NBCA00255Z4008101
-07	SPORT0639-7	3/31/98	0852		X		X	1							X										NBCA00255Z4008201
-08	SPORT0639-8	3/31/98	0855		X		X	1							X										NBCA00255Z4008301
-09	SPORT0639-9	3/31/98	0857		X		X	1							X										NBCA00255Z4008401
-10	SPORT0639-10	3/31/98	0900		X		X	1	*	mT					X										NBCA00255Z4008501
-11	SPORT0639-11	3/31/98	0902		X		X	1	*	mT					X										NBCA00255Z4008601
-12	SPORT0639-12	3/31/98	0905		X		X	1	*	mT					X										NBCA00255Z4008701
-13	SPORT0639-13	3/31/98	0915		X		X	1	*	mT					X										NBCA00255Z4008801

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Michael T. McCann MT	4/1/98 3/31/98	1405	T. D. & McCann	T. D. & McCann	4/1/98	1530	Stephanie Bocook
Relinquished by: Stephanie Bocook	Date: 4-1-98	Time: 1615	Received by lab by: Karen Blakeney	Date: 4/1/98	Time: 1615	Remarks:	

White = sample collector Yellow = file Pink = with report

General Engineering La[redacted]es, Inc.
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P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTEN DETCHASN

Collected by/Company: SPORTENDETCHASN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP LEAD METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-14	SPORTO639-14	3/31/98	0950		X		X	1							X										NBCA002552400890 1
-15	SPORTO639-15	3/31/98	1000		X		X	1							X										NBCA002552400900 1
-16	SPORTO639-16	3/31/98	1002		X		X	1							X										NBCA002552400910 1
-17	SPORTO639-17	3/31/98	1005		X		X	1							X										NBCA002552400920 1
-18	SPORTO639-18	3/31/98	1010		X		X	1							X										NBCA002552400930 1
-19	SPORTO639-19	3/31/98	1012		X		X	1							X										NBCA002552400940 1
-20	SPORTO639-20	3/31/98	1015		X		X	1							X										NBCA002552400950 1
DUPLICATE -21	SPORTO639-21	3/31/98	1017		X		X	1							X										NBCA002C552400950 1
-22	SPORTO639-22	3/31/98	1030		X		X	1							X										NBCA002552400960 1
-23	SPORTO639-23	3/31/98	1035		X		X	1							X										NBCA002552400970 1
-24	SPORTO639-24	3/31/98	1040		X		X	1							X										NBCA002552400980 1
-25	SPORTO639-25	3/31/98	1042		X		X	1							X										NBCA002552400990 1
-26	SPORTO639-26	3/31/98	1045		X		X	1							X										NBCA002552401000 1

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Michael T Rehrle	4/1/98	1402	Jack B McCarron	Jack B McCarron	4/1/98	1530	Stephanie Bodeker
Relinquished by: Stephanie Bodeker	Date: 4-1-98	Time: 1615	Received by lab by: Karen Blakeney	Date: 4-1-98	Time: 1615	Remarks:	

White = sample collector Yellow = file Pink = with report

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

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTEN DET CHASN

Collected by/Company: SPORTEN DET CHASN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrit/Nitrate	VOC - Specify Method required	TCLP 25 METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-27	SPORTO639-27	3/31/98	1100		X		X	1							X										NBCA00255Z010101
-28	SPORTO639-28	3/31/98	1102		X		X	1							X										NBCA00255Z010201
-29	SPORTO639-29	3/31/98	1105		X		X	1							X										NBCA00255Z010301
-30	SPORTO639-30	3/31/98	1110		X		X	1							X										NBCA00255Z010401
-31	SPORTO639-31	3/31/98	1115		X		X	1							X										NBCA00255Z010501
-32	SPORTO639-32	3/31/98	1120		X		X	1							X										NBCA00255Z010601
-33	SPORTO639-33	3/31/98	1125		X		X	1							X										NBCA00255Z010701
-34	SPORTO639-34	3/31/98	1300		X		X	1							X										NBCA00255Z010801
-35	SPORTO639-35	3/31/98	1305		X		X	1							X										NBCA00255Z010901
-36	SPORTO639-36	3/31/98	1310		X		X	1							X										NBCA00255Z011001
-37	SPORTO639-37	3/31/98	1320		X		X	1							X										NBCA00255Z701601
-38	SPORTO639-38	3/31/98	1322		X		X	1							X										NBCA00255Z701701
-39	SPORTO639-39	3/31/98	1324		X		X	1							X										NBCA00255Z701801

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/98	1405	[signature]	[signature]	4/1/98	1530	[signature]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
[signature]	4-1-98	1615	Karen Blakeney	4-1-98	1615		

White = sample collector Yellow = file Pink = with report

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Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORT ENV DET CHASE
Collected by/Company: SPORT ENV DET CHASE

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP Lead METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
DUPLICATE -40 SPORT0639-40	3/31/98	1324		X		X	1							X											NBCA002SSZ701980
-41 SPORT0639-41	3/31/98	1325		X		X	1							X											NBCA002SSZ701990
-42 SPORT0639-42	3/31/98	1327		X		X	1							X											NBCA002SSZ702001
-43 SPORT0639-43	3/31/98	1328		X		X	1							X											NBCA002SSZ702010
-44 SPORT0639-44	3/31/98	1330		X		X	1							X											NBCA002SSZ702040
-45 SPORT0639-45	3/31/98	1335		X		X	1							X											NBCA002SSZ702050
-46 SPORT0639-46	3/31/98	1337		X		X	1							X											NBCA002SSZ702060
-47 SPORT0639-47	3/31/98	1340		X		X	1							X											NBCA002SSZ702070
-48 SPORT0639-48	3/31/98	1345		X		X	1							X											NBCA002SSZ702080
-49 SPORT0639-49	3/31/98	1400		X		X	1							X											NBCA002SSZ702090
-50 SPORT0639-50	3/31/98	1402		X		X	1							X											NBCA002SSZ702100
-51 SPORT0639-51	3/31/98	1405		X		X	1							X											NBCA002SSZ702110
-52 SPORT0639-52	3/31/98	1425		X		X	1							X											NBCA002SSZ702120

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/98	1405	[signature]	[signature]	4/1/98	1500	[signature]
Relinquished by: Stephanie Bateman	Date: 4-1-98	Time: 1615	Received by lab by: Karen Blakney	Date: 4-1-98	Time: 1615	Remarks:	

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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORT ENV DET CHASN
Collected by/Company: SPORTENV DETCHASN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCP LEAD METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
53	SPORT0639-53	3/31/98	1428		X		X	1							X											NBCA00255270213 01
54	SPORT0639-54	3/31/98	1430		X		X	1							X											NBCA00255270214 01
55	SPORT0634-55	3/31/98	1431		X		X	1							X											NBCA00255270215 01
56	SPORT0639-56	3/31/98	1432		X		X	1							X											NBCA00255270216 01
57	SPORT0634-57	3/31/98	1435		X		X	1							X											NBCA00255270217 01
58	SPORT0639-58	3/31/98	1437		X		X	1							X											NBCA00255270218 01
59	SPORT0639-59	3/31/98	1440		X		X	1							X											NBCA00255270219 01
60	SPORT0639-60	4/1/98	0825		X		X	1							X											NBCA00255280226 01
61	SPORT0639-61	4/1/98	0835		X		X	1							X											NBCA00255280227 01 Comp
62	SPORT0639-62	4/1/98	0830		X		X	1							X											NBCA00255280229 01
63	SPORT0639-63	4/1/98	0835		X		X	1							X											NBCA00255280228 01
64	SPORT0639-64	4/1/98	0845		X		X	1							X											NBCA00255280227 01
65	SPORT0639-65	4/1/98	0847		X		X	1							X											NBCA00255280234 01

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Michael P. Mc	4/1/98	1405	Fred L McCann	Fred L McCann	4/1/98	1550	Sarah Kris Feeler
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Scott Barbeto	4-1-98	1615	Karen Blakeney	4-1-98	1615		

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(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTEN DETCHASN
Collected by/Company: SPORTENDETCHASN

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 EP TCLP	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
SPORTO639-66	4/1/98	0850		X		X	1							X											NBCA00255280225O1
SPORTO639-67	4/1/98	0855		X		X	1							X											NBCA00255280233O1
SPORTO639-68	4/1/98	0900		X		X	1							X											NBCA00255280230O1
SPORTO639-69	4/1/98	0905		X		X	1							X											NBCA00255280232O1
SPORTO639-70	4/1/98	0910		X		X	1							X											NBCA00255280231O1
SPORTO639-71	4/1/98	0920		X		X	1							X											NBCA00255280240O1
SPORTO639-72	4/1/98	0925		X		X	1							X											NBCA00255280235O1
SPORTO639-73	4/1/98	0930		X		X	1							X											NBCA00255280239O1
SPORTO639-74	4/1/98	0935		X		X	1							X											NBCA00255280236O1
SPORTO639-75	4/1/98	0940		X		X	1							X											NBCA00255280238O1
SPORTO639-76	4/1/98	0950		X		X	1							X											NBCA00255280237O1
SPORTO639-77	4/1/98	0955		X		X	1							X											NBCA00255280247O1
SPORTO639-78	4/1/98	1000		X		X	1							X											NBCA00255280241O1

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Michael D. Mulhern	4/1/98	1405	Fred S McCann	Fred S McCann	4/1/98	1530	Stephanie Bostian
Stephanie Bostian	4-1-98	16:15	Karen Blakeney		4-1-98	1615	

Remarks:

White = sample collector Yellow = file Pink = with report

General Engineering Lab[illegible]ies, Inc.
2040 Savage Road
Charleston, South Carolina [illegible]9407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTEN DET CHASN

Collected by/Company: SPORTEN DET CHASN

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

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
79 SPORTO639-79	4/1/98	1005		X		X	1							X										NBCA00255280 2460
80 SPORTO639-80	4/1/98	1010		X		X	1							X										NBCA00255280 2420
81 SPORTO639-81	4/1/98	1020		X		X	1							X										NBCA00255280 2420
82 SPORTO639-82	4/1/98	1025		X		X	1							X										NBCA00255280 2450
83 SPORTO639-83	4/1/98	1045		X		X	1							X										NBCA00255280 2430
84 SPORTO639-84	4/1/98	1050		X		X	1							X										NBCA00255280 2440
85 SPORTO639-85	4/1/98	1110		X		X	1							X										NBCA00255270 2550
86 SPORTO639-86	4/1/98	1125		X		X	1							X										NBCA00255270 2490
87 SPORTO639-87	4/1/98	1130		X		X	1							X										NBCA00255270 2540

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/98	1405	[signature]	[signature]	4/1/98	1530	Stephanie Barbeau
Relinquished by: Stephanie Barbeau	4-1-98	16:15	Received by lab by: Karen Blakeney	4-4-98	1615	Remarks:	

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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-1
Lab ID : 9804061-01
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		108000	65.8	485	ug/kg	2.0	MBL	04/08/98	1608	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes.
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standard operating procedures. Please direct
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Karen Blakeney
Reviewed By

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998 Page 1 of 1

Sample ID : SPORT0642-2
Lab ID : 9804061-02
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		21000	65.2	481	ug/kg	2.0	MBL	04/08/98	1613	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-3
Lab ID : 9804061-03
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5040	65.8	485	ug/kg	2.0	MBL	04/08/98	1618	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-4
Lab ID : 9804061-04
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15600	62.8	463	ug/kg	2.0	MBL	04/08/98	1624	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-5
Lab ID : 9804061-05
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7960	66.4	490	ug/kg	2.0	MBL	04/08/98	1629	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-6
Lab ID : 9804061-06
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6080	64.5	476	ug/kg	2.0	MBL	04/08/98	1634	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-7
Lab ID : 9804061-07
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7540	66.4	490	ug/kg	2.0	MBL	04/08/98	1640	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-8
Lab ID : 9804061-08
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		19600	64.0	472	ug/kg	2.0	MBL	04/08/98	1703	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-9
Lab ID : 9804061-09
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		22900	65.2	481	ug/kg	2.0	MBL	04/08/98	1708	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-10
Lab ID	: 9804061-10
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11800	64.5	476	ug/kg	2.0	MBL	04/08/98	1758	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	SPORT0642-11
Lab ID	9804061-11
Matrix	Soil
Date Collected	04/01/98
Date Received	04/02/98
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9160	64.0	472	ug/kg	2.0	MBL	04/08/98	1803	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-12
Lab ID	: 9804061-12
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6840	66.4	490	ug/kg	2.0	MBL	04/08/98	1808	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-13
Lab ID : 9804061-13
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		22800	65.8	485	ug/kg	2.0	MBL	04/08/98	1814	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-14
Lab ID	: 9804061-14
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7190	64.5	476	ug/kg	2.0	MBL	04/08/98	1819	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-15
Lab ID : 9804061-15
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7670	65.2	481	ug/kg	2.0	MBL	04/08/98	1825	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-16
Lab ID	: 9804061-16
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5090	64.5	476	ug/kg	2.0	MBL	04/08/98	1830	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-17
Lab ID : 9804061-17
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5040	64.0	472	ug/kg	2.0	MBL	04/08/98	1835	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-18
Lab ID	: 9804061-18
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6430	62.8	463	ug/kg	2.0	MBL	04/08/98	1851	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-19
Lab ID	: 9804061-19
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10800	65.2	481	ug/kg	2.0	MBL	04/08/98	1857	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-20
Lab ID	: 9804061-20
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11300	63.3	467	ug/kg	2.0	MBL	04/08/98	1902	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-21
Lab ID : 9804061-21
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		56800	64.0	472	ug/kg	2.0	MBL	04/08/98	1907	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-22
Lab ID	: 9804061-22
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10800	63.3	467	ug/kg	2.0	MBL	04/08/98	1913	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-23
Lab ID	: 9804061-23
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12800	64.5	476	ug/kg	2.0	MBL	04/08/98	1918	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-24
Lab ID : 9804061-24
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8170	65.2	481	ug/kg	2.0	MBL	04/08/98	1923	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-25
Lab ID	: 9804061-25
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7860	65.8	485	ug/kg	2.0	MBL	04/08/98	1929	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-26
Lab ID	: 9804061-26
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12600	65.8	485	ug/kg	2.0	MBL	04/08/98	1934	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-27
Lab ID : 9804061-27
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		120000	64.5	476	ug/kg	2.0	MBL	04/08/98	1940	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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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9804061-27

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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORT0642-28
Lab ID	: 9804061-28
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9120	64.5	476	ug/kg	2.0	MBL	04/08/98	1956	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-29
Lab ID : 9804061-29
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		36500	64.0	472	ug/kg	2.0	MBL	04/08/98	2001	119446	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	0900	119446	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORT0642-30
Lab ID : 9804061-30
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		40400	64.0	472	ug/kg	2.0	MBL	04/08/98	1304	119532	1
The following prep procedures were performed:											
TRACE							FGD	04/07/98	1400	119532	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9804061-30

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804061% Report Date: April 10, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC497687	BLANK	119445											
Lead						85.6	ug/kg				MBL	04/08/98	1443
QC497692	BLANK	119446											
Lead						56.5	ug/kg				MBL	04/08/98	1746
QC498016	BLANK	119532											
Lead						-24.8	ug/kg				MBL	04/08/98	1043
QC497688	LCS	119445											
Lead			132000			121000	ug/kg		91.4	(77.1 - 116.)	MBL	04/08/98	1449
QC497693	LCS	119446											
Lead			132000			125000	ug/kg		94.7	(77.1 - 116.)	MBL	04/08/98	1751
QC498017	LCS	119532											
Lead			134000			127000	ug/kg		94.6	(77.1 - 116.)	MBL	04/08/98	1048
QC497690	9804061-09MS	119445											
Lead			47600	22900		52000	ug/kg		61.0	(56.3 - 135.)	MBL	04/08/98	1719
QC497695	9804061-29MS	119446											
Lead			47600	36500		73400	ug/kg		77.5	(56.3 - 135.)	MBL	04/08/98	2012
QC498019	9804097-15MS	119532											
Lead			47600	5940		59400	ug/kg		96.5	(56.3 - 135.)	MBL	04/08/98	1333
QC497691	9804061-09MSD	119445											
Lead			47600	22900		58100	ug/kg	19.2	74.0	(0.00 - 34.0)	MBL	04/08/98	1724
QC497696	9804061-29MSD	119446											
Lead			48100	36500		74700	ug/kg	2.44	79.4	(0.00 - 34.0)	MBL	04/08/98	2017
QC498020	9804097-15MSD	119532											
Lead			47600	5940		59800	ug/kg	0.854	97.3	(0.00 - 34.0)	MBL	04/08/98	1413
QC497689	9804061-09SERIAL	119445											
Lead				22900		24100	ug/kg	4.98			MBL	04/08/98	1714
QC497694	9804061-29SERIAL	119446											
Lead				36500		37600	ug/kg	2.99			MBL	04/08/98	2006
QC498018	9804097-15SERIAL	119532											
Lead				5940		6460	ug/kg	8.30			MBL	04/08/98	1327

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

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NPL 200197

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CHAIN OF CUSTODY RECORD

Page 1 of 3

9804061

Client Name/Facility Name: SPORTENDETCHASN
Collected by/Company: SPORTENDETCHASN

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 32069

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	USEPA TCL METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
01	Sport@642-1	4-1-98	13:33		X			1							X											NBCA002SSZ826301
02	Sport@642-2	4-1-98	13:33		X			1							X											NBCA002SSZ826201
03	Sport@642-3	4-1-98	13:34		X			1							X											NBCA002SSZ825301
04	Sport@642-4	4-1-98	13:43		X			1							X											NBCA002SSZ826101
05	Sport@642-5	4-1-98	13:43		X			1							X											NBCA002SSZ826001
06	Sport@642-6	4-1-98	13:46		X			1							X											NBCA002SSZ825401
07	Sport@642-7	4-1-98	13:46		X			1							X											NBCA002SSZ826201
08	Sport@642-8	4-1-98	13:50		X			1							X											NBCA002SSZ825901
09	Sport@642-9	4-1-98	13:50		X			1							X											NBCA002SSZ825801
10	Sport@642-10	4-1-98	13:57		X			1							X											NBCA002SSZ826101
11	Sport@642-11	4-1-98	14:10		X			1							X											NBCA002SSZ825701
12	Sport@642-12	4-1-98	14:10		X			1							X											NBCA002SSZ827301
13	Sport@642-13	4-1-98	14:19		X			1							X											NBCA002SSZ826501

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Lutz	4/2/98	07:44			4/4/98	1455	Karen Blakeney
Karen Blakeney	4/4/98	1520	Received by lab by: Donnie Francis	4/7/98	1500	Remarks:	

White = sample collector Yellow = file Pink = with report

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Charleston, South Carolina 29417
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CHAIN OF CUSTODY RECORD

Page 2 of 3

-120406 1

Client Name/Facility Name: SPORTENDET CHASN

Collected by/Company: SPORTENDET CHASN

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrite	VOC - Specify Method Required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	BN Extractables	PCB's	Cyanide	Coliform - specify type	Remarks
Sport 0642-14	4-1-98	14:19		X			1							X									NBCA00255282780
Sport 0642-15	4-1-98	14:44		X			1							X									NBCA00255282680
Sport 0642-16	4-1-98	14:44		X			1							X									NBCA00255282690
Sport 0642-17	4-1-98	14:44		X			1							X									NBCA00255282760
Sport 0642-18	4-1-98	14:44		X			1							X									NBCA00255282770
Sport 0642-19	4-1-98	15:00		X			1							X									NBCA00255282740
Sport 0642-20	4-1-98	15:00		X			1							X									NBCA00255282750
Sport 0642-21	4-1-98	15:00		X			1							X									NBCA00255282610
Sport 0642-22	4-1-98	15:15		X			1							X									NBCA00255282820
Sport 0642-23	4-1-98	15:15		X			1							X									NBCA00255282560
Sport 0642-24	4-1-98	15:15		X			1							X									NBCA00255282640
Sport 0642-25	4-1-98	15:15		X			1							X									NBCA00255282660
Sport 0642-26	4-1-98	16:25		X			1							X									NBCA00256282670

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/6/98	07:44	[signature]	[signature]	4/2/98	1755	[signature]
Relinquished by: Karen Blakeney	Date: 4/2/98	Time: 1520	Received by lab by: [signature]	Date: 4/2/98	Time: 1520	Remarks:	

White = sample collector Yellow = file Pink = with report

Use P or F in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (s) - use remarks area to specify specific compounds or methods

P. 002

TEL: 803-852-5812

GEN. ENGINEERING

APR -14' 98 (TUE) 09:45

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Charleston, South Carolina ..407
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Charleston, South Carolina 29417
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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTEN DET CHPSIN
Collected by/Company: SPORTEN DET CHASIN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-27	Sport0642-27	4-1-98	15:25		X			1							X											NBCA002SSZ827201
-28	Sport0642-28	4-1-98	15:25		X			1							X											NBCA002SSZ827801
-29	Sport0642-29	4-1-98	15:25		X			1							X											NBCA002SSZ827901
-30	Sport0642-30	4-1-98	15:25		X			1							X											NBCA002SSZ828001

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	4/2/98	07:44			4/4/98	1455	Karen Blakeney
Karen Blakeney	4/2/98	1520	Dionne Francis		4/2/98	1580	

Remarks:

White = sample collector Yellow = file Pink = with report

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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-1
Lab ID	: 9804060-01
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		131000	67.8	500	ug/kg	2.0	MBL	04/08/98	1455	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-2
Lab ID	: 9804060-02
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		360000	65.2	481	ug/kg	2.0	MBL	04/08/98	1500	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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:viewed By

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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-3
Lab ID	: 9804060-03
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		131000	66.4	490	ug/kg	2.0	MBL	04/08/98	1506	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-4
Lab ID	: 9804060-04
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		862000	63.3	467	ug/kg	2.0	MBL	04/08/98	1511	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORTO0643-5
Lab ID : 9804060-05
Matrix : Soil
Date Collected : 04/02/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		429000	64.0	472	ug/kg	2.0	MBL	04/08/98	1516	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-6
Lab ID	: 9804060-06
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		47000	63.3	467	ug/kg	2.0	MBL	04/08/98	1522	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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.

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Karen Blakeney
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9804060-06

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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: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-7
Lab ID	: 9804060-07
Matrix	: Soil
Date Collected	. 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		308000	64.0	472	ug/kg	2.0	MBL	04/08/98	1527	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-8
Lab ID	: 9804060-08
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12700000	3230	23800	ug/kg	100	MBL	04/08/98	1658	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORTO0643-9
Lab ID : 9804060-09
Matrix : Soil
Date Collected : 04/02/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3590000	65.8	485	ug/kg	2.0	MBL	04/08/98	1552	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 10, 1998

Sample ID	: SPORTO0643-10
Lab ID	: 9804060-10
Matrix	: Soil
Date Collected	: 04/02/98
Date Received	: 04/02/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		30000	65.8	485	ug/kg	2.0	MBL	04/08/98	1557	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 10, 1998

Sample ID : SPORTO0643-11
Lab ID : 9804060-11
Matrix : Soil
Date Collected : 04/02/98
Date Received : 04/02/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		54000	67.1	495	ug/kg	2.0	MBL	04/08/98	1602	119445	1
The following prep procedures were performed:											
TRACE							FGD	04/06/98	1600	119445	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9804060-11

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804060% Report Date: April 10. 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC497687	BLANK	119445											
Lead						85.6	ug/kg				MBL	04/08/98	1443
QC497688	LCS	119445											
Lead			132000			121000	ug/kg		91.4	(77.1 - 116.)	MBL	04/08/98	1449
QC497690	9804061-09MS	119445											
Lead			47600	22900		52000	ug/kg		61.0	(56.3 - 135.)	MBL	04/08/98	1719
QC497691	9804061-09MSD	119445											
Lead			47600	22900		58100	ug/kg	19.2	74.0	(0.00 - 34.0)	MBL	04/08/98	1724
QC497689	9804061-09SERIAL	119445											
Lead				22900		24100	ug/kg	4.98			MBL	04/08/98	1714

. .otes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

9804060

Page 1 of 1

Client Name/Facility Name: SPORTENDETCHAISN
Collected by/Company: SPORTENDETCHAISN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-01	Sport|0643-1	4/2/98	09:17		X			1							X											NBCA002SSZ100101
-02	Sport|0643-2	4/2/98	09:22		X			1							X											NBCA002SSZ100201
-03	Sport|0643-3	4/2/98	09:28		X			1							X											NBCA002SSZ100301
-04	Sport|0643-4	4/2/98	09:36		X			1							X											NBCA002SSZ100601
-05	Sport|0643-5	4/2/98	09:44		X			1							X											NBCA002SSZ100701
-06	Sport|0643-6	4/2/98	09:48		X			1							X											NBCA002SSZ101101
-07	Sport|0643-7	4/2/98	09:56		X			1							X											NBCA002SSZ101201
-08	Sport|0643-8	4/2/98	10:10		X			1							X											NBCA002SSZ406201
-09	Sport|0643-9	4/2/98	10:14		X			1							X											NBCA002SSZ406202
-10	Sport|0643-10	4/2/98	10:31		X			1							X											NBCA002SSZ720001
-11	Sport|0643-11	4/2/98	10:31		X			1							X											NBCA002SSZ720101

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

CCL 32068

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffries	4/2/98	1100	Jack Rucker	Jack Rucker	4/2/98	1455	Karen Blakeney
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Karen Blakeney	4/2/98	1520	Donna Francis	4/2/98	1500		

White = sample collector Yellow = file Pink = with report

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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: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-1
Lab ID : 9804579-01
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7660	65.8	485	ug/kg	2.0	MBL	04/23/98	1114	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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9804579-01

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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-1
Lab ID	: 9804579-02
Matrix	: TCLP
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		28.2	3.39	25.0	ug/l	5.0	MBL	04/24/98	1116	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/22/98	1840	120655	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-2
Lab ID	: 9804579-03
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5680	65.8	485	ug/kg	2.0	MBL	04/23/98	1119	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9804579-03

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Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-3
Lab ID : 9804579-04
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5270000	332	2450	ug/kg	10.	MBL	04/23/98	1359	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-3
Lab ID	: 9804579-05
Matrix	: TCLP
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		25900	3.39	25.0	ug/l	5.0	MBL	04/24/98	1122	120626	1
The following prep procedures were performed:											
TCLP Prep for Metals							JL	04/22/98	1840	120655	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 24, 1998

Sample ID : SPORT0667-4
Lab ID : 9804579-06
Matrix : Soil
Date Collected : 04/21/98
Date Received : 04/22/98
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		446000	66.4	490	ug/kg	2.0	MBL	04/23/98	1404	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 24, 1998

Sample ID	: SPORT0667-5
Lab ID	: 9804579-07
Matrix	: Soil
Date Collected	: 04/21/98
Date Received	: 04/22/98
Priority	: Rush
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		83400	65.2	481	ug/kg	2.0	MBL	04/23/98	1135	120652	1
The following prep procedures were performed:											
TRACE							VMM	04/22/98	1600	120652	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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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NC	233	
SC	10120	10582
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-17
Lab ID	: 9804024-17
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		390000	66.4	490	ug/kg	2.0	MBL	04/05/98	1418	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-18
Lab ID	: 9804024-18
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	. Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		46800	65.2	481	ug/kg	2.0	MBL	04/05/98	1423	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-19
Lab ID	: 9804024-19
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		46600	66.4	490	ug/kg	2.0	MBL	04/05/98	1429	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-20
Lab ID	: 9804024-20
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		839000	62.8	463	ug/kg	2.0	MBL	04/05/98	1434	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-21
Lab ID	: 9804024-21
Matrix	. Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		781000	63.3	467	ug/kg	2.0	MBL	04/05/98	1439	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-22
Lab ID	: 9804024-22
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	. 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		187000	64.5	476	ug/kg	2.0	MBL	04/05/98	1445	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-23
Lab ID	: 9804024-23
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2230000	64.0	472	ug/kg	2.0	MBL	04/05/98	1450	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-24
Lab ID	: 9804024-24
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5220	65.2	481	ug/kg	2.0	MBL	04/05/98	1456	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Laboratory Certifications

STATE	GEL	EPI
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-25
Lab ID	: 9804024-25
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		172000	64.0	472	ug/kg	2.0	MBL	04/05/98	1501	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-26
Lab ID	: 9804024-26
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		536	63.3	467	ug/kg	2.0	MBL	04/05/98	1517	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
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Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-27
Lab ID : 9804024-27
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		938	62.8	463	ug/kg	2.0	MBL	04/05/98	1522	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-28
Lab ID	: 9804024-28
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		78000	64.0	472	ug/kg	2.0	MBL	04/05/98	1611	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-29
Lab ID : 9804024-29
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7510	64.0	472	ug/kg	2.0	MBL	04/05/98	1617	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-30
Lab ID : 9804024-30
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6510	63.3	467	ug/kg	2.0	MBL	04/05/98	1622	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.

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Karen Blakeney
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NC	233	
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-31
Lab ID	: 9804024-31
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		19800	62.8	463	ug/kg	2.0	MBL	04/05/98	1627	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-32
Lab ID : 9804024-32
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8190	62.2	459	ug/kg	2.0	MBL	04/05/98	1633	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-33
Lab ID	: 9804024-33
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		543	62.8	463	ug/kg	2.0	MBL	04/05/98	1638	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-34
Lab ID : 9804024-34
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		705	65.2	481	ug/kg	2.0	MBL	04/05/98	1643	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-35
Lab ID	. 9804024-35
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1850	63.3	467	ug/kg	2.0	MBL	04/05/98	1649	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-36
Lab ID	: 9804024-36
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3160	64.0	472	ug/kg	2.0	MBL	04/05/98	1705	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	. SPORT0639-37
Lab ID	: 9804024-37
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4830	64.5	476	ug/kg	2.0	MBL	04/05/98	1710	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-38
Lab ID	: 9804024-38
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4580	67.1	495	ug/kg	2.0	MBL	04/05/98	1716	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-39
Lab ID	: 9804024-39
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4800	64.5	476	ug/kg	2.0	MBL	04/05/98	1721	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-40
Lab ID	: 9804024-40
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3120	62.8	463	ug/kg	2.0	MBL	04/05/98	1726	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-41
Lab ID : 9804024-41
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		58200	67.1	495	ug/kg	2.0	MBL	04/05/98	1732	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-42
Lab ID	: 9804024-42
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		21900	62.2	459	ug/kg	2.0	MBL	04/05/98	1737	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-43
Lab ID : 9804024-43
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		17600	66.4	490	ug/kg	2.0	MBL	04/05/98	1742	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-44
Lab ID : 9804024-44
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		14600	67.1	495	ug/kg	2.0	MBL	04/05/98	1748	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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Karen Blakeney
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-45
Lab ID : 9804024-45
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2250	65.8	485	ug/kg	2.0	MBL	04/05/98	1753	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-46
Lab ID	: 9804024-46
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		71100	65.2	481	ug/kg	2.0	MBL	04/05/98	1809	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-47
Lab ID	: 9804024-47
Matrix	: Soil
Date Collected	. 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10300	66.4	490	ug/kg	2.0	MBL	04/05/98	1815	119396	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119396	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-48
Lab ID	: 9804024-48
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		145000	62.2	459	ug/kg	2.0	MBL	04/05/98	1905	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-49
Lab ID : 9804024-49
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		40700	62.8	463	ug/kg	2.0	MBL	04/05/98	1911	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-50
Lab ID	: 9804024-50
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		351000	63.3	467	ug/kg	2.0	MBL	04/05/98	1916	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-51
Lab ID	. 9804024-51
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	. Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15200	65.2	481	ug/kg	2.0	MBL	04/05/98	1921	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-52
Lab ID : 9804024-52
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		24300	66.4	490	ug/kg	2.0	MBL	04/05/98	1927	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-53
Lab ID : 9804024-53
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4700	62.8	463	ug/kg	2.0	MBL	04/05/98	1932	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-54
Lab ID	: 9804024-54
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11900	64.0	472	ug/kg	2.0	MBL	04/05/98	1937	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-55
Lab ID . 9804024-55
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		101000	62.8	463	ug/kg	2.0	MBL	04/05/98	1943	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-56
Lab ID	: 9804024-56
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10500	63.3	467	ug/kg	2.0	MBL	04/05/98	1959	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-57
Lab ID	: 9804024-57
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		27400	64.0	472	ug/kg	2.0	MBL	04/05/98	2004	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-58
Lab ID	: 9804024-58
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		59200	65.2	481	ug/kg	2.0	MBL	04/05/98	2010	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
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Karen Blakeney
Reviewed By

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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-59
Lab ID : 9804024-59
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		34800	67.1	495	ug/kg	2.0	MBL	04/05/98	2015	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
FL	E87156/87294	E87472/8745
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-60
Lab ID	: 9804024-60
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6100	62.8	463	ug/kg	2.0	MBL	04/05/98	2020	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-61
Lab ID : 9804024-61
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12300	64.0	472	ug/kg	2.0	MBL	04/05/98	2026	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-62
Lab ID	: 9804024-62
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15400	64.0	472	ug/kg	2.0	MBL	04/05/98	2031	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-63
Lab ID	: 9804024-63
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		18900	62.8	463	ug/kg	2.0	MBL	04/05/98	2036	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-64
Lab ID	: 9804024-64
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	. Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15600	62.2	459	ug/kg	2.0	MBL	04/05/98	2042	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-65
Lab ID : 9804024-65
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		27100	62.8	463	ug/kg	2.0	MBL	04/05/98	2047	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-66
Lab ID	: 9804024-66
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10700	62.2	459	ug/kg	2.0	MBL	04/05/98	2103	119397	
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-67
Lab ID	: 9804024-67
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	. 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		26500	63.3	467	ug/kg	2.0	MBL	04/05/98	2108	119397	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119397	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-68
Lab ID	: 9804024-68
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10000	65.2	481	ug/kg	2.0	MBL	04/06/98	1721	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-69
Lab ID	: 9804024-69
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7040	66.4	490	ug/kg	2.0	MBL	04/06/98	1727	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-70
Lab ID	. 9804024-70
Matrix	: Soil
Date Collected	: 04/01/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10600	67.1	495	ug/kg	2.0	MBL	04/06/98	1733	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-71
Lab ID : 9804024-71
Matrix : Soil
Date Collected : 04/01/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		73400	66.4	490	ug/kg	2.0	MBL	04/06/98	1739	119398	1
The following prep procedures were performed:											
TRACE							VMM	04/03/98	1000	119398	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-5
Lab ID	: 9804023-05
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		29300	64.5	476	ug/kg	2.0	MBL	04/03/98	1840	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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.

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-6
Lab ID	: 9804023-06
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6030	64.0	472	ug/kg	2.0	MBL	04/03/98	1845	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-7
Lab ID	: 9804023-07
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7400	65.2	481	ug/kg	2.0	MBL	04/03/98	1850	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-8
Lab ID : 9804023-08
Matrix : Soil
Date Collected : 03/27/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4710	67.8	500	ug/kg	2.0	MBL	04/03/98	1856	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-9
Lab ID	: 9804023-09
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6970	65.8	485	ug/kg	2.0	MBL	04/03/98	1912	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-10
Lab ID : 9804023-10
Matrix : Soil
Date Collected : 03/27/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3670	64.0	472	ug/kg	2.0	MBL	04/03/98	1917	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-11
Lab ID : 9804023-11
Matrix : Soil
Date Collected : 03/27/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		804000	66.4	490	ug/kg	2.0	MBL	04/03/98	1922	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-12
Lab ID	: 9804023-12
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		104000	62.2	459	ug/kg	2.0	MBL	04/03/98	1928	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-13
Lab ID : 9804023-13
Matrix : Soil
Date Collected : 03/30/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7550	65.2	481	ug/kg	2.0	MBL	04/03/98	1933	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-14
Lab ID : 9804023-14
Matrix : Soil
Date Collected : 03/30/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9340	64.0	472	ug/kg	2.0	MBL	04/03/98	1938	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-15
Lab ID	: 9804023-15
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4710	65.2	481	ug/kg	2.0	MBL	04/03/98	1944	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-16
Lab ID	: 9804023-16
Matrix	. Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1080	67.1	495	ug/kg	2.0	MBL	04/03/98	1949	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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1899 North Hobson Ave.
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Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-17
Lab ID	: 9804023-17
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2700	63.3	467	ug/kg	2.0	MBL	04/03/98	1954	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-18
Lab ID	: 9804023-18
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1380	62.8	463	ug/kg	2.0	MBL	04/03/98	2000	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-19
Lab ID	: 9804023-19
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4960	66.4	490	ug/kg	2.0	MBL	04/03/98	2016	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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.
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Karen Blakeney
Reviewed By

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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: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-20
Lab ID : 9804023-20
Matrix : Soil
Date Collected : 03/30/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		902	65.8	485	ug/kg	2.0	MBL	04/03/98	2021	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 07, 1998 Page 1 of 1

Sample ID	: SPORTO636-21
Lab ID	: 9804023-21
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		946	67.1	495	ug/kg	2.0	MBL	04/03/98	2110	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-23
Lab ID : 9804023-22
Matrix : Soil
Date Collected : 03/30/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15200000	3110	23000	ug/kg	100	MBL	04/04/98	1204	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998 Page 1 of 1

Sample ID	: SPORTO636-24
Lab ID	: 9804023-23
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		713000	64.5	476	ug/kg	2.0	MBL	04/04/98	1210	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-25
Lab ID	: 9804023-24
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	. 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		492000	64.0	472	ug/kg	2.0	MBL	04/03/98	2126	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-26
Lab ID	: 9804023-25
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4600000	63.3	467	ug/kg	2.0	MBL	04/03/98	2132	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-27
Lab ID	: 9804023-26
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		23800	62.8	463	ug/kg	2.0	MBL	04/03/98	2137	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-28
Lab ID	: 9804023-27
Matrix	: Soil
Date Collected	: 03/30/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12000	62.2	459	ug/kg	2.0	MBL	04/03/98	2143	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8745(
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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-29
Lab ID	: 9804023-28
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1040000	63.3	467	ug/kg	2.0	MBL	04/03/98	2148	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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NC	235	
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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-30
Lab ID	: 9804023-29
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1370000	66.4	490	ug/kg	2.0	MBL	04/03/98	2204	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-31
Lab ID : 9804023-30
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		537000	64.5	476	ug/kg	2.0	MBL	04/03/98	2210	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87459
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-32
Lab ID	: 9804023-31
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6360000	317	2340	ug/kg	10.	MBL	04/04/98	1215	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-33
Lab ID	: 9804023-32
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1300000	65.2	481	ug/kg	2.0	MBL	04/03/98	2220	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-34
Lab ID	: 9804023-33
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		206000	65.2	481	ug/kg	2.0	MBL	04/03/98	2226	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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Karen Blakeney
Reviewed By

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9804023-33

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-35
Lab ID	: 9804023-34
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		23900	66.4	490	ug/kg	2.0	MBL	04/03/98	2231	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-36
Lab ID	: 9804023-35
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16600	64.5	476	ug/kg	2.0	MBL	04/03/98	2237	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-37
Lab ID	: 9804023-36
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		25000	65.8	485	ug/kg	2.0	MBL	04/03/98	2242	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-38
Lab ID	: 9804023-37
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2840	63.3	467	ug/kg	2.0	MBL	04/03/98	2247	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-39
Lab ID : 9804023-38
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		376000	67.1	495	ug/kg	2.0	MBL	04/03/98	2253	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-40
Lab ID	: 9804023-39
Matrix	. Soil
Date Collected	. 03/31/98
Date Received	. 04/01/98
Priority	: Routine
Collector	. Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		29300	62.8	463	ug/kg	2.0	MBL	04/03/98	2309	119393	
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-41
Lab ID	: 9804023-40
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3760000	62.2	459	ug/kg	2.0	MBL	04/03/98	2314	119393	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119393	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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Reviewed By

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-42
Lab ID	: 9804023-41
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		746000	65.2	481	ug/kg	2.0	MBL	04/04/98	0003	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-43
Lab ID : 9804023-42
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1650000	67.8	500	ug/kg	2.0	MBL	04/04/98	0009	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9804023-42

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9803642% Report Date: April 06, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC496304	BLANK	119057											
Lead						41.6	ug/kg				MBL	03/30/98	1530
QC496309	BLANK	119058											
Lead						169	ug/kg				MBL	03/30/98	1839
QC496314	BLANK	119059											
Lead						18.7	ug/kg				MBL	04/01/98	1300
QC497194	BLANK	119312											
Lead						548	ug/kg				MBL	04/03/98	0913
QC496305	LCS	119057											
Lead			130000			117000	ug/kg		89.6	(77.1 - 116.)	MBL	03/30/98	1535
QC496310	LCS	119058											
Lead			127000			110000	ug/kg		86.9	(77.1 - 116.)	MBL	03/30/98	1845
C496315	LCS	119059											
Lead			134000			121000	ug/kg		90.3	(77.1 - 116.)	MBL	04/01/98	
QC497195	LCS	119312											
Lead			266000			129000	ug/kg		48.5**	(77.1 - 116.)	MBL	04/03/98	0919
QC496316	LCS DUP	119059											
Lead			132000			122000	ug/kg	2.44	92.6	(0.00 - 9.47)	MBL	04/01/98	1311
QC496307	9803642-20MS	119057											
Lead			46300	21100		74300	ug/kg		115	(56.3 - 135.)	MBL	03/30/98	1810
QC496312	9803642-40MS	119058											
Lead			46700	35100		93700	ug/kg		125	(56.3 - 135.)	MBL	03/30/98	2116
QC496318	9803611-02MS	119059											
Lead			46300	3860		52000	ug/kg		104	(56.3 - 135.)	MBL	04/01/98	1328
QC496308	9803642-20MSD	119057											
Lead			49000	21100		63500	ug/kg	28.2	86.5	(0.00 - 34.0)	MBL	03/30/98	1816
QC496313	9803642-40MSD	119058											
Lead			47600	35100		75900	ug/kg	37.6**	85.7	(0.00 - 34.0)	MBL	03/30/98	2122
QC496319	9803611-02MSD	119059											
Lead			48500	3860		54000	ug/kg	0.624	103	(0.00 - 34.0)	MBL	04/01/98	1333
QC496306	9803642-20SERIAL	119057											
Lead				21100		23100	ug/kg	9.02			MBL	03/30/98	1805
QC496311	9803642-40SERIAL	119058											
Lead				35100		37300	ug/kg	5.99			MBL	03/30/98	2111
QC496317	9803611-02SERIAL	119059											
Lead				3860		3970	ug/kg	2.87			MBL	04/01/98	1323

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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-15
Lab ID : 9803642-15
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		930000	67.1	495	ug/kg	2.0	MBL	03/30/98	1718	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-16
Lab ID	: 9803642-16
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4190	66.4	490	ug/kg	2.0	MBL	03/30/98	1724	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-17
Lab ID : 9803642-17
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2880000	62.2	459	ug/kg	2.0	MBL	03/30/98	1730	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-18
Lab ID	: 9803642-18
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7070000	3140	23200	ug/kg	100	MBL	03/30/98	1736	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-19
Lab ID	: 9803642-19
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		69500	64.5	476	ug/kg	2.0	MBL	03/30/98	1753	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-20
Lab ID	: 9803642-20
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		21100	65.8	485	ug/kg	2.0	MBL	03/30/98	1759	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-21
Lab ID : 9803642-21
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2430	63.3	467	ug/kg	2.0	MBL	03/30/98	1852	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-22
Lab ID : 9803642-22
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		110000	64.0	472	ug/kg	2.0	MBL	03/30/98	1858	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-23
Lab ID : 9803642-23
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		344000	67.1	495	ug/kg	2.0	MBL	03/30/98	1904	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-24
Lab ID	: 9803642-24
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		329000	62.8	463	ug/kg	2.0	MBL	03/30/98	1909	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-25
Lab ID : 9803642-25
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		18400000	3170	23400	ug/kg	100	MBL	03/30/98	1915	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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: NPWC00197

Report Date: April 01, 1998

Sample ID : SPORT0632-26
Lab ID : 9803642-26
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		836000	64.5	476	ug/kg	2.0	MBL	03/30/98	1921	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
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Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-27
Lab ID : 9803642-27
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		565000	62.2	459	ug/kg	2.0	MBL	03/30/98	1927	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-28
Lab ID : 9803642-28
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		447000	62.2	459	ug/kg	2.0	MBL	03/30/98	1932	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
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cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-29
Lab ID : 9803642-29
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		211000	66.4	490	ug/kg	2.0	MBL	03/30/98	1950	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-30
Lab ID : 9803642-30
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		173000	64.5	476	ug/kg	2.0	MBL	03/30/98	1956	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-31
Lab ID : 9803642-31
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		70000	65.8	485	ug/kg	2.0	MBL	03/30/98	2001	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-32
Lab ID	: 9803642-32
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		92000	62.8	463	ug/kg	2.0	MBL	03/30/98	2007	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-33
Lab ID : 9803642-33
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		498000	65.2	481	ug/kg	2.0	MBL	03/30/98	2013	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-34
Lab ID	: 9803642-34
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		118000	62.8	463	ug/kg	2.0	MBL	03/30/98	2019	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-35
Lab ID	: 9803642-35
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		154000	65.8	485	ug/kg	2.0	MBL	03/30/98	2024	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-36
Lab ID	: 9803642-36
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		144000	63.3	467	ug/kg	2.0	MBL	03/30/98	2030	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-37
Lab ID : 9803642-37
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16000	63.3	467	ug/kg	2.0	MBL	03/30/98	2036	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-38
Lab ID : 9803642-38
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		197000	65.2	481	ug/kg	2.0	MBL	03/30/98	2042	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-39
Lab ID	: 9803642-39
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		242000	62.8	463	ug/kg	2.0	MBL	03/30/98	2059	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-40
Lab ID	: 9803642-40
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		35100	62.8	463	ug/kg	2.0	MBL	03/30/98	2105	119058	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119058	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: April 02, 1998

Sample ID : SPORT0632-41
Lab ID : 9803642-41
Matrix : Soil
Date Collected : 03/26/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		304000	67.1	495	ug/kg	2.0	MBL	04/01/98	1418	119059	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119059	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: April 02, 1998 Page 1 of 1

Sample ID	: SPORT0632-42
Lab ID	: 9803642-42
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		17100	65.8	485	ug/kg	2.0	MBL	04/01/98	1423	119059	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119059	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 02, 1998

Sample ID	: SPORT0632-43
Lab ID	: 9803642-43
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16100	66.4	490	ug/kg	2.0	MBL	04/01/98	1429	119059	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119059	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 02, 1998 Page 1 of 1

Sample ID	: SPORT0632-44
Lab ID	: 9803642-44
Matrix	: Soil
Date Collected	: 03/26/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		39500	66.4	490	ug/kg	2.0	MBL	04/01/98	1434	119059	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119059	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	. SPORTO636-44
Lab ID	: 9804023-43
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		181000	66.4	490	ug/kg	2.0	MBL	04/04/98	0014	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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

cc: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-45
Lab ID	: 9804023-44
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		68600	64.5	476	ug/kg	2.0	MBL	04/04/98	0019	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

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9804023-44

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: NPWC00197 Report Date: April 07, 1998

Sample ID : SPORTO636-46
Lab ID : 9804023-45
Matrix . Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority . Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9260	66.4	490	ug/kg	2.0	MBL	04/04/98	0025	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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Karen Blakeney
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9804023-45

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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-47
Lab ID	: 9804023-46
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	. 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6440	67.1	495	ug/kg	2.0	MBL	04/04/98	0030	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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9804023-46

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-48
Lab ID	: 9804023-47
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6910	63.3	467	ug/kg	2.0	MBL	04/04/98	0036	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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9804023-47

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-49
Lab ID	: 9804023-48
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		32200	66.4	490	ug/kg	2.0	MBL	04/04/98	0041	119394	
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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9804023-48

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-50
Lab ID	: 9804023-49
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8040	65.8	485	ug/kg	2.0	MBL	04/04/98	0057	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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9804023-49

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-52
Lab ID	: 9804023-50
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		15400	67.1	495	ug/kg	2.0	MBL	04/04/98	0102	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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Reviewed By

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9804023-50

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-53
Lab ID	: 9804023-51
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6430	67.8	500	ug/kg	2.0	MBL	04/04/98	0108	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9804023-51

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-54
Lab ID	: 9804023-52
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		22000	65.2	481	ug/kg	2.0	MBL	04/04/98	0113	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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9804023-52

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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-55
Lab ID	: 9804023-53
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	. Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3610	67.8	500	ug/kg	2.0	MBL	04/04/98	0118	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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Karen Blakeney
Reviewed By

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9804023-53

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9804023% Report Date: April 07, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC497506	BLANK	119392											
Lead						60.7	ug/kg				MBL	04/03/98	1807
QC497511	BLANK	119393											
Lead						137	ug/kg				MBL	04/03/98	2059
QC497516	BLANK	119394											
Lead						107	ug/kg				MBL	04/03/98	2352
QC497507	LCS	119392											
Lead			131000			134000	ug/kg		102	(77.1 - 116.)	MBL	04/03/98	1812
QC497512	LCS	119393											
Lead			130000			135000	ug/kg		104	(77.1 - 116.)	MBL	04/03/98	2104
QC497517	LCS	119394											
Lead			135000			130000	ug/kg		96.4	(77.1 - 116.)	MBL	04/03/98	2357
QC497509	9804023-20MS	119392											
Lead			46300	903		47200	ug/kg		100	(56.3 - 135.)	MBL	04/03/98	20[redacted]
QC497514	9804023-40MS	119393											
Lead			49000	3760000		2320000	ug/kg		n/a		MBL	04/03/98	2325
QC497519	9804024-07MS	119394											
Lead			48500	3770		55300	ug/kg		106	(56.3 - 135.)	MBL	04/04/98	0217
QC497510	9804023-20MSD	119392											
Lead			46300	903		46700	ug/kg	1.27	98.8	(0.00 - 34.0)	MBL	04/03/98	2037
QC497515	9804023-40MSD	119393											
Lead			48500	3760000		2970000	ug/kg		n/a		MBL	04/03/98	2330
QC497520	9804024-07MSD	119394											
Lead			49500	3770		57000	ug/kg	1.27	108	(0.00 - 34.0)	MBL	04/04/98	0223
QC497508	9804023-20SERIAL	119392											
Lead				903		1170	ug/kg	25.9			MBL	04/03/98	2027
QC497513	9804023-40SERIAL	119393											
Lead				3760000		3760000	ug/kg	0.0864			MBL	04/03/98	2320
QC497518	9804024-07SERIAL	119394											
Lead				3770		4350	ug/kg	14.3			MBL	04/04/98	0212

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of ~~12~~ 5

CHAIN OF CUSTODY RECORD

9804023 ✓

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

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 32050

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD ICP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-01	Sport Ø636-1	3/27/98	09:30		X			1							X											NBCA002SSZ405201
-02	Sport Ø636-2	3/27/98	09:30		X			1							X											NBCH002SSZ405202
-03	Sport Ø636-3	3/27/98	09:34		X			1							X											NBCA002SSZ405301
-04	Sport Ø636-4	3/27/98	09:34		X			1							X											NBCA002SSZ405302
-05	Sport Ø636-5	3/27/98	09:45		X			1							X											NBCA002SSZ405401
-06	Sport Ø636-6	3/27/98	09:45		X			1							X											NBCA002SSZ405402
-07	Sport Ø636-7	3/27/98	09:51		X			1							X											NBCA002SSZ405501
-08	Sport Ø636-8	3/27/98	09:51		X			1							X											NBCA002SSZ405502
-09	Sport Ø636-9	3/27/98	10:00		X			1							X											NBCA002SSZ405601
-10	Sport Ø636-10	3/27/98	10100		X			1							X											NBCA002SSZ405602
-11	Sport Ø636-11	3/27/98	10:12		X			1							X											NBCA002SSZ405701
-12	Sport Ø636-12	3/27/98	10112		X			1							X											NBCA002SSZ405702
-13	Sport Ø636-13	3/30/98	13:20		X			1							X											NBCA002SSZ405801

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4-1-98	1530	[signature]	[signature]	4/1/98	1530	[signature]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Beeler	4/98	1615	Dione Mancip	4-1-98	1615		

White = ple collector Yellow = file Pink = with report

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Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Def Chasn
Collected by/Company: Sport Env Def Chasn

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

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-14	Sport Ø636-14	3/30/98	13:20		X			1							X											NBCA002SS2405802
-15	Sport Ø636-15	3/30/98	13:31		X			1							X											NBCA002SS2405901
-16	Sport Ø636-16	3/30/98	13:31		X			1							X											NBCA002SS2405902
-17	Sport Ø636-17	3/30/98	13:36		X			1							X											NBCA002SS2406001
-18	Sport Ø636-18	3/30/98	13:36		X			1							X											NBCA002SS2406002
-19	Sport Ø636-19	3/30/98	13:53		X			1							X											NBCA002SS2406101
-20	Sport Ø636-20	3/30/98	13:53		X			1							X											NBCA002SS2406102
-21	Sport Ø636-21	3/30/98	13:53		X			1							X											NBCA002CS2400102 ~~NBCA002SS2406201~~ m.w.d.
	~~Sport Ø636-22~~ m.w.d.				X			1							X											NBCA002SS2406802 m.w.d.
-22	Sport Ø636-23	~~3/30/98~~ 4/1/98	14:45		X			1							X											NBCA002SS2406301
-23	Sport Ø636-24	3/30/98	14:45		X			1							X											NBCA002SS2406302
-24	Sport Ø636-25	3/30/98	14:55		X			1							X											NBCA002SS2406401
-25	Sport Ø636-26	3/30/98	14:55		X			1							X											NBCA002SS2406402

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
P Smith	4-1-98	1530	F.D. Burrow	F.D. Burrow	4/1/98	1530	Stephanie Baker
Stephanie Baker	4-1-98	1615	Dionne Francis	Date: 4-1-98	Time: 1615	Remarks:	

White = sample collector Yellow = file Pink = with report

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

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

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

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method Required	LEAD ICP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-26	Sport Ø636-27	3/30/98	15:08		X			1							X											NBCA002S627406501
-27	Sport Ø636-28	3/30/98	15:08		X			1							X											NBCA002S627406502
-28	Sport Ø636-29	3/31/98	08:35		X			1							X											NBCA002S627406601
-29	Sport Ø636-30	3/31/98	08:40		X			1							X											NBCA002S627406602
-30	Sport Ø636-31	3/31/98	08:50		X			1							X											NBCA002S627406701
-31	Sport Ø636-32	3/31/98	08:55		X			1							X											NBCA002S627406702
-32	Sport Ø636-33	3/31/98	09:00		X			1							X											NBCA002S627406801
-33	Sport Ø636-34	3/31/98	09:04		X			1							X											NBCA002S627406802
-34	Sport Ø636-35	3/31/98	09:09		X			1							X											NBCA002S627406901
-35	Sport Ø636-36	3/31/98	09:13		X			1							X											NBCA002S627406902
-36	Sport Ø636-37	3/31/98	10:25		X			1							X											NBCA002S627407001
-37	Sport Ø636-38	3/31/98	10:35		X			1							X											NBCA002S627407002
-38	Sport Ø636-39	3/31/98	10:45		X			1							X											NBCA002S627407101

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
	4-1-98	1530			4/1/98	1530	
Relinquished by: Stephanie Bellerin	Date: 4-1-98	Time: 16:15	Received by lab by: Dionne Francis	Date: 4-1-98	Time: 165	Remarks:	

White = ple collector Yellow = file Pink = with report

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

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn

Collected by/Company: Sport Env Det Chasn

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-39	Sport ϕ636-40	3-31-98	1100		X			1							X										NBCA002SSZ407102
-40	Sport ϕ636-41	3-31-98	1311		X			1							X										NBCA002SSZ407201
-41	Sport ϕ636-42	3-31-98	1317		X			1							X										NBCA002SSZ407202
-42	Sport ϕ636-43	3-31-98	1323		X			1							X										NBCA002SSZ407301
-43	Sport ϕ636-44	3-31-98	1326		X			1							X										NBCA002SSZ407302
-44	Sport ϕ636-45	3-31-98	1330		X			1							X										NBCA002SSZ407401
-45	Sport ϕ636-46	3-31-98	1336		X			1							X										NBCA002SSZ407402
-46	Sport ϕ636-47	3-31-98	1338		X			1							X										NBCA002SSZ407501
-47	Sport ϕ636-48	3-31-98	1340		X			1							X										NBCA002SSZ407502
-48	Duplicate SPORT ϕ636-49	3-31-98	1107		X			1							X										NBCA002CSZ407102
-49	SPORT ϕ636-50	3-31-98	1403		X			1							X										NBCA002SSZ822001
-	SPORT ϕ636-51	3-31-98	14-		X			1							X										NBCA002SSZ822002
-50	CFM SPORT ϕ636-52	3-31-98	1407		X			1							X										NBCA002SSZ822101

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4-1-98	1530	[signature]	[signature]	4/1/98	1532	[signature]
Relinquished by: [signature]	Date: 4-1-98	Time: 1645	Received by lab by: [signature]	Date: 4/1/98	Time: 1645	Remarks:	

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

White = [illegible] collector Yellow = file Pink = with report

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(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: SPORT ENV DET CHASN

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	Remarks
SPORTΦ636-53	3-31-98	1431		X			1							X									NBCA002558222 01
SPORTΦ636-54	3-31-98	1429		X			1							X									NBCA002558222 01
SPORTΦ636-55	3-31-98	1435		X			1							X									NBCA002558222 01
CFM SPORTΦ636-56				X			1							X									NBCA002558222 01
CFM SPORTΦ636-57				X			1							X									NBCA002558222 01
CFM SPORTΦ636-58				X			1							X									NBCA002558222 01
CFM SPORTΦ636-59				X			1							X									NBCA002558222 01
CFM SPORTΦ636-60				X			1							X									NBCA002558222 01
Duplicate CFM SPORTΦ636-61				X			1							X									NBCA002558222 01

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
CFM	4/1/98	1530			4/1/98	1530	Stephanie Beckham
Stephanie Beckham	4-1-98	1615	Received by lab by: Dionne Trancil	Date: 4-1-98	Time: 1615	Remarks:	

White = sample collector Yellow = file Pink = with report

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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-1
Lab ID	: 9804024-01
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		21600	66.4	490	ug/kg	2.0	MBL	04/04/98	0124	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
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eviewed By

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9804024-01

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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-2
Lab ID : 9804024-02
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		27300	65.8	485	ug/kg	2.0	MBL	04/04/98	0129	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-3
Lab ID : 9804024-03
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Rouune
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4160000	66.4	490	ug/kg	2.0	MBL	04/04/98	0134	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-4
Lab ID	: 9804024-04
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2580000	66.4	490	ug/kg	2.0	MBL	04/04/98	0140	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-5
Lab ID	: 9804024-05
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3780000	64.5	476	ug/kg	2.0	MBL	04/04/98	0145	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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Karen Blakeney
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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-6
Lab ID : 9804024-06
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6000	66.4	490	ug/kg	2.0	MBL	04/04/98	0201	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9804024-06

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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-7
Lab ID : 9804024-07
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3770	67.1	495	ug/kg	2.0	MBL	04/04/98	0207	119394	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1430	119394	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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Karen Blakeney
Reviewed By

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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-8
Lab ID	: 9804024-08
Matrix	. Soil
Date Collected	. 03/31/98
Date Received	04/01/98
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		13200	67.1	495	ug/kg	2.0	MBL	04/05/98	1309	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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Karen Blakeney
Reviewed By

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9804024-08

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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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-9
Lab ID	: 9804024-09
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		25900	62.2	459	ug/kg	2.0	MBL	04/05/98	1325	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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Karen Blakeney
Reviewed By

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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-10
Lab ID : 9804024-10
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5450	63.3	467	ug/kg	2.0	MBL	04/05/98	1330	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9804024-10

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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-11
Lab ID : 9804024-11
Matrix : Soil
Date Collected 03/31/98
Date Received : 04/01/98
Priority Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6360	64.5	476	ug/kg	2.0	MBL	04/05/98	1335	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-12
Lab ID : 9804024-12
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1140000	62.2	459	ug/kg	2.0	MBL	04/05/98	1341	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-13
Lab ID	: 9804024-13
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4950000	314	2320	ug/kg	10.	MBL	04/05/98	2151	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes.
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-14
Lab ID	: 9804024-14
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2010000	64.5	476	ug/kg	2.0	MBL	04/05/98	1351	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
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: NPWC00197 Report Date: April 08, 1998

Sample ID	: SPORT0639-15
Lab ID	: 9804024-15
Matrix	: Soil
Date Collected	: 03/31/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		24300	62.8	463	ug/kg	2.0	MBL	04/05/98	1357	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: April 08, 1998

Sample ID : SPORT0639-16
Lab ID : 9804024-16
Matrix : Soil
Date Collected : 03/31/98
Date Received : 04/01/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		22300	67.1	495	ug/kg	2.0	MBL	04/05/98	1413	119395	1
The following prep procedures were performed:											
TRACE							VMM	04/02/98	1300	119395	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-44
Lab ID : 9803581-44
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		222000	67.1	495	ug/kg	2.0	MBL	03/28/98	1612	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-45
Lab ID	: 9803581-45
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		264000	66.4	490	ug/kg	2.0	MBL	03/28/98	1617	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-46
Lab ID	: 9803581-46
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		179000	65.2	481	ug/kg	2.0	MBL	03/28/98	1623	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-47
Lab ID	: 9803581-47
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		28700	65.8	485	ug/kg	2.0	MBL	03/28/98	1639	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-48
Lab ID	: 9803581-48
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		14600000	3110	23000	ug/kg	100	MBL	03/29/98	1208	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-49
Lab ID	: 9803581-49
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		407000	64.5	476	ug/kg	2.0	MBL	03/29/98	1214	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9803581-49

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9803581% Report Date: March 31, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tim
Metals Analysis													
QC495788	BLANK	118922											
Lead						46.4	ug/kg				MBL	03/28/98	173
QC495793	BLANK	118923											
Lead						58.4	ug/kg				MBL	03/28/98	164
QC495798	BLANK	118924											
Lead						16.2	ug/kg				MBL	03/29/98	113
QC495789	LCS	118922											
Lead			131000			133000	ug/kg		101	(77.1 - 116.)	MBL	03/28/98	173
QC495794	LCS	118923											
Lead			127000			126000	ug/kg		99.6	(77.1 - 116.)	MBL	03/28/98	164
QC495799	LCS	118924											
ead			125000			128000	ug/kg		103	(77.1 - 116.)	MBL	03/29/98	113
QC495791	9803581-20MS	118922											
Lead			49000	5520		36200	ug/kg		62.6	(56.3 - 135.)	MBL	03/28/98	195
QC495796	9803581-39MS	118923											
Lead			45900	176000		397000	ug/kg		481**	(56.3 - 135.)	MBL	03/28/98	191
QC495801	9803528-01MS	118924											
Lead			46300	7660		51000	ug/kg		93.6	(56.3 - 135.)	MBL	03/29/98	115
QC495792	9803581-20MSD	118922											
Lead			49000	5520		42600	ug/kg	19.0	75.8	(0.00 - 34.0)	MBL	03/28/98	200
QC495797	9803581-39MSD	118923											
Lead			48500	176000		441000	ug/kg	12.6	545	(0.00 - 34.0)	MBL	03/28/98	192
QC495802	9803528-01MSD	118924											
Lead			46700	7660		52300	ug/kg	2.13	95.6	(0.00 - 34.0)	MBL	03/29/98	120
QC495790	9803581-20SERIAL	118922											
Lead				5520		5670	ug/kg	2.79			MBL	03/28/98	195
QC495795	9803581-39SERIAL	118923											
Lead				176000		189000	ug/kg	7.05			MBL	03/30/98	061
QC495800	9803528-01SERIAL	118924											
Lead				7660		7470	ug/kg	2.44			MBL	03/29/98	115

Notes:
The qualifiers in this report are defined as follows
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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NBCA 00251

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Charleston, South Carolina 29417
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CHAIN OF CUSTODY RECORD

9803581

Client Name/Facility Name: SPORTEN DET CHASN
Collected by/Company: SPORTEN DET CHASN

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 31919

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-01	Sport Ø630-1	3/24/98	09:00		X			1							X											NBCA00251101
-02	Sport Ø630-2	3/24/98	09:00		X			1							X											NBCA00251201
-03	Sport Ø630-3	3/24/98	09:05		X			1							X											NBCA00251301
-04	Sport Ø630-4	3/24/98	09:05		X			1							X											NBCA00251401
-05	Sport Ø630-5	3/24/98	09:12		X			1							X											NBCA00251501
-06	Sport Ø630-6	3/24/98	09:12		X			1							X											NBCA00251601
-07	Sport Ø630-7	3/24/98	09:15		X			1							X											NBCA00251701
-08	Sport Ø630-8	3/24/98	09:15		X			1							X											NBCA00251801
-09	Sport Ø630-9	3/24/98	09:20		X			1							X											NBCA00251901
-10	Sport Ø630-10	3/24/98	09:20		X			1							X											NBCA00252001
-11	Sport Ø630-11	3/24/98	09:25		X			1							X											NBCA00252101
-12	Sport Ø630-12	3/24/98	09:25		X			1							X											NBCA00252201
-13	Sport Ø630-13	3/24/98	09:29		X			1							X											NBCA00252301

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jaffe	3/24/98	14:15	U. Washington	Union Washington	3/24/98	1500	Raynd Reed
Raynd Reed	3/24/98	15:30	Donna Marcus	3/24/98	1530	Remarks:	

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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Def Chasn
Collected by/Company: Sport Env Def Chasn

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrate	VOC - Specify Method required	TAL ICP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-14	Sport Ø630-14	3/24/98	09:35		X		1							X											NBCA002S525I2401
-15	Sport Ø630-15	3/24/98	09:35		X		1							X											NBCA002S525I2501
-16	Sport Ø630-16	3/24/98	09:38		X		1							X											NBCA002S525I2601
-17	Sport Ø630-17	3/24/98	09:38		X		1							X											NBCA002S525I2701
-18	Sport Ø630-18	3/24/98	09:43		X		1							X											NBCA002S525I2801
-19	Sport Ø630-19	3/24/98	09:43		X		1							X											NBCA002S525I2901
-20	Sport Ø630-20	3/24/98	09:45		X		1							X											NBCA002S525I3001
-21	Sport Ø630-21	3/24/98	09:45		X		1							X											Duplicate Sample NBCA002C525I0001
-22	Sport Ø630-22	3/24/98	09:45		X		1							X											Split Sample NBCA002I525I0001
-23	Sport Ø630-23	3/24/98	09:45		X		1							X											Split Sample NBCA002I525I0201
-24	Sport Ø630-24	3/24/98	09:53		X		1							X											NBCA002S525I3101
-25	Sport Ø630-25	3/24/98	10:30		X		1							X											NBCA002S525I3201
-26	Sport Ø630-26	3/24/98	10:30		X		1							X											NBCA002S525I3301

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matt Z.	3/24/98	14:15	V. Washington	V. Washington	3/24/98	1514	Raynel Reed
Raynel Reed 3	3/24/98	153	Dwayne Frances		3/24/98	1532	

Remarks:

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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrate	VOC - Specify Method required	SVOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-34	Sport Ø630-27	3/24/98	10:37		X		1								X											NBCA002SSZ513401
-38	Sport Ø630-28	3/24/98	14:05		X		1								X											NBCA002SSZ513501
-37	Sport Ø630-29	3/24/98	10:42		X		1								X											NBCA002SSZ513601
-30	Sport Ø630-30	3/24/98	10:42		X		1								X											NBCA002SSZ513701
-31	Sport Ø630-31	3/24/98	10:47		X		1								X											NBCA002SSZ513801
-32	Sport Ø630-32	3/24/98	10:47		X		1								X											NBCA002SSZ513901
-33	Sport Ø630-33	3/24/98	10:51		X		1								X											NBCA002SSZ514001 m.w.
-34	Sport Ø630-34	3/24/98	10:51		X		1								X											NBCA002SSZ514101 m.w.
-35	Sport Ø630-35	3/24/98	10:56		X		1								X											NBCA002SSZ514201
-36	Sport Ø630-36	3/24/98	10:56		X		1								X											NBCA002SSZ514301 matrix
-34	Sport Ø630-37	3/24/98	11:02		X		1								X											NBCA002SSZ514401
-38	Sport Ø630-38	3/24/98	11:02		X		1								X											NBCA002SSZ514501
-39	Sport Ø630-39	3/24/98	11:05		X		1								X											NBCA002SSZ514601

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (s) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matt W.	3/24/98	14:15			3/24/98	1520	Raynal Reed
Relinquished by: Raynal Reed 3	Date: 3/24/98	Time: 1530	Received by lab by: Dione Francis	Date: 3/24/98	Time: 1520	Remarks:	

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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrate	VOC - Specify Method Required	TAL METALS - Specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-40	Sport|0630-40	3/24/98	11:25		X		1							X											NBCA002SS2514701
-41	Sport|0630-41	3/24/98	11:30		X		1							X											NBCA002SS2514801
-42	Sport|0630-42	3/24/98	11:14		X		1							X											NBCA002SS2514901
-43	Sport|0630-43	3/24/98	11:32		X		1							X											NBCA002SS2515001
-44	Sport|0630-44	3/24/98	11:32		X		1							X											Duplicate Sample NBCA002CS2500201
-45	Sport|0630-45	3/24/98	11:32		X		1							X											Split Sample NBCA002IS2500301
-46	Sport|0630-46	3/24/98	11:32		X		1							X											Split Sample NBCA002IS2500401
-47	Sport|0630-47	3/24/98	11:19		X		1							X											NBCA002SS2515101
-48	Sport|0630-48	3/24/98	11:52		X		1							X											NBCA002SS2515201
-49	Sport|0630-49	3/24/98	11:42		X		1							X											NBCA002SS2515301
-37																									
-38																									
-39																									

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	3/24/98	14:15	U. Washington	U. Washington	3/24/98	1530	Raymond Reed
Relinquished by: Raymond Reed	Date: 3/24/98	Time: 1530	Received by lab by: Dianne Franco	Date: 3/24/98	Time: 1530	Remarks:	

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Laboratory Certifications

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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-1
Lab ID	: 9803642-01
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		182000	62.8	463	ug/kg	2.0	MBL	03/30/98	1552	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
eviewed By

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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-2
Lab ID : 9803642-02
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		54900	63.3	467	ug/kg	2.0	MBL	03/30/98	1557	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-3
Lab ID : 9803642-03
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		68900	64.5	476	ug/kg	2.0	MBL	03/30/98	1603	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-4
Lab ID : 9803642-04
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		171000	64.0	472	ug/kg	2.0	MBL	03/30/98	1609	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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STATE	GEL	EPI
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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-5
Lab ID : 9803642-05
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11600	62.2	459	ug/kg	2.0	MBL	03/30/98	1615	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-6
Lab ID : 9803642-06
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		353000	67.1	495	ug/kg	2.0	MBL	03/30/98	1620	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-7
Lab ID	: 9803642-07
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		342000	65.2	481	ug/kg	2.0	MBL	03/30/98	1626	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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9803642-07

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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-8
Lab ID : 9803642-08
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7340	62.2	459	ug/kg	2.0	MBL	03/30/98	1632	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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Karen Blakeney
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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: NPWC00197 Report Date: April 01, 1998

Sample ID : SPORT0632-9
Lab ID : 9803642-09
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7770	62.8	463	ug/kg	2.0	MBL	03/30/98	1649	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-10
Lab ID	: 9803642-10
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1240000	64.0	472	ug/kg	2.0	MBL	03/30/98	1655	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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.
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Karen Blakeney
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9803642-10

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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: NPWC00197 Report Date: April 01, 1998 Page 1 of 1

Sample ID	: SPORT0632-11
Lab ID	: 9803642-11
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1530000	62.2	459	ug/kg	2.0	MBL	03/30/98	1701	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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NC	233	
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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: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-12
Lab ID	: 9803642-12
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2470000	66.4	490	ug/kg	2.0	MBL	03/30/98	1707	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 01, 1998

Sample ID	: SPORT0632-13
Lab ID	: 9803642-13
Matrix	: Soil
Date Collected	: 03/25/98
Date Received	: 03/26/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		444000	67.8	500	ug/kg	2.0	MBL	03/30/98	1712	119057	1
The following prep procedures were performed:											
TRACE							VMM	03/27/98	1200	119057	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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9803642-13

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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: NPWC00197 Report Date: April 06, 1998

Sample ID : SPORT0632-14
Lab ID : 9803642-14
Matrix : Soil
Date Collected : 03/25/98
Date Received : 03/26/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		553000	664	4900	ug/kg	10.	MBL	04/03/98	0932	119312	1
The following prep procedures were performed:											
TRACE							FGD	04/01/98	1600	119312	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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).
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Karen Blakeney
Reviewed By

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9803642-14

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9803642% Report Date: April 06, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tim

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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NPWC 7197

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Charleston, South Carolina 29417
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CHAIN OF CUSTODY RECORD

9803642

Page 1 of 4

Client Name/Facility Name: SportEnvDetChasN
Collected by/Company: SportEnvDetChasN

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 31964

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-01	Sport Ø632-1	3/25/98	08:50		X			1							X											NBCA002SSZ615401
-02	Sport Ø632-2	3/25/98	08:50		X			1							X											NBCA002SSZ615501
-03	Sport Ø632-3	3/25/98	08:59		X			1							X											NBCA002SSZ615601
-04	Sport Ø632-4	3/25/98	09:10		X			1							X											NBCA002SSZ615701
-05	Sport Ø632-5	3/25/98	09:10		X			1							X											NBCA002SSZ615801
-06	Sport Ø632-6	3/25/98	09:10		X			1							X											NBCA002SSZ615901
-07	Sport Ø632-7	3/25/98	09:13		X			1							X											NBCA002SSZ616001
-08	Sport Ø632-8	3/25/98	09:18		X			1							X											NBCA002SSZ616101
-09	Sport Ø632-9	3/25/98	09:18		X			1							X											NBCA002SSZ616201
-10	Sport Ø632-10	3/25/98	09:18		X			1							X											NBCA002SSZ616301
-11	Sport Ø632-11	3/25/98	09:25		X			1							X											NBCA002SSZ616401
-12	Sport Ø632-12	3/25/98	09:28		X			1							X											NBCA002SSZ616501
-13	Sport Ø632-13	3/25/98	09:43		X			1							X											NBCA002SSZ616601

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	3/26/98	13:37	W. R. Hiers, Jr.	W. R. Hiers Jr.	3/26/98	1531	Stephanie Beckham
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Beckham	3/26/98	1600	Denise Fraser	3/26/98	1600		

General Engineering La[redacted]s, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-14	Sport Ø632-14	3/25/98	09:48		X			1							X											NBCA002SSZ61670
-15	Sport Ø632-15	3/25/98	09:32		X			1							X											NBCA002SSZ61680
-16	Sport Ø632-16	3/25/98	09:32		X			1							X											NBCA002SSZ61690
-17	Sport Ø632-17	3/25/98	09:43		X			1							X											NBCA002SSZ61700
-18	Sport Ø632-18	3/25/98	09:53		X			1							X											NBCA002SSZ61710
-19	Sport Ø632-19	3/25/98	09:53		X			1							X											NBCA002SSZ61720
-20	Sport Ø632-20	3/25/98	10:03		X			1							X											NBCA002SSZ61730
-21	Sport Ø632-21	3/25/98	10:21		X			1							X											NBCA002SSZ61740
-22	Sport Ø632-22	3/25/98	14:40		X			1							X											NBCA002SSZ61750
-23	Sport Ø632-23	3/25/98	14:40		X			1							X											NBCA002SSZ61760
-24	Sport Ø632-24	3/25/98	10:21		X			1							X											NBCA002SSZ61770
-25	Sport Ø632-25	3/25/98	10:21		X			1							X											NBCA002SSZ61780
-26	Sport Ø632-26	3/25/98	10:00		X			1							X											NBCA002SSZ61790

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	3/26/98	1337	W.R. Hiers, Jr.	W.R. Hiers, Jr.	3/26/98	1531	Stephanie Defeaton
Stephanie Bethea	3/26/98	1600	Received by lab by: Stevie Frances	Date: 3/26/98	Time: 1600	Remarks:	

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Charleston, South Carolina 29417
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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	LEAD ICP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type		Remarks
-27	Sport Ø632-27	3/25/98	14:45		X			1							X										NBCA002SSZ61801
-28	Sport Ø632-28	3/25/98	14:55		X			1							X										NBCA002SSZ61810
29	Sport Ø632-29	3/25/98	14:55		X			1							X										NBCA002SSZ61820
-30	Sport Ø632-30	3/26/98	09:29		X			1							X										NBCA002SSZ61830
-31	Sport Ø632-31	3/26/98	09:40		X			1							X										NBCA002SSZ61840
-32	Sport Ø632-32	3/26/98	09:52		X			1							X										NBCA002SSZ61850
-33	Sport Ø632-33	3/26/98	09:32		X			1							X										NBCA002SSZ61860
-34	Sport Ø632-34	3/26/98	09:40		X			1							X										NBCA002SSZ61870
-35	Sport Ø632-35	3/26/98	10:01		X			1							X										NBCA002SSZ61880
-36	Sport Ø632-36	3/26/98	10:16		X			1							X										NBCA002SSZ61890
-37	Sport Ø632-37	3/26/98	10:10		X			1							X										NBCA002SSZ61900
-38	Sport Ø632-38	3/26/98	10:33		X			1							X										NBCA002SSZ61910
-39	Sport Ø632-39	3/26/98	10:49		X			1							X										NBCA002SSZ61920

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matt W. Jeff A	3/26/98	1337	W.R. Hiers, Jr.	W.R. Hiers Jr.	3/26/98	1531	Stephanie Berkeley
Relinquished by: Stephanie Berkeley	Date: 3/26/98	Time: 1600	Received by lab by: Lonnie Faucett	Date: 1600	Time: 3/26/98	Remarks:	

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

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

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: Sport Env Det Chasn
Collected by/Company: Sport Env Det Chasn

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

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	HEAVY METALS - specify ICP	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-40	Sport Ø632-40	3/26/98	11:11		X			1							X											NBCA002SSZ619301
-41	Sport Ø632-41	3/26/98	10:59		X			1							X											NBCA002SSZ619401
-42	Sport Ø632-42	3/26/98	10:39		X			1							X											NBCA002SSZ619501
-43	Sport Ø632-43	3/25/98	10:03		X			1							X											NBCA002CSZ600101
-44	Sport Ø632-44	3/26/98	11:11		X			1							X											NBCA002CSZ600201

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matthew W. Jeffcoat	3/26/98	1337	W.R. Hiers, Jr.	W.R. Hiers, Jr.	3/26/98	1531	Stephanie Beckham
Stephanie Beckham	3/26/98	1600	Received by lab by: Bonnie Francis	Date: 3/26/98	Time: 1605	Remarks:	

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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-1
Lab ID	: 9803581-01
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		142000	62.8	463	ug/kg	2.0	MBL	03/28/98	1744	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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9803581-01

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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: NPWC00197 Report Date: April 07, 1998

Sample ID	. SPORTO636-1
Lab ID	: 9804023-01
Matrix	. Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	. Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6640	65.2	481	ug/kg	2.0	MBL	04/03/98	1818	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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ND indicates that the analyte was not detected at a concentration greater than the detection limit.
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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: NPWC00197 Report Date: April 07, 1998

Sample ID	. SPORTO636-2
Lab ID	: 9804023-02
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12400	65.2	481	ug/kg	2.0	MBL	04/03/98	1824	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29414
(803) 556-8171 • Fax (803) 766-1178
Printed on recycled paper

9804023-02

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-3
Lab ID	: 9804023-03
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		14700	65.2	481	ug/kg	2.0	MBL	04/03/98	1829	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
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Karen Blakeney
Reviewed By

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(803) 556-8171 • Fax (803) 766-1178

9804023-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

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: NPWC00197 Report Date: April 07, 1998

Sample ID	: SPORTO636-4
Lab ID	: 9804023-04
Matrix	: Soil
Date Collected	: 03/27/98
Date Received	: 04/01/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7570	63.3	467	ug/kg	2.0	MBL	04/03/98	1834	119392	1
The following prep procedures were performed:											
TRACE							FGD	04/02/98	1630	119392	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

9804023-04

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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

LOG NO: S8-82017
Received: 10 APR 98
Reported: 20 APR 98

Mr. Fred McLean
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/SA-27
Sampled By: Client
Code: 154880420

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82017-1	98SAV002-1	03-25-98/1003
82017-2	98SAV002-2	03-25-98/1003
82017-3	98SAV002-3	03-26-98/1111
82017-4	98SAV002-4	03-26-98/1111
82017-5	98SAV002-5	03-30-98/1353

PARAMETER	82017-1	82017-2	82017-3	82017-4	82017-5
Lead (6010)					
Lead, mg/kg dw	130	160	77	61	2.0
Preparation Date	04.13.98	04.13.98	04.13.98	04.13.98	04.13.98
Date Analyzed	04.14.98	04.14.98	04.14.98	04.14.98	04.14.98
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0413A	0413A	0413A	0413A	0413A
Percent Solids	82	82	83	86	62

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& ENVIRONMENTAL SERVICES, INC.

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LOG NO: S8-82017
Received: 10 APR 98
Reported: 20 APR 98

Mr. Fred McLean
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/SA-27
Sampled By: Client
Code: 154880420

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82017-6	98SAV002-6	03-30-98/1353
82017-7	98SAV002-7	03-31-98/1100
82017-8	98SAV002-8	03-31-98/1015
82017-9	98SAV002-9	04-01-98/1500
82017-10	98SAV002-10	04-01-98/1324

PARAMETER	82017-6	82017-7	82017-8	82017-9	82017-10
Lead (6010)					
Lead, mg/kg dw	1.5	88	2100	10	4.4
Preparation Date	04.13.98	04.13.98	04.13.98	04.13.98	04.13.98
Date Analyzed	04.14.98	04.14.98	04.15.98	04.14.98	04.14.98
Dilution factor	1.0	1.0	5.0	1.0	1.0
Batch ID	0413A	0413A	0413A	0413A	0413A
Percent Solids	63	84	86	83	87

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

LOG NO: S8-82017
Received: 10 APR 98
Reported: 20 APR 98

Mr. Fred McLean
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/SA-27
Sampled By: Client
Code: 154880420

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82017-11	98SAV002-11	04-01-98/1020
82017-12	98SAV002-12	04-01-98/0835

PARAMETER	82017-11	82017-12
Lead (6010)		
Lead, mg/kg dw	9.7	6.3
Preparation Date	04.13.98	04.13.98
Date Analyzed	04.14.98	04.14.98
ilution factor	1.0	1.0
Batch ID	0413A	0413A
ercent Solids	87	86

SL ***SAVANNAH LABORATORIES***
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LOG NO: S8-82017
Received: 10 APR 98
Reported: 20 APR 98

Mr. Fred McLean
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/SA-27
Sampled By: Client
Code: 154880420

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
82017-13	Method Blank	
82017-14	Lab Control Standard % Recovery	
82017-15	LCS Accuracy Control Limit (%R)	

PARAMETER	82017-13	82017-14	82017-15
Lead (6010)			
Lead, mg/kg dw	<0.50	106 %	75-125 %
Preparation Date	04.13.98	---	---
Date Analyzed	04.14.98	---	---
Dilution factor	1.0	---	---
Batch ID	0413A	---	---

Methods: EPA SW-846

Michael J. Salum, Project Manager

Final Page Of Report

Serial Number 0 1000

SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC

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☐ 414 SW 12th Avenue, Deerfield Beach, FL 33442 Phone: (954) 421-7400 Fax: (954) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 Phone: (334) 666-6633 Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 Phone: (813) 885-7427 Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 Phone: (504) 764-1100 Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

mike Salum/Abbie Page

PROJECT REFERENCE	PROJECT NO	PO NUMBER
N00193-97-M-1208	S-2	CNS 117230C007

PROJECT LOC (State)	SAMPLER(s) NAME	PHONE	FAX
S.C.	M. Wheeler	803-743-2821 ext 126	803-743-9413

CLIENT NAME	CLIENT PROJECT MANAGER
SPORTENVORTCUMSN	Tom Kizer/Fred McLeaw

CLIENT ADDRESS (CITY, STATE, ZIP)
1899 North Hobson Ave., Bldg. 30
North Charleston, So. Carolina, 29405

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: TCP-LEAD only; NA

PAGE 1 OF 1

☑ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
3/25/98	1003		98SAV002-1	x				1	NBCA002IS260010
3/25/98	1003		98SAV002-2	x				1	NBCA002IS260201
3/26/98	1011		98SAV002-3	x				1	NBCA002IS260301
3/26/98	1111		98SAV002-4	x				1	NBCA002IS260401
3/30/98	1353		98SAV002-5	x				1	NBCA002IS240102
3/30/98	1353		98SAV002-6	x				1	NBCA002IS240202
3/31/98	1100		98SAV002-7	x				1	NBCA002IS240702
3/31/98	1015		98SAV002-8	x				1	NBCA002IS200950
4/1/98	1500		98SAV002-9	x				1	NBCA002IS280101
4/1/98	1324		98SAV002-10	x				1	NBCA002IS270190
4/1/98	1020		98SAV002-11	x				1	NBCA002IS280240
4/1/98	0835		98SAV002-12	x				1	NBCA002IS280260
				x				1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
Michael P. Schuler	4/8/98	1500	Fred S. McLean	4/9/98	1600			
RECEIVED BY (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY (SIGNATURE)**	**DATE**	**TIME**
Fred S. McLean	4/8/98	1500						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
D Vaughn	4/10/98	9:28	☑ Yes ☐ No		<R-R2017	

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

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

LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82282-1	98-SAV004-1	04-21-98/1402

PARAMETER	82282-1
Lead (6010)	
Lead, mg/kg dw	2400
Preparation Date	04.24.98
Date Analyzed	05.01.98
Dilution factor	10.0
Batch ID	0424C
Percent Solids	79

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82282-2	98SAV004-2	04-21-98/1500

PARAMETER	82282-2
Semivolatile Organics (8270)	
Naphthalene, ug/kg dw	<330
Acenaphthylene, ug/kg dw	<330
Acenaphthene, ug/kg dw	610
Fluorene, ug/kg dw	<330
Phenanthrene, ug/kg dw	<330
Anthracene, ug/kg dw	<330
Fluoranthene, ug/kg dw	<330
Pyrene, ug/kg dw	<330
Chrysene, ug/kg dw	<330
Benzo(a)anthracene, ug/kg dw	<330
Benzo(b)fluoranthene, ug/kg dw	<330
Benzo(k)fluoranthene, ug/kg dw	<330
Benzo(a)pyrene, ug/kg dw	<330
Indeno(1,2,3-cd)pyrene, ug/kg dw	<330
Dibenzo(a,h)anthracene, ug/kg dw	<330
Benzo(g,h,i)perylene, ug/kg dw	<330
2-Methylnaphthalene, ug/kg dw	<330
Surrogate-2FBP	50 %
Surrogate-NBZ	44 %
Surrogate-TPH	59 %
Date Extracted	04.27.98
Date Analyzed	05.02.98
Dilution factor	1.0
Batch ID	0427D

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

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

LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
82282-2	98SAV004-2	04-21-98/1500

PARAMETER	82282-2
Percent Solids	99

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

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

LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
82282-3	Method Blank	
82282-4	Lab Control Standard % Recovery	
82282-5	LCS Accuracy Control Limit (%R)	

PARAMETER	82282-3	82282-4	82282-5
Lead (6010)			
Lead, mg/kg dw	<0.50	100 %	75-125 %
Preparation Date	04.24.98	---	---
Date Analyzed	04.26.98	---	---
Dilution factor	1.0	---	---
Batch ID	0424C	---	---

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

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

LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
82282-3	Method Blank	
82282-4	Lab Control Standard % Recovery	
82282-5	LCS Accuracy Control Limit (%R)	

PARAMETER	82282-3	82282-4	82282-5
Semivolatile Organics (8270)			
Naphthalene, ug/kg dw	<330	---	---
Acenaphthylene, ug/kg dw	<330	---	---
Acenaphthene, ug/kg dw	<330	59 %	28-102 %
Fluorene, ug/kg dw	<330	---	---
Phenanthrene, ug/kg dw	<330	---	---
Anthracene, ug/kg dw	<330	---	---
Fluoranthene, ug/kg dw	<330	---	---
Pyrene, ug/kg dw	<330	65 %	18-136 %
Chrysene, ug/kg dw	<330	---	---
Benzo(a)anthracene, ug/kg dw	<330	---	---
Benzo(b)fluoranthene, ug/kg dw	<330	---	---
Benzo(k)fluoranthene, ug/kg dw	<330	---	---
Benzo(a)pyrene, ug/kg dw	<330	---	---
Indeno(1,2,3-cd)pyrene, ug/kg dw	<330	---	---
Dibenzo(a,h)anthracene, ug/kg dw	<330	---	---
Benzo(g,h,i)perylene, ug/kg dw	<330	---	---
2-Methylnaphthalene, ug/kg dw	<330	---	---
Surrogate-2FBP	47 %	53 %	24-118 %
Surrogate-NBZ	42 %	56 %	12-125 %
Surrogate-TPH	58 %	54 %	18-153 %
Date Extracted	04.27.98	---	---
Date Analyzed	05.02.98	---	---
Dilution factor	1.0	---	---
Batch ID	0427D	---	---

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

LOG NO: S8-82282
Received: 23 APR 98
Reported: 04 MAY 98

Mr. Mike Wheeler
Environmental Detachment Charleston
1899 N. Hobson Avenue
N. Charleston, SC 29405-2106

Client PO. No.: CNS117230C007

Project: N00193-97-M-1208/S-2
Sampled By: Client
Code: 12058056

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED
82282-3	Method Blank	
82282-4	Lab Control Standard % Recovery	
82282-5	LCS Accuracy Control Limit (%R)	

PARAMETER	82282-3	82282-4	82282-5

Methods: EPA SW-846

Michael J. Salum, Project Manager

Final Page Of Report

Serial Number 1880

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

☐ 5102 LaRoche Avenue, Savannah, GA 31404 Phone: (912) 354-7858 Fax: (912) 352-0165
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☐ 414 SW 12th Avenue, Deerfield Beach, FL 33442 Phone: (954) 421-7400 Fax: (954) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 Phone: (334) 666-6633 Fax: (334) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 Phone: (813) 885-7427 Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 Phone (504) 764-1100 Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Mike Salum / Abbie Page

PROJECT REFERENCE	PROJECT NO	PO NUMBER
N00193-97-M-1208	5-2	CN5117.230C007

PROJECT LOC (State)	SAMPLER(s) NAME	PHONE	FAX
S.C.	M. Jeffcoat	803-743-2821 Ex 121	803-743-9413

CLIENT NAME	CLIENT PROJECT MANAGER
SPORTENVDET CHASN	Tom Kizer / Fred McLean

CLIENT ADDRESS (CITY, STATE, ZIP)
1899 North Hobson, Ave, Bldg. 30
North Charleston, S.C. 29405

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: NA ICP-(ecd) / NA PAH (8270)

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	NA ICP-(ecd)	NA PAH (8270)	REMARKS
4/21/98	1462		98SAV004-1	X			X			NBLA 002 EPH 200 107
4/21/98	1500		98SAV004-2	X				X		NTC05927 Q 0001 01

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
Matthew W. Jeffcoat	4/21/98	15:25	Vivian Washington	4/21/98	1525	Vivian Washington	4/21/98	1525
RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SL LOG NO.	LABORATORY REMARKS:
R. Vaughn	4/23/98	9:11	☒ YES ☐ NO		58-82288	

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-1
Lab ID	: 9803538-01
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16800	65.8	485	ug/kg	2.0	MBL	03/28/98	2037	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-2
Lab ID	: 9803538-02
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2290	62.8	463	ug/kg	2.0	MBL	03/28/98	2042	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-3
Lab ID : 9803538-03
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4840	67.1	495	ug/kg	2.0	MBL	03/28/98	2047	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-4
Lab ID : 9803538-04
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5230	62.2	459	ug/kg	2.0	MBL	03/28/98	2053	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-5
Lab ID : 9803538-05
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5270	67.1	495	ug/kg	2.0	MBL	03/28/98	2058	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-6
Lab ID : 9803538-06
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		69700	65.2	481	ug/kg	2.0	MBL	03/28/98	2103	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-7
Lab ID : 9803538-07
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		19100	62.8	463	ug/kg	2.0	MBL	03/28/98	2109	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-8
Lab ID	: 9803538-08
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5300	62.2	459	ug/kg	2.0	MBL	03/28/98	2114	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-9
Lab ID : 9803538-09
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4610	67.8	500	ug/kg	2.0	MBL	03/28/98	2130	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-10
Lab ID	: 9803538-10
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		12400	67.1	495	ug/kg	2.0	MBL	03/28/98	2136	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-11
Lab ID	: 9803538-11
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5560	65.8	485	ug/kg	2.0	MBL	03/28/98	2141	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-12
Lab ID	: 9803538-12
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4370	67.1	495	ug/kg	2.0	MBL	03/28/98	2146	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-13
Lab ID	: 9803538-13
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3660	62.8	463	ug/kg	2.0	MBL	03/28/98	2152	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-14
Lab ID	: 9803538-14
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5210	66.4	490	ug/kg	2.0	MBL	03/28/98	2157	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-15
Lab ID	: 9803538-15
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4480	63.3	467	ug/kg	2.0	MBL	03/28/98	2202	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-16
Lab ID : 9803538-16
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		687000	64.0	472	ug/kg	2.0	MBL	03/28/98	2208	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-17
Lab ID	: 9803538-17
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5010	66.4	490	ug/kg	2.0	MBL	03/28/98	2214	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-18
Lab ID	: 9803538-18
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3260	64.0	472	ug/kg	2.0	MBL	03/28/98	2219	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-19
Lab ID	: 9803538-19
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		43700	65.2	481	ug/kg	2.0	MBL	03/28/98	2236	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-20
Lab ID	: 9803538-20
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4380	65.8	485	ug/kg	2.0	MBL	03/28/98	2241	118920	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118920	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-21
Lab ID : 9803538-21
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		13800	64.0	472	ug/kg	2.0	MBL	03/27/98	1732	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-22
Lab ID : 9803538-22
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8550	62.8	463	ug/kg	2.0	MBL	03/27/98	1738	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-23
Lab ID : 9803538-23
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9480	64.5	476	ug/kg	2.0	MBL	03/27/98	1744	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-24
Lab ID	: 9803538-24
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5380	65.8	485	ug/kg	2.0	MBL	03/27/98	1749	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-25
Lab ID	: 9803538-25
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4590	64.5	476	ug/kg	2.0	MBL	03/27/98	1755	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-26
Lab ID	: 9803538-26
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		23600	63.3	467	ug/kg	2.0	MBL	03/27/98	1801	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-27
Lab ID	: 9803538-27
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6810	62.8	463	ug/kg	2.0	MBL	03/27/98	1807	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-28
Lab ID	: 9803538-28
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		220000	66.4	490	ug/kg	2.0	MBL	03/27/98	1813	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-29
Lab ID : 9803538-29
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1900000	63.3	467	ug/kg	2.0	MBL	03/27/98	1832	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-30
Lab ID : 9803538-30
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		356000	65.8	485	ug/kg	2.0	MBL	03/27/98	1838	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-31
Lab ID	: 9803538-31
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		841000	64.0	472	ug/kg	2.0	MBL	03/27/98	1844	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-32
Lab ID	: 9803538-32
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4220	65.8	485	ug/kg	2.0	MBL	03/27/98	1850	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-33
Lab ID	: 9803538-33
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6020	62.2	459	ug/kg	2.0	MBL	03/27/98	1856	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-34
Lab ID	: 9803538-34
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6820	64.5	476	ug/kg	2.0	MBL	03/27/98	1902	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-35
Lab ID	: 9803538-35
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7020	64.5	476	ug/kg	2.0	MBL	03/27/98	1908	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-36
Lab ID	: 9803538-36
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8140	65.8	485	ug/kg	2.0	MBL	03/27/98	1913	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-37
Lab ID	: 9803538-37
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1560	66.4	490	ug/kg	2.0	MBL	03/27/98	1919	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-38
Lab ID : 9803538-38
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7690	65.8	485	ug/kg	2.0	MBL	03/27/98	1925	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0608-39
Lab ID : 9803538-39
Matrix : Soil
Date Collected : 03/23/98
Date Received : 03/23/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9160	63.3	467	ug/kg	2.0	MBL	03/27/98	1942	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-40
Lab ID	: 9803538-40
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9770	67.1	495	ug/kg	2.0	MBL	03/27/98	1948	118921	1
The following prep procedures were performed:											
TRACE							VMM	03/26/98	1500	118921	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0608-41
Lab ID	: 9803538-41
Matrix	: Soil
Date Collected	: 03/23/98
Date Received	: 03/23/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7320	64.5	476	ug/kg	2.0	MBL	03/28/98	1654	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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9803538-41

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9803538% Report Date: March 31, 1998

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC495778	BLANK	118920											
Lead						19.3	ug/kg				MBL	03/28/98	2025
QC495783	BLANK	118921											
Lead						118	ug/kg				MBL	03/27/98	1719
QC495793	BLANK	118923											
Lead						58.4	ug/kg				MBL	03/28/98	1641
QC495779	LCS	118920											
Lead			134000			130000	ug/kg		97.2	(77.1 - 116.)	MBL	03/28/98	2030
QC495784	LCS	118921											
Lead			124000			108000	ug/kg		86.9	(77.1 - 116.)	MBL	03/27/98	1725
QC495794	LCS	118923											
Lead			127000			126000	ug/kg		99.6	(77.1 - 116.)	MBL	03/28/98	1
QC495781	9803538-20MS	118920											
Lead			50000	4390		56100	ug/kg		103	(56.3 - 135.)	MBL	03/28/98	2252
QC495786	9803538-40MS	118921											
Lead			47600	9770		132000	ug/kg		256**	(56.3 - 135.)	MBL	03/27/98	2000
QC495796	9803581-39MS	118923											
Lead			45900	176000		397000	ug/kg		481**	(56.3 - 135.)	MBL	03/28/98	1919
QC495782	9803538-20MSD	118920											
Lead			49000	4390		52900	ug/kg	4.28	99.0	(0.00 - 34.0)	MBL	03/28/98	2257
QC495787	9803538-40MSD	118921											
Lead			46700	9770		49600	ug/kg	99.9**	85.3	(0.00 - 34.0)	MBL	03/27/98	2005
QC495797	9803581-39MSD	118923											
Lead			48500	176000		441000	ug/kg	12.6	545	(0.00 - 34.0)	MBL	03/28/98	1925
QC495780	9803538-20SERIAL	118920											
Lead				4390		4480	ug/kg	2.09			MBL	03/28/98	2246
QC495785	9803538-40SERIAL	118921											
Lead				9770		10600	ug/kg	8.48			MBL	03/27/98	1954
QC495795	9803581-39SERIAL	118923											
Lead				176000		189000	ug/kg	7.05			MBL	03/30/98	0611

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

* indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

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(803) 556-8171 • Fax (803) 766-1178

NWDOC 0019 1

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

9803538

Page 1 of 4

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

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 31896

	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			Remarks
-01	SPORT Ø608-1	3/23/98	10:25		X			1							X											NBCA002SSZ201901
-02	SPORT Ø608-2	3/23/98	10:25		X			1							X											NBCA002SSZ201501
-03	SPORT Ø608-3	3/23/98	10:25		X			1							X											NBCA002SSZ201601
-04	SPORT Ø608-4	3/23/98	10:25		X			1							X											NBCA002SSZ201701
-05	SPORT Ø608-5	3/23/98	10:25		X			1							X											NBCA002SSZ201801
-06	SPORT Ø608-6	3/23/98	10:40		X			1							X											NBCA002SSZ201901
-07	SPORT Ø608-7	3/23/98	10:40		X			1							X											NBCA002SSZ202001
-08	SPORT Ø608-8	3/23/98	10:40		X			1							X											NBCA002SSZ202101
-09	SPORT Ø608-9	3/23/98	10:40		X			1							X											NBCA002SSZ202201
-10	SPORT Ø608-10	3/23/98	10:40		X			1							X											NBCA002SSZ202301
-11	SPORT Ø608-11	3/23/98	11:05		X			1							X											NBCA002SSZ202401
-12	SPORT Ø608-12	3/23/98	11:05		X			1							X											NBCA002SSZ202501
-13	SPORT Ø608-13	3/23/98	11:05		X			1							X											NBCA002SSZ202601

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matt Griffith	3/23/98	1570	[illegible]	[illegible]	[illegible]	1515	[illegible]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
[illegible]	3/23/98	1610	Karen Blakeney	3/23/98	1615		

White = sample collector Yellow = file Pink = with report

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(803) 556-8171

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTFUND/Chasin

Collected by/Company: SPORTFUND/Chasin

	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			Remarks
-14	SPort Ø608 - 14	3/23/98	11:05		X			1							X											NBCA002SSZ202701
-15	SPort Ø608 - 15	3/23/98	11:05		X			1							X											NBCA002SSZ202801
-16	SPort Ø608 - 16	3/23/98	11:35		X			1							X											NBCA002SSZ202901
-17	SPort Ø608 - 17	3/23/98	11:35		X			1							X											NBCA002SSZ203001
-18	SPort Ø608 - 18	3/23/98	11:35		X			1							X											NBCA002SSZ203101
-19	SPort Ø608 - 19	3/23/98	11:45		X			1							X											NBCA002SSZ203201
-20	SPort Ø608 - 20	3/23/98	13:10		X			1							X											NBCA002SSZ203301
-21	SPort Ø608 - 21	3/23/98	13:10		X			1							X											Matrix/Split Sample Duplicate Sample NBCA002CSZ200101
-22	SPort Ø608 - 22	3/23/98	13:25		X			1							X											Split Sample NBCA002ISZ200101
-23	SPort Ø608 - 23	3/23/98	13:25		X			1							X											Split Sample NBCA002ISZ200201
-24	SPort Ø608 - 24	3/23/98	13:30		X			1							X											NBCA002SSZ203401
-25	SPort Ø608 - 25	3/23/98	13:30		X			1							X											NBCA002SSZ203501
-26	SPort Ø608 - 26	3/23/98	13:30		X			1							X											NBCA002SSZ203601

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	3/23/98	1510	[signature]	[signature]	3/23/98	1515	[signature]
[signature]	3/23/98	1615	Received by lab by: Karen Blakinley	Date: 3/23/98	Time: 1615	Remarks:	

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CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SPORTENV DEPCHASN
Collected by/Company: SPORTENV DEPCHASN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	RCRA 8 METALS - Specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-27	Sport@608-27	3/23/98	13:35		X			1							X											NBCA002SSZ303701
-28	Sport@608-28	3/23/98	14:10		X			1							X											NBCA002SSZ303801
-29	Sport@608-29	3/23/98	14:10		X			1							X											NBCA002SSZ303901
-30	Sport@608-30	3/23/98	14:15		X			1							X											NBCA002SSZ304001
-31	Sport@608-31	3/23/98	14:15		X			1							X											NBCA002SSZ304101
-32	Sport@608-32	3/23/98	14:20		X			1							X											NBCA002SSZ304201
-33	Sport@608-33	3/23/98	14:20		X			1							X											NBCA002SSZ304301
-34	Sport@608-34	3/23/98	14:20		X			1							X											NBCA002SSZ304401
-35	Sport@608-35	3/23/98	14:25		X			1							X											NBCA002SSZ304501
-36	Sport@608-36	3/23/98	14:25		X			1							X											NBCA002SSZ304601
-37	Sport@608-37	3/23/98	14:25		X			1							X											NBCA002SSZ304701
-38	Sport@608-38	3/23/98	14:30		X			1							X											NBCA002SSZ304801
-39	Sport@608-39	3/23/98	14:30		X			1							X											NBCA002SSZ304901

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

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	3/23/98	1570	[signature]	[signature]	3/23/98	1515	[signature]
[signature]	3/23/98	1615	Sharon Blakeney				

Date:	Time:	Remarks:
3/23/98	1615	

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[redacted]
Charleston, South Carolina [redacted]
[redacted]
Charleston, South Carolina [redacted]
[redacted]

CHAIN OF CUSTODY RECORD

Client Name/Facility Name: SportEnvDetChasN

Collected by/Company: SportEnvDetChasN

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods: TCLP METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
-40	Sport|0608-40	3/23/98	14:30		X			1							X											NBCA002SSZ305001
-41	Sport|0608-41	3/23/98	14:35		X			1							X											NBCA002SSZ305101

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Matth W. Griffith	3/23/98	1510	Fred S McCann	Fred S McCann	3/23/98	1515	[illegible]
[illegible]	3/23/98	1615	Karen Blakeney	3/23/98	1615	Remarks:	

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Laboratory Certifications

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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-2
Lab ID : 9803581-02
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16000	67.1	495	ug/kg	2.0	MBL	03/28/98	1749	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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
Reviewed By

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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-3
Lab ID	: 9803581-03
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		243000	65.8	485	ug/kg	2.0	MBL	03/28/98	1755	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-4
Lab ID	: 9803581-04
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5720	66.4	490	ug/kg	2.0	MBL	03/28/98	1800	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-5
Lab ID	: 9803581-05
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6280	65.8	485	ug/kg	2.0	MBL	03/28/98	1805	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Laboratory Certifications

STATE	GEL	EPI
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-6
Lab ID	: 9803581-06
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6860	63.3	467	ug/kg	2.0	MBL	03/28/98	1811	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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Karen Blakeney
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STATE	GEL	EPI
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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: NPWC00197 Report Date: March 31, 1998 Page 1 of 1

Sample ID	: SPORT0630-7
Lab ID	: 9803581-07
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3460000	66.4	490	ug/kg	2.0	MBL	03/28/98	1816	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-8
Lab ID : 9803581-08
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		89600	67.1	495	ug/kg	2.0	MBL	03/28/98	1821	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen D Blakeney
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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: NPWC00197

Report Date: March 31, 1998

Sample ID	: SPORT0630-9
Lab ID	: 9803581-09
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1640000	67.1	495	ug/kg	2.0	MBL	03/28/98	1837	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
Reviewed By

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GENERAL ENGINEERING LABORATORIES

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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-10
Lab ID : 9803581-10
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		82000	65.8	485	ug/kg	2.0	MBL	03/28/98	1843	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-11
Lab ID	: 9803581-11
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5400	65.2	481	ug/kg	2.0	MBL	03/28/98	1848	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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NC	233	
SC	10120	10582
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-12
Lab ID : 9803581-12
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		78800	65.8	485	ug/kg	2.0	MBL	03/28/98	1853	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-13
Lab ID	: 9803581-13
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7590	64.0	472	ug/kg	2.0	MBL	03/28/98	1859	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-14
Lab ID : 9803581-14
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9330	67.1	495	ug/kg	2.0	MBL	03/28/98	1904	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-15
Lab ID	: 9803581-15
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		205000	66.4	490	ug/kg	2.0	MBL	03/28/98	1910	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-16
Lab ID : 9803581-16
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		29400	62.2	459	ug/kg	2.0	MBL	03/28/98	1915	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-17
Lab ID	: 9803581-17
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		195000	67.1	495	ug/kg	2.0	MBL	03/28/98	1920	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-18
Lab ID : 9803581-18
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4900	67.8	500	ug/kg	2.0	MBL	03/28/98	1926	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-19
Lab ID	: 9803581-19
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		191000	62.2	459	ug/kg	2.0	MBL	03/28/98	1942	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-20
Lab ID : 9803581-20
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5520	65.2	481	ug/kg	2.0	MBL	03/28/98	1947	118922	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118922	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-21
Lab ID	: 9803581-21
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4430000	63.3	467	ug/kg	2.0	MBL	03/28/98	1700	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-22
Lab ID : 9803581-22
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1610000	62.8	463	ug/kg	2.0	MBL	03/28/98	1706	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-23
Lab ID	: 9803581-23
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1700000	66.4	490	ug/kg	2.0	MBL	03/28/98	1711	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Reviewed By

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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-24
Lab ID : 9803581-24
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		18500	67.1	495	ug/kg	2.0	MBL	03/28/98	1717	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-25
Lab ID : 9803581-25
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4010000	67.8	500	ug/kg	2.0	MBL	03/28/98	1723	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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NC	233	
SC	10120	10582
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-26
Lab ID : 9803581-26
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1670000	66.4	490	ug/kg	2.0	MBL	03/29/98	1235	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-27
Lab ID	: 9803581-27
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		451000	63.3	467	ug/kg	2.0	MBL	03/29/98	1240	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-28
Lab ID	: 9803581-28
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1920000	67.1	495	ug/kg	2.0	MBL	03/29/98	1246	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-29
Lab ID : 9803581-29
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		623000	62.8	463	ug/kg	2.0	MBL	03/28/98	1758	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-30
Lab ID	: 9803581-30
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1200000	311	2300	ug/kg	10.	MBL	03/30/98	0717	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-31
Lab ID	: 9803581-31
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead	U	10.2	66.4	490	ug/kg	2.0	MBL	03/28/98	1809	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-32
Lab ID : 9803581-32
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		933000	64.0	472	ug/kg	2.0	MBL	03/28/98	1815	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-33
Lab ID : 9803581-33
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		108000	65.8	485	ug/kg	2.0	MBL	03/28/98	1821	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-34
Lab ID : 9803581-34
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		661000	62.8	463	ug/kg	2.0	MBL	03/29/98	1256	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-35
Lab ID : 9803581-35
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		422000	63.3	467	ug/kg	2.0	MBL	03/28/98	1832	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-36
Lab ID : 9803581-36
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		75900	66.4	490	ug/kg	2.0	MBL	03/28/98	1838	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-37
Lab ID	: 9803581-37
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1170000	62.8	463	ug/kg	2.0	MBL	03/28/98	1844	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-38
Lab ID : 9803581-38
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		558000	62.2	459	ug/kg	2.0	MBL	03/28/98	1901	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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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.

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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STATE	GEL	EPI
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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-39
Lab ID	: 9803581-39
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		176000	62.2	459	ug/kg	2.0	MBL	03/28/98	1907	118923	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118923	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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Karen Blakeney
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-40
Lab ID : 9803581-40
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		10100	63.3	467	ug/kg	2.0	MBL	03/28/98	1551	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-41
Lab ID	: 9803581-41
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		77300	67.1	495	ug/kg	2.0	MBL	03/28/98	1556	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
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STATE	GEL	EPI
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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: NPWC00197 Report Date: March 31, 1998

Sample ID : SPORT0630-42
Lab ID : 9803581-42
Matrix : Soil
Date Collected : 03/24/98
Date Received : 03/24/98
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		55900	62.2	459	ug/kg	2.0	MBL	03/28/98	1601	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/8745
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: NPWC00197 Report Date: March 31, 1998

Sample ID	: SPORT0630-43
Lab ID	: 9803581-43
Matrix	: Soil
Date Collected	: 03/24/98
Date Received	: 03/24/98
Priority	: Routine
Collector	: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		110000	63.3	467	ug/kg	2.0	MBL	03/28/98	1607	118924	1
The following prep procedures were performed:											
TRACE							VMM	03/25/98	1500	118924	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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: NPWC00197 Report Date: April 12, 1999 Page 1 of 1

Sample ID	99SPORT0145-1
Lab ID	9904052-01
Matrix	TCLP
Date Collected	04/01/99
Date Received	04/01/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
ead		19100	15.9	50.0	ug/l	10.	MBL	04/08/99	1700	146110	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	04/05/99	1620	145975	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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9904052-01

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904052% Report Date: April 12, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tir
Metals Analysis													
QC599797	BLANK	146110											
Lead						-0.523	ug/l				MBL	04/08/99	16:
QC599798	BLANK	146110											
Lead						-1.33	ug/l				MBL	04/08/99	16:
QC599799	BLANK	146110											
Lead						0.689	ug/l				MBL	04/08/99	163
QC599800	LCS	146110											
Lead			5000			5730	ug/l		115**	(89.3 - 114.)	MBL	04/08/99	164

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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2

NPWC 00197

CHAIN OF CUSTODY RECORD

9904052 1.

General Engineering Lab... Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORT ENV DETCH ASN

Collected by/Company: SPORT ENV DETCH ASN

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

39408

SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrate/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	LEAD TCLP	Remarks
01 995PORT@145-1	04-01-99	1512			X		1						1										X	NBCA 002 V002 CONCRETE SAMPLE

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Tony L. Hunter	4/1/99	1523	W.R. Hiers, Jr.	W.R. Hiers, Jr.	4/1/99	1538	Stephanie Beckett
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Beckett	4-1-99	1610	P. Power	4-1-99	1610		

White = sample collector Yellow = file Pink = with report

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FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID	99SPORT0165-1
Lab ID	9905060-01
Matrix	TCLP
Date Collected	05/04/99
Date Received	05/04/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		352	15.9	50.0	ug/l	10.	AME	05/07/99	1208	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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Reviewed By

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID	99SPORT0165-2
Lab ID	9905060-02
Matrix	TCLP
Date Collected	05/04/99
Date Received	05/04/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		234	15.9	50.0	ug/l	10.	AME	05/07/99	1213	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

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E Hanson

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9905060-02

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NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID	99SPO0165-3
Lab ID	9905060-03
Matrix	TCLP
Date Collected	05/04/99
Date Received	05/04/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead	J	39.1	15.9	50.0	ug/l	10.	AME	05/07/99	1218	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID	99SPORT0165-4
Lab ID	9905060-04
Matrix	TCLP
Date Collected	05/04/99
Date Received	05/04/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead	J	17.5	15.9	50.0	ug/l	10	AME	05/07/99	1224	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID : 99SPORT0165-5
Lab ID : 9905060-05
Matrix : TCLP
Date Collected 05/04/99
Date Received : 05/04/99
Priority : Rush
Collector Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		279	15.9	50.0	ug/l	10.	AME	05/07/99	1229	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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NJ	79002	79002
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: NPWC00197 Report Date: May 08, 1999

Sample ID	: 99SPORT0165-6
Lab ID	: 9905060-06
Matrix	: TCLP
Date Collected	: 05/04/99
Date Received	: 05/04/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead	U	ND	15.9	50.0	ug/l	10.	AME	05/07/99	1235	148355	1
The following prep procedures were performed:											
TCLP Prep for Metals							JJ	05/04/99	2010	148309	2

M = Method	Method-Description
M 1	EPA 6010A
M 2	EPA 1311

Notes:
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9905060-06

9

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9905060% Report Date: May 08, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC608485	BLANK	148355											
Lead						11.6	ug/l				ame	05/07/99	1137
QC608486	BLANK	148355											
Lead						16.0	ug/l				ame	05/07/99	1142
QC608487	BLANK	148355											
Lead						1.64	ug/l				ame	05/07/99	1148
QC608488	LCS	148355											
Lead			5000			5290	ug/l		106	(89.3 - 114.)	ame	05/07/99	1153
QC608489	LCS DUP	148355											
Lead			5000			5270	ug/l	0.528	105	(0.00 - 20.0)	ame	05/07/99	1159
QC608650	9905060-06MS	148355											
Lead			5000	12.6		5240	ug/l		105		ame	05/07/99	1312
:608651	9905060-06MSD	148355											
Lead			5000	12.6		5220	ug/l	0.496	104		ame	05/07/99	1317

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

GENERAL ENGINEERING LABORATORIES
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97W0006

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

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

3972

	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	TCLP LEAD	Remarks
1-99	SPORTO165-1	5-4-99	0932				1	1																X	NBCA002V003ZN3
2-99	SPORTO165-2	5-4-99	0945				1	1																X	NBCA002V004ZN5
3-99	SPORTO165-3	5-4-99	1403				1	1																X	NBCA002V005ZN5
4-99	SPORTO165-4	5-4-99	1028				1	1																X	NBCA002V006ZN5
5-99	SPORTO165-5	5-4-99	0956				1	1																X	NBCA002V007ZN5
6-99	SPORTO165-6	5-4-99	1116				1	1																X	NBCA002V008ZN5

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	5-4-99	1506	W.R. Hiers, Jr.	W.R. Hiers, Jr.	5/4/99	1527	—
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
—	—	—	[signature]	5/4/99	1527		

White = sample collector Yellow = file Pink = with report

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 10, 1999 Page 1 of 1

Sample ID	99SPORT0215-1
Lab ID	9907171-01
Matrix	Soil
Date Collected	07/07/99
Date Received	07/07/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		250000	141	232	ug/kg	50	JSS	07/09/99	1052	152846	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/08/99	1930	152846	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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, Elise Hanson at 843-556-8171

E Hanson

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9907171-01

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NC	233	
NJ	79002	79002
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 NPWC0019?

Report Date July 10, 1999

Sample ID	99SPORT0215-2
Lab ID	9907171-02
Matrix	Soil
Date Collected	07/07/99
Date Received	07/07/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		657000	144	238	ug/kg	5.0	JSS	07/09/99	1058	152846	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/08/99	1930	152846	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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

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in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

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NJ	79002	79002
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: NPWC00197

Report Date: July 10, 1999

Sample ID	99SPORT0215-3
Lab ID	9907171-03
Matrix	Soil
Date Collected	07/07/99
Date Received	07/07/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		128000	139	230	ug/kg	5.0	JSS	07/09/99	1104	152846	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/08/99	1930	152846	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9907171-03

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FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

SC NPWC00197 Report Date: July 10, 1999

Sample ID	99SPORT0215-4
Lab ID	9907171-04
Matrix	Soil
Date Collected	07/07/99
Date Received	07/07/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		257000	143	236	ug/kg	5.0	JSS	07/09/99	1111	152846	1

The following prep procedures were performed:

ICP Mass Spec	AJM	07/08/99	1930	152846 2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9907171-04

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9907171% Report Date: July 10, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC626090	BLANK	152846											
Lead						-25.8	ug/kg				JSS	07/09/99	1039
QC626091	LCS	152846											
Lead			142000			170000	ug/kg		120	(-)	JSS	07/09/99	1045
QC626093	9907171-04MS	152846											
Lead			49500	257000		350000	ug/kg		n/a		JSS	07/09/99	1123
QC626094	9907171-04MSD	152846											
Lead			48500	257000		115000	ug/kg		n/a		JSS	07/09/99	1129
QC626092	9907171-04SERIAL	152846											
Lead				257000		250000	ug/kg	2.98			JSS	07/09/99	1117

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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940[redacted]71[redacted]

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CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

General Engineering Lab [redacted]
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

	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	Pb ICP	Remarks
01	99SPORTΦ215-1	7-7-99	Φ949	X			X	1																X	NBCAΦΦ255281 Φ1
02	99SPORTΦ215-2	7-7-99	Φ934	X			X	1																X	NBCAΦΦ255282 Φ1
03	99SPORTΦ215-3	7-7-99	1104	X			X	1																X	NBCAΦΦ255283 Φ1
04	99SPORTΦ215-4	7-7-99	1149	X			X	1																X	NBCAΦΦ255284 Φ1

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
S L Hunter	7-7-99	1245	W.R. Hiers, Jr.	W.R. Hiers, Jr.	7/7/99	1514	Stephanie Berkeley
Stephanie Berkeley	7/7/99	1550	Shannon				

Received by lab by: Shannon — Date/Time: 7/7/99 1550 — Remarks:

White = sample collector — Yellow = file — Pink = with report

GENERAL ENGINEERING LABORATORIES

We can't solve every problem, but we can try.

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 13, 1999

Sample ID	99SPORT0224-1
Lab ID	9907277-01
Matrix	Soil
Date Collected	07/09/99
Date Received	07/09/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		71400	152	250	ug/kg	5.0	JSS	07/12/99	1944	153104	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/12/99	1930	153104	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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).
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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, Elise Hanson at 843-556-8171

E Hanson

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9907277-01

(6

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

ec: NPWC00197 Lab. Sample ID: 9907277% Report Date: July 13, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC627143	BLANK	153104											
Lead						-26.3	ug/kg				JSS	07/12/99	1932
QC627144	LCS	153104											
Lead			135000			135000	ug/kg		100	70.0 - 120.)	JSS	07/12/99	1938
QC627146	9907277-01MS	153104											
Lead			5000	71400		131000	ug/kg		n/a		JSS	07/12/99	1956
QC627147	9907277-01MSD	153104											
Lead			5000	71400		97200	ug/kg		n/a		JSS	07/12/99	2002
QC627145	9907277-01SERIAL	153104											
Lead				71400		65500	ug/kg	8.64			JSS	07/12/99	1950

otes:

The qualifiers in this report are defined as follows:

J indicates presence of analyte < RL (Report Limit)

U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

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3 Day Turnaround

NPWC00197

CHAIN OF CUSTODY RECORD

9907277

Page 1 of 1

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Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: SPARTENVDETCHASN

Collected by/Company: SPARTENVDETCHASN

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	Pb ICP	Remarks
01 99SPARTΦ224-1	7-9-99	1136		X	X		1																X	NBCAΦΦ255295Φ1

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

41297

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
L.L. Hunter	7/9/99	1242	Vivian Washington	Vivian Washington	7/9/99	1350	

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
			Vivian Washington	7/9/99	1350	

02

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 15, 1999 **Page 1 of 1**

Sample ID	99SPORT0226-1
Lab ID	9907358-01
Matrix	Soil
Date Collected	07/13/99
Date Received	07/13/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		29200	141	232	ug/kg	5.0	JSS	07/15/99	0110	153237	1

The following prep procedures were performed:

ICP Mass Spec	FGD	07/13/99	1530	153237 2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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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, Elise Hanson at 843-556-8171.

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9907358-01

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 15, 1999

Sample ID	99SPORT0226-2
Lab ID	9907358-02
Matrix	Soil
Date Collected	07/13/99
Date Received	07/13/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		16600	139	230	ug/kg	5.0	JSS	07/15/99	0117	153237	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/13/99	1530	153237	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 15, 1999 **Page 1 of 1**

Sample ID	99SPORT0226-3
Lab ID	9907358-03
Matrix	Soil
Date Collected	07/13/99
Date Received	07/13/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8150	152	250	ug/kg	5.0	JSS	07/15/99	0124	153237	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/13/99	1530	153237	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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9907358-03

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9907358% Report Date: July 16, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tin
Metals Analysis													
QC627648	BLANK	153237											
Lead						54.5	ug/kg				JSS	07/15/99	012
QC627649	LCS	153237											
Lead			124000			141000	ug/kg		114	(70.0 - 120.)	JSS	07/15/99	010
QC627651	9907358-03MS	153237											
Lead			4950	8150		14300	ug/kg		125**	(67.3 - 122.)	JSS	07/15/99	014
QC627652	9907358-03MSD	153237											
Lead			5000	8150		12500	ug/kg	34.9**	87.6	(0.00 - 23.2)	JSS	07/15/99	015
QC627650	9907358-03SERIAL	153237											
Lead				8150		9260	ug/kg	12.8			JSS	07/15/99	013

Notes:
The qualifiers in this report are defined as follows.
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

nva indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197 9901[redacted]8/.

General Engineering Lab[redacted]ries, Inc
2040 Savage Road
Charleston, South Carolina [redacted]
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

	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	Pb-ICP	Remarks
01	995PORTΦ226-1	7-13-99	0707		X		X	1																X	NBCA ΦΦ2 SB 286 Φ1
02	995PORTO 226-2	7-13-99	0738		X		X	1																X	NBCA ΦΦ2 SB 287 Φ1
03	995PORTO226-3	7-13-99	0804		X		X	1																X	NBCA ΦΦ2 SB 288 Φ1

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

41341

Remarks

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
D.P. Hunter	7-13-99	1001	W.R. Hiers, Jr.	W.R. Hiers, Jr.	7/13/99	1120	
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			[redacted]	7/13/99	1120		

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GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197

Report Date: July 19, 1999

Sample ID	99SPORT0228-01
Lab ID	9907446-01
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3740	150	248	ug/kg	5.0	JSS	07/16/99	2018	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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, Elise Hanson at 843-556-8171

Reviewed By

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9907446-01

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

Report Date: July 19, 1999 Page 1 of 1

Sample ID	99SPORT0228-02
Lab ID	9907446-02
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6570	152	250	ug/kg	5.0	JSS	07/16/99	2024	153408	1

The following prep procedures were performed:

ICP Mass Spec	FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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9907446-02

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197

Report Date: July 19, 1999

Sample ID	99SPORT0228-03
Lab ID	9907446-03
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6640	149	245	ug/kg	5.0	JSS	07/16/99	2031	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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.

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9907446-03

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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

NPWC00197 Report Date July 19, 1999

Sample ID	99SPORT0228-04
Lab ID	9907446-04
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		7470	149	245	ug/kg	5.0	JSS	07/16/99	2038	153408	1

The following prep procedures were performed:

ICP Mass Spec	FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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9907446-04

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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

Lc: NPWC00197 Report Date: July 19, 1999 Page 1 of 1

Sample ID	99SPORT0228-05
Lab ID	9907446-05
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		565000	144	238	ug/kg	5.0	JSS	07/16/99	2044	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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9907446-05

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 19, 1999 Page 1 of 1

Sample ID	99SPORT0228-06
Lab ID	9907446-06
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6070	143	236	ug/kg	5.0	JSS	07/16/99	2050	153408	1

The following prep procedures were performed:

ICP Mass Spec	FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 19, 1999

Sample ID	99SPORT0228-07
Lab ID	9907446-07
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4020	149	245	ug/kg	5.0	JSS	07/16/99	2056	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.
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9907446-07

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

ac: NPWC00197 Report Date July 19, 1999

Sample ID	99SPORT0228-08
Lab ID	9907446-08
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		6750	139	230	ug/kg	5.0	JSS	07/16/99	2120	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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Reviewed By

9907446-08

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

Sc: NPWC00197 Report Date: July 19, 1999 Page 1 of 1

Sample ID	99SPORT0228-09
Lab ID	9907446-09
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3270	152	250	ug/kg	5.0	JSS	07/16/99	2126	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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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.
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9907446-09

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 19, 1999

Sample ID	99SPORT0228-10
Lab ID	9907446-10
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		11600	150	248	ug/kg	5.0	JSS	07/16/99	2132	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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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* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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9907446-10

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 19, 1999 Page 1 of 1

Sample ID	99SPORT0228-11
Lab ID	9907446-11
Matrix	Soil
Date Collected	07/14/99
Date Received	07/14/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		9770	141	232	ug/kg	5.0	JSS	07/16/99	2138	153408	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/15/99	1600	153408	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

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9907446-11

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9907446% Report Date: July 19, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tim
Metals Analysis													
QC628242	BLANK	153408											
Lead						-16.5	ug/kg				JSS	07/16/99	200
QC628243	LCS	153408											
Lead			127000			123000	ug/kg		96.7	(70.0 - 120.)	JSS	07/16/99	201
QC628245	9907446-11MS	153408											
Lead			4630	9770		12600	ug/kg		60.8**	(67.3 - 122.)	JSS	07/16/99	214
QC628246	9907446-11MSD	153408											
Lead			4630	9770		12200	ug/kg	12.8	53.5	(0.00 - 23.2)	JSS	07/16/99	215
QC628244	9907446-11SERIAL	153408											
Lead				9770		8690	ug/kg	11.6			JSS	07/16/99	214

Notes:

The qualifiers in this report are defined as follows:

J indicates presence of analyte < RL (Report Limit)

U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197

99[illegible] 46%

CHAIN OF CUSTODY RECORD

— 3 DAY TURN AROUND —

General Engineering Lab[illegible]ies, Inc.
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORTEN/DET CHASN

Collected by/Company: SPORTEN/DET CHASN

	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	#P pb ICP	Remarks
-01	99SPORTΦ228-Φ1	Φ7-14-99	1128		X		X	1																X	NBCAΦΦ2 SB 289 Φ1
-02	99SPORTΦ228-Φ2	Φ7-14-99	1142		X		X	1																X	NBCAΦΦ2 SB 290 Φ1
-03	99SPORTΦ228-Φ3	Φ7-14-99	1155		X		X	1																X	NBCAΦΦ2 SB 291 Φ1
-04	99SPORTΦ228-Φ4	Φ7-14-99	1258		X		X	1																X	NBCAΦΦ2 SB 292 Φ1
-05	99SPORTΦ228-Φ5	Φ7-14-99	1217		X		X	1																X	NBCAΦΦ2 SB 293 Φ1
-06	99SPORTΦ228-Φ6	Φ7-14-99	1230		X		X	1																X	NBCAΦΦ2 SB 294 Φ1
-07	99SPORTΦ228-Φ7	Φ7-14-99	1240		X		X	1																X	NBCAΦΦ2 SB 295 Φ1
-08	99SPORTΦ228-Φ8	Φ7-14-99	1253		X		X	1																X	NBCAΦΦ2 SB 296 Φ1
-09	99SPORTΦ228-Φ9	Φ7-14-99	1304		X		X	1																X	NBCAΦΦ2 SB 297 Φ1
-10	99SPORTΦ228-10	Φ7-14-99	1316		X		X	1																X	NBCAΦΦ2 SB 298 Φ1
-11	99SPORTΦ228-11	Φ7-14-99	1207		X		X	1																X	NBCAΦΦ2 CO 50 Φ1

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

41390

Remarks

*NOTE: SAMPLES PRESERVED @ 4°C

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
D L Hunter	7-14-99	1447	W.R. Hiers, Jr.	W.R. Hiers, Jr.	7/14/99	1505	
Bob Locke	7-14-99	1545	Francop		7/14/99	1545	

Relinquished by lab by: Date: 7/14/99 Time: 1545 Remarks:

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GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 20, 1999

Sample ID	99SPORT0232-01
Lab ID	9907548-01
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		94200	152	250	ug/kg	5.0	AME	07/19/99	2222	153683	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows:
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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.

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, Elise Hanson at 843-556-8171

Reviewed By

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9907548-01

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

NPWC00197 Report Date: July 20, 1999 Page 1 of 1

Sample ID	99SPORT0232-02
Lab ID	9907548-02
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2550	147	243	ug/kg	5.0	AME	07/19/99	2228	153683	1

The following prep procedures were performed:

ICP Mass Spec	FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes
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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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9907548-02

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NJ	79002	79002
SC	10120	10582
TN	02934	02934

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1899 North Hobson Ave
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Contact: Mr Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

Jc: NPWC00197 Report Date July 20, 1999 Page 1 of 1

Sample ID	99SPORT0232-03
Lab ID	9907548-03
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		5990	142	234	ug/kg	5.0	AME	07/19/99	2234	153683	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes
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TN	02934	02934

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: July 20, 1999

Sample ID	99SPORT0232-04
Lab ID	9907548-04
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2730	142	234	ug/kg	5.0	AME	07/19/99	2241	153683	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes
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9907548-04

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TN	02934	02934

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SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106
Contact: Mr Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

Lc: NPWC00197 Report Date: July 20, 1999

Sample ID	99SPORT0232-05
Lab ID	9907548-05
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2920	150	248	ug/kg	5.0	AME	07/19/99	2247	153683	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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9907548-05

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1899 North Hobson Ave
North Charleston, South Carolina 29405-2106
Contact: Mr Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: July 20, 1999

Sample ID	99SPORT0232-06
Lab ID	9907548-06
Matrix	Soil
Date Collected	07/16/99
Date Received	07/16/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3400	146	241	ug/kg	5.0	AME	07/19/99	2253	153683	1
The following prep procedures were performed:											
ICP Mass Spec							FGD	07/19/99	1730	153683	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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9907548-06

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

Lab: NPWC00197 Lab. Sample ID: 9907548% Report Date: July 20, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC629323	BLANK	153683											
Lead						41.8	ug/kg				AME	07/19/99	2210
QC629324	LCS	153683											
Lead			32000			120000	ug/kg		90.8	70.0 - 120.0	AME	07/19/99	2216
QC629326	9907548-06MS	153683											
Lead			4810	3400		8620	ug/kg		109	67.3 - 122.0	AME	07/19/99	2324
QC629327	9907548-06MSD	153683											
Lead			4810	3400		8470	ug/kg	2.94	105	0.00 - 23.20	AME	07/19/99	2331
QC629325	9907548-06SERIAL	153683											
Lead				3400		3290	ug/kg	3.16			AME	07/19/99	2259

Notes:
The qualifiers in this report are defined as follows
I indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

N/A indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

Three day turnaround

NPDWC00197

CHAIN OF CUSTODY RECORD

9907528(.

General Engineering Laboratories, Inc
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORTENVDET(HASN

Collected by/Company: SPORTENVDET(HASN

	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	Pb ICP	Remarks
01	99SPORTO232-01	7-16-99	0724		X		X	1																X	NBCA 41479 1
02	99SPORTO232-02	7-16-99	0733		X		X	1																X	NBCA 41480 1
03	99SPORTO232-03	7-16-99	0810		X		X	1																X	NBCA 41481 1
04	99SPORTO232-04	7-16-99	0818		X		X	1																X	NBCA 41482 1
05	99SPORTO232-05	7-16-99	0823		X		X	1																X	NBCA 41483 1
06	99SPORTO232-06	7-16-99	0829		X		X	1																X	NBCA 41484 1

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

NOTE: SAMPLES PRESERVED @ 4°C

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
D L Hunter	7-16-99	1247	Vivian Washington	Vivian Washington	7/16/99	1520	
Relinquished by:	**Date:**	**Time:**	**Received by lab by:**	**Date:**	**Time:**	**Remarks:**	
			Hunter Lab	7/16/99	1520		

4/6

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NJ	79002	79002
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: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-01
Lab ID	9907648-01
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		105000	147	243	ug/kg	5.0	AME	07/21/99	1537	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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9907648-01

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Testing ... Standards ... Research & Development

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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

Sc: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-02
Lab ID	9907648-02
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		33300	150	248	ug/kg	5.0	AME	07/21/99	1543	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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NJ	79002	79002
SC	10120	10582
TN	02934	02934

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North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: July 22, 1999 Page 1 of 1

Sample ID	99SPORT0233-03
Lab ID	9907648-03
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8450	147	243	ug/kg	5.0	AME	07/21/99	1549	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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9907648-03

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

cc: NPWC00197 Report Date: July 22, 1999 **Page 1 of 1**

Sample ID	99SPORT0233-04
Lab ID	9907648-04
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		13100	150	248	ug/kg	5.0	AME	07/21/99	1555	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-05
Lab ID	9907648-05
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4050	150	248	ug/kg	5.0	AME	07/21/99	1602	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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9907648-05

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

cc: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-06
Lab ID	9907648-06
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		4100	152	250	ug/kg	5.0	AME	07/21/99	1628	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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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 NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-07
Lab ID	9907648-07
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2940	147	243	ug/kg	5.0	AME	07/21/99	1634	153834	1

The following prep procedures were performed:

ICP Mass Spec	AJM	07/20/99	1800	153834 2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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any questions to your Project Manager, Elise Hanson at 843-556-8171

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(843) 556-8171 • Fax (843) 766-1178

9907648-07

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-08
Lab ID	9907648-08
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3400	144	238	ug/kg	5.0	AME	07/21/99	1640	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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.

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9907648-08

GENERAL ENGINEERING LABORATORIES

Meeting ... with ... for ...

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
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: NPWC00197 Report Date: July 22, 1999

Sample ID	99SPORT0233-09
Lab ID	9907648-09
Matrix	Soil
Date Collected	07/20/99
Date Received	07/20/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8450	152	250	ug/kg	5.0	AME	07/21/99	1646	153834	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/20/99	1800	153834	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

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

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9907648-09

55

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9907648% Report Date: July 22, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tin
Metals Analysis													
QC629975	BLANK	153834											
Lead						-56.5	ug/kg				AME	07/21/99	15:
QC629976	LCS	153834											
Lead			135000			139000	ug/kg		103	(70.0 - 120.)	AME	07/21/99	15:
QC629977	9907648-09MS	153834											
Lead			4760	8450		20500	ug/kg		253**	(67.3 - 122.)	AME	07/21/99	165
QC629978	9907648-09MSD	153834											
Lead			4760	8450		27200	ug/kg	43.6**	393	(0.00 - 23.2)	AME	07/21/99	170
QC630545	9907648-09SERIAL	153834											
Lead				8450		8140	ug/kg	3.78			AME	07/21/99	165

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197 3-DAY - [redacted]RN 9907648 %

CHAIN OF CUSTODY RECORD

RUSH!

General Engineering La[redacted]ns
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Page 1 of 1

Client Name/Facility Name: SPORTEN V DET CHASN

Collected by/Company: SPORTEN V DET CHASN

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	P ICP	Remarks
-01 99SPORT Φ233-Φ1	7/20/99	Φ823		X		X	1																X	NBCA ΦΦ2 SB 315 Φ1
-02 99SPORT Φ233-Φ2	7/20/99	Φ828		X		X	1																X	NBCA ΦΦ2 SB 306 Φ1
-03 99SPORT Φ233-Φ3	7/20/99	Φ837		X		X	1																X	NBCA ΦΦ2 SB 307 Φ1
-04 99SPORT Φ233-Φ4	7/20/99	Φ847		X		X	1																X	NBCA ΦΦ2 SB 308 Φ1
-05 99SPORT Φ233-Φ5	7/20/99	Φ856		X		X	1																X	NBCA ΦΦ2 SB 309 Φ1
-06 99SPORT Φ233-Φ6	7/20/99	Φ959		X		X	1																X	NBCA ΦΦ2 SA 314 Φ1
-07 99SPORT Φ233-Φ7	7/20/99	Φ910		X		X	1																X	NBCA ΦΦ2 SB 311 Φ1
-08 99SPORT Φ233-Φ8	7/20/99	Φ805		X		X	1																X	NBCA ΦΦ2 SB 312 Φ1
-09 99SPORT Φ233-Φ9	7/20/99	Φ803		X		X	1																X	NBCA ΦΦ2 SB 313 Φ1
																								NOTE: SAMPLES PRESERVED @ 4°C.

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

41479

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	7/20/99	1119	W. R. Hiers, Jr.	W. R. Hiers, Jr.	7/21/99	1311	
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			[signature]	7/21/99	1311		

LS

GENERAL ENGINEERING LABORATORIES

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

NPW00197 Report Date: July 29, 1999

Sample ID	99SPORT0234-01
Lab ID	9907815-01
Matrix	Soil
Date Collected	07/20/99
Date Received	07/21/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1200	29.4	50.0	ug/kg	1.0	JSS	07/29/99	2305	154407	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/27/99	1545	154407	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
The qualifiers in this report are defined as follows.
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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, Elise Hanson at 843-556-8171.

Reviewed By

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

CC: NPWC00197 Lab Sample ID: 9907815% Report Date: July 29, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC632284	BLANK	154407											
Lead						11.8	ug/kg				JSS	07/28/99	2253
QC632285	LCS	154407											
Lead			25000			143000	ug/kg		114	(70.0 - 120.)	JSS	07/28/99	2305
QC632290	LCS	154407											
Lead			131000			157000	ug/kg		120	(70.0 - 120.)	JSS	07/29/99	0056
QC632291	LCS	154407											
Lead			134000			150000	ug/kg		112	(70.0 - 120.)	JSS	07/29/99	0103
QC632292	LCS	154407											
Lead			130000			156000	ug/kg		120	(70.0 - 120.)	JSS	07/29/99	0110
QC632293	LCS	154407											
Lead			130000			153000	ug/kg		117	(70.0 - 120.)	JSS	07/29/99	0117
QC632287	9907815-01MS	154407											
Lead			4900	1200		9020	ug/kg		160**	67.3 - 122.)	JSS	07/28/99	2317
QC632288	9907815-01MSD	154407											
Lead			4810	1200		8390	ug/kg	6.65	149	(0.00 - 23.2)	JSS	07/28/99	2323
QC632286	9907815-01SERIAL	154407											
Lead				1200		5160	ug/kg	124			JSS	07/28/99	2311

Notes:
The qualifiers in this report are defined as follows
J indicates presence of analyte < RL (Report Limit)
L indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197 9907815?

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

General Engineering Lab
2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
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Page 1 of 1

Client Name/Facility Name: SPORTENYDETCHASN

Collected by/Company: SPORTENYDETCHASN

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	ZCP	Remarks
1- 99SPORT0231d1	7/20/99	1448		X		X	1																X	NBCA002 SB314-01
																								NOTE: SAMPLE PRESERVED @ 4°C

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

41554

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
	7/20/99	1520	W. K. Hiers, Jr.	W. K. Hiers, Jr.	7/21/99	1457	
	7/21/99	1130					

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
	7/21/99	1130		7/21/99	1130	

09

GENERAL ENGINEERING LABORATORIES

Meeting your analytical and environmental requirements

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: NPWC00197 Report Date: July 29, 1999

Sample ID	99SPORT0236-01
Lab ID	9907721-01
Matrix	Soil
Date Collected	07/22/99
Date Received	07/22/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3140	144	238	ug/kg	5.0	AME	07/27/99	1536	154163	1
The following prep procedures were performed:											
ICP Mass Spec							AJM	07/23/99	1915	154163	2

M = Method	Method-Description
M 1	SW 846 6020
M 2	EPA 3050

Notes:
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standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9907721-01

6 (

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

Lab. Sample ID: 9907721% Report Date: July 29, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC631258	BLANK	154163											
Lead						2.50	ug/kg				AME	07/27/99	1524
QC631259	LCS	154163											
Lead			135000			131000	ug/kg		96.8	(70.0 - 120.)	AME	07/27/99	1530
QC631261	9907721-01MS	154163											
Lead			4950	3150		9120	ug/kg		121	(67.3 - 122.)	AME	07/27/99	1548
QC631262	9907721-01MSD	154163											
Lead			4550	3150		7900	ug/kg	14.4	104	(0.00 - 23.2)	AME	07/27/99	1555
QC631260	9907721-01SERIAL	154163											
Lead				3150		4290	ug/kg	30.7			AME	07/27/99	1542

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
L indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

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NPWC00197

CHAIN OF CUSTODY RECORD

9907721?

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Charleston, South Carolina 29417
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Page 1 of 1

Client Name/Facility Name: SPORTENV DEF CHASN

Collected by/Company: SPORTENV DEF CHASN

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	Pb ICP
1 - 99SPORT0236-01	7/22/99	0721		X	X		1																X
~~2 - 99SPORT0334-01~~																							

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

41554

Remarks: NBCA00258315 01

*NOTE: SAMPLE PRESERVED @ 4°C.

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	7-22-99	0802	W. R. Hiers, Jr.	W. R. Hiers, Jr.	7/22/99	0900	
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
			P. Hiers	7/22/99	09:00		

6.3

GENERAL ENGINEERING LABORATORIES

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

NPWC00197 Report Date August 03, 1999

Sample ID	99SPORT0229-01
Lab ID	9907E02-01
Matrix	Soil
Date Collected	07/29/99
Date Received	07/29/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		8670	154	490	ug/kg	2.0	AME	07/30/99	1902	154840	1
The following prep procedures were performed:											
PRACE							AJM	07/30/99	1230	154840	2

M = Method	Method-Description
1 1	EPA 6010B
1 2	EPA 3050

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

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Reviewed By

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9907E02-01

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GENERAL ENGINEERING LABORATORIES

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

NPWC00197 Report Date: August 03, 1999

Sample ID	99SPORT0229-02
Lab ID	9907E02-02
Matrix	Soil
Date Collected	07/29/99
Date Received	07/29/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		3680	147	467	ug/kg	2.0	AME	07/30/99	1908	154840	1
The following prep procedures were performed:											
TRACE							AJM	07/30/99	1230	154840	2

M = Method	Method-Description
M1	EPA 6010B
M2	EPA 3050

Notes:
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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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9907E02-02

GENERAL ENGINEERING LABORATORIES

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 NPWC00197 Report Date: August 03, 1999

Sample ID	99SPORT0229-03
Lab ID	9907E02-03
Matrix	Soil
Date Collected	07/29/99
Date Received	07/29/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		18200	157	500	ug/kg	2.0	AME	07/30/99	1914	154840	1
The following prep procedures were performed:											
TRACE							AJM	07/30/99	1230	154840	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

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.
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in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

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9907E02-03

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

Lab: NPWC00197 Lab Sample ID: 9907E029 Report Date: August 03, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Metals Analysis													
QC634028	BLANK	54840											
Lead						45.7	ug/kg				AME	07/30/99	1740
QC634032	9907DF5-02DUP	154840											
Lead				78400		13700	ug/kg	140			AME	07/30/99	1809
QC634029	LCS	154840											
Lead			125000			142000	ug/kg		114	(80.4 - 117)	AME	07/30/99	1746
QC634030	LCS DUP	154840											
Lead			124000			142000	ug/kg	0.795	115	(0.00 - 20.1)	AME	07/30/99	1752
QC634031	9907DF5-02MS	154840											
Lead			46300	78400		63500	ug/kg		32.2**	(70.6 - 123)	AME	07/30/99	1820
QC634054	SERIAL	154840											
Lead				13700		13700	ug/kg	25.4			AME	07/30/99	1814

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

**a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

GENERAL ENGINEERING LABORATORIES
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NPWC00197

CHAIN OF CUSTODY RECORD

9907E021

General Engineering Lab es, Inc
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Charleston, South Carolina 29407
PO Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

	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	Pb TCP	Remarks
01	995PDETD229-01	7-29-99	13:10		X		X	1																X	NBCA002SB31601
02	995PDETD229-02	7-29-99	13:14		X		X	1																X	NBCA002SB31701
03	995PDETD229-03	7-29-99	13:18		X		X	1																X	NBCA002SB31801

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

41725

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

NOTE: SAMPLES PRESERVED @ 4°C

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	7/29/99	13:49	[signature]	[signature]	[illegible]	[illegible]	[illegible]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Beckett	7/29/99	1604	[signature]	7/29/99	1604		

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1

GENERAL ENGINEERING LABORATORIES

"Leading Today's Events with a Vision for Tomorrow"

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

PO: NPWC00197 Report Date: August 10, 1999 **Page 1 of 1**

Sample ID	99SPORT0239-01
Lab ID	9908073-01
Matrix	Soil
Date Collected	08/03/99
Date Received	08/03/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2240	157	500	ug/kg	2.0	MBL	08/09/99	1753	155259	1
The following prep procedures were performed:											
TRACE							AJM	08/05/99	1545	155259	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

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, Elise Hanson at 843-556-8171.

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9908073-01

69

GENERAL ENGINEERING LABORATORIES

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: NPWC00197

Report Date: August 10, 1999

Sample ID	99SPORT0239-02
Lab ID	9908073-02
Matrix	Soil
Date Collected	08/03/99
Date Received	08/03/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		1810	157	500	ug/kg	2.0	MBL	08/09/99	1759	155259	1
The following prep procedures were performed:											
TRACE							AJM	08/05/99	1545	155259	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

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, Elise Hanson at 843-556-8171.

Reviewed By

GENERAL ENGINEERING LABORATORIES

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

Lc NPWC00197 Report Date: August 10, 1999

Sample ID	99SPORT0239-03
Lab ID	9908073-03
Matrix	Soil
Date Collected	08/03/99
Date Received	08/03/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Lead		2130	143	455	ug/kg	2.0	MBL	08/09/99	1805	155259	1
The following prep procedures were performed:											
TRACE							AJM	08/05/99	1545	155259	2

M = Method	Method-Description
M 1	EPA 6010B
M 2	EPA 3050

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, Elise Hanson at 843-556-8171.

E Hanson

Reviewed By

P O Box 30712 • Charleston, SC 29417 • 2040 Savage Road • 29407
(843) 556-8171 • Fax (843) 766-1178

9908073-03

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

Lc: NPWC00197 Lab. Sample ID: 9908073% Report Date: August 10, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Tim
Metals Analysis													
QC635721	BLANK	155259											
Lead						229	ug/kg				MBL	08/09/99	173
QC635722	LCS	155259											
Lead			1280000			138000	ug/kg		10.8**	(80.4 - 117.)	MBL	08/09/99	174
QC635724	9908115-06MS	155259											
Lead			49500	20900		69000	ug/kg		87.4	(70.6 - 123.)	MBL	08/09/99	191
QC635725	9908115-06MSD	155259											
Lead			48500	20900		70500	ug/kg	5.09	91.9	(0.00 - 20.3)	MBL	08/09/99	192
QC635723	9908115-06SERIAL	155259											
Lead				20900		21300	ug/kg	1.84			MBL	08/09/99	190

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

**a indicates that spike recovery limits do not apply when sample concentration exceeds spike conc by a factor of 4 or more

NKNC00191

Page 1 of 1

CHAIN OF CUSTODY RECORD

9908731.

2040 Savage Road
Charleston, South Carolina 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

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	ICP	Remarks
SPORT 0237 01	08/03/99	1139		X	X		1																X	NBCA 0002 SA 317 02
SPORT 0239 02	08/03/99	1147		X	X		1																X	NBCA 0002 SB 324 02
SPORT 0239-03	08/03/99	1166		X	X		1																X	NBCA 0002 SB 321 02

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

41810

NOTE: SAMPLES PRESERVED @ 4°C

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Brent Jeeves	8/3/99	1500	W. B. Hines, III	W. K. Hyer, III	8/3/99	1528	Stephanie Bethea
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Bethea	8/3/99	1545	BNance	8/3/99	1545		

WH ample collector Yellow = file Pink = with report

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APPENDIX E

Borings Logs and Figure 3.1B

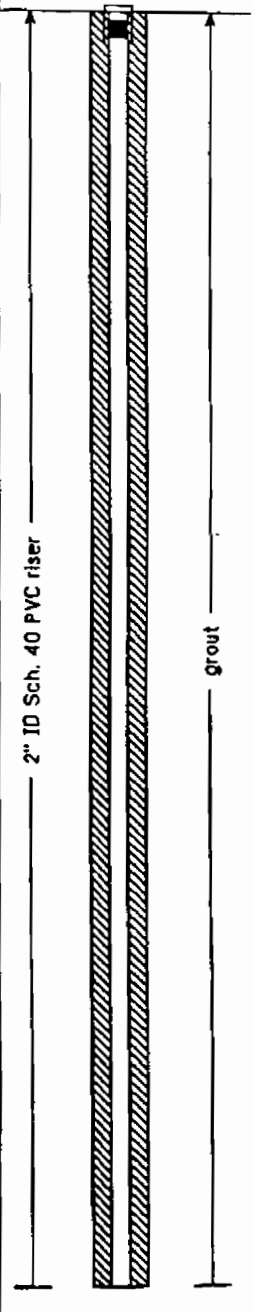
ENSAFE

Monitoring Well NBCA03917I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2385595.44 E, 38108352 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1415 on 8/26/98*	TOC Elevation: *8.52 feet msl*
Completed at *1605 on 8/28/98*	Depth to Groundwater: *4.87 feet TOC* Measured: *9/24/98*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.65 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1437)*	Total Depth: *33.8 feet*
Geologist: *T. Kafka*	Well Screen: *23.9 to 33.2 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
0							CONC	Ground conditions: concrete and asphalt to 0.8 ft.	8
							SM SC	Sand: med. brown and orange; very fine/fine; silty; clayey; moist.	7
							CL CH	Clay: med. brown w/ orange & gray mottling; silty; trace–some very fine/fine sand; high plasticity; stiff.	6.7
							SP		5.8
							CL		5.3
							SM	Sand: lt. tan to buff white; very fine/fine; trace–some silt; loose; dry.	4.8
5			1	0	58			Clay: olive–brown w/ orange & gray mottling; some very fine/fine sand; silty; stiff; moist.	3.3
							SM	Sand: olive–brown to black; interbedded w/ bands of silt; trace–some clay; loose; moist.	
								Sand: brown; very fine/fine; silty; soft; wet.	5
10							SC CL	Sand: blue–green w/ orange FeOx bands; very fine/fine; w/ soft clay; in last 2', clay becomes firm and grain size inc. to med.; moist.	
15							SW SM	Sand: orange w/ red–brown and gray mottling; very fine/medium; silty; occ. FeOx concretions in red pits; moist.	0 / 6.7
			2	0	100		SP	Sand: lt. tan to lt. orange–tan to tan–white; very fine/fine; trace silt; loose; black grain laminae of 1–2 cm wide, irregularly spaced in last 5.5'; moist.	
20									

WELL DIAGRAM



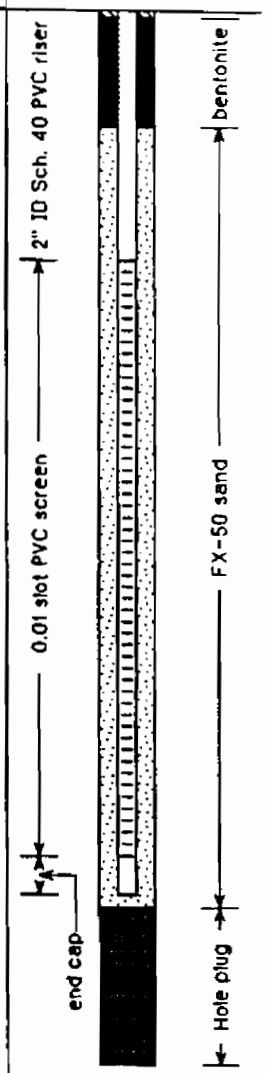
ENSAFE

Monitoring Well NBCA03917I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2385595.44 E, 38108.352 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *1415 on 8/28/98*	TOC Elevation: *8.52 feet msl*
Completed at *1605 on 8/28/98*	Depth to Groundwater: *4.87 feet TOC* Measured: *9/24/98*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *3.65 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1437)*	Total Depth: *33.8 feet*
Geologist: *T. Kafka*	Well Screen: *23.9 to 33.2 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
25			3	0	90		SP		15.7
								Sand: lt. tan to buff white; very fine/fine; clean; occ. black grain laminae <1-2 cm thick; loose; wet.	18.7
30							SP		
35			4	0	85				25.2
40									

WELL DIAGRAM



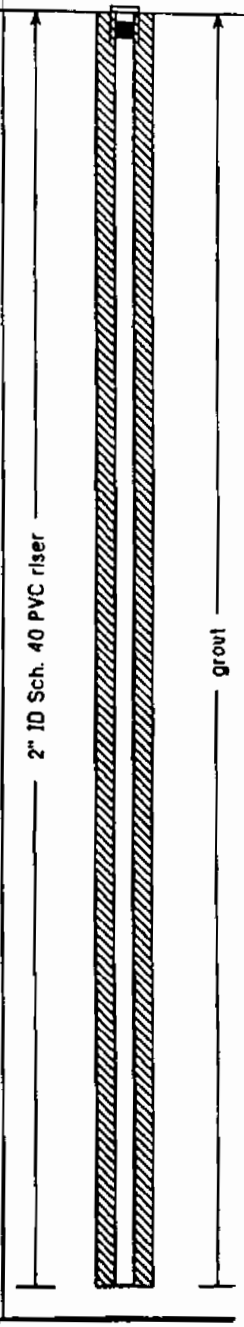
ENSAFE

Monitoring Well NBCA03917D

Project: *ZONE A - Naval Base Charleston*	Coordinates: *231560.57 E, 381084.54 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *0850 on 8/28/98*	TOC Elevation: *8.59 feet msl*
Completed at *1300 on 8/28/98*	Depth to Groundwater: *5.84 feet TOC* Measured: *9/24/98*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.75 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1437)*	Total Depth: *52.5 feet*
Geologist: *T. Kafka*	Well Screen: *42.6 to 51.9 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							CONC	Ground conditions: concrete and asphalt to 0.8 ft.	8
							CL	Clay: orange-brown; silty; w/ very fine/fine sand; soft; moist.	7.2
							SC	Sand: lt. gray to white; very fine/fine; trace silt; clayey; occ. lenses of firm, silty, med plasticity clay.	5.7
							CL		5.4
							SC		5.3
							SP	Clay: orange-brown w/ FeOx mottling; silty; w/ very fine/fine sand; soft; low plasticity.	
5								Sand: med. gray; very fine/fine; lt. brown/black silty laminae; loose; moist.	
			1	0	49		SM		3.3
								Sand: brown to gray-brown; silty; very fine/fine; wet.	2.8
							SC	Sand: lt. blue-gray to green-gray w/ olive-brown banding; very fine/ fine w/ occ. very fine/med. 1-2 cm lenses of silt; clayey; moist.	
10									
							SC CL	Sand: as above w/ increased orange banding ~1.5 cm wide; increased clay content, firm to stiff; increased sand content in last 0.5'.	3.4
							SM	Sand: orange to rust-brown; fine/medium w/ trace-some silt; moist.	5.4
15							SP		5.9
							SM		
			2	0	100			Sand: med. orange to orange-brown; very fine/fine; trace silt; occ. FeOx concretions ~ 3cm dia.; moist.	8.7
							SP	Sand: lt. brown to lt. gray; very fine/fine; ~15% black grains; loose; moist.	
20									

WELL DIAGRAM



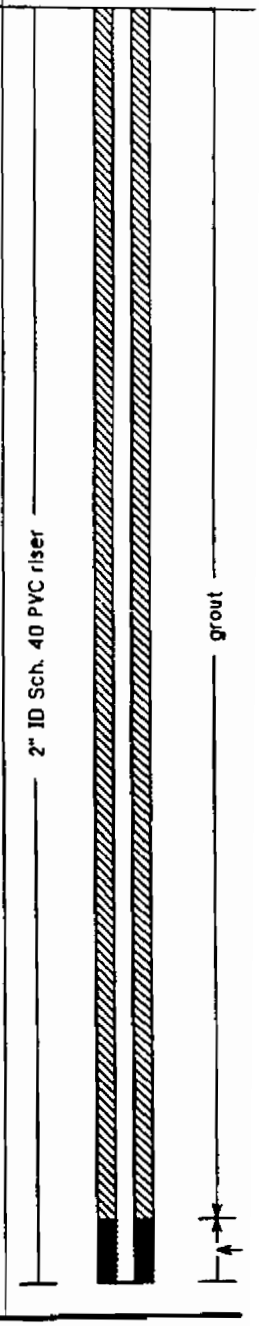
ENSAFE

Monitoring Well NBCA03917D

Project: *ZONE A - Naval Base Charleston*	Coordinates: *231560.57 E, 381084.54 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *0850 on 8/28/98*	TOC Elevation: *8.59 feet msl*
Completed at *1300 on 8/28/98*	Depth to Groundwater: *5.84 feet TOC* Measured: *9/24/98*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.75 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1437)*	Total Depth: *52.5 feet*
Geologist: *T. Kafka*	Well Screen: *42.6 to 51.9 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP	@ 20', grading to lt. gray to buff white; black grains layered in 1 cm lenses; loose; wet.	
25			3	0	95				18.2
								Sand: lt./med. gray w/ buff white; very fine/fine; loose; 10-20% black grains; wet.	18.7
30							SP		
								at 34', color change to lt./med. tan.	
35			4	0	95				26.2
								Sand: lt./med. tan w/ some gray; very fine/fine; trace silt; loose; ~10-15% black grains; wet.	26.7
							SP		
40								@ 39.5', color change to orange-tan w/ dec. in black grains to < 5%; occ. pits of black grains in bottom 1.5'.	

WELL DIAGRAM



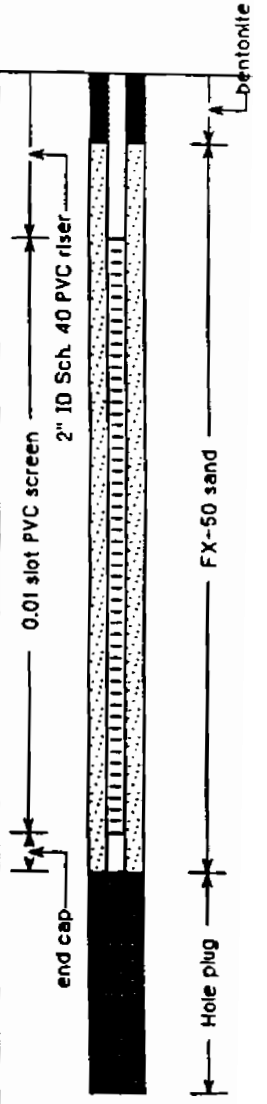
ENSAFE

Monitoring Well NBCA03917D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2315601.57 E, 381084.54 N*
Location: *Charleston, SC*	Surface Elevation: *8.8 feet msl*
Started at *0850 on 8/28/98*	TOC Elevation: *8.59 feet msl*
Completed at *1300 on 8/28/98*	Depth to Groundwater: *5.84 feet TOC* Measured: *9/24/98*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.75 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1437)*	Total Depth: *52.5 feet*
Geologist: *T. Kafka*	Well Screen: *42.6 to 51.9 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP	@ 41.5', ~0.5" thick silty, clay laminae, soft, sticky, low plasticity	
									35.7
45			5	0	90		SP SM	Sand: med. to lt. tan w/ some orange bands; very fine/fine; trace to some silt; wet.	36.7
							SM SW	Sand: brown to orange-brown; fine/med.; moderately sorted; <5% very fine/fine shell hash; black grains intermixed;	38.2
50								@ 50', increase in shell content to 10-15% w/ pieces as large as 0.8"; occ. qtz pebbles and possible PO_4 nodules.	42.2
							SW	Sand: tan to orange-brown; crs qtz granules; PO_4 nodules <2cm dia. occ. clasts of buff white silt intermixed.	43
							ML SM		43.4
							ML CL	Silt: brown to lt. gray-brown; some very fine/fine sand and clay; mottled texture; low plasticity; soft; sticky.	
55								Silt: olive-green; trace very fine/fine sand dec. in content w/ depth; some low plasticity, firm-stiff, clay; dry-moist.	46.7
			6	0	100				
60									

WELL DIAGRAM



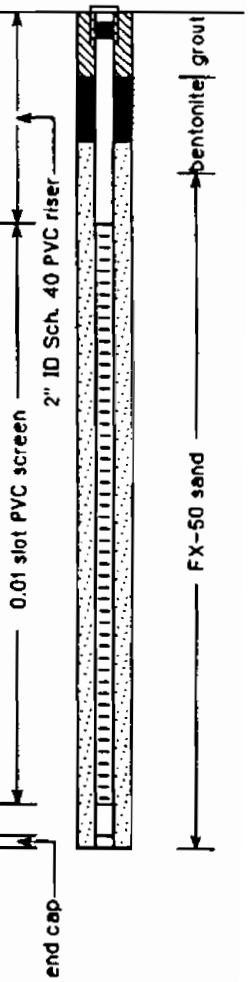
ENSAFE

Monitoring Well NBCA039021

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316016.76 E, 381155.71 N*
Location: *Charleston, SC*	Surface Elevation: *6.8 feet msl*
Started at *0945 on 1/14/99*	TOC Elevation: *6.62 feet msl*
Completed at *1115 on 1/14/99*	Depth to Groundwater: *4.57 feet TOC* Measured: *1/29/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *2.05 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *13.0 feet*
Geologist: *T. Kafka*	Well Screen: *3.3 to 12.3 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	Ground conditions: gravel/ROC	6.1
							ML CL	Silt/Clay mix: olive-brown to olive-green w/ orange marbling; mix of inorganic clay and Ashley Fm; all Fill materials.	3
5							OL WD	Clay: dk. black; silty; soft, sticky marsh clay; w/ grass/wood pieces throughout; bottom 0.4' all pulverized wood.	2.3
10			1		38			Due to poor core recovery at this location, refer to paired deep well boring log at NBCA039210 for lithologic details.	
15									
20									

WELL DIAGRAM



80

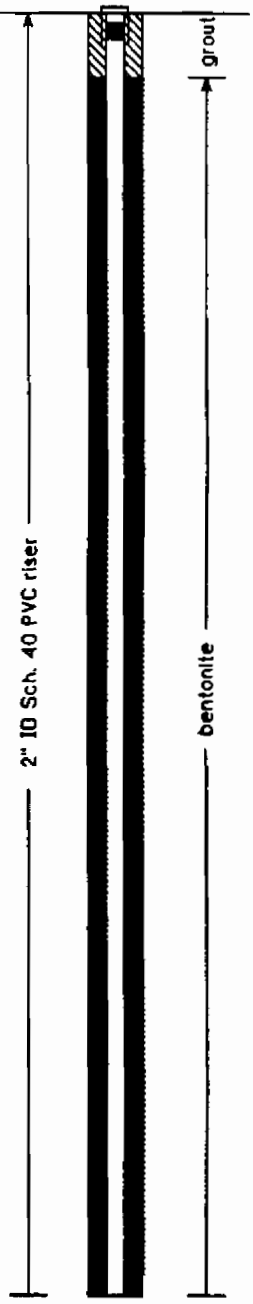
ENSAFE

Monitoring Well NBCA03921I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316020.20 E, 381147.78 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1600 on 1/13/99*	TOC Elevation: *6.87 feet msl*
Completed at *0930 on 1/14/99*	Depth to Groundwater: *5.02 feet TOC* Measured: *1/29/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.85 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *34.9 feet*
Geologist: *T. Kafka*	Well Screen: *25.2 to 34.2 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	Ground conditions: gravel/ROC	6.2
							CH	Clay: marbled orange, gray, red; stiff; little vf/f sand; silty; dry to moist; high plasticity.	4.9
							ML CL	Silt: olive-brown; trace-little vf/f sand; clayey-soft to med.; Ashley Fm. fill	3.2
5							OL PT	Clay: dk. gray; silty; soft, stick marsh clay; lenses of wood/peat; last 0.4' all pulverized wood; H_2S odor.	2
			1		71		WOOD	Wood: pulverized wood.	0
							OL PT	Peat: dk. brown; silty; soft; moist; grasses throughout; H_2S odor	-1.5
10							SM	Sand: dk. brown grading to med. brown-gray; vf/f; silty; organic rich; trace clay; cohesive; wet.	-4
							CL CH	Clay: blue-gray to green-blue; firm; w/ some vf/f sand in matrix and pods throughout; silty; med. plasticity; occ. grasses.	-5.2
15									-8.2
			2		82		SC	Sand: blue-green; f/m; clayey; trace-little silt; moist; @ 20.3-22.2' dec. grain size to vf/f, color change to orange-brown, and inc. silt content.	-10
20									

WELL DIAGRAM



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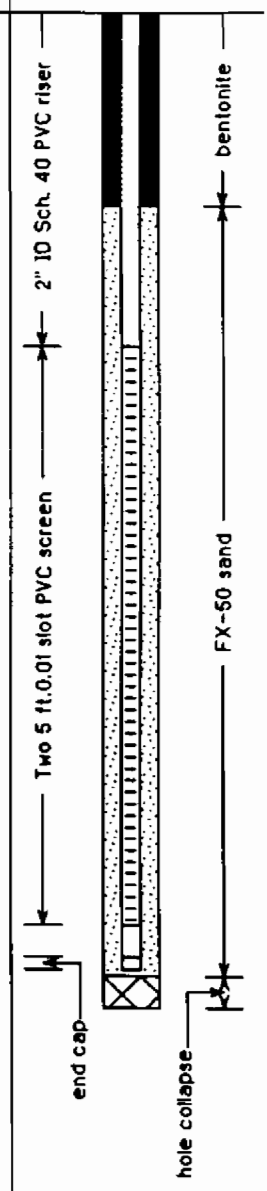
ENSAFE

Monitoring Well NBCA03921I

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316020.20 E, 381147.78 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1600 on 1/13/99*	TOC Elevation: *6.87 feet msl*
Completed at *0930 on 1/14/99*	Depth to Groundwater: *5.02 feet TOC* Measured: *1/29/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.85 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *34.9 feet*
Geologist: *T. Kafka*	Well Screen: *25.2 to 34.2 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SC		
							SP	Sand: orange to tan w/ FeOx zones; vf/f w/ black phosphate grains throughout; occ. brown silty clay pods in bottom 1'; wet.	15.2
25									18
			3		80			Sand: tan grading to gray @ 31.5'; f/m w/ trace crs @ 30.5–32'; dec. to vf/f @ 32–35.5'.	20
30							SP		
35			4		94				28.5
40									

WELL DIAGRAM



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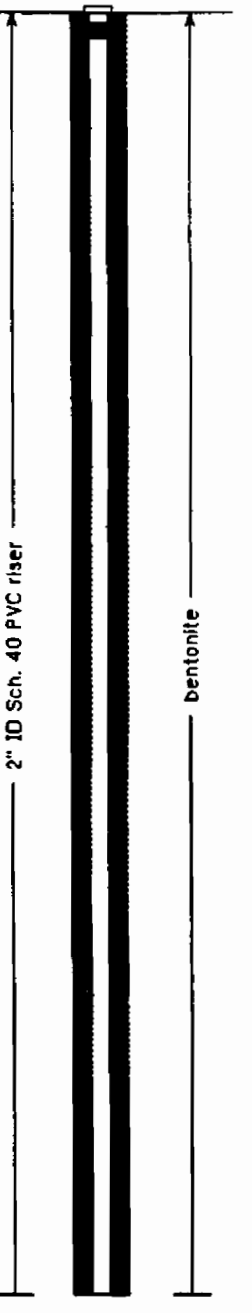
ENSAFE

Monitoring Well NBCA03921D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316024.08 E, 381139.28 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1325 on 1/13/99*	TOC Elevation: *6.71 feet msl*
Completed at *1540 on 1/13/99*	Depth to Groundwater: *5.21 feet TOC* Measured: *1/15/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.50 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *51.0 feet*
Geologist: *T. Kafka*	Well Screen: *41.3 to 50.3 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							FILL	Ground conditions: gravel/ROC lot Fill: ROC	
							CH	Clay: marbled orange, gray, brown; trace very fine/fine sand; stiff; high plasticity.	5.5
							ML CL	Silt: olive-green; trace very fine/fine sand; soft-med.; low plast.; moist.	4.4
							WOOD	Wood: lt. tan pulverized wood	1.3
							OL	Clay/Peat mix: gray to brown; silty; w/ orange-brown wood fibers; wood in last 0.3'; moist.	.7
			1	0	100			Soft peat material pushed out of way during 2nd core run. Logged from bottom in field.	0
							WOOD	Wood: lt. tan, pulverized; H_2S odor.	5
							SM SC	Sand: brown to gray-brown; very fine/fine; silty; w/ occ. wood pcs & grass; wet.	6.5
							CL SC	Clay: green-brown; med.-firm; silty; little fine/med. sand; med. plasticity; some woody frags w/ wood layer @16.5'; H_2S odor.	7.2
			2	0	50		SC	Sand: blue-green; fine/med. w/ trace crs.; clayey; firm-med.; trace to little silt; grain size changes to very fine/med. sand @20' and @20.8-21'; interbedded seq. of clay & sand from 21-21.2'.	10

WELL DIAGRAM



83

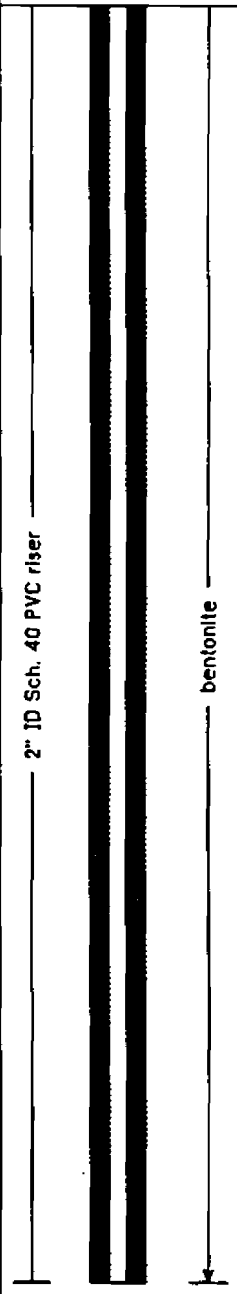
ENSAFE

Monitoring Well NBCA03921D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316024.08 E, 381139.28 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1325 on 1/13/99*	TOC Elevation: *6.71 feet msl*
Completed at *1540 on 1/13/99*	Depth to Groundwater: *5.21 feet TOC* Measured: *1/15/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.50 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *51.0 feet*
Geologist: *T. Kafka*	Well Screen: *41.3 to 50.3 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SC		
								Sand: lt. gray grading to: lt. olive brown @21.9', tan @23.2', bright orange/rust @23.8', and lt. tan @25.2'; predom. grain size is very fine/fine w/ fine/med. lenses at 23.2–23.7' & 24.2–25'; mod. well sorted; trace to little silt throughout.	14.2
25							SP SM		
									19.8
			3	0	96				20
30							SP	Sand: lt. tan to olive-gray grading to lt. gray at 31.8'; fine/med. w/ trace crs; clean; changes to very fine/fine w/ trace med. at 31.8'; black PO_4 grains from 31.8–36.2'.	
35									28.2
			4	0	92				30
							SP	Sand: lt. gray to green-gray; very fine/fine w/ black PO_4 grains; slight orange cast in last 1'.	
40									

WELL DIAGRAM



BC

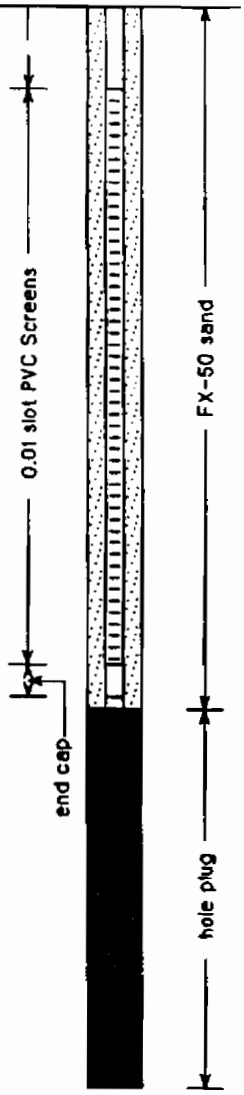
ENSAFE

Monitoring Well NBCA03921D

Project: *ZONE A – Naval Base Charleston*	Coordinates: *2316024.08 E, 381139.28 N*
Location: *Charleston, SC*	Surface Elevation: *7.0 feet msl*
Started at *1325 on 1/13/99*	TOC Elevation: *6.71 feet msl*
Completed at *1540 on 1/13/99*	Depth to Groundwater: *5.21 feet TOC* Measured: *1/15/99*
Drilling Method: *Rotasonic (6.5" OD casing, 3.8" ID coring bit)*	Groundwater Elevation: *1.50 feet msl*
Drilling Company: *Alliance Environmental (SC Cert # 1435)*	Total Depth: *51.0 feet*
Geologist: *T. Kafka*	Well Screen: *41.3 to 50.3 feet*

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)
							SP		
							SW	Sand: tan; fine/med. w/ little crs and very fine; little–some black PO_4 grains throughout; clean; inc. to med./crs. in last 0.4'; occ. PO_4 nodules throughout.	36
45							SW SM	Sand: olive-brown; fine/crs. w/ shell hash fragments (< 5mm dia.) & brown PO_4 pellets (<1 cm dia.); occ. shell pcs. > 1 cm long; silty; some Qtz pebbles; lag bed.	38.6 / 39.2
			5	0	92		GM SW	Gravel lag: lt. tan to buff white (chalky app.); very fine/crs. sand some silt; some fine to very crs. shell hash up to 5 cm size (clam molds); some PO_4 nodules between 1.5–4 cm size; color changes to brown-olive in last 0.8' w/ very crs. shell hash and large shell pcs.; small lens of black silty clay on top of underlying silt.	40 / 42.8
50							ML CL	Silt: olive-brown; firm–med.; low plasticity; trace very fine/fine sand in top 2–3'; dry; Ashley Fm.	
55			6	0	100				50
60									

WELL DIAGRAM



LITHOSTRATIGRAPHIC UNITS

Fill — UNDIFFERENTIATED MAN-GROUND CONSISTING OF SAND AND NATIVE CLAY

QUATERNARY AGE

Qpm — MUCK AND DARK GREY TO BLACK, VERY SOFT, ORGANIC RICH, CLAYEY SILT AND VERY FINE SAND PRIMARILY ASSOCIATED WITH FORMER MARSH AND SWAMP AREAS

Q_4 SERIES

Qp — PEAT, BROWN, SEDIMENTARY ACCRETION/MARSH DEPOSITS

Qc — INORGANIC CLAYS, VARIABLE COLORATION, BUT TYPICALLY BROWNISH-GREEN TO BLUE GREEN

Qcs_3 — INTERBEDDED CLAY AND SAND

Qs_3 — SAND, OLIVE-BROWN TO ORANGE-BROWN, OCCASIONALLY LIGHT GREY TO TAN, PREDOMINANTLY VERY FINE TO FINE WITH SOME ORGANIC TO COARSE

Q_3 SERIES

Qm — MARSH CLAY, DARK GREY TO BLACK, SOFT, ORGANIC-RICH SILTY CLAY/CLAYEY SILT OCCASIONALLY CONTAINS THIN SANDY LAMINAE OR OCCURRING WITHIN SHALLOW CHANNELS

Qcs_2 — INTERBEDDED ORGANIC-RICH CLAY AND DARK GREY SAND

Qs_2 — SAND, GREY TO DARK GREY, VERY FINE TO FINE AND AT TIMES SILTY, MAY HAVE SOME SHELL FRAGMENTS

Q_2 SERIES

Qdm — QUANTICO MARSH CLAY, DARK GREY TO BLACK, WITH A GREENISH CAST, SOFT, ORGANIC-RICH SILTY CLAY/CLAYEY SILT OCCASIONALLY HAS SOMEWHAT SOME THIN SANDY LAMINAE

Qcs_1 — INTERBEDDED ORGANIC-RICH CLAY AND DARK GREY SAND

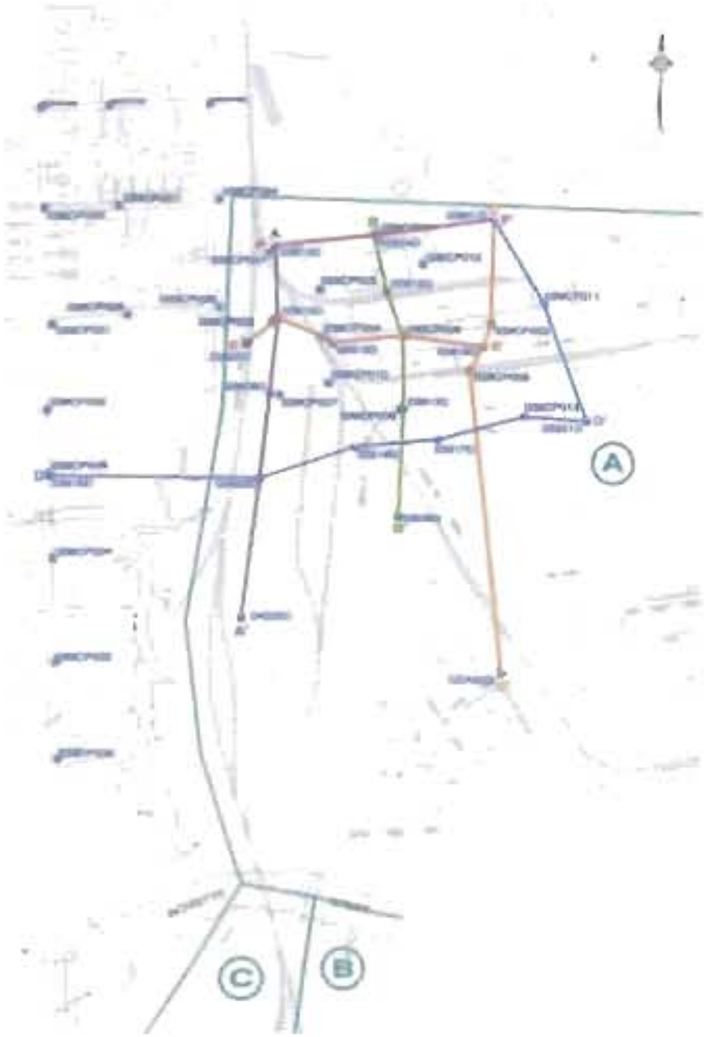
Qs_1 — SAND, GREY TO DARK GREY, FINE TO COARSE, AND TYPICALLY CONTAINING SHELL FRAGMENTS AND PHOSPHATE NODULES, MAY INCLUDE A THIN SILTY CLAYEY LAG HORIZON AT THE BASAL CONTACT WITH UNDERLYING ASHLEY FORMATION

TERTIARY AGE

Ta — SILT TYPICALLY OLIVE BROWN CLAYEY SEMISE, CALCAREOUS, ASHLEY FORMATION

LEGEND:

- EXIST MONITORING WELL W/ ID NUMBER
- OFF BORING W/ ID NUMBER
- (A) STUDY ZONE DESIGNATION WITH LETTER DESIGNATION
- GEOLOGIC CONTACT - DASHED WHERE INFERRED
- MAJOR SEA LEVEL UNCONFORMITY
- WELL SCREEN/SCREENED INTERVAL
- F F' — CROSS-SECTION LINE
- VERTICAL SCALE: 1" = 10'-0"
- VERTICAL EXAGGERATION = 10
- HORIZONTAL SCALE: 1" = 100'-0"



KEY MAP FOR
LITHOSTRATIGRAPHIC SECTIONS

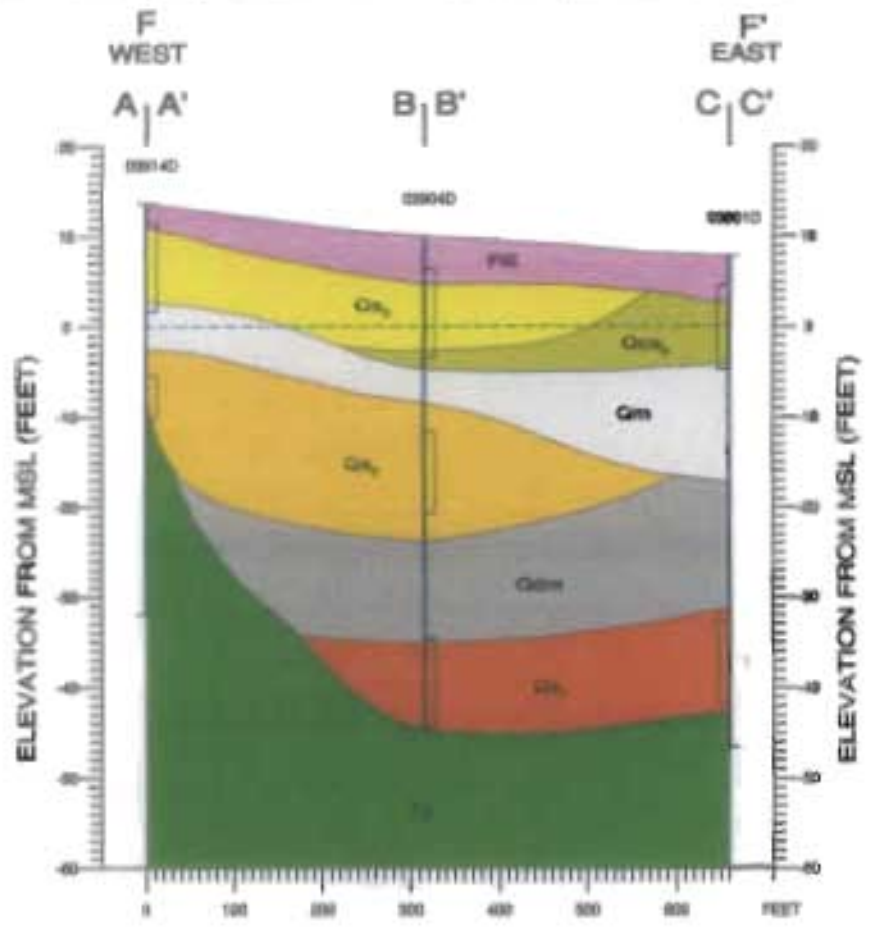
SCALE IN FEET

REVISIONS		
No. Description	Rev. Date	Rev. No.
No. Description	Rev. Date	Rev. No.
No. Description	Rev. Date	Rev. No.
No. Description	Rev. Date	Rev. No.
No. Description	Rev. Date	Rev. No.
No. Description	Rev. Date	Rev. No.

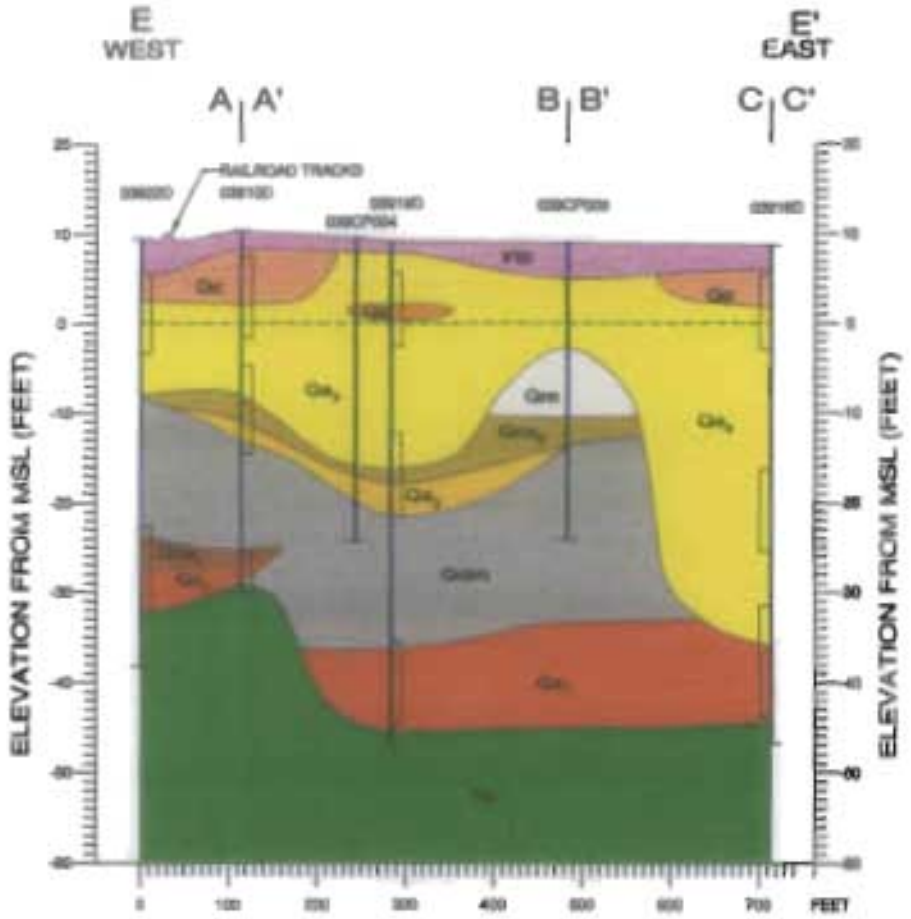
ZONE A - SMALL DD
TECHNICAL MEMORANDUM
CHARLESTON NAVAL COMPLEX

FIGURE C1a
LITHOSTRATIGRAPHIC CROSS-SECTIONS
WITH MONITORING WELLS AND SOIL BORINGS

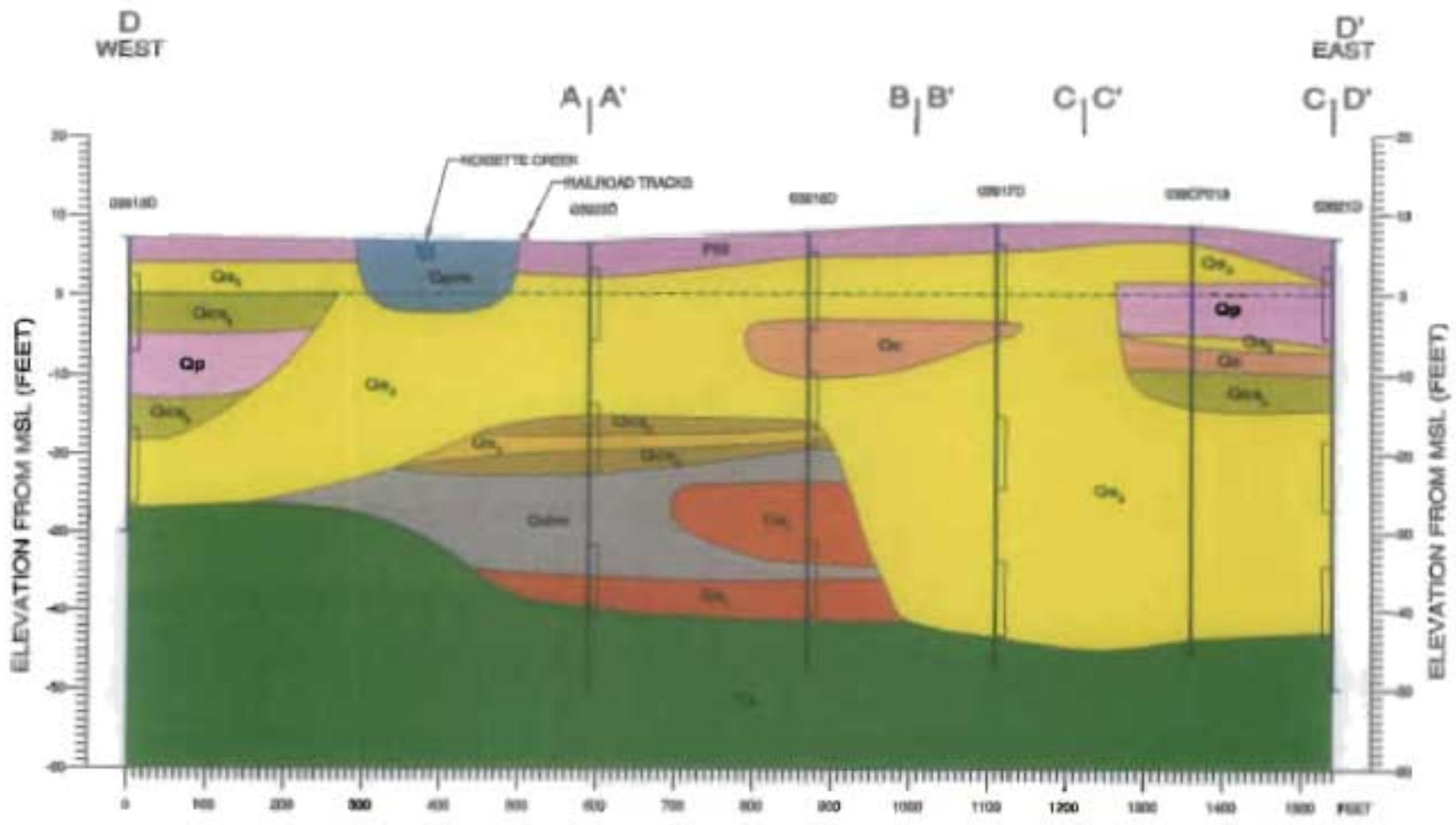
Dr. by: A. Frank	Ck. by: -
Ck. by: K.Mellin	Appr. by: L.Vandewater
Date: 12/15/99	CAD Name: GEOLOGY



CROSS-SECTION F-F'



CROSS-SECTION E-E'



CROSS-SECTION D-D'

APPENDIX F

List of Known Oil-Water Separators

	DESCRIPTION	PROGRAM DATA			SAMPLES REPRESENTIVE OF O/W SEPARATOR RELEASE	CHEMICAL OF CONCERN BASED ON SITE OPERATIONS					ANALYSIS PERFORMED									SAMPLING REQUIRED				
	Facility/IR site / (if applicable)	IR	Petroleum	No IR site		Solvents	Petroleum Products	Metals	Pesticides	PCB's	VOC's	SVOC's	Other Metals	Pesticides	PCB's					VOC's	SVOC's	Metals	Pesticides	PCB's
1	Facility NS 2/AOC 675	x	x		Y		x	x			x	x	x	x	x	x	x	x	x					
2	Facility NS 3/AOC 675	x	x		Y		x	x	x	x	x	x	x	x	x	x	x	x	x					
3	Facility NS 26/AOC 680	x	x		Y	x	x	x			x	x	x	x	x	x	x	x	x					
4	Facility 32/AOC 559,560		x		N		x	x																
5	Facility NS 44(AOC 675, 676)	x	x		Y		x	x			x	x	x	x	x	x	x	x	x					
6	Facility FBM 61(SWMU 17)	x	x		Y	x	x	x			x	x	x	x	x	x	x	x	x					
7	Facility 60 (AOC 564)	x	x		Y	x	x	x	x	x	x	x	x											
8	Facility 98 AND 146/AOC 626		x		Y		x	x								x	x	x	x					
9	Facility 123		x	x	Y		x	x			x	x	x	x	x	x	x	x	x					
10	Facility NS 200		x	x	N	x	x	x	x	x														
11	Facility 221/SWMU 65, AOC 544)	x	x		N	x	x	x	x	x														
12	Facility 226/SWMU23, AOC 540)	x	x		N	x	x	x																
13	Facility 240 (tank)		x	x	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
14	Facility 241		x	x	INCOMPLETE	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
15	Facility 242 (tank)		x	x	Y	x	x	x																
16	Facility 246	A search of the drawing files and a walk around the building revealed no oil-water separator on site.																						
17	Facility 660/(AOC 613)				N	x	x	x																
18	Facility 661 (tank) wrong	x	x	x	Y	x	x	x			x	x	x	x	x	x	x	x	x					
19	Facility 1024			x	N	x	x	x																
20	Facility 1303/SWMU 13	x			N	x	x	x	x	x														
21	Facility 1308/SWMU 13	x			Y	x	x	x	x	x	x	x	x	x	x									
22	Facility 1653/AOC 626	x			N		x	x																
23	Facility 1656/SWMU 37	x			Y	x	x	x			x	x	x	x	x									
24	Facility 2505/SWMU 161	x			Y		x	x			x	x	x	x	x									
25	Facility 3913/AOC 627	x			Y		x				x	x	x	x	x									
26	Facility 3926/AOC 626	x			Y		x				x	x	x	x	x									
27	Facility 236 - pipe shop / Aoc 583 ?																							