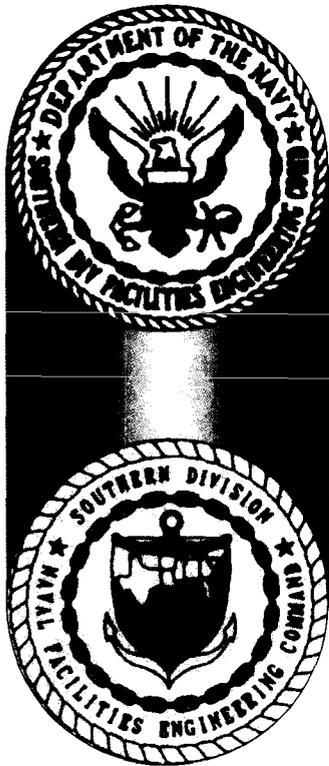


N61165.AR.003346
CNC CHARLESTON
5090.3a

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT
ADDENDUM CORRECTIVE MEASURES STUDY WORK PLAN SOLID WASTE
MANAGEMENT UNIT 24 (SWMU 24) ZONE G CNC CHARLESTON SC
1/15/2003
CH2M HILL

RFI REPORT ADDENDUM

RFI Report Addendum and CMS Work Plan SWMU 24 Zone G



***Charleston Naval Complex
North Charleston, South Carolina***

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

CH2M Jones

January 2003

*Revision 1
Contract N62467-99-C-0960*



January 15, 2003

Mr. David Scaturo
South Carolina Department of Health and
Environmental Control
Bureau of Land and Waste Management
2600 Bull Street
Columbia, SC 29201

Re: RFI Report Addendum and CMS Work Plan (Revision 1) – SWMU 24, Zone G

Dear Mr. Scaturo:

Enclosed please find four copies of the RFI Report Addendum and CMS Work Plan (Revision 1) for SWMU 24 in Zone G of the Charleston Naval Complex (CNC). This report has been prepared pursuant to agreements by the CNC BRAC Cleanup Team for completing the RCRA Corrective Action process.

The principal author of this document is Casey Hudson. Please contact him at 407/423-0030, extension 251, if you have any questions or comments.

Sincerely,

CH2M HILL

A handwritten signature in cursive script that reads "Dean Williamson".

Dean Williamson, P.E.

cc: Dann Spariosu/USEPA, w/att
Rob Harrell/Navy, w/att
Gary Foster/CH2M HILL, w/att

RFI REPORT ADDENDUM

RFI Report Addendum and CMS Work Plan SWMU 24, Zone G



***Charleston Naval Complex
North Charleston, South Carolina***

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

PREPARED BY
CH2M-Jones

January 2003

*Revision 1
Contract N62467-99-C-0960
158814.ZG.PR.11*

Certification Page for RFI Report Addendum and CMS Work Plan (Revision 1) – SWMU 24, Zone G

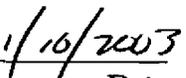
I, Dean Williamson, certify that this report has been prepared under my direct supervision. The data and information are, to the best of my knowledge, accurate and correct, and the report has been prepared in accordance with current standards of practice for engineering.

South Carolina

Permit No. 21428



Dean Williamson, P.E.


Date

1 Contents

2 Section	Page
3 Acronyms and Abbreviations	vii
4 1.0 Introduction	1-1
5 1.1 Background	1-1
6 1.2 Purpose of the RFI Report Addendum/CMS Work Plan	1-2
7 1.3 Report Organization	1-3
8 Figure 1-1 Location of SWMU 24 in Zone G	1-5
9 Figure 1-2 Aerial Photograph of SWMU 24	1-6
10 Figure 1-3 Utility Plan	1-7
11 2.0 Summary of RFI Conclusions for SWMU 24	2-1
12 2.1 Site Geology and Hydrogeology	2-1
13 2.2 Surface Soil	2-2
14 2.3 Subsurface Soil	2-3
15 2.4 Groundwater	2-3
16 2.4.1 Groundwater Screening Results	2-3
17 2.4.2 Groundwater Monitoring Results	2-4
18 2.5 Human Health Risk Assessment	2-5
19 2.6 Conclusions and Recommendations	2-6
20 Figure 2-1 Shallow Groundwater Potentiometric Surface Map	2-7
21 Figure 2-2 RFI Soil Sample Location Plan	2-8
22 Figure 2-3 RFI Groundwater Sample Location Plan	2-9
23 3.0 Interim Measures and UST/AST Removals	3-1
24 4.0 Summary of Additional Investigations	4-1
25 4.1 Additional Soil Investigations	4-1
26 4.1.1 Surface Soil	4-1
27 4.1.2 Subsurface Soil	4-2
28 4.2 Fuel Transfer Pipeline Subsurface Soil Investigation	4-3
29 4.3 Additional Groundwater Investigations	4-4
30 4.4 Summary of COPCs Identified	4-5
31 4.4.1 Surface Soil	4-5
32 4.4.2 Subsurface Soil	4-6

1 Contents, Continued

2		4.3.3 Groundwater.....	4-6
3	Table 4-1	Analytes Detected in Surface Soil, RFI Addendum Investigation	4-7
4	Table 4-2	Analytes Detected in Subsurface Soil, RFI Addendum Investigation.....	4-18
5	Table 4-3	Analytes Detected in Subsurface Soil, Fuel Transfer Pipeline Investig.....	4-26
6	Table 4-4	Analytes Detected in Groundwater, RFI Addendum Investigation.....	4-27
7	Figure 4-1	RFI Addendum Soil Sample Location Plan	4-30
8	Figure 4-2	BEQs in Soil.....	4-31
9	Figure 4-3	Fuel Line Subsurface Soil Sample Locations	4-32
10	5.0	COPC/COC Refinement.....	5-1
11	5.1	Surface Soil	5-1
12		5.1.1 Heptachlor Epoxide	5-1
13		5.1.2 Total BEQs.....	5-2
14	5.2	Subsurface Soil.....	5-3
15		5.2.1 Isophorone.....	5-3
16		5.2.2 N-Nitrosodiphenylamine.....	5-4
17		5.2.3 Methylene Chloride	5-5
18	5.3	Groundwater.....	5-6
19		5.3.1 Arsenic	5-6
20		5.3.2 Antimony.....	5-7
21	Table 5-1	Heptachlor Epoxide in Surface Soil	5-8
22	Table 5-2	Heptachlor Epoxide in CNC Grid Surface Soil.....	5-9
23	Table 5-3	Summary Statistics for PAHs in Surface Soil	5-16
24	Table 5-4	BEQs in Surface Soil	5-17
25	Table 5-5	Isophorone in Subsurface Soil	5-18
26	Table 5-6	N-Nitrosodiphenylamine in Subsurface Soil	5-19
27	Table 5-7	Methylene Chloride in Subsurface Soil.....	5-20
28	Table 5-8	Arsenic, Iron, and Manganese in Groundwater	5-21
29	Table 5-9	Antimony in Groundwater	5-23
30	6.0	Summary of Information Related to Site Closeout Issues.....	6-1
31	6.1	RFI Status.....	6-1
32	6.2	Presence of Inorganics in Groundwater.....	6-1
33	6.3	Potential Linkage to SWMU 37, Investigated Sanitary Sewers at the CNC ..	6-2
34	6.4	Potential Linkage to AOC 699, Investigated Storm Sewers at the CNC	6-2

1 Contents, Continued

2	6.5	Potential Linkage to AOC 504, Investigated Railroad Lines at the CNC.....	6-2
3	6.6	Potential Migration Pathways to Surface Water Bodies at the CNC.....	6-2
4	6.7	Potential Contamination in Oil/Water Separators (OWSs).....	6-3
5	6.8	Land Use Controls (LUCs).....	6-3
6	7.0	Recommendations	7-1
7	8.0	CMS Work Plan for SWMU 24	8-1
8	8.1	Remedial Action Objectives.....	8-1
9	8.2	Remedial Goal Options and Media Cleanup Standards.....	8-1
10	8.3	Potential Remedies to Evaluate.....	8-2
11	8.4	Focused CMS Approach.....	8-2
12	8.5	Approach to Evaluating Corrective Measure Alternatives.....	8-2
13	8.6	CMS Report.....	8-4
14	Table 8-1	Outline of CMS Report for SWMU 24.....	8-5
15	9.0	References	9-1
16			
17		Appendices	
18	A	Responses to SCDHEC Comments on <i>RFI Report Addendum, SWMU 24, Zone G,</i>	
19		<i>Revision 0</i> (CH2M-Jones, 2002a)	
20	B	Excerpts from the <i>Zone G RFI Report, Revision 0</i> (EnSafe, 1998a)	
21	C	Analytical Data from RFI Addendum Investigation	
22	D	Data Validation Reports	
23	E	Site-Specific SSL and DAF Calculations for Methylene Chloride	
24	F	Responses to SCDHEC Comments on <i>Zone G RFI Report, Revision 0</i> (CH2M-Jones,	
25		2002b)	

1 Acronyms and Abbreviations

2	AOC	Area of concern
3	AST	Aboveground storage tank
4	BCT	BRAC Cleanup Team
5	BEQ	Benzo(a)pyrene equivalent
6	BRAC	Base Realignment and Closure Act
7	BRC	Background reference concentration
8	CA	Corrective action
9	CFR	<i>Code of Federal Regulations</i>
10	CMS	Corrective measures study
11	CNC	Charleston Naval Complex
12	COC	Chemical of concern
13	COPC	Chemical of potential concern
14	CPT	Cone penetrometer testing
15	DAF	Dilution attenuation factor
16	DPT	Direct-push technology
17	EnSafe	EnSafe Inc.
18	EPA	U.S. Environmental Protection Agency
19	FDS	Fuel distribution system
20	ft bls	Feet below land surface
21	ft msl	Feet mean sea level
22	HHRA	Human health risk assessment
23	HI	Hazard index
24	ILCR	Incremental lifetime cancer risk
25	IM	Interim measure
26	LUC	Land use control
27	MCL	Maximum contaminant level
28	MCS	Media cleanup standard
29	MDL	Method detection limit
30	$\mu\text{g}/\text{kg}$	Micrograms per kilogram

1 Acronyms and Abbreviations, Continued

2	$\mu\text{g/L}$	Micrograms per liter
3	mg/kg	Milligrams per kilogram
4	NAVBASE	Naval Base
5	OWS	Oil/water separator
6	PAH	Polycyclic aromatic hydrocarbon
7	PCB	Polychlorinated biphenyl
8	RAO	Remedial action objective
9	RBC	Risk-based concentration
10	RCRA	Resource Conservation and Recovery Act
11	RFI	RCRA Facility Investigation
12	RGO	Remedial goal option
13	SCDHEC	South Carolina Department of Health and Environmental Control
14	SSL	Soil screening level
15	SWMU	Solid waste management unit
16	SVOC	Semivolatile organic compound
17	TEAP	Terminal electron accepting process
18	TPH	Total petroleum hydrocarbon
19	UCL ₉₅	95-percent upper confidence limit
20	UST	Underground storage tank
21	VOC	Volatile organic compound

Section 1.0

1.0 Introduction

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

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

11 In April 2000, CH2M-Jones was awarded a contract to provide environmental investigation
12 and remediation services at the CNC. This submittal has been prepared by CH2M-Jones to
13 complete the RCRA Facility Investigation (RFI) for Solid Waste Management Unit (SWMU)
14 24 in Zone G of the CNC. This report also contains a Corrective Measures Study (CMS)
15 Work Plan for SWMU 24, which will evaluate corrective measure alternatives that are
16 proposed for surface soil at the site. Figure 1-1 presents the location of Zone G and SWMU
17 24 at the CNC.

1.1 Background

19 SWMU 24, the former waste oil reclamation facility for the CNC, consists of tanks 39-A and
20 39-D. The facility is located south of Hobson Avenue and east of Wood Street. Included
21 within the boundary of SWMU 24 is SWMU 3, which is a pesticide mixing area. SWMU 3
22 was investigated separately from SWMU 24, and the RFI Report Addendum for this site
23 will be submitted under separate cover. Figure 1-2 depicts the layout of SWMU 24, which
24 includes the location of SWMU 3.

25 Tanks 39-A and 39-D operated as settling tanks to which waste oil, which contained water
26 and presumably other impurities, was delivered through a pipeline system. The tanks were
27 used to separate and store both the water and oil phase liquids. Separated wastewater was
28 subsequently discharged to the sanitary sewer system. The waste materials potentially
29 associated with site operations include waste oil and petroleum products. SWMU 24 was
30 originally investigated under the petroleum program as part of the fuel distribution system
31 (FDS) but was transferred to the RCRA program to characterize metals in site groundwater.

1 Most of the area surrounding SWMU 24 is unpaved (vegetative), with a paved area
2 primarily between tanks 39-A and 39-D and in the immediate area of Building 249. The
3 surface of the secondary containment berms around Tanks 39-A and 39-D and ground
4 surface around the tanks are also covered with an old, somewhat degraded asphaltic
5 material. Storm and sanitary sewer systems that transverse through SWMU 24 are depicted
6 in Figure 1-3. The site is zoned M-1, for future light industrial use. In the future this
7 immediate area is expected to remain in industrial and commercial use, similar to the
8 current use for the area.

9 **1.2 Purpose of the RFI Report Addendum/CMS Work Plan**

10 This RFI Report Addendum contains two RCRA submittals – the RFI Report Addendum
11 and the CMS Work Plan for SWMU 24. Sections 2.0 through 7.0 of this document address
12 topics associated with the RFI Report Addendum. This portion of the submittal provides
13 information concerning SWMU 24 and documents the conclusions from the *Zone G RFI*
14 *Report, Revision 0* (EnSafe, Inc. [EnSafe], 1998a). In addition, this document addresses
15 SCDHEC comments on the *RFI Report Addendum, SWMU 24, Zone G, Revision 0* (CH2M-
16 Jones, 2002a). Appendix A contains responses to SCDHEC comments on the *RFI Report*
17 *Addendum, SWMU 24, Zone G, Revision 0*.

18 The RFI Report Addendum also provides the results of additional investigations performed
19 subsequent to the *Zone G RFI Report, Revision 0* to complete the nature and extent
20 investigation for chemicals of potential concern (COPCs) identified in surface soil,
21 subsurface soil, and groundwater. This document evaluates these additional data, and
22 provides conclusions regarding further RCRA activities at SWMU 24.

23 The CMS Work Plan, presented in Section 8.0 of this submittal, evaluates and refines the
24 findings for SWMU 24, as presented in the *Zone G RFI Report, Revision 0* and subsequent
25 investigations, particularly as they relate to the chemicals of concern (COCs) identified at
26 SWMU 24.

27 Prior to changing the status of any site to no further action (NFA) status in the CNC RCRA
28 CA permit, the BRAC Cleanup Team (BCT) agreed that the following issues be considered:

- 29 • Status of the RFI
- 30 • Presence of metals (inorganics) in groundwater
- 31 • Potential linkage to SWMU 37, Investigated Sanitary Sewers at the CNC
- 32 • Potential linkage to AOC 699, Investigated Storm Sewers at the CNC
- 33 • Potential linkage to AOC 504, Investigated Railroad Lines at the CNC

- 1 • Potential linkage to surface water bodies (Zone J)
- 2 • Potential contamination associated with oil/water separators (OWSs)
- 3 • Relevance or need for land use controls (LUCs) at the site

4 Information regarding these issues is provided in Section 6.0 of this submittal. At this time,
5 SWMU 24 is not being recommended for NFA. However, the above information is
6 presented in this report, as it will eventually be required for the site to be considered for
7 NFA in the future.

8 **1.3 Report Organization**

9 This RFI Report Addendum/CMS Work Plan consists of the following sections, including
10 this introductory section:

11 **1.0 Introduction** — Presents the purpose of the report and background information relating
12 to the RFI Report Addendum/CMS Work Plan.

13 **2.0 Summary of RFI Conclusions for SWMU 24** — Summarizes the conclusions from the
14 original RFI and risk evaluations for SWMU 24.

15 **3.0 Interim Measures and UST/AST Removals** — Provides information regarding any
16 interim measure (IM) or underground storage tank (UST)/aboveground storage tank (AST)
17 removal or investigation performed at the site.

18 **4.0 Summary of Additional Investigations** — Summarizes information collected after
19 completion of the *Zone G RFI Report, Revision 0*.

20 **5.0 COPC/COC Refinement** — Provides further evaluation of COPCs based on RFI and
21 additional data to assess them as COCs.

22 **6.0 Summary of Information Related to Site Closeout Issues** — Discusses the various site
23 closeout issues that the BCT agreed to evaluate prior to site closeout.

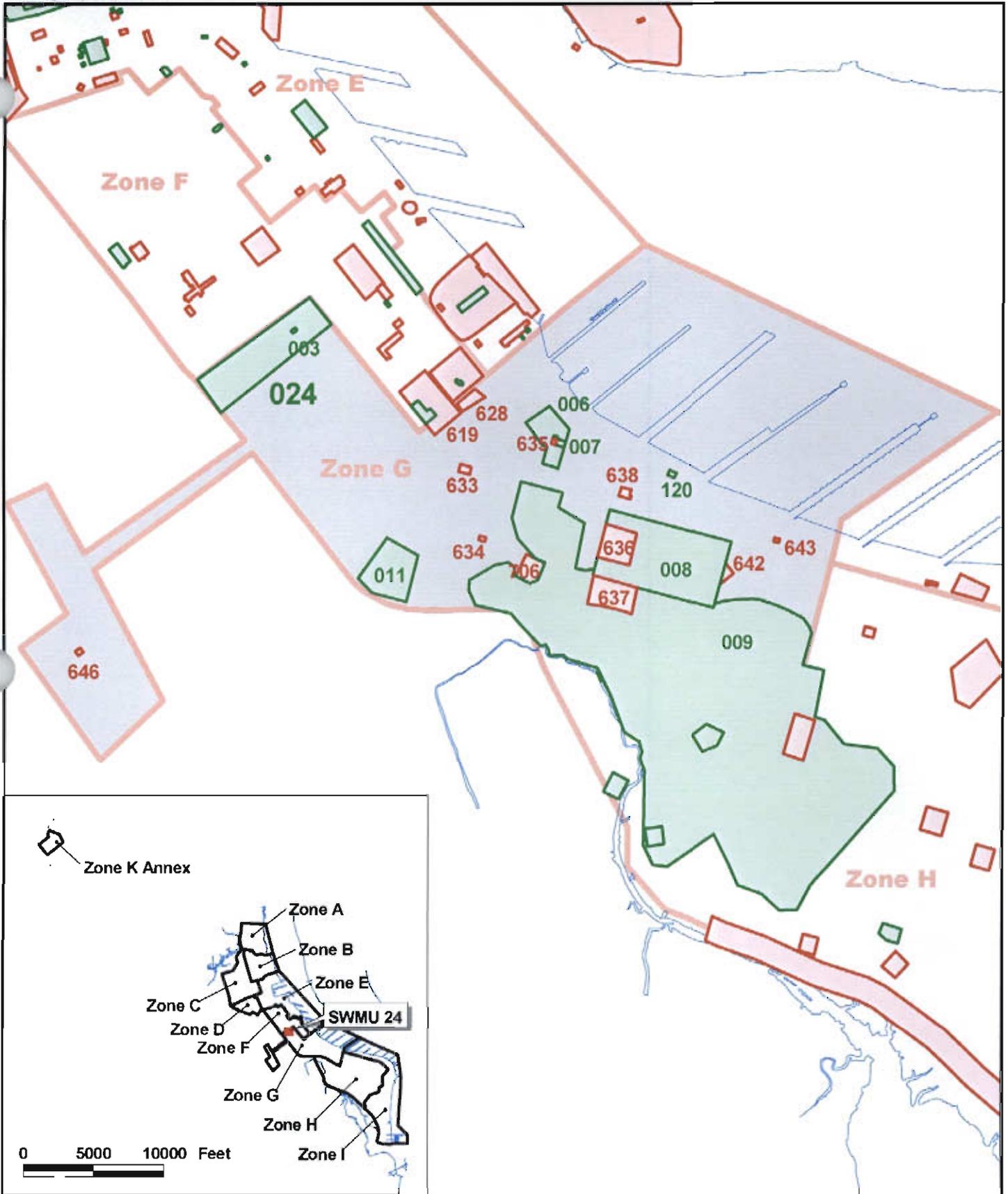
24 **7.0 Recommendations** — Provides recommendations for a CMS at SWMU 24.

25 **8.0 CMS Work Plan for SWMU 24** — This section presents the CMS Work Plan for SWMU
26 24, defines the remedial action objectives (RAOs) and associated media cleanup standards
27 (MCSs) for the COCs that are identified in Section 5.0. This section also presents the nature
28 and extent of COCs for the SWMU 24 area, along with the CMS procedures that will be
29 used to evaluate and compare relevant remedial approaches to achieving RAOs and MCSs
30 for the COCs.

31 **9.0 References** — Lists the references used in this document.

- 1 **Appendix A** contains responses to SCDHEC comments on the *RFI Report Addendum, SWMU*
2 *24, Zone G, Revision 0* (CH2M-Jones, 2002a).
- 3 **Appendix B** provides excerpts from the *Zone G RFI Report, Revision 0* (EnSafe, 1998a),
4 including a summary of detected chemicals in soil and groundwater samples, and various
5 figures showing contaminant plume maps.
- 6 **Appendix C** contains analytical data from the sampling events completed subsequent to the
7 *Zone G RFI Report, Revision 0*.
- 8 **Appendix D** contains validation reports for the data from sampling subsequent to the *Zone*
9 *G RFI Report, Revision 0*.
- 10 **Appendix E** contains the site-specific soil screening level (SSL) and dilution attenuation
11 factor (DAF) calculations for methylene chloride.
- 12 **Appendix F** contains responses to SCDHEC comments for this site from the *Zone G RFI*
13 *Report, Revision 0*.
- 14 All tables and figures appear at the end of their respective sections.

NOTE: Original figure created in color



- AOC Boundary
- SWMU Boundary
- Shoreline
- Zone Boundary
- Zone G

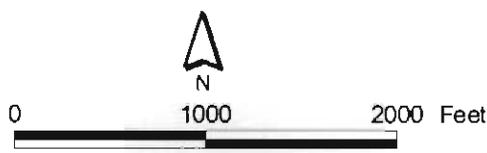


Figure 1-1
Site Location
SWMU 24, Zone G
Charleston Naval Complex

CH2MHILL

NOTE: Aerial Photo Date is 1997
NOTE: Original figure created in color



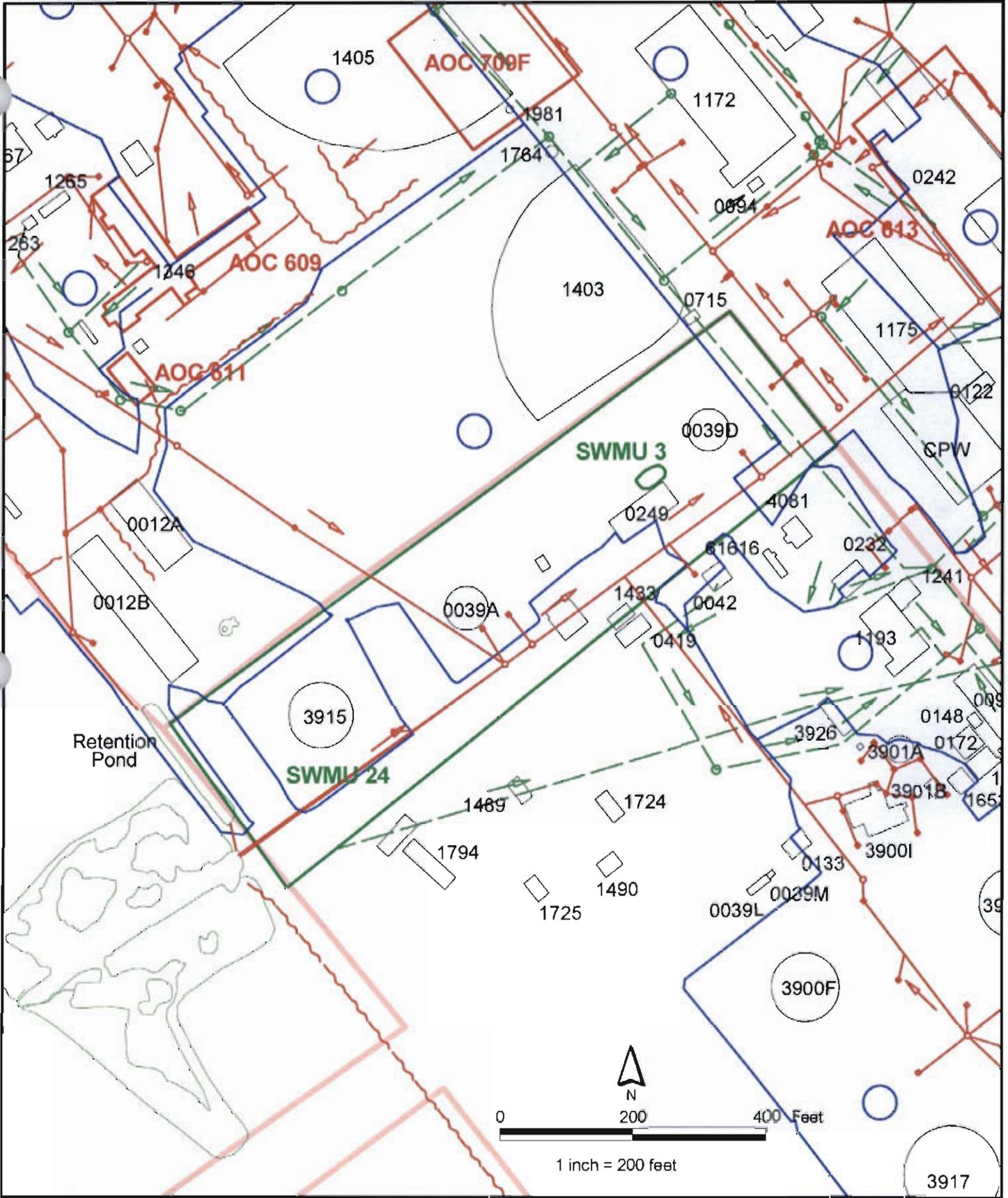
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary



Figure 1-2
Site Layout
SWMU 24, Zone G
Charleston Naval Complex

CH2MHILL

NOTE: Original figure created in color



- | | |
|-------------------------------|---------------|
| Stormwater Drain - Basin | AOC Boundary |
| Stormwater Line | SWMU Boundary |
| Stormwater Flow Direction | Buildings |
| Sanitary Sewer Line | Zone Boundary |
| Sanitary Sewer Flow Direction | |
| Wetland | |

Figure 1-3
Utility Plan
SWMU 24, Zone G
Charleston Naval Complex

1 **2.0 Summary of RFI Conclusions for SWMU 24**

2 The *Zone G RFI Report, Revision 0* (EnSafe, 1998a) presented the results of the soil and
3 groundwater investigations, including conclusions concerning site geology and
4 hydrogeology, nature and extent of contamination, and risk assessment for SWMU 24.
5 Conclusions from the *Zone G RFI Report, Revision 0* are summarized as part of this section.

6 **2.1 Site Geology and Hydrogeology**

7 A detailed description of Zone G geology and hydrogeology are summarized in Section 2 of
8 the *Zone G RFI Report, Revision 0*. The lowermost stratigraphic unit identified in Zone G is
9 the Ashley Formation (Ta) member of the Mid-Tertiary age Cooper Group. According to the
10 *Zone G RFI Report, Revision 0*, the Ta was encountered throughout Zone G at elevations
11 ranging from -16.6 to -49 feet mean sea level (ft msl) and is higher in the eastern portion of
12 Zone G than in the western and southern portions. The Ta is a tight, slightly calcareous,
13 clayey silt with varying amounts of fine-grained sand which decreases rapidly with depth.

14 Overlying the Ta are younger Upper-Tertiary and Quaternary-age stratigraphic units. The
15 Quaternary-age sediments range from 25 to 55 feet thick. During the RFI field activities
16 three distinct Quaternary-age litho-stratigraphic units were identified as Quaternary Clay
17 (Qc), Quaternary Marsh (Qm), and Quaternary Sand (Qs). The Qc deposits consist of a stiff
18 very fine to fine grained sandy and silty clay. The Qc unit was commonly found in the
19 upper 10 to 15 feet of the shallow subsurface. The Qm is a soft, sticky clay, occasionally
20 laminated with sand, silt, and shelly lenses. It has a high organic content, low plasticity, and
21 a distinctive hydrogen sulfide odor. According to the *Zone G RFI Report, Revision 0*, the Qm
22 is approximately 45 feet thick in the southeastern portion of Zone G and decreases to
23 approximately 7 feet thick in the western portion. The uppermost unit, Qs, is primarily very
24 fine to medium silty sand, well to moderately well sorted and loose. The Qs deposits in
25 Zone G range from thin lenses ranging from 0.5 to 1.7 feet thick to thicker lenses of four feet
26 thick.

27 SWMU 24 groundwater elevations vary seasonally and range widely from 2 to 9 feet below
28 land surface (ft bls). As reported in the *Zone G RFI Report, Revision 0*, groundwater flow in
29 the surficial aquifer is highly variable in gradient and direction. Figure 2-1 presents a
30 potentiometric surface map using groundwater elevation data collected on March 28, 2002.

1 2.2 Surface Soil

2 As part of the original RFI field work, four soil sample locations identified as GFDSSH024
3 through GFDSSH027 were used to characterize the surface (0 to 1 ft bls) soil in select
4 locations of the fuel distribution pipeline system. The soil sample locations, which are
5 depicted in Figure 2-2, were placed adjacent to tanks 39-A and 39-D and the existing
6 concrete slab on the southwest portion of the site, identified as 3915.

7 The four surface soil samples collected on October 21, 1996 were analyzed for total
8 petroleum hydrocarbons (TPH) with the results reported as diesel, fuel oil number 6,
9 gasoline, jet fuel JP-4 with a carbon range of C6 to C14, kerosene, and naphtha for the
10 carbon range of C6 to C12. Surface soil samples collected from GFDSSH024 and
11 GFDSSH026 were also analyzed for volatile organic compounds (VOCs), semivolatile
12 organic compounds (SVOCs), metals, pesticides, polychlorinated biphenyls (PCBs), and
13 cyanide. Table 10.15.4 of the *Zone G RFI Report, Revision 0* presents a summary of the
14 concentrations of analytes detected in the four surface soil samples collected during the
15 original RFI. A copy of this table is provided in Appendix B.

16 Surface soil sample analytical results were compared to their corresponding U.S.
17 Environmental Protection Agency (EPA) Region III residential risk-based concentration
18 (RBC) (hazard index [HI]=0.1), and the Zone G background reference concentration (BRC)
19 for metals. As indicated in the *Zone G RFI Report, Revision 0*, the BRCs were calculated using
20 twice the mean grid sample concentrations. Surface soil analytical results were not
21 compared SSLs in the *Zone G RFI Report, Revision 0*.

22 Benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene,
23 detected at concentrations of 2,500 J; 1,700 J; 1,600 J; and 290 J micrograms per kilogram
24 ($\mu\text{g}/\text{kg}$) (respectively) in the soil sample collected from GFDSSH026, were the only SVOC
25 constituents that were detected at concentrations above their corresponding EPA Region III
26 RBC. The EPA Region III RBC value for benzo(a) pyrene and dibenz(a,h)anthracene is 87
27 $\mu\text{g}/\text{kg}$ while the value is 870 $\mu\text{g}/\text{kg}$ for benzo(a)anthracene and benzo(b)fluoranthene. The
28 calculated benzo(a)pyrene equivalent (BEQ) concentration in the surface soil sample
29 collected from GFDSSH026 is 2,501 $\mu\text{g}/\text{kg}$. Figure 10.15.4 in the *Zone G RFI Report, Revision*
30 *0* presents the soil sample locations with the detected concentrations of BEQs in surface soil.
31 A copy of figure 10.15.4 is provided in Appendix B.

32 Iron was detected at concentrations of 8,180 and 4,180 milligrams per kilogram (mg/kg) in
33 the samples collected from GFDSSH024 and GFDSSH026, respectively. These detected
34 concentrations are above the EPA Region III RBC (HI=0.1) value of 2,300 mg/kg . According

1 to the *Zone G RFI Report, Revision 0*, a background concentration for iron was not established
2 because it is considered an essential nutrient.

3 Detected concentrations of VOCs were not above their corresponding EPA Region III RBC
4 values. PCBs, pesticides, and cyanide were not detected in the two samples above the
5 laboratory method detection limits (MDLs).

6 The *Zone G RFI Report, Revision 0* identified BEQs as COCs in the surface soil at SWMU 24.

7 **2.3 Subsurface Soil**

8 During the RFI, subsurface (3 to 5 ft bls) soil samples were not collected from the four
9 surface soil sample locations (i.e., GFDSSH024 through GFDSSH027). However, soil
10 samples were collected from 10 cone penetrometer testing (CPT) locations at elevations
11 representing the depth of the buried fuel distribution pipelines, approximately 4 to 11 ft bls.
12 These CPT locations, identified as GFDSSC069, GFDSSC072 through GFDSSC075, and
13 GFDSSC085 through GFDSSC089, were advanced at the site from September 30 to October
14 2, 1996. One sample was collected from each location and analyzed for TPH, and the results
15 were reported identically as were the surface soil samples that were analyzed for TPH.
16 Samples were collected at 2-foot intervals at various termination depths ranging from 6 to
17 11 ft bls. Because of these collection depths, it could not be verified that the samples were
18 collected in the vadose zone and thereby representative of unsaturated soil. The soil sample
19 locations are provided in Figure 2-2.

20 No subsurface soil COPCs were identified at SWMU 24 in the *Zone G RFI Report, Revision 0*.

21 **2.4 Groundwater**

22 **2.4.1 Groundwater Screening Results**

23 Four direct-push technology (DPT) borings were advanced within SWMU 24 to investigate
24 potential impacts from the storm sewer, which is identified as Area of Concern (AOC) 699.
25 On August 12, 1997, one sample was collected from each of the four borings identified as
26 LF699GP044 through LF699GP046, and LF699GP048. In addition, one DPT boring was
27 advanced within SWMU 24 to investigate potential impacts from the sanitary sewer system,
28 which is identified as SWMU 37. On June 12, 1997, one sample was collected from
29 LF037GP052, the SWMU 37 boring. The five DPT borings are presented in Figure 2-3.

30 Section 10, Volume 2 of 12 of the *Zone L RFI Report* (EnSafe, 1998b) indicates that DPT
31 groundwater samples were collected up to a depth of approximately 15 ft bls.

1 Based on information obtained from the sewer line surveys conducted during the Zone L
2 investigations, the invert elevations ranged from 6 to 13 ft bls. Groundwater DPT samples
3 were collected at or below the pipe invert elevation. The sample locations were determined
4 based on the sampling scheme provided in the *Zone L RFI Work Plan* (EnSafe, 1995).
5 Samples were collected at manhole locations, and approximately every 200 ft along the
6 sewer line.

7 The information for the sampling effort conducted near the sanitary sewer lines can be
8 found in the *Zone L RFI Work Plan* and the *Zone L RFI Report, Revision 0*.

9 The five DPT samples were analyzed for VOCs, metals, and cyanide. VOCs and cyanide
10 were not detected above MDLs. The *Zone G RFI Report, Revision 0* did not provide a
11 comparison of detected concentrations from the DPT samples against screening criteria.

12 **2.4.2 Groundwater Monitoring Results**

13 During the original RFI field activities, four shallow groundwater monitoring wells
14 identified as G024GW001 through G024GW004 were installed at SWMU 24 to characterize
15 the nature of potential contaminants in the saturated zone above the Ashley Formation
16 from operations associated with the waste oil reclamation operations. The locations of these
17 wells are shown in Figure 2-3.

18 Each shallow monitoring well designed to intersect the groundwater table consists of a 10-
19 foot well screen, with the top of the well screen placed at a range of approximately 2 to 5 ft
20 bls. Groundwater samples were collected from the four wells during two sampling events
21 conducted on April 20-24, 1998 and October 28-29, 1998, and analyzed for VOCs, SVOCs,
22 and metals. Table 10.15.8 of the *Zone G RFI Report, Revision 0* presents a summary of the
23 concentrations of analytes detected in the groundwater samples collected from the four
24 monitoring wells during the original RFI. A copy of this table is provided in Appendix B.

25 Detected chemicals in the shallow groundwater samples were compared with their
26 respective maximum contaminant levels (MCLs), EPA Region III tap water RBCs, and Zone
27 G BRCs for metals in groundwater.

28 VOCs and SVOCs were not detected at concentrations above their corresponding screening
29 criteria. Arsenic and iron were the only metals detected at concentrations above their
30 screening criteria. Arsenic was detected in the sample collected from G025GW001 during
31 the October 1998 sampling event at a concentration of 86.1 micrograms per liter ($\mu\text{g}/\text{L}$)
32 which is above its MCL of 50 $\mu\text{g}/\text{L}$. Figure 10.15.5 in the *Zone G RFI Report, Revision 0*
33 depicts the detected concentrations of arsenic in the samples collected from the four shallow

1 monitoring wells. A copy of this figure is presented in Appendix B of this report
2 addendum.

3 Iron was detected in each sample collected from the four monitoring wells during the two
4 events completed in April and October 1998 at concentrations ranging from 1,460 $\mu\text{g}/\text{L}$
5 (G024GW003; October 1998) to 5,770 $\mu\text{g}/\text{L}$ (G024GW001; October 1998). These
6 concentrations are above the EPA Region III tap water RBC (HI=0.1) of 1,100 $\mu\text{g}/\text{L}$. These
7 concentrations were not screened against a background concentration, since according to
8 the *Zone G RFI Report, Revision 0*, a background concentration for iron was not established
9 because it is an essential nutrient.

10 The *Zone G RFI Report, Revision 0* identified arsenic as a COC in the groundwater at
11 SWMU 24.

12 **2.5 Human Health Risk Assessment**

13 As part of the *Zone G RFI Report, Revision 0*, EnSafe conducted a human health risk
14 assessment (HHRA) for the single COPC identified in surface soil (i.e., BEQs). Exposure to
15 surface soil was evaluated for a future residential receptor scenario and a future site worker
16 scenario, using the incidental ingestion and dermal contact exposure routes.

17 The incremental lifetime cancer risks (ILCRs) to a future resident (based on the adult and
18 child lifetime weighted average) were estimated at a total ILCR of 4E-05, with 3E-05 for
19 ingestion and 1E-05 for dermal exposure routes to SWMU 24 surface soils. The ILCRs to a
20 future site worker were estimated at a total ILCR of 8E-06, with an ILCR of 3E-06 for
21 ingestion and 5E-06 for dermal exposure routes.

22 The HHRA identified arsenic as a COPC in the groundwater. Exposure to groundwater was
23 evaluated for a future residential receptor scenario and a future site worker scenario using
24 shallow groundwater ingestion. No volatile COPC was identified for groundwater and, as a
25 result, the inhalation pathway was not considered for SWMU 24. The non-carcinogenic
26 hazards were evaluated for future site residents, where an HI was calculated separately for
27 a child receptor and an adult receptor.

28 Potential risks from the use of shallow groundwater for potable purposes by a future
29 resident exceeds the acceptable risk criteria for combined risks from the ingestion exposure
30 pathway, with cumulative risks to a future adult resident estimated at 2E-03, and HI for an
31 adult and child residents at 8 and 18, respectively. Similarly, risks from the ingestion

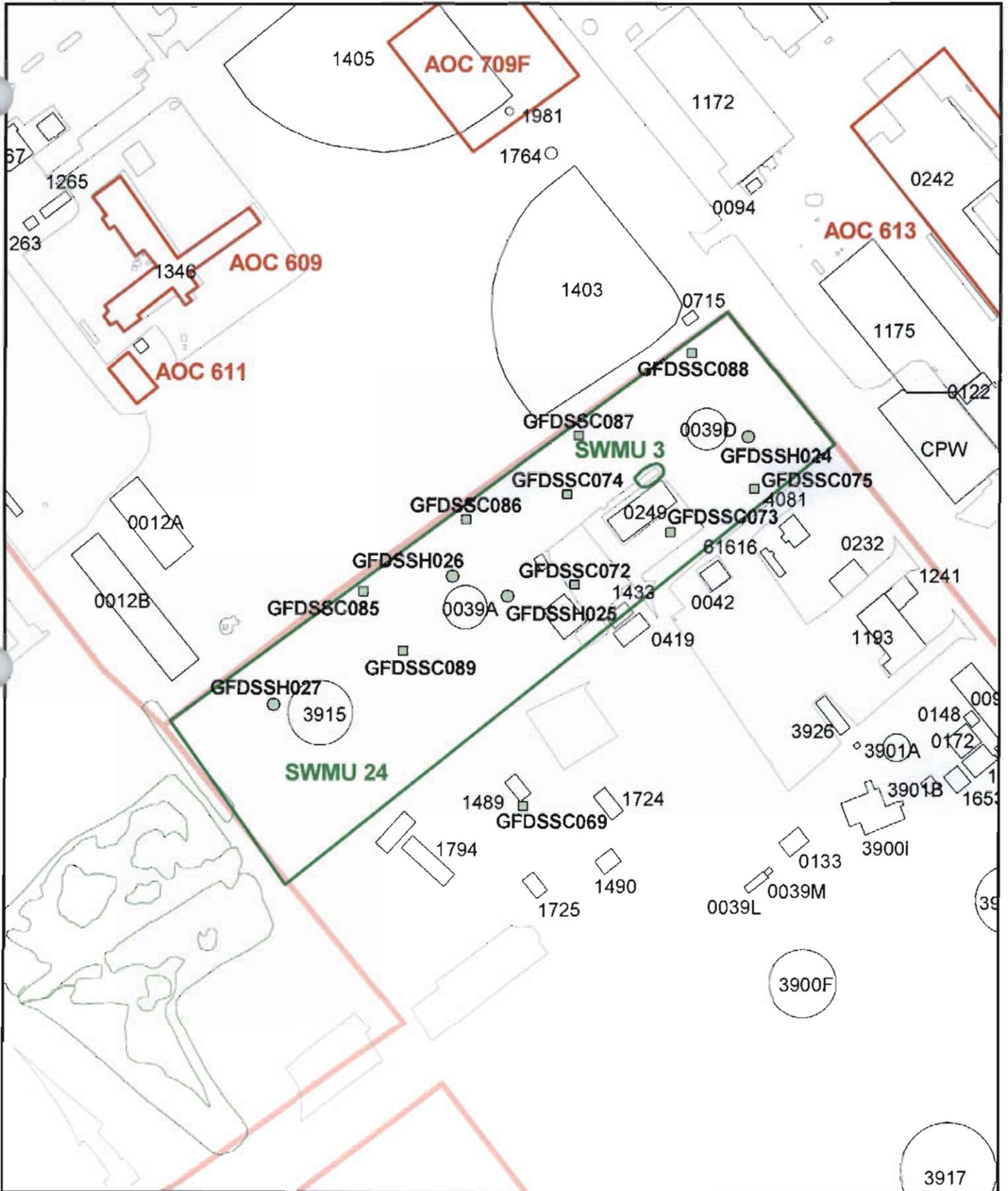
1 exposure pathway to a future worker were estimated at 5E-04 and HI at 3. All of these risk
2 values are above the 1 in a million risk level.

3 In the *Zone G RFI Report, Revision 0*, BEQs were identified as a COC in surface soil and
4 arsenic was listed as a COC in the groundwater. Section 5.0 of this report addendum further
5 addresses the surface soil and groundwater COCs that were identified in the *Zone G RFI*
6 *Report, Revision 0* by evaluating whether they are COCs based on the current CNC project
7 criteria.

8 **2.6 Conclusions and Recommendations**

9 The *Zone G RFI Report, Revision 0* concluded that the primary risk in surface soil was from
10 BEQs, and the primary risk in shallow groundwater was from arsenic. The *Zone G RFI*
11 *Report, Revision 0* recommended a CMS for these COCs identified at the site.

NOTE: Original figure created in color

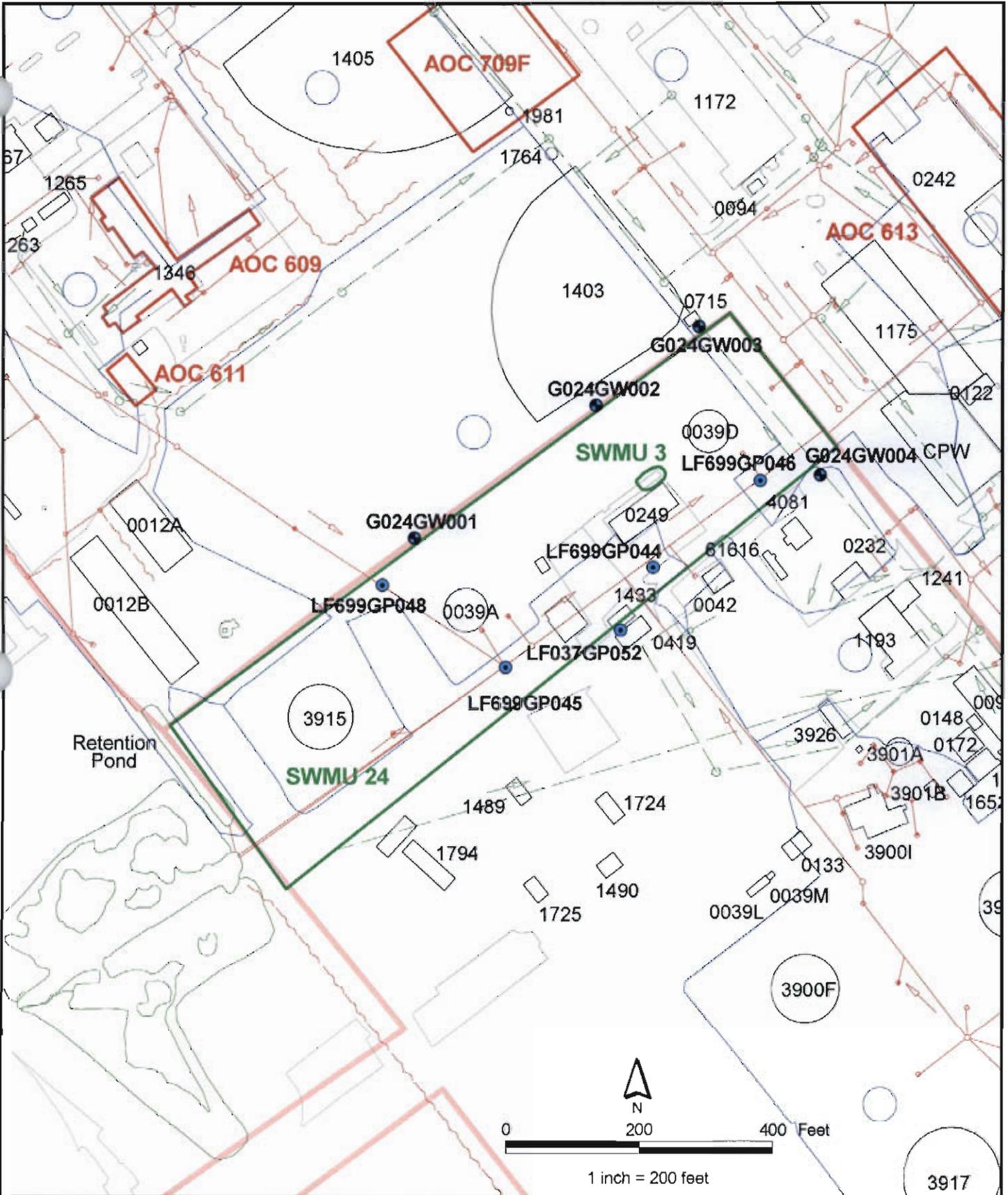


- Soil Boring
- Surface Soil
- Wetland
- Pavement
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary



Figure 2-2
RFI Soil Sample Location Plan
SWMU 24, Zone G
Charleston Naval Complex

NOTE: Original figure created in color



- | | |
|---------------------------------|-----------------|
| ● Groundwater Probe | ▨ Pavement |
| ● Groundwater Well | ▨ Welland |
| ▨ Stormwater Drain - Basin | ▨ AOC Boundary |
| ▨ Stormwater Line | ▨ SWMU Boundary |
| ▨ Stormwater Flow Direction | ▨ Buildings |
| ▨ Sanitary Sewer Line | ▨ Zone Boundary |
| ▨ Sanitary Sewer Flow Direction | |

Figure 2-3
RFI Groundwater Sample Location Plan
SWMU 24, Zone G
Charleston Naval Complex

CH2MHILL

1 **3.0 Interim Measures and UST/AST Removals**

- 2 There is no documentation supporting the completion of an IM at SWMU 24 as part of the
3 RCRA CA program. There were no documented uses of a UST or AST within the SWMU 24
4 boundary, based on a review of the UST program files. In addition, there were no other
5 UST/AST-related investigations under the SCDHEC UST program.

Section 4.0

1 **4.0 Summary of Additional Investigations**

2 Additional investigations conducted subsequent to the *Zone G RFI Report, Revision 0*
3 (EnSafe, 1998a) to characterize the nature and extent of BEQs in surface soil are summarized
4 in this section. In addition, this section summarizes the two additional groundwater
5 sampling events that were conducted in 1999.

6 **4.1 Additional Soil Investigations**

7 According to the *Zone G RFI Work Plan Addendum* (EnSafe, 2000), four additional surface (0
8 to 1 ft bls) and subsurface soil (3 to 5 ft bls) samples were collected on July 28 and 29, 1999
9 to further evaluate potential soil contamination from the FDS in the areas west, south, and
10 southeast of tank 39-A. The soil samples collected from these four locations, identified as
11 GFDSSH028 through GFDSSH031, were analyzed for VOCs, SVOCs, pesticides, PCBs, and
12 metals. These four soil sample locations are presented in Figure 4-1.

13 As a result of the data obtained from these soil samples, an additional investigation was
14 conducted by EnSafe as recommended in the *Zone G RFI Work Plan Addendum* (EnSafe, 2000)
15 to delineate the extent of BEQs in surface and subsurface soil at SWMU 24. Nine additional
16 surface soil and subsurface soil samples were collected in December 1999 and January 2000
17 to evaluate the extent of BEQs in surface soil surrounding GFDSSH026, GFDSSH029, and
18 GFDSSH030. Soil samples collected from these locations, identified as G024SB001 through
19 G024SB007, G024SB009, and G024SB010, were analyzed for SVOCs. In addition, the surface
20 and subsurface soil samples collected from G024SB005 through G024SB007 were analyzed
21 for metals. The nine soil sample locations are presented in Figure 4-1. The four soil sample
22 locations from the original RFI, identified as GFDSSH024 through GFDSSH027, are also
23 presented in Figure 4-1 for reference.

24 **4.1.1 Surface Soil**

25 Detected concentrations of contaminants in surface soil samples were compared to their
26 corresponding EPA Region III residential RBC and the Zone G background range for
27 metals. In addition, detected surface soil concentrations were compared to SSLs from the
28 *EPA Soil Screening Guidance: Technical Background Document* (EPA, 1996) with a dilution
29 attenuation factor (DAF) of 10. Detected concentrations of VOCs were compared to SSLs
30 with a DAF of 1. Individual PAH constituents and the total calculated BEQ concentrations
31 were compared to their background reference concentrations developed by the CNC BCT as

1 documented in the CH2M-Jones *Technical Memorandum: PAHs Background Study*, dated
2 February 2001 (CH2M-Jones, 2001a). The calculated basewide BEQ reference concentration
3 for surface soil is 1,304 µg/kg.

4 The SVOCs benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene,
5 dibenz[a,h]anthracene, and indeno[1,2,3-c,d]pyrene were detected in the surface soil
6 samples GFDSSH029 and GFDSSH030 above their corresponding EPA Region III residential
7 RBC and BEQ background concentration (CH2M-Jones, 2001a). Total BEQ concentrations of
8 3,953 and 3,148 µg/kg were calculated using the analytical results from the surface soil
9 samples collected from GFDSSH029 and GFDSSH030, respectively. These values are above
10 the established BEQ surface soil reference concentration of 1,304 µg/kg. Figure 4-2 depicts
11 an areal extent of BEQs in surface soil at SWMU 24.

12 The pesticide heptachlor epoxide was detected in the surface soil sample GFDSSH031 at an
13 estimated concentration of 0.27 J mg/kg. This concentration is slightly above its EPA
14 Region III RBC (HI=0.1) of 0.07 mg/kg.

15 Total BEQ concentrations in two surface soil samples were above the basewide background
16 reference concentration. In addition, the pesticide heptachlor epoxide exceeds its
17 corresponding screening criteria in a single surface soil sample; as a result it is considered a
18 COPC. The analytical data from the samples collected from the 13 surface soil sample
19 locations are provided in Appendix C. Analytes estimated or detected in the surface soil
20 samples above the MDLs are summarized in Table 4-1. Values that exceed screening criteria
21 are in bold text and outlined within the table. The data validation reports from the
22 additional RFI sampling investigation completed by EnSafe are provided in Appendix D of
23 this report addendum.

24 **4.1.2 Subsurface Soil**

25 Detected concentrations of contaminants in subsurface soil samples were compared to their
26 corresponding SSLs (EPA, 1996) with a DAF of 10 (VOCs with a DAF of 1) and the Zone G
27 background range for metals. Individual PAH constituents and total BEQ concentrations
28 were compared to their background reference concentrations (CH2M-Jones, 2001a). The
29 calculated basewide BEQ reference concentration for subsurface soil is 1,400 µg/kg.

30 The SVOCs isophorone and n-nitrosodiphenylamine were the only contaminants detected
31 in the 13 subsurface soil samples at concentrations above their corresponding screening
32 criteria. Isophorone was detected at concentrations of 0.37 J and 0.7 mg/kg in the
33 subsurface soil samples G024SB005 and G024SB007, respectively. These concentrations
34 slightly exceed its SSL (DAF=10) of 0.25 mg/kg.

1 N-nitrosodiphenylamine was detected at concentrations of 0.89 and 3.9 J mg/kg in the
2 subsurface soil samples G024SB005 and G024SB006, respectively. These concentrations
3 exceed its SSL (DAF=10) of 0.5 mg/kg.

4 Isophorone and n-nitrosodiphenylamine were detected in subsurface soil at concentrations
5 above their corresponding screening criteria and as a result are considered COPCs. The
6 analytical data from the samples collected from the 13 subsurface soil sample locations are
7 provided in Appendix C. Analytes estimated or detected in the subsurface soil samples
8 above the MDLs are summarized in Table 4-2. Values that exceed screening criteria are in
9 bold text and outlined within the table. The data validation reports from the additional RFI
10 sampling investigation completed by EnSafe are provided in Appendix D.

11 **4.2 Fuel Transfer Pipeline Subsurface Soil Investigation**

12 Based on SCDHEC comments concerning the lack of soil data in the immediate area of a
13 fuel distribution line at SWMU 24, CH2M-Jones agreed to collect four subsurface soil
14 samples along a pipeline that once serviced Tanks 39-A, 39-D, and 3915. This pipeline runs
15 underground along the north side of the tanks. Figure 4-3 presents the pipeline and the
16 subsurface soil sample locations. A Technical Memorandum, *Sampling Plan for Additional*
17 *Subsurface Soil Samples from SWMU 24* (CH2M-Jones, 2002b), outlined the proposed
18 sampling strategy.

19 The four subsurface soil samples, identified as G024SB011 through G024SB014, were
20 collected on October 10, 2002. Prior to sample collection, CH2M-Jones measured the depth
21 to groundwater in site monitoring wells and estimated the approximate depth of the fuel
22 transfer pipeline by measuring the pipe elevation from the ground surface in the vault box
23 located between Tanks 39-A and 39-D. The groundwater was measured at an elevation
24 ranging from 3.5 to 4 ft bls and the pipe inlet elevation was measured at an approximate
25 depth of 2 ft bls. Except for the subsurface soil sample, G024SB012, all of the soil samples
26 were collected from a depth of 2.5 to 3 ft bls. The subsurface soil sample G024SB012 was
27 collected from a depth of 2 to 2.5 ft bls. Thus, these samples were collected in the vadose
28 zone and at an elevation at which a fuel release from the pipeline would be detectable.

29 The subsurface soil samples were analyzed for VOCs and SVOCs using EPA method 8260
30 and 8270C, respectively. SVOC analytical results were compared to their SSLs (DAF=10)
31 and detected concentrations of VOCs were compared to SSLs (DAF=1). Individual PAH
32 constituents and total BEQ concentrations were compared to their sitewide reference

1 concentrations (CH2M-Jones, 2001a). The calculated basewide BEQ reference concentration
2 for subsurface soil is 1,400 $\mu\text{g}/\text{kg}$.

3 Three VOCs and eight SVOCs were detected in the subsurface soil samples above
4 laboratory detection limits. Of these only methylene chloride, detected at a concentration of
5 2.1 J $\mu\text{g}/\text{kg}$ in subsurface soil sample G024SB012, was greater than its SSL. The estimated
6 concentration of 2.1 J $\mu\text{g}/\text{kg}$ slightly exceeds the methylene chloride SSL (DAF=1) of 1.2
7 $\mu\text{g}/\text{kg}$. Methylene chloride was not detected in any of the four laboratory quality control
8 (QC) samples analyzed during the method analysis of the subsurface soil samples (SDG
9 Number 68646).

10 Since methylene chloride was detected in one of the subsurface soil samples at a
11 concentration above its SSL (DAF=1), it is considered a COPC. The analytical data from the
12 four subsurface soil samples collected adjacent to the fuel transfer pipeline are provided in
13 Appendix C. Analytes estimated or detected in the four subsurface soil samples above the
14 laboratory detection limits are summarized in Table 4-3. Values that exceed screening
15 criteria are in bold text and outlined within the table. The data validation report from the
16 October 2002 subsurface soil sampling investigation is provided in Appendix D.

17 **4.3 Additional Groundwater Investigations**

18 Subsequent to the submittal of the *Zone G RFI Report, Revision 0* (EnSafe, 1998a), the four site
19 monitoring wells, G024GW001 through G024GW004, were sampled on January 28-29, 1999
20 and June 9-10, 1999, and analyzed for VOCs, SVOCs, and metals. These sampling events
21 including any additional groundwater investigations were not part of the *Zone G RFI Work
22 Plan Addendum* (EnSafe, 2000). According to the *Zone G RFI Work Plan Addendum* no data
23 gaps in groundwater quality are evident at SWMU 24, and thus no additional monitoring
24 wells are recommended.

25 Detected groundwater contaminant concentrations were compared to their corresponding
26 MCLs, or for those chemicals that have no MCL, the EPA Region III tap water RBC
27 (HI=0.1). In addition, metals were compared to their corresponding Zone G background
28 range of concentration.

29 VOCs were not detected above the MDLs in any of the samples collected during the two
30 events. Detected concentrations of SVOCs were not above their corresponding EPA Region
31 III tap water RBC (HI=0.1). MCLs do not exist for the five SVOCs detected in the various
32 groundwater samples. Antimony detected at a concentration of 14.4 J $\mu\text{g}/\text{L}$ in the sample
33 collected from G024GW002 during the June 1999 sampling event was the only metal that

1 exceeded its corresponding MCL, EPA Region III tap water RBC, and Zone G background
2 range. Arsenic was detected in the samples collected from G024GW001 at concentrations of
3 74.8 and 67.2 $\mu\text{g}/\text{L}$ during the January and June 1999 sampling events, respectively. These
4 concentration exceed the MCL of 50 $\mu\text{g}/\text{L}$ but are within the Zone G background range of 8
5 to 166 $\mu\text{g}/\text{L}$.

6 Because the single detected concentration of antimony exceeds its screening criteria it is
7 considered a COPC in groundwater. The analytical data from the groundwater samples
8 collected during the January and June 1999 sampling events are provided in Appendix C.
9 Analytes estimated or detected in the groundwater samples above the MDLs are
10 summarized in Table 4-4. Values that exceed screening criteria are in bold text and outlined
11 within the table. The data validation reports from the additional groundwater sampling
12 events completed by EnSafe are provided in Appendix D.

13 **4.4 Summary of COPCs Identified**

14 Analytes detected or estimated in groundwater were not considered COPCs if the
15 concentrations were less than their corresponding MCLs, or for those chemicals that have
16 no MCL, the EPA Region III tap water RBC ($\text{HI}=0.1$). In addition, metals were compared to
17 their corresponding Zone G background range to evaluate if a constituent was considered a
18 COPC.

19 Analytes estimated or detected in soil samples were not considered COPCs if the
20 concentrations were less than their corresponding EPA Region III residential RBC for
21 surface soil samples and less than their corresponding SSL ($\text{DAF}=10$) (SSL with a $\text{DAF}=1$ for
22 VOCs) for subsurface soil samples. The Zone G background ranges for metals were also
23 used as additional screening criteria when identifying COPCs in surface and subsurface
24 soil. In addition for surface and subsurface soil, the seven individual PAH constituents used
25 in calculating total BEQs (including the total calculated BEQ concentration itself) were not
26 considered COPCs if the concentrations were less than their corresponding background
27 reference concentrations (CH2M-Jones, 2001a).

28 **4.4.1 Surface Soil**

29 The new COPC identified in the surface soil samples collected as part of the additional
30 investigations conducted subsequent to the *Zone G RFI Report, Revision 0* is the pesticide
31 heptachlor epoxide. During the additional RFI sampling investigation, five PAH
32 constituents (i.e., benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene,
33 dibenz[a,h]anthracene, and indeno[1,2,3-c,d]pyrene) were detected at concentrations above

1 their corresponding screening criteria. These PAH concentrations contributed to calculated
2 BEQs above the base-wide background reference concentration. BEQs were identified in the
3 *Zone G RFI Report, Revision 0* as COCs in the surface soil at SWMU 24.

4 **4.4.2 Subsurface Soil**

5 During the additional RFI sampling investigation isophorone, n-nitrosodiphenylamine, and
6 methylene chloride were detected in subsurface soil at concentrations above their
7 corresponding screening criteria; as a result they are considered COPCs. Subsurface soil
8 COPCs were not identified in the *Zone G RFI Report, Revision 0*.

9 **4.4.3 Groundwater**

10 Antimony was the only new groundwater COPC identified as a result of the additional
11 groundwater sampling investigations since it was detected in one sample above its
12 corresponding MCL, EPA Region III tap water RBC, and Zone G background range. Arsenic
13 was detected above its MCL during the original RFI sampling investigation, and was
14 therefore identified as a COC in the *Zone G RFI Report, Revision 0*.

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Acetone	GFDSSH028	0.08	=	780	0.8	NA
Ethylbenzene	GFDSSH028	0.006	J	780	0.7	NA
2-Methylnaphthalene	G024SB005	0.34	J	160	NA	NA
	GFDSSH028	16	=			
Acenaphthene	G024SB006	0.21	J	470	285	NA
	GFDSSH029	0.19	J			
Acenaphthylene	G024SB004	0.021	J	NA	NA	NA
Anthracene	GFDSSH029	0.92	=	2,300	6,000	NA
	G024SB006	0.079	J			
	GFDSSH030	0.6	=			
BEQs	G024SB001	0.389	=	NA	NA	1.304 ^d
	G024SB002	0.229	=			
	G024SB003	0.309	=			
	G024SB004	0.165	=			
	G024SB005	0.416	=			
	G024SB006	0.451	=			
	G024SB007	0.435	=			
	G024SB009	0.108	=			
	G024SB010	0.251	=			
	GFDSSH028	0.229	=			
	GFDSSH029	3.953	=			
	GFDSSH030	3.148	=			
	GFDSSH031	0.291	=			
Benzo[a]Anthracene	GFDSSH031	0.082	J	0.87	1	0.616 ^d
	G024SB009	0.05	J			
	G024SB002	0.031	J			
	G024SB007	0.1	J			

TABLE 4-1

Analytes Detected in Surface Soil, RFI Addendum Investigation

RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Benzo[a]Anthracene	G024SB001	0.02	J	0.87	1	0.616 ^d
	G024SB004	0.071	J			
	G024SB010	0.036	J			
	G024SB003	0.069	J			
	GFDSSH029	2.9	=			
	GFDSSH028	0.035	J			
	GFDSSH030	2.2	=			
Benzo[a]Pyrene	G024SB007	0.19	J	0.087	4	0.598 ^d
	G024SB004	0.11	J			
	GFDSSH031	0.094	J			
	GFDSSH029	2.6	=			
	G024SB010	0.041	J			
	G024SB003	0.087	J			
	GFDSSH030	2.0	=			
	G024SB002	0.035	J			
	GFDSSH028	0.023	J			
	G024SB009	0.063	J			
	Benzo[b]Fluoranthene	G024SB009	0.051			
G024SB007		0.26	J			
G024SB010		0.035	J			
GFDSSH028		0.026	J			
GFDSSH029		2.2	=			
GFDSSH031		0.14	J			
GFDSSH030		1.9	=			
G024SB003		0.085	J			
G024SB004		0.1	J			
G024SB002		0.039	J			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Benzo[g,h,i]Perylene	GFDSSH029	1.4	=	NA	NA	NA
	G024SB004	0.087	J			
	GFDSSH028	0.018	J			
	G024SB009	0.056	J			
	G024SB003	0.064	J			
	G024SB002	0.022	J			
	G024SB010	0.028	J			
	GFDSSH030	1.2	=			
	G024SB007	0.12	J			
GFDSSH031	0.039	J				
Benzo[k]Fluoranthene	GFDSSH029	2	=	8.7	24.5	0.596 ^d
	G024SB004	0.094	J			
	G024SB010	0.03	J			
	G024SB009	0.058	J			
	G024SB007	0.27	J			
	G024SB003	0.077	J			
	G024SB002	0.028	J			
	GFDSSH030	1.6	=			
	GFDSSH031	0.073	J			
Benzoic Acid	G024SB002	0.029	J	31,000	200	NA
	G024SB010	0.036	J			
	G024SB004	0.04	J			
	G024SB003	0.05	J			
	G024SB009	0.05	J			
	G024SB001	0.029	J			
Bis(2-ethylhexyl) Phthalate	GFDSSH028	0.14	J	46	1,800	NA
	GFDSSH030	0.044	J			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Chrysene	G024SB007	0.2	J	87	80	0.620 ^d
	GFDSSH028	0.075	J			
	G024SB002	0.044	J			
	G024SB009	0.061	J			
	GFDSSH029	2.7	=			
	GFDSSH030	2.2	=			
	GFDSSH031	0.11	J			
	G024SB004	0.11	J			
	G024SB010	0.038	J			
Di-n-butyl Phthalate	G024SB003	0.072	J			
	G024SB010	0.023	J	780	1,150	NA
	G024SB004	0.029	J			
	G024SB009	0.032	J			
	G024SB001	0.02	J			
Dibenz[a,h]Anthracene	GFDSSH031	0.017	J			
	G024SB004	0.029	J	0.087	1	0.525 ^d
	GFDSSH030	0.6	=			
	GFDSSH029	0.69	=			
Dibenzofuran	G024SB009	0.03	J			
	G024SB006	0.29	J	31	NA	NA
Dibenzofuran	GFDSSH029	0.064	J			
	G024SB009	0.44	=	78,000	NA	NA
Dimethyl Phthalate	G024SB009	0.44	=	78,000	NA	NA
Fluoranthene	GFDSSH030	4.2	=	310	2,150	NA
	GFDSSH028	0.12	J			
	GFDSSH029	5.7	=			
	G024SB001	0.036	J			
	G024SB002	0.052	J			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Fluoranthene	G024SB003	0.11	J	310	2,150	NA
	G024SB010	0.057	J			
	GFDSSH031	0.099	J			
	G024SB004	0.16	J			
	G024SB009	0.088	J			
Fluorene	GFDSSH030	0.19	J	310	280	NA
	GFDSSH028	0.95	=			
	GFDSSH029	0.13	J			
Indeno[1,2,3-c,d]Pyrene	G024SB003	0.055	J	0.87	7	0.525 ^d
	G024SB004	0.076	J			
	G024SB002	0.021	J			
	GFDSSH030	1.2	=			
	GFDSSH031	0.039	J			
	G024SB010	0.029	J			
	G024SB009	0.038	J			
	GFDSSH029	1.3	=			
	G024SB006	0.33	J			
	G024SB007	0.11	J			
N-Nitrosodiphenylamine	G024SB006	0.64	J	130	0.5	NA
Naphthalene	GFDSSH028	3.6	=	160	42	NA
Phenanthrene	G024SB010	0.021	J	NA	NA	NA
	GFDSSH028	1.8	=			
	G024SB002	0.026	J			
	GFDSSH029	3	=			
	G024SB004	0.13	J			
	G024SB006	1.1	J			
	G024SB009	0.038	J			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Phenanthrene	GFDSSH030	1.2	=	NA	NA	NA
	G024SB003	0.056	J			
Pyrene	G024SB004	0.13	J	230	2,100	NA
	GFDSSH029	5.4	=			
	GFDSSH028	0.13	J			
	G024SB001	0.027	J			
	GFDSSH030	3.1	=			
	G024SB010	0.043	J			
	G024SB009	0.074	J			
	G024SB007	0.12	J			
	G024SB002	0.046	J			
	GFDSSH031	0.094	J			
	G024SB003	0.085	J			
Alpha-chlordane	GFDSSH031	2.4	J	NA	5	NA
Endrin Aldehyde	GFDSSH029	0.056	J	NA	NA	NA
	GFDSSH028	0.0088	=			
Gamma-chlordane	GFDSSH031	2.7	J	NA	5	NA
	GFDSSH028	0.0025	=			
Heptachlor	GFDSSH031	0.11	J	0.14	11.5	NA
Heptachlor Epoxide	GFDSSH031	0.27	J	0.07	0.35	NA
Methoxychlor	GFDSSH031	0.059	J	39	80	NA
p,p'-DDD	GFDSSH028	0.029	J	2.7	8	NA
p,p'-DDT	GFDSSH031	0.054	J	1.9	16	NA
	GFDSSH029	0.052	J			
Aluminum	G024SB005	7,030	=	7,800	NA	2,190 - 17,800
	G024SB007	5,650	=			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Aluminum	GFDSSH028	4,350	=	7,800	NA	2,190 - 17,800
	GFDSSH031	8,820	=			
	G024SB006	8,490	=			
	GFDSSH029	11,700	=			
	GFDSSH030	7,820	=			
Antimony	G024SB007	0.37	J	3.1	2.5	0.79 - 5.7
	G024SB006	0.41	J			
	G024SB005	0.46	J			
Arsenic	GFDSSH028	1.4	=	0.43	14.5	0.64 - 18
	G024SB007	8.1	=			
	G024SB006	5.7	=			
	GFDSSH031	3.9	=			
	GFDSSH030	4.8	=			
	GFDSSH029	10.9	=			
	G024SB005	2.5	=			
Barium	GFDSSH028	16.3	=	550	800	11 - 129
	G024SB005	31.2	=			
	G024SB006	15.8	J			
	G024SB007	19.9	=			
	GFDSSH030	23.4	=			
	GFDSSH029	28.9	=			
	GFDSSH031	22.6	=			
Beryllium	GFDSSH030	0.37	J	16	31.5	0.47 - 1.1
	GFDSSH028	0.25	J			
	GFDSSH029	0.33	J			
	GFDSSH031	0.36	J			
Cadmium	GFDSSH028	0.04	J	3.9	4	0.12 - 1.7
	GFDSSH030	0.28	J			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Chromium, Total	GFDSSH030	17	=	23 ^c	19	7 - 39
	GFDSSH029	19.9	=			
	GFDSSH031	17.6	=			
	GFDSSH028	4.9	=			
	G024SB007	15.4	J			
	G024SB005	9.6	J			
	G024SB006	25.9	J			
Cobalt	GFDSSH031	2.2	J	470	NA	1.1 - 6.2
	GFDSSH030	5.3	=			
	G024SB005	2.2	J			
	GFDSSH028	1.5	J			
	G024SB007	1.6	J			
	GFDSSH029	2	J			
	G024SB006	1.3	J			
Copper	GFDSSH031	2	J	310	NA	23 - 431
	G024SB006	1.1	J			
	G024SB005	3	J			
	G024SB007	10.4	J			
	GFDSSH029	8	=			
	GFDSSH030	5.1	J			
Iron	G024SB006	19,900	=	2,300	NA	4,300 - 32,700
	G024SB007	5,880	=			
	GFDSSH028	2,280	=			
	GFDSSH029	15,300	=			
	GFDSSH030	12,000	=			
	G024SB005	4,920	=			
	GFDSSH031	12,500	=			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Lead	GFDSSH031	8.4	=	NA	400 ^g	3.5 - 275
	GFDSSH028	63.4	=			
	G024SB005	110	J			
	G024SB006	58.9	J			
	GFDSSH030	179	=			
	G024SB007	62.1	J			
	GFDSSH029	41	=			
Manganese	GFDSSH029	47.1	=	160	NA	39 - 359
	GFDSSH028	15.4	=			
	G024SB007	74.8	=			
	GFDSSH030	117	=			
	G024SB006	37	=			
	GFDSSH031	36.5	=			
	G024SB005	23.2	=			
Mercury	G024SB007	0.06	=	NA	1	0.06 - 2
	GFDSSH031	0.05	=			
	GFDSSH028	0.04	=			
	G024SB006	0.04	=			
	GFDSSH030	0.39	=			
	GFDSSH029	0.09	=			
Nickel	GFDSSH029	5.2	=	160	65	2 - 27
	GFDSSH030	7.6	=			
	GFDSSH028	2.2	J			
	G024SB006	2.7	J			
	G024SB007	5.4	=			
	GFDSSH031	3.4	J			
	G024SB005	3.4	=			

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
Selenium	GFDSSH029	0.55	J	39	2.5	0.45 - 1.4
	G024SB007	0.72	J			
	G024SB005	0.45	J			
	G024SB006	1.5	=			
Vanadium	G024SB007	16.6	=	55	3,000	7.2 - 57
	GFDSSH029	25.8	=			
	G024SB006	34.4	=			
	GFDSSH031	22.2	=			
	GFDSSH028	5.8	=			
	G024SB005	13.8	=			
	GFDSSH030	21.8	=			
Zinc	G024SB005	38.5	J	2,300	6,000	18 - 1,650
	GFDSSH029	67.5	=			
	GFDSSH031	18.3	=			
	GFDSSH030	47.8	=			
	GFDSSH028	16	=			
	G024SB006	11.7	J			
	G024SB007	47.2	J			

Concentrations in bold and outlined text exceed the appropriate screening criteria.

^a Generic soil to groundwater soil screening level (SSL) with a dilution attenuation factor (DAF)=10 except for volatile organic compounds (VOCs) which were screened using SSL (DAF=1). SSLs were obtained from Appendix I of the *Charleston Naval Complex Project Team Notebook and Instructions*, Revision 1A (CH2M-Jones, December 2001d).

^b Except as noted by footnote "d", the Zone G Background Ranges of Concentrations were obtained from Appendix J of the *Charleston Naval Complex Project Team Notebook and Instructions – Charleston Naval Complex, Environmental Restoration Project*, Revision 1A (CH2M-Jones, December 2001d).

^c The conservative U.S. Environmental Protection Agency (EPA) Region III residential risk-based concentration (RBC) (Hazard Index [HI]=0.1) of 23 milligrams per kilogram (mg/kg) for Chromium VI was used as the screening criteria for Chromium, Total.

^d Base-wide polycyclic aromatic hydrocarbon (PAH) background concentrations were obtained from the *Technical Memorandum: PAHs Background Study* (CH2M-Jones, February 2001a).

^e A screening level of 400 mg/kg has been set for lead based on *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities* (EPA, 1994).

= Indicates that the analyte is detected at the concentration shown.

HI Hazard Index

TABLE 4-1
 Analytes Detected in Surface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL (DAF=10) ^a	Zone G Background Concentration (or Range) ^b
J	Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.					
mg/kg	milligrams per kilogram					
NA	Screening criteria not available for the referenced compound.					

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Acetone	GFDSSH030	0.06	=	0.8	NA
Carbon Disulfide	GFDSSH031	0.001	J	2	NA
1,4-Dichlorobenzene	G024SB004	0.034	J	1	NA
2-Methylnaphthalene	G024SB005	8.9	=	NA	NA
	G024SB004	0.057	J		
	GFDSSH028	27	=		
	G024SB006	42	=		
	G024SB007	11	=		
Acenaphthene	GFDSSH028	0.98	=	285	NA
Acenaphthylene	G024SB004	0.038	J	NA	NA
Anthracene	G024SB006	0.27	J	6,000	NA
	G024SB005	0.12	J		
BEQs	G024SB001	0.439	=	NA	1.4 ^c
	G024SB002	0.497	=		
	G024SB003	0.451	=		
	G024SB004	0.195	=		
	G024SB005	0.462	=		
	G024SB006	0.451	=		
	G024SB007	0.474	=		
	G024SB009	0.158	=		
	G024SB010	0.462	=		
	GFDSSH028	0.411	=		
	GFDSSH029	0.449	=		
	GFDSSH030	0.411	=		
	GFDSSH031	0.439	=		
	Benzo[a]Anthracene	G024SB009	0.09	J	1
GFDSSH029		0.022	J		
GFDSSH030		0.023	J		

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Benzo[a]Anthracene	GFDSSH028	0.024	J	1	0.627 ^c
	G024SB004	0.075	J		
Benzo[a]Pyrene	G024SB009	0.087	J	4	0.623 ^c
	G024SB004	0.14	J		
Benzo[b]Fluoranthene	G024SB009	0.082	J	2.5	0.631 ^c
	GFDSSH029	0.035	J		
	G024SB004	0.095	J		
Benzo[g,h,i]Perylene	G024SB004	0.15	J	NA	NA
	G024SB009	0.078	J		
Benzo[k]Fluoranthene	G024SB009	0.068	J	24.5	0.609 ^c
	G024SB004	0.075	J		
Benzoic Acid	G024SB010	0.051	J	200	NA
	G024SB003	0.067	J		
	G024SB004	0.074	J		
	G024SB002	0.042	J		
	G024SB009	0.08	J		
Bis(2-ethylhexyl) Phthalate	GFDSSH028	0.024	J	1,800	NA
	GFDSSH030	0.03	J		
Chrysene	GFDSSH028	0.047	J	80	0.616 ^c
	GFDSSH030	0.026	J		
	G024SB009	0.083	J		
	GFDSSH029	0.023	J		
	G024SB004	0.086	J		
Di-n-butyl Phthalate	G024SB004	0.036	J	1,150	NA
	G024SB009	0.05	J		
Dibenz[a,h]anthracene	G024SB004	0.03	J	1	0.586 ^c
	G024SB009	0.048	J		

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Dibenzofuran	G024SB004	0.027	J	NA	NA
	G024SB006	1.4	=		
	G024SB005	0.46	=		
	G024SB007	0.38	J		
Fluoranthene	G024SB004	0.078	J	2,150	NA
	GFDSSH030	0.076	J		
	G024SB009	0.15	J		
	G024SB001	0.022	J		
	GFDSSH029	0.037	J		
Fluorene	GFDSSH028	2	=	280	NA
	GFDSSH030	0.5	=		
	G024SB006	2.4	=		
	G024SB007	0.51	=		
Indeno[1,2,3-c,d]Pyrene	G024SB004	0.068	J	7	0.592 ^c
	G024SB009	0.048	J		
Isophorone	G024SB007	0.7	=	0.25	NA
	G024SB005	0.37	J		
N-Nitrosodiphenylamine	G024SB006	3.9	J	0.5	NA
	G024SB005	0.89	=		
Naphthalene	G024SB006	10	=	42	NA
	G024SB007	4.2	=		
	GFDSSH028	1.3	=		
Phenanthrene	G024SB006	5.5	=	NA	NA
	G024SB005	2	=		
	GFDSSH030	0.29	J		
	G024SB009	0.033	J		
	GFDSSH028	4.4	=		
Phenanthrene	G024SB007	0.89	=	NA	NA

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Pyrene	G024SB004	0.079	J	2,100	NA
	G024SB006	0.25	J		
	GFDSSH030	0.079	J		
	G024SB009	0.13	J		
	GFDSSH028	0.21	J		
	G024SB007	0.11	J		
	G024SB005	0.09	J		
	GFDSSH029	0.029	J		
Alpha-chlordane	GFDSSH031	0.31	=	5	NA
Gamma-chlordane	GFDSSH031	0.33	=	5	NA
Heptachlor	GFDSSH031	0.018	=	11.5	NA
Heptachlor Epoxide	GFDSSH031	0.029	J	0.35	NA
p,p'-DDD	GFDSSH028	0.01	=	8	NA
Aluminum	G024SB007	4,650	=	NA	2,630 - 36,800
	GFDSSH030	7,860	=		
	GFDSSH031	15,300	=		
	GFDSSH029	17,700	=		
	G024SB006	5,700	=		
	G024SB005	7,600	=		
	GFDSSH028	15,500	=		
Antimony	G024SB006	0.27	J	2.5	NA
	G024SB005	0.53	J		
Arsenic	GFDSSH029	7.8	=	14.5	1.4 - 36
	G024SB006	1.6	=		
	GFDSSH028	9.3	=		
	G024SB007	2.8	=		
Arsenic	GFDSSH030	2.4	=	14.5	1.4 - 36

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
	GFDSSH031	8.3	=		
	G024SB005	8.1	=		
Barium	G024SB005	16.6	J	800	7.7 - 63
	GFDSSH031	23.7	=		
	G024SB006	22.4	=		
	GFDSSH030	13.6	=		
	GFDSSH028	31.7	=		
	GFDSSH029	24.6	=		
	G024SB007	8.5	J		
Beryllium	GFDSSH031	0.38	J	31.5	0.45 - 2.4
	GFDSSH030	0.17	J		
	GFDSSH029	0.34	J		
	GFDSSH028	0.52	J		
Chromium, Total	GFDSSH031	38.3	=	19	7.4 - 65
	GFDSSH028	25.6	=		
	G024SB005	22.6	J		
	GFDSSH029	31.6	=		
	G024SB006	8	J		
	GFDSSH030	14.8	=		
	G024SB007	10.8	J		
Cobalt	G024SB007	0.76	J	NA	0.9 - 15
	GFDSSH029	3	J		
	GFDSSH030	1	J		
	GFDSSH028	3.1	=		
	GFDSSH031	2.1	J		
	G024SB005	1.4	J		
	G024SB006	0.92	J		
Copper	G024SB007	0.39	J	NA	4.5 - 46
	G024SB005	0.86	J		

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Iron	GFDSSH029	2.4	J		3,110 - 58,100
	G024SB006	0.75	J		
	GFDSSH031	28,900	=	NA	
	GFDSSH029	24,600	=		
	GFDSSH028	19,800	=		
	GFDSSH030	11,200	=		
	G024SB005	19,100	=		
	G024SB007	9,870	=		
Lead	G024SB006	6,670	=		2.4 - 76
	G024SB006	16	J	400 ^d	
	G024SB007	3.3	J		
	GFDSSH029	12.9	=		
	GFDSSH030	22.2	=		
	G024SB005	6.6	J		
	GFDSSH028	9.6	=		
Manganese	GFDSSH031	9.6	=		20 - 409
	GFDSSH030	22	=	NA	
	GFDSSH031	18.8	=		
	GFDSSH028	72.6	=		
	G024SB005	54.5	=		
	GFDSSH029	78.1	=		
	G024SB006	25.5	=		
Mercury	G024SB007	16.9	=		0.05 - 0.37
	GFDSSH030	0.04	J	1	
	G024SB007	0.06	=		
	GFDSSH031	0.26	=		
Mercury	G024SB005	0.04	=		0.05 - 0.37
	GFDSSH029	0.06	=	1	
	GFDSSH028	0.13	=		

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
Nickel	GFDSSH030	1.8	J	65	1.9 - 22
	GFDSSH029	5.8	=		
	G024SB005	2.2	J		
	GFDSSH028	5.1	=		
	G024SB006	1.7	J		
	G024SB007	1.4	J		
	GFDSSH031	4.1	J		
Selenium	GFDSSH031	1.7	=	2.5	0.54 - 1.0
	G024SB005	2.2	=		
	G024SB007	1.1	=		
	G024SB006	0.76	J		
	GFDSSH028	0.47	J		
Thallium	GFDSSH031	0.62	J	0.35	1.0
Vanadium	GFDSSH029	37.9	=	3,000	5.9 - 112
	GFDSSH028	42.2	=		
	G024SB007	18.2	=		
	G024SB006	12.6	=		
	G024SB005	43.9	=		
	GFDSSH031	48.4	=		
	GFDSSH030	23.1	=		
Zinc	GFDSSH031	16.8	=	6,000	20 - 198
	G024SB007	4.7	J		
	GFDSSH028	18.5	=		
	GFDSSH030	18.3	=		
	GFDSSH029	34.2	=		
	G024SB006	5.9	J		
Zinc	G024SB005	8.7	J	6,000	20 - 198

Concentrations in bold and outlined text exceed the appropriate screening criteria.

TABLE 4-2
 Analytes Detected in Subsurface Soil, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	SSL ^a	Zone G Background Concentration (or Range) ^b
---------	-----------------	-----------------------	-----------	------------------	---

^a Generic soil to groundwater soil screening level (SSL) with a dilution attenuation factor (DAF)=10 except for volatile organic compounds (VOCs) which were screened using SSL (DAF=1). SSLs were obtained from Appendix I of the *Charleston Naval Complex Project Team Notebook and Instructions*, Revision 1A (CH2M-Jones, December 2001d).

^b Except as noted by footnote "c", the Zone G Background Ranges of Concentrations were obtained from Appendix J of the *Charleston Naval Complex Project Team Notebook and Instructions*, Revision 1A (CH2M-Jones, December 2001d).

^c Base-wide PAH background concentrations were obtained from the *Technical Memorandum: PAHs Background Study* (CH2M-Jones, February 2001a).

^d A screening level of 400 mg/kg has been set for lead based on Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (EPA, 1994).

= Indicates that the analyte is detected at the concentration shown.

HI Hazard Index

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

mg/kg milligrams per kilogram

NA Screening criteria not available for the referenced compound.

TABLE 4-3
 Analytes Detected in Subsurface Soil, Fuel Transfer Pipeline Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (µg/kg)	Qualifier	Date Collected	SSL ^a	BEQ Reference Concentration ^b
Volatile Organic Compounds						
1,1-Dichloroethene	G024SB012	0.63	J	10/15/02	3.0	NA
Methylene Chloride	G024SB012	2.1	J	10/15/02	1.2	NA
Ethylbenzene	G024SB013	93	J	10/15/02	700	NA
Semivolatile Organic Compounds						
BEQs	G024SB011	302.4	=	10/15/02	NA	1,400
Benzo[a]Pyrene	G024SB011	50.8	J	10/15/02	4,000	623
Chrysene	G024SB011	67.5	J	10/15/02	80,000	616
Anthracene	G024SB011	128	J	10/15/02	6,000,000	NA
Fluoranthene	G024SB011	233	J	10/15/02	2,150,000	NA
	G024SB012	26.9	J	10/15/02		
Naphthalene	G024SB013	517	=	10/15/02	42,000	NA
2-Methylnaphthalene	G024SB013	1,460	=	10/15/02	11,000	NA
Phenanthrene	G024SB011	357	J	10/15/02	NA	NA
	G024SB013	518	=	10/15/02		
Pyrene	G024SB011	224	J	10/15/02	2,100,000	NA
	G024SB012	24.2	J	10/15/02		
	G024SB013	197	J	10/15/02		

Concentrations in bold and outlined text exceed the appropriate screening criteria.

^a Generic soil-to-groundwater soil screening level (SSL) with a DAF=10 used, except for VOCs which were screened using SSL (DAF=1). SSLs were obtained from Table A-1 of the *EPA Soil Screening Guidance: Technical Background Document* (1996). If no SSL was available in this document, the SSL from the EPA Region III RBC table was used as a screening criterion.

^b Basewide PAH background concentrations were obtained from the *Background PAHs Study Report: Technical Information for Development of Background BEQ Values* (CH2M-Jones, February 2001).

= Indicates that the analyte is detected at the concentration shown.

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

µg/kg micrograms per kilogram

NA Screening criteria not available for the referenced compound.

TABLE 4-4
 Analytes Detected in Groundwater, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Date Collected	Concentration ($\mu\text{g/L}$)	Qualifier	MCL	EPA Region III Tap Water RBC (HI=0.1)	Zone G Background Concentration (or Range) ²
4-Nitrophenol	G024GW004	01/29/99	4	J	NA	29	NA
Benzoic Acid	G024GW004	06/10/99	1	J	NA	15,000	NA
	G024GW003	06/10/99	1	J			
	G024GW001	06/10/99	2	J			
	G024GW002	06/09/99	1	J			
	G024GW004	01/29/99	1	J			
Benzyl Alcohol	G024GW004	06/10/99	1	J	NA	1,100	NA
Bis(2-ethylhexyl) Phthalate	G024GW004	01/29/99	1	J	NA	4.8	NA
	G024GW003	01/28/99	1	J			
	G024GW001	01/28/99	2	J			
Di-n-butyl Phthalate	G024GW003	06/10/99	1	J	NA	370	NA
	G024GW002	01/28/99	0.5	J			
Aluminum	G024GW004	06/10/99	42.4	J	NA	3,700	136 -1,770
	G024GW003	01/28/99	167	J			
	G024GW001	01/28/99	1,620	J			
	G024GW002	01/28/99	81.8	J			
Antimony	G024GW002	06/09/99	14.4	J	6	1.5	3 - 6
	G024GW004	01/29/99	3	J			
	G024GW002	01/28/99	3.2	J			
	G024GW001	01/28/99	3.4	J			
Arsenic	G024GW003	06/10/99	17.8	=	50	0.045	8 - 166
	G024GW001	06/10/99	67.2	=			
	G024GW004	06/10/99	6.6	J			
	G024GW002	06/09/99	2.4	J			
	G024GW002	01/28/99	4	J			
	G024GW003	01/28/99	11.8	=			

TABLE 4-4
 Analytes Detected in Groundwater, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Date Collected	Concentration (µg/L)	Qualifier	MCL	EPA Region III Tap Water RBC (HI=0.1)	Zone G Background Concentration (or Range) ^a
Arsenic	G024GW001	01/28/99	74.8	=	50	0.045	8 - 166
Barium	G024GW001	06/10/99	23	J	2,000	260	14 - 937
	G024GW003	06/10/99	14.4	J			
	G024GW004	06/10/99	33.3	J			
	G024GW002	06/09/99	16.6	J			
	G024GW004	01/29/99	42.7	=			
	G024GW002	01/28/99	11.9	J			
	G024GW003	01/28/99	35.3	=			
	G024GW001	01/28/99	27.5	=			
Chromium, Total	G024GW001	01/28/99	2.4	J	100	11 ^b	2-14
Cobalt	G024GW001	01/28/99	2.6	J	NA	220	1.2-8
	G024GW002	01/28/99	2.2	J			
Copper	G024GW001	01/28/99	2.8	J	1,300	150	12 - 87
Iron	G024GW001	06/10/99	6,470	=	NA	1,100	2,000 - 35,700
	G024GW004	06/10/99	2,980	=			
	G024GW003	06/10/99	1,230	=			
	G024GW002	06/09/99	1,710	=			
	G024GW004	01/29/99	222	=			
	G024GW002	01/28/99	2,340	=			
	G024GW001	01/28/99	7,930	=			
	G024GW003	01/28/99	1,540	=			
Lead	G024GW001	01/28/99	1.5	J	15	NA	6 - 52
Manganese	G024GW004	06/10/99	181	=	NA	73	149 - 7,980
	G024GW001	06/10/99	212	=			
	G024GW003	06/10/99	41.9	=			
	G024GW002	06/09/99	68.6	=			
	G024GW004	01/29/99	57.3	=			

TABLE 4-4
 Analytes Detected in Groundwater, RFI Addendum Investigation
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Date Collected	Concentration (µg/L)	Qualifier	MCL	EPA Region III Tap Water RBC (HI=0.1)	Zone G Background Concentration (or Range) ^a
Manganese	G024GW003	01/28/99	25.6	=	NA	73	149 - 7,980
	G024GW001	01/28/99	192	=			
	G024GW002	01/28/99	64	=			
Nickel	G024GW002	06/09/99	3.7	J	NA	73	1.2 - 20
	G024GW001	01/28/99	1.2	J			
Selenium	G024GW004	01/29/99	9	J	50	18	4
	G024GW003	01/28/99	5.1	=			
Vanadium	G024GW004	01/29/99	2.8	J	NA	26	3 - 30
	G024GW003	01/28/99	1.5	J			
	G024GW001	01/28/99	4.2	J			
Zinc	G024GW002	01/28/99	36	=	NA	1,100	18 - 124

Concentrations in bold and outlined text exceed the appropriate screening criteria.

^a The Zone G Background Ranges of Concentrations were obtained from Appendix J of the *Charleston Naval Complex Project Team Notebook and Instructions*, Revision 1A (CH2M-Jones, December 2001d).

^b The conservative EPA Region III Tap Water RBC (HI=0.1) of 11 micrograms per kilogram (µg/kg) for Chromium VI was used as the screening criteria for Chromium, Total.

= Indicates that the analyte is detected at the concentration shown.

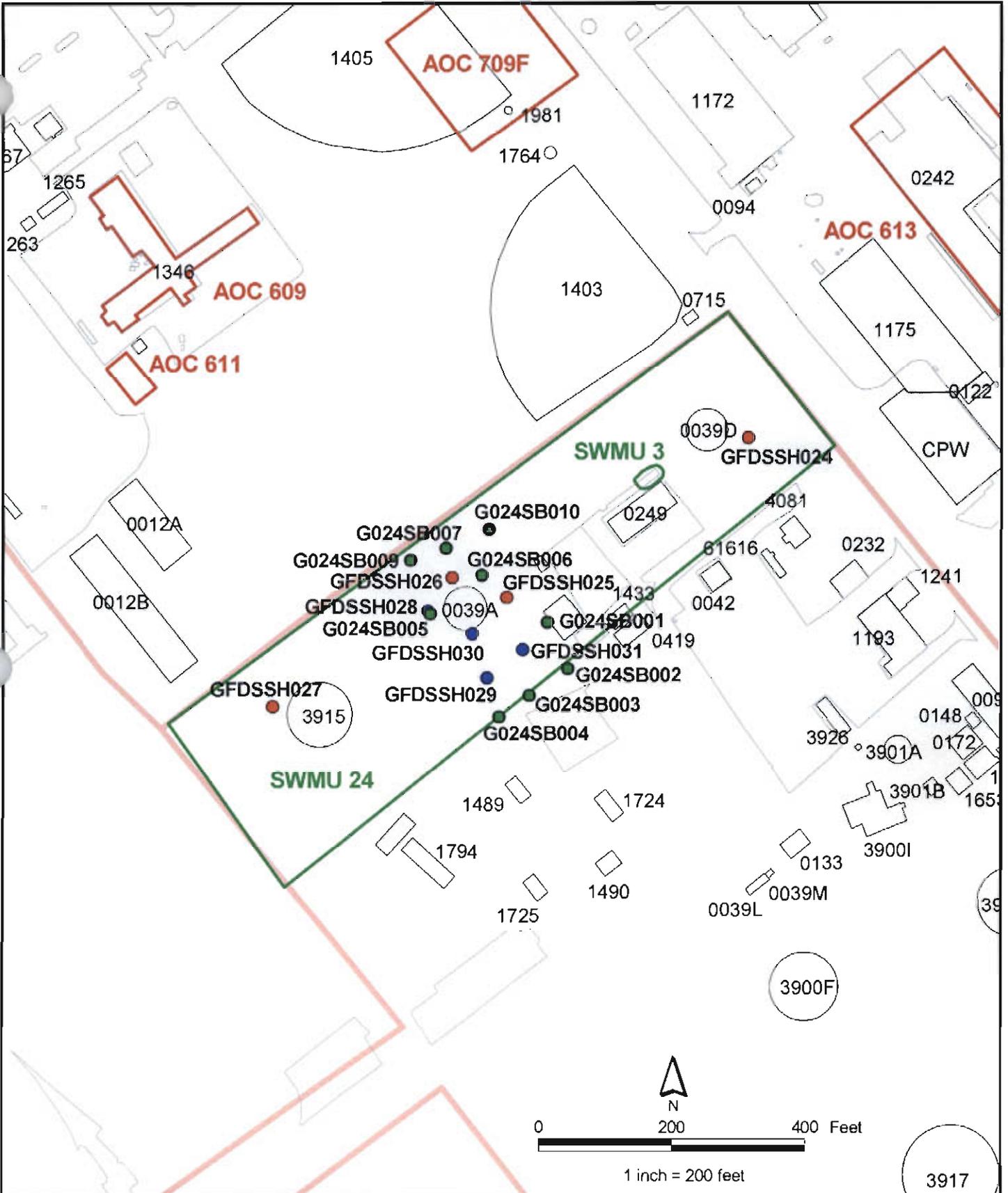
HI Hazard Index

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

µg/L micrograms per liter

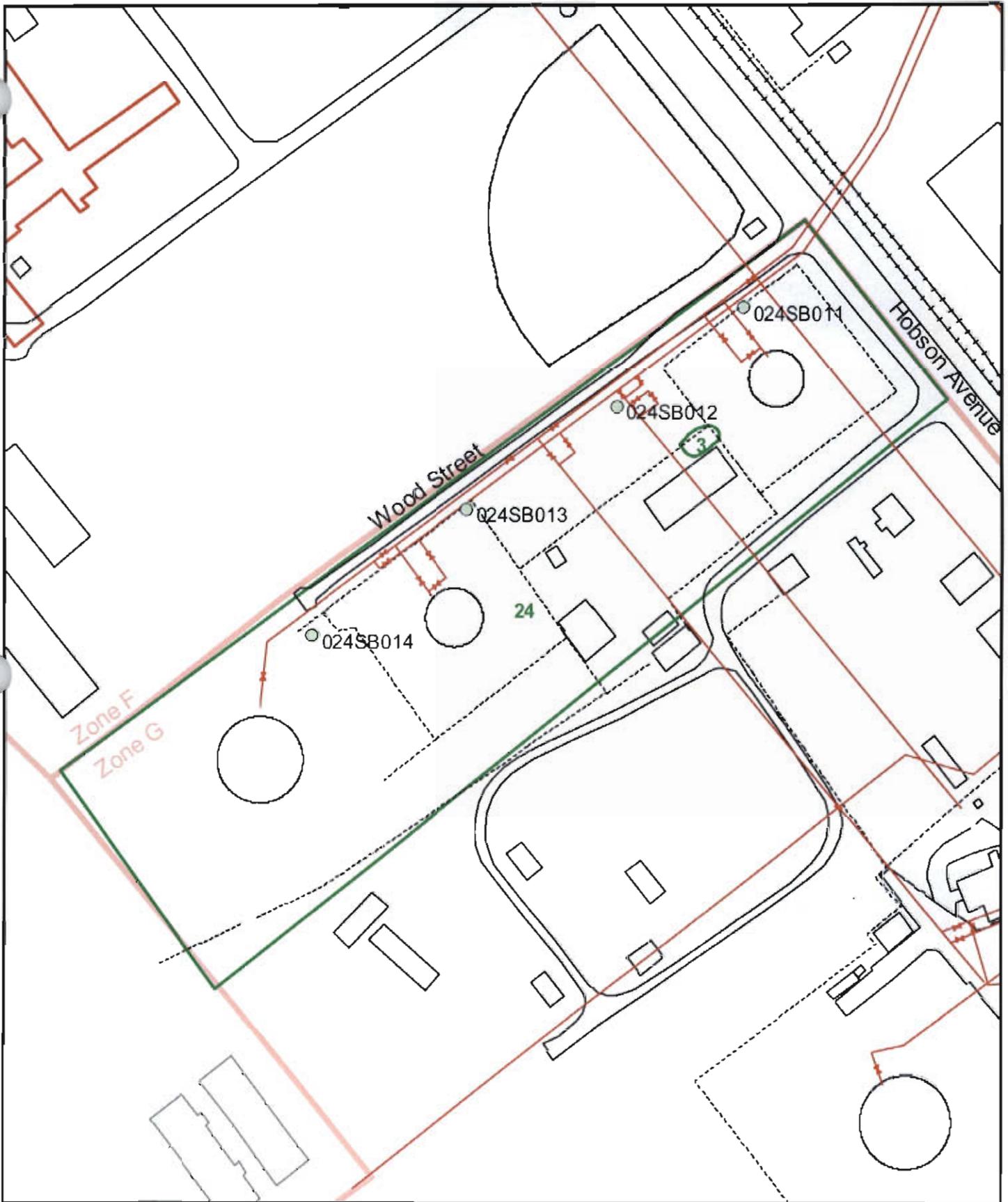
NA Screening criteria not available for the referenced compound.

NOTE: Original figure created in color



- Surface Soil RFI 10/96 (GFDSSH024-027)
- Surface Soil RFI Addendum 07/99 (GFDSSH028-031)
- Soil Boring RFI Addendum 12/99-01/00 (G024SB*)
- Surface Soil RFI Addendum 12/99-01/00 (G024SB*)
- Pavement
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary

Figure 4-1
RFI Addendum Soil Sample Location Plan
SWMU 24, Zone G
Charleston Naval Complex



- Subsurface Soil Sampling Locations
- Fuel Line
- - - Fence
- ≡ Railroads
- ≡ Roads
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary

Figure 4-3
 Fuel Line Subsurface Soil Sample Locations
 SWMU 24, Zone G
 Charleston Naval Complex

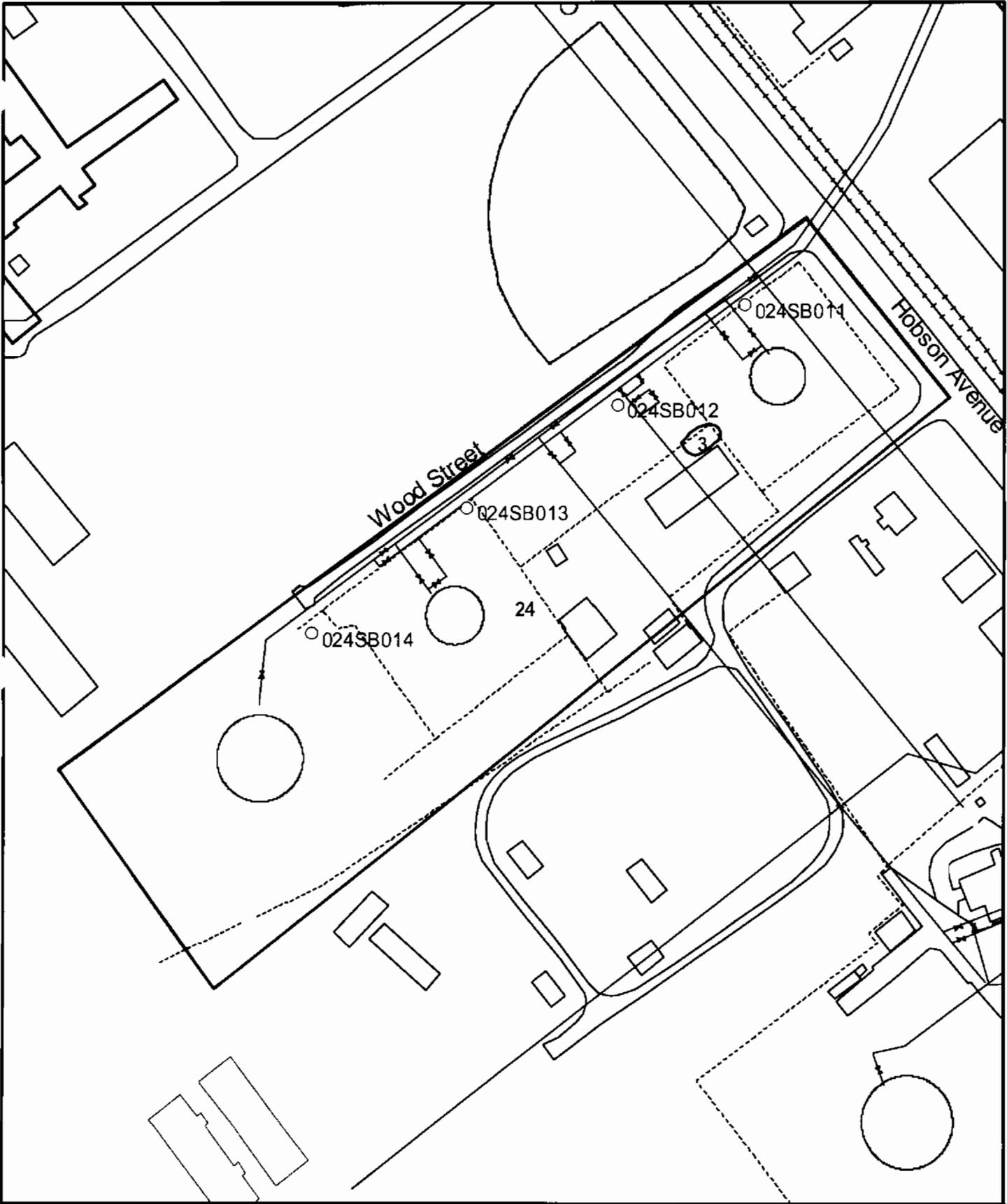


Figure 4-3
 Fuel Line Subsurface Soil Sample Locations
 SWMU 24, Zone G
 Charleston Naval Complex

- Subsurface Soil Sampling Locations
- ▬ Fuel Line
- ▬ Fence
- ▬ Railroads
- ▬ Roads
- ▬ AOC Boundary
- ▬ SWMU Boundary
- ▬ Buildings
- ▬ Zone Boundary

Section 5.0

1 **5.0 COPC/COC Refinement**

2 CH2M-Jones evaluated the initial data collected during the original RFI as presented in the
3 *Zone G RFI Report, Revision 0* (EnSafe, 1998a), along with the additional investigation data,
4 to consistently identify all COPCs. These COPCs were further evaluated to determine
5 whether any of these chemicals meets the criteria for being considered a COC on the basis
6 of current EPA and SCDHEC risk management criteria. Results from these findings are
7 presented in this section.

8 **5.1 Surface Soil**

9 BEQs were the only surface soil COCs identified in the *Zone G RFI Report, Revision 0*. The
10 COPCs in surface soil identified as a result of the additional RFI sampling investigations
11 conducted at SWMU 24 are the pesticide heptachlor epoxide and BEQs. During the
12 additional RFI sampling investigation, five PAH constituents (benzo[a]anthracene,
13 benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-c,d]pyrene)
14 were detected at concentrations that exceeded their corresponding screening criteria. PAHs
15 are evaluated as BEQs to determine if they meet the criteria for being considered COCs.

16 **5.1.1 Heptachlor Epoxide**

17 The pesticide heptachlor epoxide was detected in the surface soil sample GFDSSH031 at an
18 estimated concentration of 0.27 J mg/kg. This concentration is slightly above its EPA
19 Region III residential RBC (HI=0.1) of 0.07 mg/kg, but below the industrial RBC of 0.63
20 mg/kg. This detected concentration is below its SSL (DAF=10) of 0.35 mg/kg. It was not
21 detected in any of the five remaining surface soil samples collected at the site and analyzed
22 for pesticides. Heptachlor epoxide was detected at an estimated concentration of 0.029 J
23 mg/kg in the subsurface soil (3 to 5 ft bls) collected at the same location (GFDSSH031). This
24 concentration is one order of magnitude less than the SSL of 0.35 mg/kg. Table 5-1 presents
25 the analytical results for heptachlor epoxide in surface soil at SWMU 24.

26 Using both the heptachlor epoxide detected concentrations and non-detects at half the
27 method detection limits (MDLs), a 95-percent Upper Confidence Limit (UCL₉₅) calculation
28 indicated that data are log-normally distributed; however the log normal UCL₉₅ calculation
29 defaulted to the maximum detected value, due to high variability in distribution and low
30 frequency of detection. Therefore, a UCL₉₅ value was not considered. The sitewide average
31 value estimated using half the MDLs for non-detects is 0.046 mg/kg; with an average of

1 0.0462 mg/kg when using non-detects at the reported MDLs. This average value is lower
2 than the screening criteria (i.e., EPA Region III residential RBC and the SSL).

3 Additionally, heptachlor epoxide is an organo-chlorine pesticide used for general facility
4 maintenance across the base, and was detected in one of the Zone G grid samples, and in 22
5 of the 200 grid samples collected across the CNC at concentrations ranging from 0.0002 to
6 0.03 mg/kg. The analytical results from these grid samples is presented in Table 5-2. The
7 one detection of heptachlor epoxide in surface soil is likely from past facility maintenance
8 applications. SWMU 3, located within the SWMU 24 boundary, is currently being
9 investigated for pesticides, however, the drivers for the proposed actions are mainly
10 DDT/DDD/DDE. Heptachlor and heptachlor epoxide were not found at SWMU 3 at
11 concentrations indicative that a release of these chemicals has occurred. Out of 19 surface
12 soil samples analyzed for heptachlor during the RFI at SWMU 3, it was only detected in
13 two samples, at concentrations of 0.52 and 0.21 mg/kg. Heptachlor epoxide was not
14 detected in RFI soil samples collected at SWMU 3 above its EPA Region III residential RBC
15 or SSL.

16 The detection of heptachlor epoxide in 11 percent of the grid samples supports the fact that
17 pesticide use was not limited to SWMU 24, but rather was used throughout the CNC.
18 Because heptachlor epoxide was used in pesticides throughout the CNC and does not
19 appear to be related to previous operations involving the waste oil reclamation facility at
20 tanks 39-A and 39-D, because it was only detected in one of the six surface soil samples
21 collected and analyzed for pesticides, and because the site average concentration is below
22 the screening criteria, heptachlor epoxide is not considered a COC in surface soil at
23 SWMU 24.

24 **5.1.2 Total BEQs**

25 A total of 15 surface soil samples were collected at SWMU 24 and analyzed for PAHs.
26 Thirteen of the 15 samples had detected concentrations of individual constituents of PAHs.
27 Table 5-3 presents the summary statistics for PAHs in the surface soil at SWMU 24.
28 Calculated BEQ concentrations in the 15 samples ranged from 107.5 to 3,952.7 $\mu\text{g}/\text{kg}$, when
29 non-detects are included at half the MDLs. The analytical results for BEQs in surface soil are
30 presented in Table 5-4. Figure 4-2 depicts BEQs in surface soil at SWMU 24.

31 Twelve of the 15 surface soil samples have calculated concentrations less than 455 $\mu\text{g}/\text{kg}$,
32 which is well below the basewide reference concentration of 1,304 $\mu\text{g}/\text{kg}$. Calculated BEQ
33 concentrations in three surface soil samples (i.e., GFDSSH026, GFDSSH029, GFDSSH030)
34 are above 2,500 $\mu\text{g}/\text{kg}$ and are north-northwest and south-southwest of tank 39-A. At least

1 parts of the berm and the bermed area surrounding tanks 39-A and 39-D are covered with
2 an old, degraded asphalt-type material. It is likely that these areas were covered with
3 material containing asphalt, which could account for the sporadic detections of BEQs in the
4 soil samples. In addition, the presence of this surface material provides the rationale
5 supporting the fact that BEQs were not detected in subsurface soil samples at elevated
6 concentrations in the same location as the three surface soil samples with BEQ
7 concentrations greater than 2,500 $\mu\text{g}/\text{kg}$. As a result, it is likely that BEQs are associated
8 with the asphalt material used in covering the berm areas, and are not likely from waste
9 oils.

10 Consistent with decisions made at other sites at the CNC where BEQs above the sitewide
11 reference concentration have been detected in surface soil, BEQs are retained as a surface
12 soil COC for the unrestricted and industrial land use scenarios.

13 Detected concentrations of BEQs in subsurface soil samples collected at SWMU 24 were not
14 above their respective screening criteria. As a result, BEQs are not considered COCs in the
15 subsurface soil at SMWU 24.

16 **5.2 Subsurface Soil**

17 During the additional RFI sampling investigation, isophorone and n-nitrosodiphenylamine
18 were detected in subsurface soil at concentrations above their corresponding screening
19 criteria, and as a result are considered COPCs. In addition, during the subsurface soil
20 investigation in the immediate area of the fuel transfer pipeline, methylene chloride was
21 detected in one sample above its SSL (DAF=1). These chemicals will be further evaluated to
22 determine if they meet the criteria for being considered a COC.

23 No subsurface soil COPCs were identified for SWMU 24 in the *Zone G RFI Report, Revision 0*.

24 **5.2.1 Isophorone**

25 During the additional RFI sampling investigation completed by EnSafe, isophorone was
26 detected at concentrations of 0.37 J and 0.7 mg/kg in the subsurface soil samples collected
27 from sample locations G024SB005 and G024SB007, respectively. These concentrations are
28 slightly above its corresponding SSL (DAF=10) of 0.25 mg/kg and its sitewide average
29 concentration of 0.26 mg/kg when non-detects are used at half the MDLs. The MDLs
30 ranged from 0.38 U to 0.64 U mg/kg. The sitewide mean concentration is approximately
31 equal to the SSL.

1 Isophorone was not detected above the MDLs in any other subsurface soil, surface soil, or
2 groundwater sample collected during the original and subsequent additional RFI sampling
3 events. Isophorone results from the 13 subsurface soil samples collected during the original
4 and additional RFI sampling investigations are provided in Table 5-5. Isophorone is a
5 colorless-to-pale yellow liquid used as a solvent for resins, lacquers, fats and oils, and as an
6 intermediate in making pesticides and herbicides. The use of isophorone does not appear to
7 be consistent with the previous site activities associated with waste oil reclamation. Due to
8 its low frequency of detection (i.e., two out of 13 samples), the fact that the detected
9 concentrations are the same order of magnitude as its SSL (DAF=10), and because it was not
10 detected in site groundwater, isophorone is not considered a COC in subsurface soil at
11 SWMU 24.

12 **5.2.2 N-Nitrosodiphenylamine**

13 During the additional RFI sampling investigations, n-nitrosodiphenylamine was detected at
14 concentrations of 0.89 and 3.9 J mg/kg in the subsurface soil samples G024SB005 and
15 G024SB006, respectively. These concentrations exceed its SSL (DAF=10) of 0.5 mg/kg. The
16 site-wide average (mean) subsurface soil concentration of N-nitrosodiphenylamine is
17 calculated as 0.55 mg/kg when non-detects are used at half the MDLs, which is
18 approximately equal to its SSL. N-nitrosodiphenylamine was not detected above the MDLs
19 in any other subsurface soil or groundwater sample collected during the original and
20 subsequent additional RFI sampling events. N-nitrosodiphenylamine was detected in the
21 surface soil sample G024SB006 at a concentration of 0.64 J mg/kg which is below its EPA
22 Region III RBC (HI=0.1) of 130 mg/kg. As a result, n-nitrosodiphenylamine was not
23 considered a COPC in surface soil. N-nitrosodiphenylamine results from the 13 subsurface
24 soil samples collected during the original and additional RFI sampling investigations are
25 provided in Table 5-6. Because n-nitrosodiphenylamine was detected in only one surface
26 soil and two subsurface soil samples, this chemical is not consistently present throughout
27 the site. In addition, n-nitrosodiphenylamine was not detected above the MDLs in any of
28 the groundwater samples collected from the site.

29 N-nitrosodiphenylamine is an orange-brown or yellow solid, and is used in the production
30 of rubber products or in the production of other chemicals. N-nitrosodiphenylamine
31 adsorbs to soil and breaks down in the subsurface within a few weeks. N-
32 nitrosodiphenylamine is also very soluble. If it were present in significant amounts, it
33 would likely have migrated to groundwater. Given its low frequency of detection (i.e., two
34 out of 13 subsurface soil samples), its absence in groundwater, its high potential for
35 attenuation within a short period of time, and because the detected concentrations are not a

1 direct exposure concern (the detected surface and subsurface soil concentrations are two to
2 three orders of magnitude less than the EPA Region III residential RBC), n-
3 nitrosodiphenylamine is not considered a COC in subsurface soil at SWMU 24.

4 **5.2.3 Methylene Chloride**

5 Methylene chloride was detected at a concentration of 2.1 J $\mu\text{g}/\text{kg}$ in subsurface soil sample
6 G024SB012 collected during the pipeline investigation. This estimated concentration slightly
7 exceeds the methylene chloride SSL (DAF=1) of 1.2 $\mu\text{g}/\text{kg}$. The sitewide average (mean)
8 subsurface soil concentration of methylene chloride is calculated as 99.8 $\mu\text{g}/\text{kg}$ when non-
9 detects are used at half the laboratory detection limits. However, three of the four
10 subsurface soil samples collected during the fuel transfer pipeline investigation completed
11 in October 2002 had laboratory detection limits ranging from 476 U $\mu\text{g}/\text{kg}$ to 599 U $\mu\text{g}/\text{kg}$.
12 Even without using these three values at half their laboratory detection limits the site
13 average was calculated at 2.82 $\mu\text{g}/\text{kg}$, which is greater than the estimated concentration
14 detected in subsurface soil sample G024SB012. None of the seven non-detected subsurface
15 soil samples with a value of half their laboratory detection limit are less than the estimated
16 concentration detected in subsurface soil sample G024SB012. Methylene chloride results
17 from the eight subsurface soil samples collected during the original RFI and fuel transfer
18 pipeline sampling investigations are provided in Table 5-7.

19 A site-specific SSL was calculated for methylene chloride to evaluate if the vadose zone soil
20 (i.e., subsurface soil) concentrations present a continuing leaching threat to the site
21 groundwater. This site-specific SSL was calculated by CH2M-Jones in accordance with the
22 Technical Memorandum *Application of Soil-Screening Levels (SSLs) at Charleston Naval*
23 *Complex* (CH2M-Jones, 2001b), and using site- and zone-specific information as presented in
24 Appendix E of this report. A site-specific SSL of 7.1 $\mu\text{g}/\text{kg}$ for unpaved surfaces with a site-
25 specific DAF of 4.21 was calculated for methylene chloride. The method and results of the
26 site-specific SSL calculation are provided in Appendix E.

27 Methylene chloride was not detected in any other site surface soil, subsurface soil, or
28 groundwater sample collected from the site. Because of its infrequent detection in
29 subsurface soil samples, and given that the single detected concentration is less than its site-
30 specific SSL, methylene chloride is not considered a leaching threat to site groundwater. As
31 a result, methylene chloride is not considered a COC in subsurface soil at SWMU 24.

1 **5.3 Groundwater**

2 Arsenic was identified in the *Zone G RFI Report, Revision 0* as a COC in groundwater.
3 Antimony was identified as a COC as a result of the additional RFI sampling events
4 conducted in January and June 1999. Groundwater contaminant concentrations were
5 compared to their corresponding MCLs, or for those chemicals that have no MCL, the EPA
6 Region III tap water RBC. In addition, detected concentrations of metals were compared to
7 their corresponding Zone G background reference range of concentrations. Arsenic and
8 antimony are further evaluated to determine if they meet the criteria for being considered
9 COCs.

10 **5.3.1 Arsenic**

11 Arsenic was identified in the *Zone G RFI Report, Revision 0* as a COC in groundwater.
12 Arsenic is present at elevated concentrations (i.e., above the current MCL of 50 µg/L) in
13 many wells at the CNC. As documented in the Technical Memorandum *An Overview of*
14 *Arsenic Geochemistry, Terminal Electron Accepting Processes in Groundwater Systems, and*
15 *Implications for the CNC Hydrogeologic Environment* (CH2M-Jones, 2001c), elevated iron and
16 manganese concentrations in shallow groundwater suggest that iron and manganese
17 reduction are significant Terminal Electron Accepting Processes (TEAP) at the CNC. The
18 presence of elevated iron (i.e., average concentration of 3,003 µg/L) and manganese (i.e.,
19 average concentration of 121 µg/L) in shallow groundwater at SWMU 24 indicates
20 conditions are favorable for iron and manganese reduction and that such reduction is
21 occurring. Table 5-8 presents the results of arsenic, iron, and manganese in the 16
22 groundwater samples collected during the four original and additional RFI sampling
23 events. The elevated concentrations of arsenic coupled with elevated concentrations of iron
24 and manganese in the samples collected from G024GW001 support the theory regarding the
25 geochemical reduction processes that are occurring at the site.

26 These reduction processes allow the natural release of arsenic from soil into the
27 groundwater, even in the absence of a discrete arsenic "source area," or release from
28 regulated or waste handling/disposal activities. Elevated dissolved iron or manganese
29 concentrations in site wells, and a lack of an arsenic source area in soil at the site, would
30 present conditions favorable to concluding that elevated arsenic concentrations in
31 groundwater are due to natural processes (CH2M-Jones, 2001c). Arsenic concentrations in
32 soil samples collected from SWMU 24 do not exceed screening criteria.

33 Because the detected arsenic concentrations are within the Zone G background range,
34 similar elevated arsenic levels are present in other background wells elsewhere within

1 CNC, its absence in soil above screening criteria indicative of an identifiable source,, and
2 since elevated concentrations of iron and manganese present in site groundwater indicate
3 iron and manganese reduction is likely occurring, it is likely that arsenic is occurring due to
4 geochemical processes. Based on these considerations, arsenic is not considered a COC in
5 groundwater at SWMU 24.

6 **5.3.2 Antimony**

7 Antimony was detected at a concentration of 14.4 J $\mu\text{g}/\text{L}$ in the sample collected from
8 G024GW002 during the June 1999 sampling event. This detected concentration exceeded its
9 corresponding MCL of 6 $\mu\text{g}/\text{L}$, and Zone G background range of 3 to 6 $\mu\text{g}/\text{L}$. Antimony did
10 not exceed the EPA Region III tap water RBC (HI=1.0) of 15 $\mu\text{g}/\text{L}$. Antimony was detected
11 in three other samples collected during the additional RFI sampling events at
12 concentrations less than 3.5 $\mu\text{g}/\text{L}$, and was not detected above MDLs in the samples
13 collected during the original RFI sampling events. Table 5-9 presents the results of
14 antimony in the groundwater samples collected during the four RFI sampling events. It is
15 unlikely that the presence of antimony in groundwater can be linked to the waste oil
16 reclamation operations at SWMU 24 because of its absence in soil above screening criteria,
17 which is indicative of a potential source. Given its low frequency of detection (i.e., one out
18 of 16 groundwater samples) above its MCL, and because its presence in groundwater is not
19 related to historic site operations, antimony is not considered a COC in groundwater at
20 SWMU 24.

TABLE 5-1
 Heptachlor Epoxide in Surface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier	EPA Region III Residential RBC (HI=0.1)	SSL ^a
Heptachlor Epoxide	GFDSSH024	0.0014	U	0.07	0.35
	GFDSSH026	0.0014	U		
	GFDSSH028	0.0015	U		
	GFDSSH029	0.0016	U		
	GFDSSH030	0.0015	U		
	GFDSSH031	0.27	J		

Concentrations in bold and outlined text exceed the appropriate screening criteria.

^a Generic soil to groundwater soil screening level (SSL) with a dilution attenuation factor (DAF)=10. SSL was obtained from the *Soil Screening Guidance: Technical Background Document* (EPA, 1996).

= Indicates that the analyte is detected at the concentration shown.

HI Hazard Index

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

mg/kg Milligrams per kilogram

NA Screening criteria not available for the referenced compound.

U Indicates the analyte was not detected above the laboratory detection limit.

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
A	Heptachlor Epoxide	AGDASB001	0.0019	U
		AGDASB002	0.0022	UJ
		AGDASB003	0.002	U
		AGDASB005	0.002	U
		AGDASB006	0.0024	UJ
		AGDASB007	0.002	U
		AGDASB008	0.0022	J
		AGDASB009	0.0058	=
		AGDASB010	0.0019	UJ
		AGDASB011	0.0019	U
		AGDASB012	0.027	=
		AGDASB013	0.0019	U
		AGDASB014	0.0019	U
		B	Heptachlor Epoxide	BGDBSB001
BGDBSB002	0.0022			U
BGDBSB003	0.0022			U
BGDBSB004	0.0017			U
BGDBSB005	0.0019			U
BGDBSB006	0.031			=
BGDBSB007	0.002			U
BGDBSB008	0.0021			=
BGDBSB009	0.0059			=
BGDBSB010	0.002			U
BGDBSB011	0.0026			U
BGDBSB012	0.0019			U
BGDBSB013	0.002			U
BGDBSB014	0.00077			J
BGDBSB015	0.0019			U
C	Heptachlor Epoxide	CGDCSB001	0.022	U
		CGDCSB002	0.0011	U
		CGDCSB003	0.0011	U

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
C	Heptachlor Epoxide	CGDCSB004	0.00021	J
		CGDCSB005	0.0012	U
		CGDCSB006	0.0012	U
		CGDCSB007	0.0022	J
		CGDCSB008	0.0011	U
		CGDCSB009	0.0011	U
		CGDCSB038	0.0012	=
		CGDCSB039	0.01	=
		CGDCSB040	0.0018	J
		CGDCSB045	0.0026	U
		CGDCSB046	0.0026	=
		CGDCSB047	0.00056	U
		CGDCSB048	0.0023	=
		D	Heptachlor Epoxide	DGDDSB002
DGDDSB003	0.0015			U
DGDDSB005	0.0016			U
DGDDSB006	0.0014			U
E	Heptachlor Epoxide	EGDESB001	0.0015	U
		EGDESB002	0.0014	UJ
		EGDESB003	0.0015	U
		EGDESB004	0.0016	UJ
		EGDESB005	0.0014	U
		EGDESB006	0.0014	U
		EGDESB007	0.0018	U
		EGDESB008	0.0015	U
		EGDESB009	0.0017	U
		EGDESB009	0.0017	U
		EGDESB010	0.0015	U
		EGDESB011	0.0015	U
		EGDESB012	0.0014	U
EGDESB013	0.0014	U		

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
E	Heptachlor Epoxide	EGDESB014	0.0016	U
		EGDESB015	0.0015	U
		EGDESB016	0.0016	U
		EGDESB017	0.0015	U
		EGDESB018	0.0014	U
		EGDESB019	0.0014	U
		EGDESB020	0.0015	U
		EGDESB021	0.0022	U
		EGDESB022	0.0016	U
		EGDESB023	0.0014	U
		EGDESB024	0.0015	U
		EGDESB025	0.0014	U
		F	Heptachlor Epoxide	FGDFSB001
FGDFSB002	0.0014			U
FGDFSB003	0.0021			U
FGDFSB004	0.0014			U
FGDFSB005	0.0015			U
G	Heptachlor Epoxide	GGDGSB001	0.0018	U
		GGDGSB002	0.0015	U
		GGDGSB003	0.0016	U
		GGDGSB004	0.0016	U
		GGDGSB005	0.0015	U
		GGDGSB006	0.0015	UJ
		GGDGSB007	0.0016	U
		GGDGSB008	0.016	U
		GGDGSB009	0.0022	=
H	Heptachlor Epoxide	HGDHSB001	0.02	U
		HGDHSB002	0.005	U
		HGDHSB003	0.004	U
		HGDHSB004	0.004	U
		HGDHSB005	0.004	U

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
H	Heptachlor Epoxide	HGDHSB006	0.004	U
		HGDHSB007	0.02	U
		HGDHSB008	0.004	U
		HGDHSB009	0.004	U
		HGDHSB010	0.005	U
		HGDHSB011	0.004	U
		HGDHSB012	0.004	U
		HGDHSB013	0.004	U
		HGDHSB014	0.004	U
		HGDHSB015	0.008	=
		HGDHSB016	0.004	U
		HGDHSB017	0.004	U
		HGDHSB018	0.004	U
		HGDHSB019	0.004	U
		HGDHSB020	0.004	U
		HGDHSB021	0.004	U
		HGDHSB022	0.004	U
		HGDHSB023	0.04	U
		HGDHSB024	0.02	U
		HGDHSB025	0.004	U
		HGDHSB026	0.004	U
		HGDHSB027	0.004	U
		HGDHSB028	0.004	U
		HGDHSB029	0.004	U
		HGDHSB030	0.004	U
		HGDHSB031	0.004	U
		HGDHSB032	0.004	U
		HGDHSB033	0.02	U
		HGDHSB034	0.005	U
		HGDHSB035	0.005	U
		HGDHSB036	0.005	U

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
H	Heptachlor Epoxide	HGDHSB037	0.004	U
		HGDHSB038	0.04	U
		HGDHSB039	0.004	U
		HGDHSB040	0.006	=
		HGDHSB041	0.005	U
		HGDHSB042	0.004	U
		HGDHSB043	0.004	U
		HGDHSB044	0.004	U
		HGDHSB045	0.004	U
		HGDHSB046	0.004	U
		HGDHSB047	0.004	U
		HGDHSB048	0.005	U
		HGDHSB049	0.005	U
		HGDHSB050	0.004	U
		HGDHSB051	0.004	U
		HGDHSB052	0.004	U
		HGDHSB053	0.004	U
		HGDHSB054	0.009	=
		HGDHSB055	0.004	U
		HGDHSB056	0.004	U
		HGDHSB057	0.004	U
		HGDHSB058	0.004	U
		HGDHSB059	0.004	U
		HGDHSB060	0.005	U
		HGDHSB061	0.004	U
		HGDHSB062	0.005	U
		HGDHSB063	0.01	U
		HGDHSB064	0.002	J
		HGDHSB065	0.003	U
		HGDHSB066	0.004	U
		HGDHSB067	0.04	UJ

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
H	Heptachlor Epoxide	HGDHSB068	0.004	U
		HGDHSB069	0.004	U
		HGDHSB070	0.004	U
		HGDHSB071	0.004	U
		HGDHSB072	0.005	U
		HGDHSB073	0.004	U
		HGDHSB074	0.0023	U
		HGDHSB075	0.0023	U
		HGDHSB076	0.0021	U
		HGDHSB077	0.0023	U
		HGDHSB078	0.0019	U
		HGDHSB079	0.0023	U
		HGDHSB080	0.0019	U
		HGDHSB081	0.0019	U
		HGDHSB082	0.0021	U
		HGDHSB083	0.0019	U
		HGDHSB084	0.004	U
		HGDHSB085	0.004	U
		HGDHSB086	0.004	U
		HGDHSB087	0.005	U
		HGDHSB088	0.004	U
		HGDHSB089	0.005	U
		HGDHSB090	0.005	U
HGDHSB091	0.004	U		
HGDHSB092	0.004	U		
HGDHSB093	0.004	U		
HGDHSB104	0.004	U		
HGDHSB105	0.004	U		
HGDHSB107	0.004	U		
		HGDHSW04D	0.05	U
I	Heptachlor Epoxide	IGDISB002	0.0012	U

TABLE 5-2
 Heptachlor Epoxide in CNC Grid Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Zone	Analyte	Location	Concentration (mg/kg)	Qualifier
		IGDISB005	0.0015	U
		IGDISB006	0.0014	U
		IGDISB007	0.0015	U
		IGDISB008	0.0015	U
		IGDISB009	0.0015	U
		IGDISB010	0.0087	J
		IGDISB011	0.0012	U
		IGDISB012	0.0012	U
		IGDISB013	0.011	J
		IGDISB014	0.0012	U
		IGDISB015	0.0012	U
		IGDISB016	0.0012	U
		IGDISB017	0.012	J
		IGDISB018	0.0012	U

EPA Region III residential RBC (HI=0.1) for heptachlor epoxide is 0.07 mg/kg.

= Indicates that the analyte is detected at the concentration shown.

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

mg/kg milligrams per kilogram

U Indicates contaminant not detected above laboratory detection limit.

TABLE 5-3
 Summary Statistics for PAHs in Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

No. of Samples	No. of Detects	Range of Concentrations ($\mu\text{g}/\text{kg}$)	Mean ($\mu\text{g}/\text{kg}$)	UCL ₉₅ ($\mu\text{g}/\text{kg}$)	Basis
15	13	107.5 – 3,952.7	875.3	1,376	Non-parametric

$\mu\text{g}/\text{kg}$ micrograms per kilogram
 UCL₉₅ 95-percent Upper Confidence Limit

TABLE 5-4
 BEQs in Surface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier
BEQs	GFDSSH024	0.26	=
	GFDSSH026	2.5	=
	G024SB001	0.39	=
	G024SB002	0.23	=
	G024SB003	0.31	=
	G024SB004	0.17	=
	G024SB005	0.42	=
	G024SB006	0.45	=
	G024SB007	0.44	=
	G024SB009	0.11	=
	G024SB010	0.25	=
	GFDSSH028	0.23	=
	GFDSSH029	3.95	=
	GFDSSH030	3.15	=
	GFDSSH031	0.29	=

Concentrations in bold and outlined text exceed the appropriate screening criteria.

Basewide PAH background concentration for surface soil is 1.304 mg/kg as outlined in the *Technical Memorandum: PAHs Background Study* (CH2M-Jones, February 2001).

= Indicates that the analyte is detected at the concentration shown.

HI Hazard Index

mg/kg Milligrams per kilogram

TABLE 5-5
 Isophorone in Subsurface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier
Isophorone	G024SB001	0.38	U
	G024SB002	0.43	U
	G024SB003	0.39	U
	G024SB004	0.52	U
	G024SB005	0.37	J
	G024SB006	0.39	UJ
	G024SB007	0.70	=
	G024SB009	0.64	U
	G024SB010	0.40	U
	GFDSSH028	0.37	U
	GFDSSH029	0.42	U
	GFDSSH030	0.37	U
	GFDSSH031	0.38	U

Concentrations in bold and outlined text exceed the appropriate screening criteria. Generic soil to groundwater soil screening level (SSL) with a DAF=10 is 0.25 mg/kg. SSL was obtained from the *Soil Screening Guidance: Technical Background Document* (EPA, 1996).

Average isophorone concentration in subsurface soil samples is 0.26 mg/kg when non-detects are included at half the MDL.

- = Indicates that the analyte is detected at the concentration shown.
- J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

mg/kg milligrams per kilogram

- U Indicates analyte not detected above laboratory detection limit.

TABLE 5-6
 N-Nitrosodiphenylamine in Subsurface Soil
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (mg/kg)	Qualifier
N-Nitrosodiphenylamine	G024SB001	0.38	U
	G024SB002	0.43	U
	G024SB003	0.39	U
	G024SB004	0.52	U
	G024SB005	0.89	=
	G024SB006	3.9	J
	G024SB007	0.41	U
	G024SB009	0.64	U
	G024SB010	0.40	U
	GFDSSH028	0.37	U
	GFDSSH029	0.42	U
	GFDSSH030	0.37	U
	GFDSSH031	0.38	U

Concentrations in bold and outlined text exceed the appropriate screening criteria. Generic soil to groundwater soil screening level (SSL) with a DAF=10 is 0.5 mg/kg. SSL was obtained from the *Soil Screening Guidance: Technical Background Document* (EPA, 1996).

Average n-nitrosodiphenylamine concentration in subsurface soil samples is 0.55 mg/kg when non-detects are included at half the MDL.

- = Indicates that the analyte is detected at the concentration shown.
- J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

mg/kg milligrams per kilogram

- U Indicates analyte not detected above laboratory detection limit.

TABLE 5-7
Methylene Chloride in Subsurface Soil
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Concentration (µg/kg)	Qualifier
Methylene Chloride	GFDSSH028	7.0	U
	GFDSSH029	5.0	U
	GFDSSH030	7.0	U
	GFDSSH031	5.0	U
	G024SB011	476	U
	G024SB012	2.1	J
	G024SB013	493	U
	G024SB014	599	U

Concentrations in bold and outlined text exceed the appropriate screening criteria.

Generic soil to groundwater soil screening level (SSL) with a DAF=1 is 1.2 µg/kg. SSL was obtained from the *Soil Screening Guidance: Technical Background Document* (EPA, 1996).

Average methylene chloride concentration in subsurface soil samples is 99.8 µg/kg when non-detects are included at half the MDL.

- J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

µg/kg micrograms per kilogram

- U Indicates analyte not detected above laboratory detection limit.

TABLE 5-8
 Arsenic, Iron, and Manganese in Groundwater
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Sample Location	Sample Collection Date	Arsenic		Iron		Manganese	
		Concentration (µg/L)	Qualifier	Concentration (µg/L)	Qualifier	Concentration (µg/L)	Qualifier
MCL		50		NA		NA	
EPA Region III Tap Water RBC (HI=0.1)		0.045		1,100		73	
Zone G Mean Background Reference Concentration ^a		76		14,683		1,904	
Zone G Background Range Concentration ^a		8 - 166		2,000 - 35,700		149 - 7,980	
G024GW001	04/22/1998	47.2	=	4,340	=	203	=
G024GW001	10/28/1998	86.1	=	5,770	=	208	=
G024GW001	01/28/1999	74.8	=	7,930	=	192	=
G024GW001	06/10/1999	67.2	=	6,470	=	212	=
G024GW002	04/20/1998	6.5	J	2,100	=	70.5	=
G024GW002	10/29/1998	5.6	J	1,640	=	59.8	=
G024GW002	01/28/1999	4.0	J	2,340	=	64	=
G024GW002	06/09/1999	2.4	J	1,710	=	68.6	=
G024GW003	04/20/1998	10.5	=	3,710	=	114	=
G024GW003	10/29/1998	16.4	=	1,460	=	50.2	=
G024GW003	01/28/1999	11.8	=	1,540	=	25.6	=
G024GW003	06/10/1999	17.8	=	1,230	=	41.9	=
G024GW004	04/24/1998	3.3	U	1,740	=	198	=
G024GW004	10/29/1998	8.9	J	2,870	=	183	=

TABLE 5-8
 Arsenic, Iron, and Manganese in Groundwater
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Sample Location	Sample Collection Date	Arsenic		Iron		Manganese	
		Concentration (µg/L)	Qualifier	Concentration (µg/L)	Qualifier	Concentration (µg/L)	Qualifier
MCL		50		NA		NA	
EPA Region III Tap Water RBC (HI=0.1)		0.045		1,100		73	
Zone G Mean Background Reference Concentration^a		76		14,683		1,904	
Zone G Background Range Concentration^a		8 - 166		2,000 - 35,700		149 - 7,980	
G024GW004	01/29/1999	2.9	U	222	=	57.3	=
G024GW004	06/10/1999	6.6	J	2,980	=	181	=

^a The Zone G Mean Background Reference Concentrations and Range of Concentrations were obtained from Appendix J of the *Project Team Notebook and Instructions - Charleston Naval Complex, Environmental Restoration Project, Revision 1A* (CH2M-Jones, December 2001).

Concentrations in bold and outlined text exceed the appropriate screening criteria.

= Indicates that the analyte is detected at the concentration shown.

HI Hazard index

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

µg/L micrograms per liter

NA Screening criteria not available for the referenced compound.

U Indicates analyte not detected above laboratory detection limit.

TABLE 5-9
 Antimony in Groundwater
 RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Sample Collection Date	Concentration	Qualifier	Units	MCL	EPA Region III Tap Water RBC (HI=0.1)	Zone G Mean Background Reference Concentration and Range of Concentrations ^a
Antimony	G024GW001	04/22/1998	5	U	µg/L	6	1.5	5 (3-6)
	G024GW001	10/28/1998	4.5	U				
	G024GW001	01/28/1999	3.4	J				
	G024GW001	06/10/1999	14	U				
	G024GW002	04/20/1998	5	U				
	G024GW002	10/29/1998	2.7	U				
	G024GW002	01/28/1999	3.2	J				
	G024GW002	06/09/1999	14.4	J				
	G024GW003	04/20/1998	5	U				
	G024GW003	10/29/1998	2.7	U				
	G024GW003	01/28/1999	2.7	U				
	G024GW003	06/10/1999	14	U				
	G024GW004	04/24/1998	5	U				
	G024GW004	10/29/1998	2.8	U				
	G024GW004	01/29/1999	3	J				
	G024GW004	06/10/1999	14	U				

^a The Zone G Mean Background Reference Concentrations and Range of Concentrations were obtained from Appendix J of the *Project Team Notebook and Instructions - Charleston Naval Complex, Environmental Restoration Project, Revision 1A* (CH2M-Jones, December 2001).

TABLE 5-9
 Antimony in Groundwater
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Analyte	Sample Location	Sample Collection Date	Concentration	Qualifier	Units	MCL	EPA Region III Tap Water RBC (HI=0.1)	Zone G Mean Background Reference Concentration and Range of Concentrations ^a
---------	-----------------	------------------------	---------------	-----------	-------	-----	---------------------------------------	---

Concentrations in bold and outlined text exceed the appropriate screening criteria.

= Indicates that the analyte is detected at the concentration shown.

HI Hazard index

J Indicates an estimated value. A "J" qualifier may signify that the concentration is below the PQL, or that the "J" has been applied as a result of the data validation.

µg/L micrograms per liter

NA Screening criteria not available for the referenced compound.

U Indicates analyte not detected above laboratory detection limit.

6.0 Summary of Information Related to Site Closeout Issues

6.1 RFI Status

The *Zone G RFI Report, Revision 0* (EnSafe, 1998a) presented the results of initial investigations at SWMU 24. This RFI Report Addendum presents the results of subsequent investigations at the site. Responses to SCDHEC comments on the *Zone G RFI Report, Revision 0* (EnSafe, 1998a) are provided in Appendix F. Based on an evaluation of the data collected during the original and subsequent investigations, the RFI is considered to be complete.

6.2 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 practicable quantitation limit.

Arsenic was identified in the *Zone G RFI Report, Revision 0* as a COC in groundwater due to the exceedance of its MCL (50 $\mu\text{g}/\text{L}$) in several groundwater samples. Based on a review of the site data as discussed in Section 5.0 of this RFI Report Addendum, arsenic is not considered a COC for the site.

Antimony was detected at a concentration of 14.4 $\mu\text{g}/\text{L}$ in the sample collected from G024GW002 during the June 1999 sampling event exceeded its corresponding MCL (i.e., 6 $\mu\text{g}/\text{L}$) and Zone G background range (i.e., 3 to 6 $\mu\text{g}/\text{L}$). The RFI data indicate the soil-to-groundwater pathway is not significant at SWMU 24 and there was no elevated antimony identified in site soils. The presence of antimony is sporadic and not related to any source area. As a result, further groundwater investigation for antimony is not warranted.

1 **6.3 Potential Linkage to SWMU 37, Investigated Sanitary** 2 **Sewers at the CNC**

3 None of the groundwater data collected at the site from the monitoring wells or Geoprobe
4 samples indicate that groundwater impacts have occurred. Therefore, there is no reason to
5 believe that a contamination linkage exists between this site and the investigated portion of
6 the sanitary sewer (SWMU 37). Further evaluation of this issue is not warranted.

7 **6.4 Potential Linkage to AOC 699, Investigated Storm Sewers** 8 **at the CNC**

9 Potential linkage of a SWMU or AOC to a storm sewer refers to the possibility of a
10 groundwater plume at a SWMU or AOC migrating into a storm sewer from which it would
11 subsequently migrate to the water bodies around the CNC, or to the presence of a cross
12 connection between the sanitary sewer and storm sewer.

13 None of the groundwater data collected at site indicate that groundwater impacts have
14 occurred. Therefore, there is no reason to suspect that a contamination linkage exists
15 between the site and the investigated portion of the storm sewers (AOC 699). Further
16 evaluation of this issue is not warranted.

17 **6.5 Potential Linkage to AOC 504, Investigated Railroad Lines** 18 **at the CNC**

19 The nearest investigated railroad line is located across the street on the east side of Hobson
20 Avenue approximately 48 feet northeast from the SWMU 24 boundary and approximately
21 150 feet from the nearest site tank (Tank 39-D). Due to the location of the nearest railroad,
22 and given that there are no known railroad activities that can be linked to the waste oil
23 reclamation operations at SWMU 24, further evaluation of this issue is not warranted.

24 **6.6 Potential Migration Pathways to Surface Water Bodies at** 25 **the CNC**

26 The nearest named surface water body is the Cooper River, which is located approximately
27 1,110 feet northeast from the SWMU 24 boundary. Two potential migration pathways from
28 a site to surface water are overland flow via stormwater runoff and subsurface flow via
29 groundwater.

1 No surface soil or groundwater COCs were identified at SWMU 24. There do not appear to
2 be any surface water migration pathways of concern at this site; therefore, further
3 evaluation of this issue is not warranted.

4 **6.7 Potential Contamination in Oil/Water Separators (OWSs)**

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

7 Neither the RFA nor the *Zone G RFI Report, Revision 0* refer to the presence or possible
8 presence of an OWS at SWMU 24. In addition, there is no reference made to an OWS at this
9 facility in the Oil Water Separator Data report (Navy, 2000). Further evaluation of this issue
10 is not warranted.

11 **6.8 Land Use Controls (LUCs)**

12 This site is zoned M-1, for light industrial use, and will likely be designated for non-
13 residential use. Based on the presence of BEQs as a surface soil COC, some LUCs may be
14 applied to this site restricting the site to industrial type uses and limiting potential for direct
15 contact with soil (i.e., deed restrictions/engineering controls) are not required. The
16 evaluation and applicability of LUCs will be completed as part of the CMS phase.

Section 7.0

1 **7.0 Recommendations**

2 Tanks 39-A and 39-D operated as settling tanks where waste oil, containing water and
3 presumably other impurities, was delivered via a pipeline system. The tanks were used to
4 separate and store both the water and oil phase liquids. Separated wastewater was
5 subsequently discharged to the sanitary sewer system. SWMU 24 was originally
6 investigated under the petroleum program as part of the FDS but was transferred to the
7 RCRA program to characterize metals in site groundwater.

8 Surface soils, subsurface soils, and the shallow portion of the surficial aquifer at SWMU 24
9 were investigated during the period from October 1996 to October 1998. Included in this
10 investigation were portions of the sanitary sewer (SWMU 37) and the storm sewer (AOC
11 699) that transverses through the SWMU 24 boundary. The findings and conclusions from
12 the original RFI, which detailed the sampling investigations conducted through October
13 1998, are provided in *Zone G RFI Report, Revision 0* (EnSafe, 1998a). Additional RFI sampling
14 investigations completed subsequent to October 1998 are summarized in this RFI Report
15 Addendum.

16 PAH constituents identified as BEQs were identified in the *Zone G RFI Report, Revision 0* as
17 surface soil COCs, with greater concentrations detected in two surface soil samples
18 collected during the additional RFI sampling investigations. Heptachlor epoxide was
19 identified as a COPC as a result of the additional RFI sampling investigations.

20 Based on an evaluation of the data in Section 5.0 of this report, BEQs were retained as COCs
21 in surface soil for the unrestricted and industrial land use scenarios. The detected BEQs may
22 be associated with asphalt cover material applied to the berm areas in and around tanks 39-
23 A and 39-D. BEQs in subsurface soil are low with concentrations below the background
24 reference concentration. Heptachlor epoxide was not identified as a COC in surface soil
25 since it does not appear to be related to site operations. It was only detected in one of the six
26 surface soil samples collected and analyzed for pesticides, and it has been detected in
27 background samples across the base, suggesting that it is present due to typical pesticide
28 applications in the past.

29 No subsurface soil COCs were identified in the *Zone G RFI Report, Revision 0*. New COPCs
30 identified as a result of the additional RFI sampling investigations, including the
31 investigation adjacent to the pipeline, included isophorone, n-nitrosodiphenylamine, and
32 methylene chloride. However, these three chemicals were not considered to be COCs in

1 subsurface soil due to their low frequency of detection, their average concentrations are
2 near or below SSLs, and the fact that they were not detected in any of the groundwater
3 samples above the MDLs.

4 Arsenic was identified as a COC in groundwater in the *Zone G RFI Report, Revision 0*.

5 Antimony was identified as a new COPC as a result of the additional RFI sampling events
6 conducted from the existing SWMU 24 monitoring wells. However, arsenic and antimony
7 are not considered COCs in groundwater at SWMU 24. Detected arsenic concentrations are
8 within the Zone G background range, and elevated concentrations of iron and manganese
9 present in site groundwater indicate that natural geochemical processes may be releasing
10 arsenic from soil to groundwater. Antimony was detected in only one of 16 groundwater
11 samples collected during the original and additional RFI sampling investigations above its
12 MCL, and its presence in groundwater does not appear related to historic site operations.

13 In the *Zone G RFI Report, Revision 0*, SWMU 24 was recommended for a CMS. Because BEQs
14 were identified as COCs in surface soil based on the evaluation process presented in Section
15 5.0 of this report, SWMU 24 is recommended for a CMS, and a CMS Work Plan is included
16 in Section 8.0 of this report.

1 **8.0 CMS Work Plan for SWMU 24**

2 BEQs were identified as COCs in surface soil for the unrestricted and industrial land use
3 scenarios at SWMU 24. The site is currently not occupied, but because the majority of the
4 site surface is unpaved, there is a potential for exposure to occur if site conditions change.
5 Therefore, a CMS should be conducted to evaluate potential corrective measures and
6 identify an appropriate remedy for the site. A focused CMS Work Plan is presented in this
7 section. MCSs are identified for COCs and potential remedies that should be evaluated are
8 also presented.

9 **8.1 Remedial Action Objectives**

10 RAOs are medium-specific goals that the remedial actions are designed to accomplish to
11 protect human health and the environment by preventing or reducing exposures under
12 current and future land use conditions. The RAOs identified for the surface soil at SWMU
13 24 are being selected to prevent ingestion and direct/dermal contact with surface soil
14 containing COCs at unacceptable levels. No remedial actions are required for subsurface
15 soil or groundwater at SWMU 24.

16 **8.2 Remedial Goal Options and Media Cleanup Standards**

17 Throughout the process of remediating a hazardous waste site, a risk manager uses a
18 progression of increasingly acceptable site-specific media levels in considering remedial
19 alternatives. Under the RCRA program, remedial goal options (RGOs) and MCSs are
20 developed at the end of the risk assessment in the RFI/Remedial Investigation (RI)
21 programs, before completion of the CMS.

22 RGOs can be based on a variety of criteria, such as specific incremental lifetime cancer risk
23 (ILCR) levels (e.g., 1E-04, 1E-05, or 1E-06), HI levels (e.g., 0.1, 1.0, 3.0), or site background
24 concentrations. For a particular RGO, specific MCSs can be determined as target
25 concentration values. Achieving these MCSs is accepted as demonstrating that RGOs and
26 RAOs have been achieved. Achieving these goals should promote the protection of human
27 health and the environment, while achieving compliance with applicable state and federal
28 standards.

29 The exposure medium of concern for SWMU 24 is surface soil impacted by BEQs. Because
30 SWMU 24 is located within a developed industrial/commercial area of the CNC and there

1 are no surface water bodies in the immediate vicinity of the site, ecological exposures were
2 not considered applicable for evaluation.

3 The general vicinity around SWMU 24 within Zone G has elevated concentrations of BEQs,
4 making it unsuitable for future unrestricted (i.e., residential) and industrial land uses. For
5 BEQs, the target MCS for surface soil should be the sitewide reference concentration of
6 1,304 $\mu\text{g}/\text{kg}$, which was developed by the BCT. An MCS will be met if the site statistical
7 estimates of concentrations are similar to the background statistical estimates. Other
8 potential RGOs, such as the 1E-06 ILCR, were considered but regarded as not applicable
9 because the sitewide reference concentration for BEQs is significantly greater than this
10 value.

11 **8.3 Potential Remedies to Evaluate**

12 Because of the small impacted area of BEQs in surface soil at this site and given the
13 relatively small volume of impacted surface soil, the list of practicable remedial alternatives
14 for this site is limited. The two presumptive remedies that will be evaluated as part of the
15 CMS include:

- 16 • Soil excavation and offsite disposal, and
- 17 • Land use controls (LUCs)

18 **8.4 Focused CMS Approach**

19 The focused CMS will consist of the following tasks that will be performed in the order
20 presented below:

- 21 1. The corrective measure alternatives described above will be screened using several
22 criteria and decision factors.
- 23 2. A preferred corrective measure alternative will be selected.
- 24 3. The CMS and preferred corrective measure alternative will be documented in the CMS
25 report.

26 **8.5 Approach to Evaluating Corrective Measure Alternatives**

27 According to the RCRA permit issued by SCDHEC (SCDHEC, 1998), the alternatives will be
28 evaluated with the following five standards:

- 29 1. Protect human health and the environment.

- 1 2. Attain MCSs, which will generally be the RGOs.
- 2 3. Control the source of releases to minimize future releases that may pose a threat to
- 3 human health and the environment.
- 4 4. Comply with applicable standards for the management of wastes generated by remedial
- 5 activities.
- 6 5. Other factors include (a) long-term reliability and effectiveness; (b) reduction in toxicity,
- 7 mobility, or volume of wastes; (c) short-term effectiveness; (d) implementability; and
- 8 (e) cost.

9 Each of the five criteria is defined in more detail below:

- 10 1. **Protect human health and the environment.** The alternatives will be evaluated on the
- 11 basis of their ability to protect human health and the environment. The ability of an
- 12 alternative to achieve this criterion may or may not be independent of its ability to
- 13 achieve the other four standards. For example, an alternative may be protective of
- 14 human health, but may not be able to attain the MCSs if the MCSs are not directly tied
- 15 to protecting human health.
- 16 2. **Attain media cleanup standards (i.e., RGOs).** The alternatives will be evaluated on the
- 17 basis of their ability to achieve the RGOs defined in this CMS Work Plan. Another
- 18 aspect of this criterion is the timeframe to achieve the RGOs. Estimates of the timeframe
- 19 for the alternatives to achieve RGOs will be provided.
- 20 3. **Control the source of releases.** This criterion deals with the control of releases of
- 21 contamination from the source (the area in which the contamination originated).
- 22 4. **Comply with applicable standards for management of wastes.** This criterion deals
- 23 with the management of wastes derived from implementing the alternatives, for
- 24 example, treatment or disposal of excavated material. The soil removal alternative will
- 25 be designed to comply with all applicable standards for management of remediation
- 26 wastes. Consequently, this criterion will not be explicitly included in the detailed
- 27 evaluation presented in the CMS but will be part of a work plan specific to the removal
- 28 action should a removal action become the chosen alternative.
- 29 5. **Other factors.** Five other factors are to be considered if an alternative is found to meet
- 30 the four criteria described above. These other factors are as follows:
- 31 a. Long-term reliability and effectiveness

1 The two alternatives will be evaluated on the basis of their reliability, and the
2 potential impact should the chosen alternative fail. In other words, a qualitative
3 assessment will be made as to the chance of the alternative's failure and the
4 consequences of that failure.

5 b. Reduction in the toxicity, mobility, or volume of wastes

6 Alternatives with technologies that reduce the toxicity, mobility, or volume of the
7 contamination will be generally favored over those that do not. Consequently, a
8 qualitative assessment of this factor will be performed for each alternative.

9 c. Short-term effectiveness

10 Alternatives will be evaluated on the basis of the risk they create during the
11 implementation of the remedy. Factors that may be considered include fire,
12 explosion, and exposure of workers to hazardous substances.

13 d. Implementability

14 The alternatives will be evaluated for their implementability by considering any
15 difficulties associated with conducting the alternatives (such as the construction
16 disturbances they may create), operation of the alternatives, and the availability of
17 equipment and resources to implement the technologies comprising the alternatives.

18 e. Cost

19 A net present value of each alternative will be developed. These cost estimates will
20 be used for the relative evaluation of the alternatives, not to bid or budget the work.
21 The estimates will be based on information available at the time of the CMS and on a
22 conceptual design of the alternative. They will be "order-of-magnitude" estimates
23 with a generally expected accuracy of -30 percent to +50 percent for the scope of
24 action described for each alternative. The estimates will be categorized into capital
25 costs and operations and maintenance costs for each alternative.

26 In addition to the criteria described above, the alternatives will be evaluated for their ability
27 to achieve all CH2M-Jones and Navy contractual obligations.

28 **8.6 CMS Report**

29 A CMS Report will be prepared to present the identification, development, and evaluation
30 of potential corrective measures for SWMU 24. A proposed outline of the report, as shown
31 in Table 8-1, provides an example of the report format and content.

TABLE 8-1
 Outline of CMS Report for SWMU 24, Zone G
RFI Report Addendum and CMS Work Plan, SWMU 24, Zone G, Charleston Naval Complex

Section No.	Section Title
1.0	Introduction
1.1	Corrective Measures Study Purpose and Scope
1.2	Background Information
1.2.1	Facility Description
1.2.2	Site History
1.2.3	Site Hydrogeology
1.2.4	Nature and Extent of Contamination
1.2.5	Summary of Risk Assessment
1.3	Report Organization
2.0	RAOs, Proposed MCSs, and Alternative Evaluation Criteria
2.1	Remedial Action Objectives
2.2	Remedial Goal Options and Proposed Media Cleanup Standards
2.3	Evaluation Criteria
2.3.1	Protect Human Health and the Environment
2.3.2	Attain MCSs
2.3.3	Control the Source of Releases
2.3.4	Comply with Applicable Standards for Management of Wastes
2.3.5	Other Factors
3.0	Description of Candidate Corrective Measure Alternatives
3.1	Evaluation Approach
3.2	Description of Alternatives
4.0	Detailed Analysis of Alternatives
4.1	Analysis of Alternatives ^a
4.1.1	Soil Excavation and Offsite Disposal
4.1.2	Land Use Controls
4.2	Comparative Analysis of Alternatives
5.0	Recommended Corrective Measure Alternative
6.0	References
Appendix A	Corrective Measure Alternative Cost Estimates^b
	List of Tables
	List of Figures

^a Additional alternatives will be analyzed as found necessary.

^b Additional appendices will be added, if necessary.

Section 9.0

1 9.0 References

- 2 CH2M-Jones. *Background PAHs Study Report - Technical Information for Development of*
3 *Background BEQ Values*. February 2001a.
- 4 CH2M-Jones. *Application of Soil-Screening Levels (SSLs) at Charleston Naval Complex.*
5 *Technical Memorandum*. March 9, 2001b.
- 6 CH2M-Jones. *An Overview of Arsenic Geochemistry, Terminal Electron Accepting Processes in*
7 *Groundwater Systems, and Implications for the CNC Hydrogeologic Environment*. *Technical*
8 *Memorandum*. August 17, 2001c.
- 9 CH2M-Jones. *Project Team Notebook and Instructions, Charleston Naval Complex, Environmental*
10 *Restoration Project*. Revision 1A. December 4, 2001d.
- 11 CH2M-Jones. *RFI Report Addendum, SWMU 24, Zone G, Revision 0*. April 24, 2002a.
- 12 CH2M-Jones. *Technical Memorandum Sampling Plan for Additional Subsurface Soil Samples*
13 *from SWMU 24*. September 18, 2002b.
- 14 EnSafe, Inc./Allen & Hoshall. *Zone G RFA Report*. June 6, 1985.
- 15 EnSafe Inc. *Zone L RFI Workplan, NAVBASE Charleston*. 1995.
- 16 EnSafe, Inc. *Zone G RFI Report NAVBASE Charleston*. Revision 0. February 20, 1998a.
- 17 EnSafe Inc. *Zone L RFI Report, NAVBASE Charleston*. Revision 0. December 18, 1998b.
- 18 EnSafe, Inc. *Zone G RFI Report Work Plan Addendum, NAVBASE Charleston*. Revision 0.
19 January 17, 2000.
- 20 U.S. Environmental Protection Agency. *EPA Soil Screening Guidance: Technical Background*
21 *Document (Table A-1), EPA/540/R-95/128*. May 1996.

Draft Responses to SCDHEC Comments on the
Zone G RFI Report Addendum, Revision 0 for SWMU 24
Charleston Naval Complex
North Charleston, SC

GIL RENNHACK COMMENTS

SCDHEC Comment 1:

1. A schematic drawing be provided of the piping/distribution system (below grade/surface) extending from facility 3915, tank 39-A, and tank 39-D. Information of this system will be helpful to correlate the sampling with possible leakage from the pipeline within SWMU 24.

CH2M-Jones Response 1:

A figure showing the piping layout extending between Facility 3915 and Tanks 39-A and D was previously provided to SCDHEC as part of the Zone G RFI Work Plan Addendum (WPA), dated January 17, 2000, prepared by the Navy/EnSafe team. A copy of this figure can be provided. It should be noted that neither of the SCDHEC reviewers of the RFI WPA (Susan Peterson/Mike Danielsen) commented that inadequate samples had been collected along the pipeline.

SCDHEC Comment 2:

2. The western/southwestern portion of SWMU 24 has a limited number of samples in the approximate area of concrete pad (tank) 3915. The Department requires a more complete investigation. A single sample is inadequate to fully characterize nature and extent of contamination.

CH2M-Jones Response 2:

The previous SCDHEC team members who reviewed and commented on the Zone G RFI Report, Revision 0, which discusses SWMU 24, provided no comments regarding sampling deficiencies in the vicinity of Tank Pad 3915. Furthermore, when SCDHEC provided comments on the RFI WPA submitted by the Navy/EnSafe team, neither of the SCDHEC reviewers indicated that additional samples were needed in this area, signifying that there was an agreement that the amount of information in the vicinity of Tank 3915 was adequate.

SCDHEC management has indicated (see the attached letter dated May 24, 2002) that previous agreements should stand unless significant new information that directly impacts a decision becomes available. Because the reviewer has not provided any significant new information to justify the need to overrule previous SCDHEC agreements, there does not appear to be any justification for requesting additional sampling at this site. The previous agreement that the number of samples in the vicinity of Tank Pad 3915 is adequate should remain valid.

It should be noted that SCDHEC has had at least three opportunities over a 4- to 5-year period (during the development of the original RFI work plan, during review of the Zone G RFI Report, and during review of the RFI WPA) to provide comments indicating that additional samples around Tank Pad 3915 are needed, yet SCDHEC has never done so.

SCDHEC Comment 3:

3. The area-surrounding tank 39-D has a limited number of samples. The Department requires a more complete investigation. The current sample locations are inadequate to fully characterize nature and extent of contamination.

CH2M-Jones Response 3:

The previous SCDHEC team members (Stacey French/Susan Byrd) who reviewed and commented on the Zone G RFI Report, Revision 0, which discusses this site, provided no comments regarding investigation deficiencies in the vicinity of Tank 39-D.

Furthermore, the RFI WPA prepared by the Navy/EnSafe team (dated January 2000) did not propose any additional samples in this area, and neither of the SCDHEC reviewers (Susan Peterson/Mike Danielsen) indicated that the RFI WPA was deficient in this regard or that additional samples around Tank 39-D were needed. Thus, for many years SCDHEC has been in agreement that the number of samples around this tank was adequate.

SCDHEC management has indicated (see attached letter dated May 24, 2002) that previous agreements should stand unless significant new information becomes available that directly impacts a decision. Because the reviewer has not provided any significant new information to justify the need to overrule previous SCDHEC agreements, there does not appear to be any justification for requesting additional sampling around Tank 39-D. The previous agreement that the number of samples in the vicinity of Tank 39-D is adequate should remain valid.

SCDHEC Comment 4:

4. If items 2 and 3 above have previously been adequately sampled, please provide the data and all references thereto.

CH2M-Jones Response 4:

Please see above.

MANSOUR MALIK COMMENTS

SCDHEC Comment 1:

1. Arsenic in the shallow groundwater of Monitoring Well G024GW001 indicated consistent elevated concentrations that are above both the MCL of 50 µg/L and the Zone G background. The text suggested that natural geochemical processes might have released Arsenic to the medium. The Navy must support this assumption. Correlation of Iron and Manganese behavior with that of Arsenic failed to support this assumption. Ph data should be included.

CH2M-Jones Response 1:

As presented in Table 5-7 of the SWMU 24 RFI Report Addendum, the Zone G mean background reference concentration for arsenic in groundwater is 76 µg/L and the range of arsenic in groundwater samples from Zone G grid wells is 8 to 166 µg/L.

Of the 16 groundwater samples collected and analyzed for arsenic from the SWMU 24 wells, only a single sample (from Well G024GW001) exceeded the Zone G mean background reference concentration of 76 µg/L. All other arsenic concentrations, including the other three samples from Well G024GW001, are below this value. Thus, the suggestion that arsenic concentrations in Well G024GW001 are consistently above the Zone G background values is not correct.

In addition, the average arsenic concentration in groundwater samples from Well G024GW001 is 69 µg/L, which is below the Zone G mean background reference concentration of 76 µg/L. The single exceedance of this value in Well G024GW001 was 86.1 µg/L, which is well below the maximum zone G background arsenic value of 166. Thus, the data conclusively suggest that the concentrations of arsenic in groundwater at this site are well within the background range of arsenic in Zone G groundwater and, on average, below the average arsenic concentrations in Zone G background groundwater samples.

In addition, the iron groundwater data, as shown in Table 5-7, show that significantly greater iron concentrations were present in Well G024GW001, which also had greater arsenic concentrations, than in the other wells at SWMU 24. The iron data presented in Table 5-7 suggest that iron reducing conditions are present at SWMU 24 and that these processes are more pronounced in well G024GW001. Consequently, we disagree with the statement by the reviewer that the iron data do not support the thesis that the arsenic concentrations are naturally occurring.

We can review the groundwater sampling logs to provide pH data, if it is available. However, we believe that, as stated in the RFI Report Addendum, the data strongly indicate that arsenic concentrations in groundwater at SWMU 24, including well G024GW001, are within the Zone G background range and that arsenic in well G024GW001 is likely elevated due to the same natural geochemical processes that is causing it to be elevated in Zone G background wells.

SCDHEC Comment 2:

2. Any Oil Water Separators (OWS) and pipelines associated with the waste oil reclamation facility should be sampled and analyzed for the RCRA constituents. If previously sampled, provide copy of report with all maps and figures showing piping and adequate assessment. If not, please assess.

CH2M-Jones Response 2:

There are no other known oil/water separators at this site. Therefore, no additional sampling for this purpose is required.

With regard to pipelines, a figure showing piping layouts was previously presented in the Zone G RFI WPA prepared by the Navy/EnSafe team. A copy of this figure can be provided.

None of the previous SCDHEC team members who reviewed the Zone G RFI Report, Revision 0, or the RFI WPA indicated that sampling of the pipelines was necessary to complete the RFI for this site. Thus, there was an agreement that no sampling of this type was required. SCDHEC management has indicated (see attached letter dated May 24, 2002) that previous agreements should stand unless significant new information becomes available that directly impacts a decision. Because the reviewer has not provided any significant new information to justify the need to overrule previous SCDHEC agreements, there does not appear to be any justification for requesting additional sampling of the pipelines.

SCDHEC Comment 3:

3. The southwestern side of the SWMU 24 was not fully investigated. Only one surface soil sample was collected from around the fuel tank 3915 under the Fuel Distribution System investigation. For closure of this site, the Department would like to see a complete investigation that covers the unit. If previously investigated please provide data and assessment.

CH2M-Jones Response 3:

Please see response to Comment No. 2 from Gil Rennhack. The previous SCDHEC team members who reviewed the RFI report and RFI WPA and provided comments about sampling deficiencies did not identify any data deficiencies in this area. Therefore, SCDHEC was in agreement that data in this area were adequate.

SCDHEC management has indicated (see attached letter dated May 24, 2002) that previous agreements should stand unless significant new information becomes available that directly impacts a decision. Because the reviewer has not provided any significant new information to justify the need to overrule previous SCDHEC agreements, there does not appear to be any justification for requesting additional sampling in this area.

Attachment



May 24, 2002

2600 Bull Street
Columbia, SC 29201-1708

Mr. James W. Greeley
Vice-President
CH2MHILL
115 Perimeter Center Place NE
Suite 700
Atlanta, GA 30346-1278

Dear Jim,

Thank you for your letter of April 8, 2002 regarding your concerns about closure efforts at the Charleston Naval Complex and for the time later that week that you and Dean Williamson spent meeting with us on the 11th. I feel that our discussions allowed us all to see the issues objectively from each other's perspective. As noted in the meeting, open communication and timely airing of concerns will be important factors in achieving success with the project.

In your letter you pointed to our organizational structure as a concern regarding team effectiveness. While this structure does allow our staff to be more focused in their respective areas of expertise it should not affect the continuity of the team process or the overall goals of the program. The priorities and critical success factors for both Divisions are the same. In order to maximize the effectiveness of our management team, we have aligned all of our hydrogeologists who are involved with the project under one manager. This along with increased front line management involvement will help ensure that the priorities and critical success factors of the program team as a whole are represented.

You also pointed out several areas where improved efficiency might be realized within our program. In general, we are supportive of your suggestions and of minimizing any perceived inefficiencies, however, as a regulatory agency we have responsibilities beyond those immediately associated with this project. Specific responses to your suggestions can be found below:

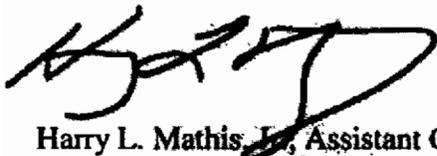
- A. Using RCRA Corrective Action Reforms or Other Approaches to Streamline The RCRA Process- We support the use of RCRA Reforms in managing the cleanup and transfer of property at the Charleston Naval Complex.
- B. Maintaining Validity of Past Decisions- Unless significant new information becomes available that directly impacts a past decision, previous agreements should be upheld. To help facilitate this process it is recommended that the Project Team Notebook be updated routinely.
- C. Integration of Risk Assessment Concepts- A more integrated approach to generating and communicating risk assessment comments will be taken with our

risk assessment staff as the lead. This approach will continue to involve both our engineers and hydrogeologists from their unique perspectives.

- D. Clarification on Required Degree of Data Validation Review- Staff from all program areas routinely conduct data validation reviews as part of our normal review process and to meet our obligations to the USEPA. For the most part this will entail our staff verifying items such as proper chain-of-custody and method certification and spot checks on surrogate recovery percentages and holding times. This will be supplemented by more detailed verifications by our Lab Certification program on a periodic basis.
- E. Coordination of Document Review Timelines- We agree on the importance of meeting review timeframes and believe this extends to all aspects of the work schedule. Our management team will continue to track the status of the review schedule and identify concerns regarding deadlines on a regular basis. It might be beneficial to share a summary of all parties' performance in meeting the schedule during routine discussions between the project management team.
- F. Assistance in Facilitating Decision-making- Involvement of management in decision-making is critical to our mission. Our management team is empowered and tasked with assisting staff in dealing with uncertainty in the decision-making process. Our expectation is for decisions to be made in a timely manner that are consistent and of a high quality.

As I mentioned in our meeting, I believe routine conference calls involving our front line management teams would provide a forum to resolve conflicts in a timely and productive manner. The Department is supportive of the goals of the program and is hopeful that we can work together to resolve any unnecessary impediments.

Sincerely,



Harry L. Mathis, Jr., Assistant Chief
Bureau of Land and Waste Management

Appendix B

Table 10.15.4
Zone G
SWMU 24
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ = 0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF = 20)	Subsurface Background
Volatile Organic Compounds ($\mu\text{g}/\text{kg}$)							
Ethylbenzene	FDSSH026	3	780,000	NA	NT	13,000	NA
Xylene (Total)	FDSSH026	1	16,000,000	NA	NT	140,000	NA
Semivolatile Organic Compounds ($\mu\text{g}/\text{kg}$)							
BEQs ¹	FDSSH024	51.1	87	NA	ND	1,600	NA
	FDSSH026	2,501			ND		
Benzo(a)anthracene	FDSSH024	38	870	NA	ND	2,000	NA
	FDSSH026	2,500			ND		
Benzo(a)pyrene	FDSSH024	42	87	NA	ND	8,000	NA
	FDSSH026	1,700			ND		
Benzo(b)fluoranthene	FDSSH024	51	870	NA	ND	5,000	NA
	FDSSH026	1,600			ND		
Benzo(k)fluoranthene	FDSSH024	58	8,700	NA	ND	49,000	NA
	FDSSH026	1,700			ND		
Chrysene	FDSSH024	57	87,000	NA	ND	160,000	NA
	FDSSH026	3,200			ND		
Dibenz(a,h)anthracene	FDSSH026	290	87	NA	ND	2,000	NA

Table 10.15.4
Zone G
SWMU 24
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ = 0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF = 20)	Subsurface Background
Indeno(1,2,3-cd)pyrene	FDSSH026	810	870	NA	ND	14,000	NA
Acenaphthene	FDSSH026	200	470,000	NA	ND	570,000	NA
Anthracene	FDSSH026	640	2,300,000	NA	ND	12,000,000	NA
Benzo(g,h,i)perylene	FDSSH026	860	310,000	NA	ND	1.14E + 08	NA
bis(2-Ethylhexyl)phthalate (BEHP)	FDSSH024	55	46,000	NA	ND	3,600,000	NA
Di-n-butylphthalate	FDSSH024	64	780,000	NA	ND	2,300,000	NA
Fluoranthene	FDSSH024 FDSSH026	74 3,400	310,000	NA	ND ND	4,300,000	NA
Fluorene	FDSSH026	190	310,000	NA	ND	560,000	NA
2-Methylnaphthalene	FDSSH026	890	160,000	NA	ND	36,000	NA
Naphthalene	FDSSH026	700	160,000	NA	ND	61,000	NA
Phenanthrene	FDSSH026	2,500	230,000	NA	ND	1,300,000	NA
Pyrene	FDSSH024 FDSSH026	96 7,500	230,000	NA	ND ND	4,200,000	NA

Table 10.15.4
Zone G
SWMU 24
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ = 0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF = 20)	Subsurface Background
TPH-GRO ($\mu\text{g}/\text{kg}$)							
Gasoline	FDSSH026	20	NA	NA	NT	NA	NA
	FDSSC069	NT			8		
	FDSSC072	NT			8		
	FDSSC073	NT			15		
	FDSSC074	NT			8		
	FDSSC088	NT			9		
	FDSSC089	NT			35		
Inorganics (mg/kg)							
Aluminum (Al)	FDSSH024	7,850	7,800	18,700	NT	1,000,000	23,600
	FDSSH026	4,500			NT		
Arsenic (As)	FDSSH024	3.9	0.43	17.2	NT	29	15.5
Barium (Ba)	FDSSH024	41.5	550	109	NT	1,600	64.5
	FDSSH026	28.3			NT		
Beryllium (Be)	FDSSH024	0.52	16	1.2	NT	63	1.63
	FDSSH026	0.36			NT		
Cadmium (Cd)	FDSSH026	0.04	3.9	1.07	NT	8	0.48
Calcium (Ca)	FDSSH024	10,300	NL	NL	NT	NL	NL
	FDSSH026	11,200			NT		

Table 10.15.4
Zone G
SWMU 24
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ = 0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF = 20)	Subsurface Background
Chromium (Cr)	FDSSH024	12.5	23	42.8	NT	1,000,000	43.4
	FDSSH026	6.7			NT		
Cobalt (Co)	FDSSH024	2.1	470	6.6	NT	2,000	8.14
	FDSSH026	1.4			NT		
Iron (Fe)	FDSSH024	8,180	2,300	NL	NT	NL	NL
	FDSSH026	4,180			NT		
Lead (Pb)	FDSSH024	350	400	181	NT	400	66.3
	FDSSH026	381			NT		
Magnesium (Mg)	FDSSH024	631	NL	NL	NT	NL	NL
	FDSSH026	432			NT		
Manganese (Mn)	FDSSH024	109	160	325	NT	950	291
	FDSSH026	38.9			NT		
Mercury (Hg)	FDSSH024	0.06	2.3	1.03	NT	2	0.31
Potassium (K)	FDSSH024	267	NL	NL	NT	NL	NL
Selenium (Se)	FDSSH026	0.47	39	1.22	NT	5	1.26
Vanadium (V)	FDSSH024	15.5	55	60.9	NT	6,000	72.5
	FDSSH026	8			NT		

Table 10.15.4
Zone G
SWMU 24
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ = 0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF = 20)	Subsurface Background
Zinc (Zn)	FDSSH024	39.7	2,300	519	NT	12,000	145
	FDSSH026	39.5					

Notes:

- * = Residential RBCs (THQ = 0.1) were used as a reference concentration for upper interval samples.
 Generic soil to groundwater SSLs (DAF=20) from the *Soil Screening Guidance: Technical Background Document* (USEPA, 1996) were used as a reference concentration for lower interval samples
 - 1 = Calculated from methods described in *USEPA Interim Supplemental Guidance to RAGS: Human Health Risk Assessment, Bulletin 2* (USEPA, 1995)
 - NA = Not Applicable/Not Available
 - ND = Not Detected/Not Determined
 - NL = Not Listed
 - NT = Not Taken
 - mg/kg = Milligrams per kilogram
 - µg/kg = Micrograms per kilogram
- Bolded concentrations exceed both the reference concentration (RBC or SSL) and the zone background
 All background values for Zone G are based on twice the mean of the grid sample concentrations

LEGEND:

FDSSH02601  HAND-AUGER SOIL SAMPLE W/ ID NUMBER

FDSSC07201  CPT SOIL SAMPLE W/ ID NUMBER

2501 = BEQ CONCENTRATION ($\mu\text{g}/\text{kg}$)

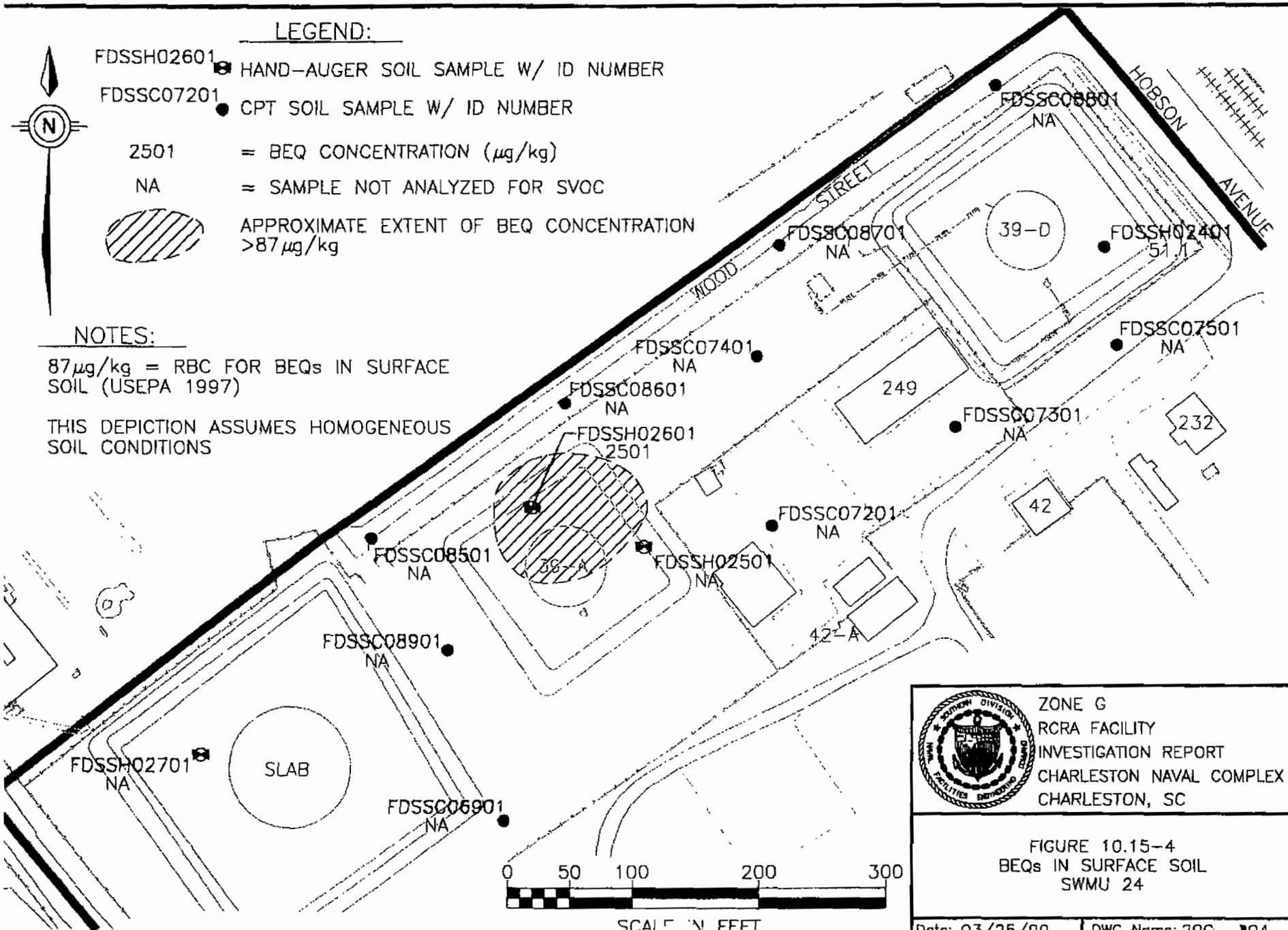
NA = SAMPLE NOT ANALYZED FOR SVOC

 APPROXIMATE EXTENT OF BEQ CONCENTRATION $>87 \mu\text{g}/\text{kg}$

NOTES:

$87 \mu\text{g}/\text{kg}$ = RBC FOR BEQs IN SURFACE SOIL (USEPA 1997)

THIS DEPICTION ASSUMES HOMOGENEOUS SOIL CONDITIONS



 ZONE G
RCRA FACILITY
INVESTIGATION REPORT
CHARLESTON NAVAL COMPLEX
CHARLESTON, SC

FIGURE 10.15-4
BEQs IN SURFACE SOIL
SWMU 24

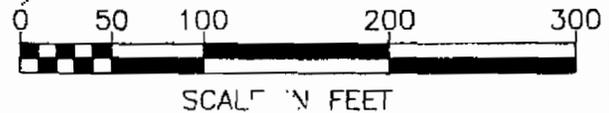


Table 10.15.8
 Zone G
 SWMU 24
 Analytes Detected in Shallow Groundwater

Parameters	Location	First Round Conc. Apr-98	Second Round Conc. Oct-98	Tap Water RBC*	MCL/SMCL*	Shallow Background
Volatile Organic Compounds ($\mu\text{g/L}$)						
Tetrachloroethene	024001	0.87	ND	1.1	5	NA
Semivolatile Organic Compounds ($\mu\text{g/L}$)						
bis(2-Ethylhexyl)phthalate (BEHP)	024002	ND	2	4.8	NL	NA
Inorganics ($\mu\text{g/L}$)						
Aluminum (Al)	024001	429	235	3,700	50	692
	024002	123	107			
	024003	14.3	119			
	024004	195	57.2			
Arsenic (As)	024001	47.2	86.1	0.045	50	17.8
	024002	6.5	5.6			
	024003	10.5	16.4			
	024004	ND	8.9			
Barium (Ba)	024001	26.6	26.9	260	2,000	31
	024002	10.7	9.2			
	024003	39	28.1			
	024004	57.05	46.1			
Calcium (Ca)	024001	21,300	19,000	NL	NL	NL
	024002	3,150	3,020			
	024003	37,700	19,800			
	024004	34,200	23,100			

Table 10.15.8
Zone G
SWMU 24
Analytes Detected in Shallow Groundwater

Parameters	Location	First Round Conc. Apr-98	Second Round Conc. Oct-98	Tap Water RBC*	MCL/SMCL*	Shallow Background
Chromium (Cr)	024002	ND	0.78	11	100	3.88
Cobalt (Co)	024001	2.2	3.9	220	NL	1.45
	024002	2.2	1.6			
	024004	0.91	1.3			
Iron (Fe)	024001	4,340	5,770	1,100	300	NL
	024002	2,100	1,640			
	024003	3,710	1,460			
	024004	1,750	2,870			
Magnesium (Mg)	024001	15,100	14,900	NL	NL	NL
	024002	1,530	1,300			
	024003	8,180	4,040			
	024004	36,950	31,500			
Manganese (Mn)	024001	203	208	73	50	2,906
	024002	70.5	59.8			
	024003	114	50.2			
	024004	194.5	183			
Nickel (Ni)	024001	ND	2	73	100	4.08
	024002	ND	1.4			
Potassium (K)	024001	13,700	11,300	NL	NL	NL
	024002	611	ND			
	024003	3,600	1,990			
	024004	22,400	21,500			
Selenium (Se)	024004	5	ND	18	50	4.3

Table 10.15.8
 Zone G
 SWMU 24
 Analytes Detected in Shallow Groundwater

Parameters	Location	First Round Conc. Apr-98	Second Round Conc. Oct-98	Tap Water RBC*	MCL/SMCL*	Shallow Background
Sodium (Na)	024001	344,000	340,000	NL	NL	NL
	024002	27,300	25,100			
	024003	46,600	76,600			
	024004	81,150	76,000			
Vanadium (V)	024003	ND	0.97	26	NL	15.4
	024004	1.15	ND			

Notes:

NA = Not Applicable/Not Available

ND = Not Detected/Not Determined

NL = Not Listed

NT = Not Taken

µg/L = Micrograms per liter

* = Tap Water RBCs (THQ = 0.1) from *Risk-Based Concentration Table* (USEPA, October 1, 1998).

MCLs/SMCLs from *Drinking Water Regulations and Health Advisories* (USEPA, 1996) were used as a reference concentration

Bolded concentrations exceed both the RBC and the zone background. All background values for Zone G are based on twice the mean of the grid sample concentrations



LEGEND:

024004 ● SHALLOW MONITORING WELL W/ ID NUMBER

→ ARROW INDICATES FLOW DIRECTION

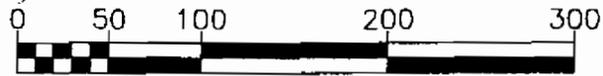
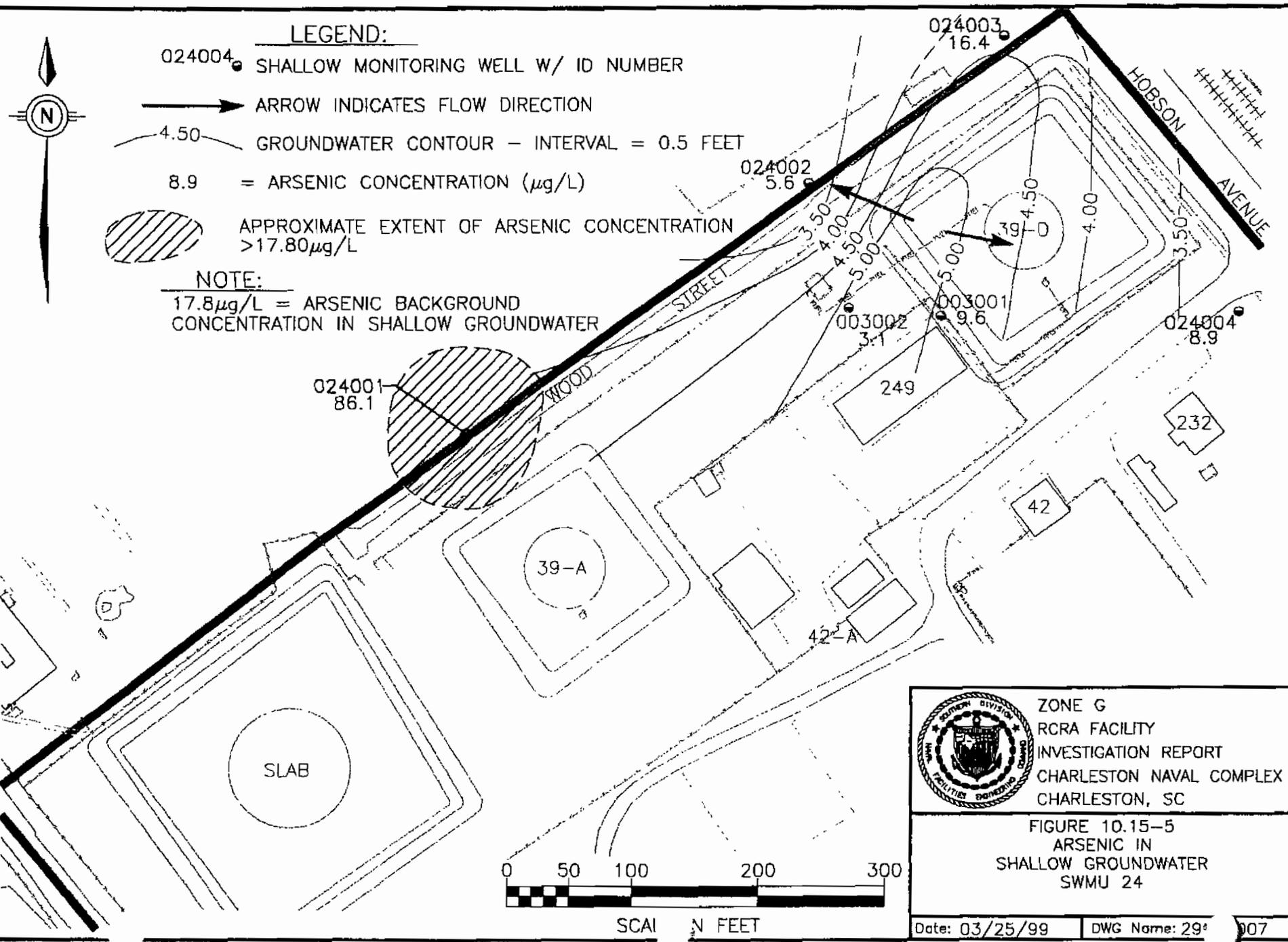
4.50 — GROUNDWATER CONTOUR — INTERVAL = 0.5 FEET

8.9 = ARSENIC CONCENTRATION ($\mu\text{g/L}$)

 APPROXIMATE EXTENT OF ARSENIC CONCENTRATION >17.80 $\mu\text{g/L}$

NOTE:

17.8 $\mu\text{g/L}$ = ARSENIC BACKGROUND CONCENTRATION IN SHALLOW GROUNDWATER



SCALE IN FEET

 ZONE G
RCRA FACILITY
INVESTIGATION REPORT
CHARLESTON NAVAL COMPLEX
CHARLESTON, SC

FIGURE 10.15-5
ARSENIC IN
SHALLOW GROUNDWATER
SWMU 24

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001		G024GW001		G024GW001		
SampleID	024GW00101		024GW00102		024GW00103		
DateCollected	4/22/1998		10/28/1998		1/28/1999		
DateExtracted	4/27/1998		10/29/1998		1/31/1999		
DateAnalyzed	5/9/1998		11/5/1998		2/12/1999		
SDGNumber	ECZG02		36149		37280		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	11	U	10	U
4-Methylphenol (p-Cresol)	ug/L	10	U	11	U	10	U
N-Nitrosodiphenylamine	ug/L	10	U	11	U	10	U
Phenol	ug/L	10	U	11	U	10	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	10	U	11	U	10	U
2-Chlorophenol	ug/L	10	U	11	U	10	U
1,3-Dichlorobenzene	ug/L	10	U	11	U	10	U
1,4-Dichlorobenzene	ug/L	10	U	11	U	10	U
Benzyl alcohol	ug/L	10	U	11	U	10	U
1,2-Dichlorobenzene	ug/L	10	U	11	U	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	11	U	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	11	U	10	U
Hexachloroethane	ug/L	10	U	11	U	10	U
Nitrobenzene	ug/L	10	U	11	U	10	U
Isophorone	ug/L	10	U	11	U	10	U
2-Nitrophenol	ug/L	10	U	11	U	10	U
2,4-Dimethylphenol	ug/L	10	U	11	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	11	U	10	U
2,4-Dichlorophenol	ug/L	10	U	11	U	10	U
Benzoic acid	ug/L	50	U	56	U	10	U
Naphthalene	ug/L	10	U	11	U	10	U
4-Chloroaniline	ug/L	10	U	11	U	10	U
Hexachlorobutadiene	ug/L	10	U	11	U	10	U
4-Chloro-3-methylphenol	ug/L	10	U	11	U	10	U
2-Methylnaphthalene	ug/L	10	U	11	U	10	U
Hexachlorocyclopentadiene	ug/L	10	U	11	U	10	U
2,4,6-Trichlorophenol	ug/L	10	U	11	U	10	U
2,4,5-Trichlorophenol	ug/L	50	U	56	U	50	U
2-Chloronaphthalene	ug/L	10	U	11	U	10	U
2-Nitroaniline	ug/L	50	U	56	U	50	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001		G024GW001		G024GW002	
SampleID	024GW00104		024GW00104DL		024GW00201	
DateCollected	6/10/1999		6/10/1999		4/20/1998	
DateExtracted	6/15/1999		6/15/1999		4/27/1998	
DateAnalyzed	6/20/1999		6/21/1999		5/9/1998	
SDGNumber	EN017		EN017		ECZG02	
Parameter	Units					
2,2'-Oxybis(1-chloro)propane	ug/L	5	U	10	R	10 U
4-Methylphenol (p-Cresol)	ug/L	5	U	10	R	10 U
N-Nitrosodiphenylamine	ug/L	5	U	10	R	10 U
Phenol	ug/L	5	U	10	R	10 U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	5	U	10	R	10 U
2-Chlorophenol	ug/L	5	U	10	R	10 U
1,3-Dichlorobenzene	ug/L	5	U	10	R	10 U
1,4-Dichlorobenzene	ug/L	5	U	10	R	10 U
Benzyl alcohol	ug/L	5	U	10	R	10 U
1,2-Dichlorobenzene	ug/L	5	U	10	R	10 U
2-Methylphenol (o-Cresol)	ug/L	5	U	10	R	10 U
N-Nitrosodi-n-propylamine	ug/L	5	U	10	R	10 U
Hexachloroethane	ug/L	5	U	10	R	10 U
Nitrobenzene	ug/L	5	U	10	R	10 U
Isophorone	ug/L	5	U	10	R	10 U
2-Nitrophenol	ug/L	5	U	10	R	10 U
2,4-Dimethylphenol	ug/L	5	U	10	R	10 U
bis(2-Chloroethoxy) Methane	ug/L	5	U	10	R	10 U
2,4-Dichlorophenol	ug/L	5	U	10	R	10 U
Benzoic acid	ug/L	2	J	2	R	50 U
Naphthalene	ug/L	5	U	10	R	10 U
4-Chloroaniline	ug/L	5	U	10	R	10 U
Hexachlorobutadiene	ug/L	5	U	10	R	10 U
4-Chloro-3-methylphenol	ug/L	5	U	10	R	10 U
2-Methylnaphthalene	ug/L	5	U	10	R	10 U
Hexachlorocyclopentadiene	ug/L	5	U	10	R	10 U
2,4,6-Trichlorophenol	ug/L	5	U	10	R	10 U
2,4,5-Trichlorophenol	ug/L	5	U	10	R	50 U
2-Chloronaphthalene	ug/L	5	U	10	R	10 U
2-Nitroaniline	ug/L	5	U	10	R	50 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW002		G024GW002		G024GW002		
SampleID	024GW00202		024GW00203		024GW00204		
DateCollected	10/29/1998		1/28/1999		6/9/1999		
DateExtracted	10/30/1998		1/31/1999		6/15/1999		
DateAnalyzed	11/4/1998		2/12/1999		6/20/1999		
SDGNumber	36149		37280		EN017		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	10	U	6	U
4-Methylphenol (p-Cresol)	ug/L	10	U	10	U	6	U
N-Nitrosodiphenylamine	ug/L	10	U	10	U	6	U
Phenol	ug/L	10	U	10	U	6	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	10	U	10	U	6	U
2-Chlorophenol	ug/L	10	U	10	U	6	U
1,3-Dichlorobenzene	ug/L	10	U	10	U	6	U
1,4-Dichlorobenzene	ug/L	10	U	10	U	6	U
Benzyl alcohol	ug/L	10	U	10	U	6	U
1,2-Dichlorobenzene	ug/L	10	U	10	U	6	U
2-Methylphenol (o-Cresol)	ug/L	10	U	10	U	6	U
N-Nitrosodi-n-propylamine	ug/L	10	U	10	U	6	U
Hexachloroethane	ug/L	10	U	10	U	6	U
Nitrobenzene	ug/L	10	U	10	U	6	U
Isophorone	ug/L	10	U	10	U	6	U
2-Nitrophenol	ug/L	10	U	10	U	6	U
2,4-Dimethylphenol	ug/L	10	U	10	U	6	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	10	U	6	U
2,4-Dichlorophenol	ug/L	10	U	10	U	6	U
Benzoic acid	ug/L	50	U	10	U	1	J
Naphthalene	ug/L	10	U	10	U	6	U
4-Chloroaniline	ug/L	10	U	10	U	6	U
Hexachlorobutadiene	ug/L	10	U	10	U	6	U
4-Chloro-3-methylphenol	ug/L	10	U	10	U	6	U
2-Methylnaphthalene	ug/L	10	U	10	U	6	U
Hexachlorocyclopentadiene	ug/L	10	U	10	U	6	U
2,4,6-Trichlorophenol	ug/L	10	U	10	U	6	U
2,4,5-Trichlorophenol	ug/L	50	U	50	U	6	U
2-Chloronaphthalene	ug/L	10	U	10	U	6	U
2-Nitroaniline	ug/L	50	U	50	U	6	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW003		G024GW003		
SampleID	024GW00301		024GW00302		024GW00303		
DateCollected	4/20/1998		10/29/1998		1/28/1999		
DateExtracted	4/27/1998		10/30/1998		1/31/1999		
DateAnalyzed	5/9/1998		11/4/1998		2/12/1999		
SDGNumber	ECZG02		36149		37280		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	10	U	10	U
4-Methylphenol (p-Cresol)	ug/L	10	U	10	U	10	U
N-Nitrosodiphenylamine	ug/L	10	U	10	U	10	U
Phenol	ug/L	10	U	10	U	10	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	10	U	10	U	10	U
2-Chlorophenol	ug/L	10	U	10	U	10	U
1,3-Dichlorobenzene	ug/L	10	U	10	U	10	U
1,4-Dichlorobenzene	ug/L	10	U	10	U	10	U
Benzyl alcohol	ug/L	10	U	10	U	10	U
1,2-Dichlorobenzene	ug/L	10	U	10	U	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	10	U	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	10	U	10	U
Hexachloroethane	ug/L	10	U	10	U	10	U
Nitrobenzene	ug/L	10	U	10	U	10	U
Isophorone	ug/L	10	U	10	U	10	U
2-Nitrophenol	ug/L	10	U	10	U	10	U
2,4-Dimethylphenol	ug/L	10	U	10	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	10	U	10	U
2,4-Dichlorophenol	ug/L	10	U	10	U	10	U
Benzoic acid	ug/L	50	U	50	U	10	U
Naphthalene	ug/L	10	U	10	U	10	U
4-Chloroaniline	ug/L	10	U	10	U	10	U
Hexachlorobutadiene	ug/L	10	U	10	U	10	U
4-Chloro-3-methylphenol	ug/L	10	U	10	U	10	U
2-Methylnaphthalene	ug/L	10	U	10	U	10	U
Hexachlorocyclopentadiene	ug/L	10	U	10	U	10	U
2,4,6-Trichlorophenol	ug/L	10	U	10	U	10	U
2,4,5-Trichlorophenol	ug/L	50	U	50	U	50	U
2-Chloronaphthalene	ug/L	10	U	10	U	10	U
2-Nitroaniline	ug/L	50	U	50	U	50	U

	StationID	G024GW003		G024GW004		G024GW004	
	SampleID	024GW00304		024GW00401		024GW00402	
	DateCollected	6/10/1999		4/24/1998		10/29/1998	
	DateExtracted	6/15/1999		4/29/1998		10/30/1998	
	DateAnalyzed	6/20/1999		5/19/1998		11/4/1998	
	SDGNumber	EN017		ECZG03		36149	
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/L	6	U	10	U	10	U
4-Methylphenol (p-Cresol)	ug/L	6	U	10	U	10	U
N-Nitrosodiphenylamine	ug/L	6	U	10	U	10	U
Phenol	ug/L	6	U	10	U	10	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	6	U	10	U	10	U
2-Chlorophenol	ug/L	6	U	10	U	10	U
1,3-Dichlorobenzene	ug/L	6	U	10	U	10	U
1,4-Dichlorobenzene	ug/L	6	U	10	U	10	U
Benzyl alcohol	ug/L	6	U	10	U	10	U
1,2-Dichlorobenzene	ug/L	6	U	10	U	10	U
2-Methylphenol (o-Cresol)	ug/L	6	U	10	U	10	U
N-Nitrosodi-n-propylamine	ug/L	6	U	10	U	10	U
Hexachloroethane	ug/L	6	U	10	U	10	U
Nitrobenzene	ug/L	6	U	10	U	10	U
Isophorone	ug/L	6	U	10	U	10	U
2-Nitrophenol	ug/L	6	U	10	U	10	U
2,4-Dimethylphenol	ug/L	6	U	10	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	6	U	10	U	10	U
2,4-Dichlorophenol	ug/L	6	U	10	U	10	U
Benzoic acid	ug/L	1	J	50	U	50	U
Naphthalene	ug/L	6	U	10	U	10	U
4-Chloroaniline	ug/L	6	U	10	U	10	U
Hexachlorobutadiene	ug/L	6	U	10	U	10	U
4-Chloro-3-methylphenol	ug/L	6	U	10	U	10	U
2-Methylnaphthalene	ug/L	6	U	10	U	10	U
Hexachlorocyclopentadiene	ug/L	6	U	10	U	10	U
2,4,6-Trichlorophenol	ug/L	6	U	10	U	10	U
2,4,5-Trichlorophenol	ug/L	6	U	50	U	50	U
2-Chloronaphthalene	ug/L	6	U	10	U	10	U
2-Nitroaniline	ug/L	6	U	50	U	50	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW004	G024GW004	G024GW004			
	SampleID	024GW00403	024GW00404	024HW00401			
	DateCollected	1/29/1999	6/10/1999	4/24/1998			
	DateExtracted	1/31/1999	6/15/1999	4/29/1998			
	DateAnalyzed	2/16/1999	6/21/1999	5/19/1998			
	SDGNumber	37296	EN017	ECZG03			
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	6	U	10	U
4-Methylphenol (p-Cresol)	ug/L	10	U	6	U	10	U
N-Nitrosodiphenylamine	ug/L	10	U	6	U	10	U
Phenol	ug/L	10	U	6	U	10	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/L	10	U	6	U	10	U
2-Chlorophenol	ug/L	10	U	6	U	10	U
1,3-Dichlorobenzene	ug/L	10	U	6	U	10	U
1,4-Dichlorobenzene	ug/L	10	U	6	U	10	U
Benzyl alcohol	ug/L	10	U	1	J	10	U
1,2-Dichlorobenzene	ug/L	10	U	6	U	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	6	U	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	6	U	10	U
Hexachloroethane	ug/L	10	U	6	U	10	U
Nitrobenzene	ug/L	10	U	6	U	10	U
Isophorone	ug/L	10	U	6	U	10	U
2-Nitrophenol	ug/L	10	U	6	U	10	U
2,4-Dimethylphenol	ug/L	10	U	6	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	6	U	10	U
2,4-Dichlorophenol	ug/L	10	U	6	U	10	U
Benzoic acid	ug/L	1	J	1	J	50	U
Naphthalene	ug/L	10	U	6	U	10	U
4-Chloroaniline	ug/L	10	U	6	U	10	U
Hexachlorobutadiene	ug/L	10	U	6	U	10	U
4-Chloro-3-methylphenol	ug/L	10	U	6	U	10	U
2-Methylnaphthalene	ug/L	10	U	6	U	10	U
Hexachlorocyclopentadiene	ug/L	10	U	6	U	10	U
2,4,6-Trichlorophenol	ug/L	10	U	6	U	10	U
2,4,5-Trichlorophenol	ug/L	50	U	6	U	50	U
2-Chloronaphthalene	ug/L	10	U	6	U	10	U
2-Nitroaniline	ug/L	50	U	6	U	50	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW001		G024GW001		G024GW001	
	SampleID	024GW00101		024GW00102		024GW00103	
	DateCollected	4/22/1998		10/28/1998		1/28/1999	
	DateExtracted	4/27/1998		10/29/1998		1/31/1999	
	DateAnalyzed	5/9/1998		11/5/1998		2/12/1999	
	SDGNumber	ECZG02		36149		37280	
Parameter	Units						
3-Nitroaniline	ug/L	50	U	56	U	50	U
Dimethyl Phthalate	ug/L	10	U	11	U	10	U
2,6-Dinitrotoluene	ug/L	10	U	11	U	10	U
Acenaphthylene	ug/L	10	U	11	U	10	U
Acenaphthene	ug/L	10	U	11	U	10	U
2,4-Dinitrophenol	ug/L	50	UJ	56	U	50	U
Dibenzofuran	ug/L	10	U	11	U	10	U
2,4-Dinitrotoluene	ug/L	10	U	11	U	10	U
Diethyl Phthalate	ug/L	10	U	11	U	10	U
4-Nitrophenol	ug/L	50	U	56	U	50	U
Fluorene	ug/L	10	U	11	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	11	U	10	U
4,6-Dinitro-2-methylphenol	ug/L	50	UJ	56	U	50	U
4-Nitroaniline	ug/L	50	U	56	U	50	U
4-Bromophenyl Phenyl Ether	ug/L	10	U	11	U	10	U
Hexachlorobenzene	ug/L	10	U	11	U	10	U
Pentachlorophenol	ug/L	50	U	56	U	50	U
Phenanthrene	ug/L	10	U	11	U	10	U
Anthracene	ug/L	10	U	11	U	10	U
Di-n-butyl Phthalate	ug/L	10	U	11	U	10	U
Flouranthene	ug/L	10	U	11	U	10	U
Pyrene	ug/L	10	U	11	U	10	U
Benzyl Butyl Phthalate	ug/L	10	U	11	U	10	U
Benzo(a)Anthracene	ug/L	10	U	11	U	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	22	U	20	U
Chrysene	ug/L	10	U	11	U	10	U
bis(2-Ethylhexyl) Phthalate	ug/L	10	U	11	U	2	J
Di-n-octylphthalate	ug/L	10	U	11	U	10	U
Benzo(b)Fluoranthene	ug/L	10	U	11	U	10	U
Benzo(k)Fluoranthene	ug/L	10	U	11	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001		G024GW001		G024GW002		
SampleID	024GW00104		024GW00104DL		024GW00201		
DateCollected	6/10/1999		6/10/1999		4/20/1998		
DateExtracted	6/15/1999		6/15/1999		4/27/1998		
DateAnalyzed	6/20/1999		6/21/1999		5/9/1998		
SDGNumber	EN017		EN017		ECZG02		
Parameter	Units						
3-Nitroaniline	ug/L	5	U	10	R	50	U
Dimethyl Phthalate	ug/L	5	U	10	R	10	U
2,6-Dinitrotoluene	ug/L	5	U	10	R	10	U
Acenaphthylene	ug/L	5	U	10	R	10	U
Acenaphthene	ug/L	5	U	10	R	10	U
2,4-Dinitrophenol	ug/L	10	U	20	R	50	UJ
Dibenzofuran	ug/L	5	U	10	R	10	U
2,4-Dinitrotoluene	ug/L	5	U	10	R	10	U
Diethyl Phthalate	ug/L	5	U	10	R	10	U
4-Nitrophenol	ug/L	10	U	20	R	50	U
Fluorene	ug/L	5	U	10	R	10	U
4-Chlorophenyl Phenyl Ether	ug/L	5	U	10	R	10	U
4,6-Dinitro-2-methylphenol	ug/L	10	U	20	R	50	UJ
4-Nitroaniline	ug/L	5	U	10	R	50	U
4-Bromophenyl Phenyl Ether	ug/L	5	U	10	R	10	U
Hexachlorobenzene	ug/L	5	U	10	R	10	U
Pentachlorophenol	ug/L	10	U	20	R	50	U
Phenanthrene	ug/L	5	U	10	R	10	U
Anthracene	ug/L	5	U	10	R	10	U
Di-n-butyl Phthalate	ug/L	5	U	10	R	10	U
Flouranthene	ug/L	5	U	10	R	10	U
Pyrene	ug/L	5	U	10	R	10	U
Benzyl Butyl Phthalate	ug/L	5	U	10	R	10	U
Benzo(a)Anthracene	ug/L	5	U	10	R	10	U
3,3'-Dichlorobenzidine	ug/L	10	U	20	R	20	U
Chrysene	ug/L	5	U	10	R	10	U
bis(2-Ethylhexyl) Phthalate	ug/L	5	U	10	R	10	U
Di-n-octylphthalate	ug/L	5	UJ	10	R	10	U
Benzo(b)Fluoranthene	ug/L	5	UJ	10	R	10	U
Benzo(k)Fluoranthene	ug/L	5	UJ	10	R	10	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW002		G024GW002		G024GW002	
	SampleID	024GW00202		024GW00203		024GW00204	
	DateCollected	10/29/1998		1/28/1999		6/9/1999	
	DateExtracted	10/30/1998		1/31/1999		6/15/1999	
	DateAnalyzed	11/4/1998		2/12/1999		6/20/1999	
	SDGNumber	36149		37280		EN017	
Parameter	Units						
3-Nitroaniline	ug/L	50	U	50	U	6	U
Dimethyl Phthalate	ug/L	10	U	10	U	6	U
2,6-Dinitrotoluene	ug/L	10	U	10	U	6	U
Acenaphthylene	ug/L	10	U	10	U	6	U
Acenaphthene	ug/L	10	U	10	U	6	U
2,4-Dinitrophenol	ug/L	50	U	50	U	11	U
Dibenzofuran	ug/L	10	U	10	U	6	U
2,4-Dinitrotoluene	ug/L	10	U	10	U	6	U
Diethyl Phthalate	ug/L	10	U	10	U	6	U
4-Nitrophenol	ug/L	50	U	50	U	11	U
Fluorene	ug/L	10	U	10	U	6	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	10	U	6	U
4,6-Dinitro-2-methylphenol	ug/L	50	U	50	U	11	U
4-Nitroaniline	ug/L	50	U	50	U	6	U
4-Bromophenyl Phenyl Ether	ug/L	10	U	10	U	6	U
Hexachlorobenzene	ug/L	10	U	10	U	6	U
Pentachlorophenol	ug/L	50	U	50	U	11	U
Phenanthrene	ug/L	10	U	10	U	6	U
Anthracene	ug/L	10	U	10	U	6	U
Di-n-butyl Phthalate	ug/L	10	U	0.5	J	6	U
Flouranthene	ug/L	10	U	10	U	6	U
Pyrene	ug/L	10	U	10	U	6	U
Benzyl Butyl Phthalate	ug/L	10	U	10	U	6	U
Benzo(a)Anthracene	ug/L	10	U	10	U	6	U
3,3'-Dichlorobenzidine	ug/L	20	U	20	U	11	U
Chrysene	ug/L	10	U	10	U	6	U
bis(2-Ethylhexyl) Phthalate	ug/L	2	J	10	U	6	U
Di-n-octylphthalate	ug/L	10	U	10	U	6	U
Benzo(b)Fluoranthene	ug/L	10	U	10	U	6	U
Benzo(k)Fluoranthene	ug/L	10	U	10	U	6	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW003		G024GW003		G024GW003	
	SampleID	024GW00301		024GW00302		024GW00303	
	DateCollected	4/20/1998		10/29/1998		1/28/1999	
	DateExtracted	4/27/1998		10/30/1998		1/31/1999	
	DateAnalyzed	5/9/1998		11/4/1998		2/12/1999	
	SDGNumber	ECZG02		36149		37280	
Parameter	Units						
3-Nitroaniline	ug/L	50	U	50	U	50	U
Dimethyl Phthalate	ug/L	10	U	10	U	10	U
2,6-Dinitrotoluene	ug/L	10	U	10	U	10	U
Acenaphthylene	ug/L	10	U	10	U	10	U
Acenaphthene	ug/L	10	U	10	U	10	U
2,4-Dinitrophenol	ug/L	50	UJ	50	U	50	U
Dibenzofuran	ug/L	10	U	10	U	10	U
2,4-Dinitrotoluene	ug/L	10	U	10	U	10	U
Diethyl Phthalate	ug/L	10	U	10	U	10	U
4-Nitrophenol	ug/L	50	U	50	U	50	U
Fluorene	ug/L	10	U	10	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	ug/L	50	UJ	50	U	50	U
4-Nitroaniline	ug/L	50	U	50	U	50	U
4-Bromophenyl Phenyl Ether	ug/L	10	U	10	U	10	U
Hexachlorobenzene	ug/L	10	U	10	U	10	U
Pentachlorophenol	ug/L	50	U	50	U	50	U
Phenanthrene	ug/L	10	U	10	U	10	U
Anthracene	ug/L	10	U	10	U	10	U
Di-n-butyl Phthalate	ug/L	10	U	10	U	10	U
Flouranthene	ug/L	10	U	10	U	10	U
Pyrene	ug/L	10	U	10	U	10	U
Benzyl Butyl Phthalate	ug/L	10	U	10	U	10	U
Benzo(a)Anthracene	ug/L	10	U	10	U	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	20	U	20	U
Chrysene	ug/L	10	U	10	U	10	U
bis(2-Ethylhexyl) Phthalate	ug/L	10	U	10	U	1	J
Di-n-octylphthalate	ug/L	10	U	10	U	10	U
Benzo(b)Fluoranthene	ug/L	10	U	10	U	10	U
Benzo(k)Fluoranthene	ug/L	10	U	10	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW004		G024GW004		
SampleID	024GW00304		024GW00401		024GW00402		
DateCollected	6/10/1999		4/24/1998		10/29/1998		
DateExtracted	6/15/1999		4/29/1998		10/30/1998		
DateAnalyzed	6/20/1999		5/19/1998		11/4/1998		
SDGNumber	EN017		ECZG03		36149		
Parameter	Units						
3-Nitroaniline	ug/L	6	U	50	U	50	U
Dimethyl Phthalate	ug/L	6	U	10	U	10	U
2,6-Dinitrotoluene	ug/L	6	U	10	U	10	U
Acenaphthylene	ug/L	6	U	10	U	10	U
Acenaphthene	ug/L	6	U	10	U	10	U
2,4-Dinitrophenol	ug/L	12	U	50	U	50	U
Dibenzofuran	ug/L	6	U	10	U	10	U
2,4-Dinitrotoluene	ug/L	6	U	10	U	10	U
Diethyl Phthalate	ug/L	6	U	10	U	10	U
4-Nitrophenol	ug/L	12	U	50	U	50	U
Fluorene	ug/L	6	U	10	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	6	U	10	U	10	U
4,6-Dinitro-2-methylphenol	ug/L	12	U	50	U	50	U
4-Nitroaniline	ug/L	6	U	50	U	50	U
4-Bromophenyl Phenyl Ether	ug/L	6	U	10	U	10	U
Hexachlorobenzene	ug/L	6	U	10	U	10	U
Pentachlorophenol	ug/L	12	U	50	U	50	U
Phenanthrene	ug/L	6	U	10	U	10	U
Anthracene	ug/L	6	U	10	U	10	U
Di-n-butyl Phthalate	ug/L	1	J	10	U	10	U
Flouranthene	ug/L	6	U	10	U	10	U
Pyrene	ug/L	6	U	10	U	10	U
Benzyl Butyl Phthalate	ug/L	6	U	10	U	10	U
Benzo(a)Anthracene	ug/L	6	U	10	U	10	U
3,3'-Dichlorobenzidine	ug/L	12	U	20	U	20	U
Chrysene	ug/L	6	U	10	U	10	U
bis(2-Ethylhexyl) Phthalate	ug/L	6	U	10	U	10	U
Di-n-octylphthalate	ug/L	6	U	10	U	10	U
Benzo(b)Fluoranthene	ug/L	6	U	10	U	10	U
Benzo(k)Fluoranthene	ug/L	6	U	10	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004		G024GW004		G024GW004		
SampleID	024GW00403		024GW00404		024HW00401		
DateCollected	1/29/1999		6/10/1999		4/24/1998		
DateExtracted	1/31/1999		6/15/1999		4/29/1998		
DateAnalyzed	2/16/1999		6/21/1999		5/19/1998		
SDGNumber	37296		EN017		ECZG03		
Parameter	Units						
3-Nitroaniline	ug/L	50	U	6	U	50	U
Dimethyl Phthalate	ug/L	10	U	6	U	10	U
2,6-Dinitrotoluene	ug/L	10	U	6	U	10	U
Acenaphthylene	ug/L	10	U	6	U	10	U
Acenaphthene	ug/L	10	U	6	U	10	U
2,4-Dinitrophenol	ug/L	50	U	11	U	50	U
Dibenzofuran	ug/L	10	U	6	U	10	U
2,4-Dinitrotoluene	ug/L	10	U	6	U	10	U
Diethyl Phthalate	ug/L	10	U	6	U	10	U
4-Nitrophenol	ug/L	4	J	11	U	50	U
Fluorene	ug/L	10	U	6	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	6	U	10	U
4,6-Dinitro-2-methylphenol	ug/L	50	U	11	U	50	U
4-Nitroaniline	ug/L	50	U	6	U	50	U
4-Bromophenyl Phenyl Ether	ug/L	10	U	6	U	10	U
Hexachlorobenzene	ug/L	10	U	6	U	10	U
Pentachlorophenol	ug/L	50	U	11	U	50	U
Phenanthrene	ug/L	10	U	6	U	10	U
Anthracene	ug/L	10	U	6	U	10	U
Di-n-butyl Phthalate	ug/L	10	U	6	U	10	U
Flouranthene	ug/L	10	U	6	U	10	U
Pyrene	ug/L	10	U	6	U	10	U
Benzyl Butyl Phthalate	ug/L	10	U	6	U	10	U
Benzo(a)Anthracene	ug/L	10	U	6	U	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	11	U	20	U
Chrysene	ug/L	10	U	6	U	10	U
bis(2-Ethylhexyl) Phthalate	ug/L	1	J	6	U	10	U
Di-n-octylphthalate	ug/L	10	U	6	U	10	U
Benzo(b)Fluoranthene	ug/L	10	U	6	U	10	U
Benzo(k)Fluoranthene	ug/L	10	U	6	U	10	U

Analytical Data Summary

04/11/2006 1:47 PM

	StationID	G024GW001	G024GW001	G024GW001
	SampleID	024GW00101	024GW00102	024GW00103
	DateCollected	4/22/1998	10/28/1998	1/28/1999
	DateExtracted	4/27/1998	10/29/1998	1/31/1999
	DateAnalyzed	5/9/1998	11/5/1998	2/12/1999
	SDGNumber	ECZG02	36149	37280
Parameter	Units			
Benzo(a)Pyrene	ug/L	10 U	11 U	10 U
Indeno(1,2,3-c,d)pyrene	ug/L	10 U	11 U	10 U
Dibenz(a,h)anthracene	ug/L	10 U	11 U	10 U
Benzo(g,h,i)Perylene	ug/L	10 U	11 U	10 U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW001		G024GW001		G024GW002	
	SampleID	024GW00104		024GW00104DL		024GW00201	
	DateCollected	6/10/1999		6/10/1999		4/20/1998	
	DateExtracted	6/15/1999		6/15/1999		4/27/1998	
	DateAnalyzed	6/20/1999		6/21/1999		5/9/1998	
	SDGNumber	EN017		EN017		ECZG02	
Parameter	Units						
Benzo(a)Pyrene	ug/L	5	UJ	10	R	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	5	UJ	10	R	10	U
Dibenz(a,h)anthracene	ug/L	5	UJ	10	R	10	U
Benzo(g,h,i)Perylene	ug/L	5	UJ	10	R	10	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW002	G024GW002	G024GW002
	SampleID	024GW00202	024GW00203	024GW00204
	DateCollected	10/29/1998	1/28/1999	6/9/1999
	DateExtracted	10/30/1998	1/31/1999	6/15/1999
	DateAnalyzed	11/4/1998	2/12/1999	6/20/1999
	SDGNumber	36149	37280	EN017
Parameter	Units			
Benzo(a)Pyrene	ug/L	10 U	10 U	6 U
Indeno(1,2,3-c,d)pyrene	ug/L	10 U	10 U	6 U
Dibenz(a,h)anthracene	ug/L	10 U	10 U	6 U
Benzo(g,h,i)Perylene	ug/L	10 U	10 U	6 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW003		G024GW003		
SampleID	024GW00301		024GW00302		024GW00303		
DateCollected	4/20/1998		10/29/1998		1/28/1999		
DateExtracted	4/27/1998		10/30/1998		1/31/1999		
DateAnalyzed	5/9/1998		11/4/1998		2/12/1999		
SDGNumber	ECZG02		36149		37280		
Parameter	Units						
Benzo(a)Pyrene	ug/L	10	U	10	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	U	10	U	10	U
Dibenz(a,h)anthracene	ug/L	10	U	10	U	10	U
Benzo(g,h,i)Perylene	ug/L	10	U	10	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW004		G024GW004		
SampleID	024GW00304		024GW00401		024GW00402		
DateCollected	6/10/1999		4/24/1998		10/29/1998		
DateExtracted	6/15/1999		4/29/1998		10/30/1998		
DateAnalyzed	6/20/1999		5/19/1998		11/4/1998		
SDGNumber	EN017		ECZG03		36149		
Parameter	Units						
Benzo(a)Pyrene	ug/L	6	U	10	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	6	U	10	U	10	U
Dibenz(a,h)anthracene	ug/L	6	U	10	U	10	U
Benzo(g,h,i)Perylene	ug/L	6	U	10	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004	G024GW004	G024GW004				
SampleID	024GW00403	024GW00404	024HW00401				
DateCollected	1/29/1999	6/10/1999	4/24/1998				
DateExtracted	1/31/1999	6/15/1999	4/29/1998				
DateAnalyzed	2/16/1999	6/21/1999	5/19/1998				
SDGNumber	37296	EN017	ECZG03				
Parameter	Units						
Benzo(a)Pyrene	ug/L	10	U	6	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	U	6	U	10	U
Dibenz(a,h)anthracene	ug/L	10	U	6	U	10	U
Benzo(g,h,i)Perylene	ug/L	10	U	6	U	10	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001	G024GW001	G024GW001	G024GW001	
SampleID	024GW00101	024GW00102	024GW00103	024GW00104	
DateCollected	4/22/1998	10/28/1998	1/28/1999	6/10/1999	
DateExtracted	4/29/1998	11/6/1998	2/3/1999	6/15/1999	
DateAnalyzed	5/14/1998	11/10/1998	2/3/1999	6/16/1999	
SDGNumber	ECZG02	36149	37280	EN017	
Parameter	Units				
Aluminum	ug/L	429 =	235 =	1620 J	25 UJ
Antimony	ug/L	5 U	4.5 U	3.4 J	14 U
Arsenic	ug/L	47.2 =	86.1 =	74.8 =	67.2 =
Barium	ug/L	26.6 =	26.9 =	27.5 =	23 J
Beryllium	ug/L	0.33 U	0.1 UJ	0.1 U	0.3 U
Cadmium	ug/L	0.3 U	0.3 U	0.3 U	1.8 U
Calcium	ug/L	21300 =	19000 =	18800 =	20300 =
Chromium, Total	ug/L	0.99 U	0.7 U	2.4 J	4.8 U
Cobalt	ug/L	2.2 J	3.9 J	2.6 J	3.6 UJ
Copper	ug/L	0.67 U	0.8 U	2.8 J	4.3 U
Iron	ug/L	4340 =	5770 =	7930 =	6470 =
Lead	ug/L	1.7 U	1.5 U	1.5 J	1.3 U
Magnesium	ug/L	15100 =	14900 =	15100 =	15800 =
Manganese	ug/L	203 =	208 =	192 =	212 =
Mercury	ug/L	0.1 U	0.36 U	0.1 U	0.2 U
Nickel	ug/L	1.1 U	2 J	1.2 J	2.7 U
Potassium	ug/L	13700 =	11300 =	12400 =	10800 =
Selenium	ug/L	4.1 U	3.1 U	3.1 U	1 U
Silver	ug/L	1.1 UJ	1.4 UJ	1.4 U	2.9 UJ
Sodium	ug/L	344000 =	340000 =	336000 =	354000 =
Thallium	ug/L	5.5 U	3.1 U	3.1 U	1.3 U
Tin (Sn)	ug/L	3.4 U	4.7 U	4.7 U	1000 U
Vanadium	ug/L	2.5 U	0.8 U	4.2 J	2.3 U
Zinc	ug/L	7.9 U	16.1 U	29.9 U	2.8 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW002		G024GW002		G024GW002		G024GW002		
SampleID	024GW00201		024GW00202		024GW00203		024GW00204		
DateCollected	4/20/1998		10/29/1998		1/28/1999		6/9/1999		
DateExtracted	4/29/1998		11/6/1998		2/3/1999		6/15/1999		
DateAnalyzed	5/14/1998		11/10/1998		2/3/1999		6/16/1999		
SDGNumber	ECZG02		36149		37280		EN017		
Parameter	Units								
Aluminum	ug/L	123	J	107	J	81.8	J	25	UJ
Antimony	ug/L	5	U	2.7	U	3.2	J	14.4	J
Arsenic	ug/L	6.5	J	5.6	J	4	J	2.4	J
Barium	ug/L	10.7	=	9.2	J	11.9	J	16.6	J
Beryllium	ug/L	0.31	U	0.1	UJ	0.1	U	0.4	U
Cadmium	ug/L	0.3	U	0.3	U	0.3	U	1.8	U
Calcium	ug/L	3150	=	3020	=	3980	=	3370	J
Chromium, Total	ug/L	0.7	U	0.78	J	0.7	U	4.8	U
Cobalt	ug/L	2.2	J	1.6	J	2.2	J	3.6	UJ
Copper	ug/L	0.6	U	0.8	U	0.8	U	4.3	U
Iron	ug/L	2100	=	1640	=	2340	=	1710	=
Lead	ug/L	1.7	U	1.5	U	1.5	U	1.3	U
Magnesium	ug/L	1530	=	1300	=	1910	=	1580	J
Manganese	ug/L	70.5	=	59.8	=	64	=	68.6	=
Mercury	ug/L	0.1	U	0.19	U	0.1	U	0.2	U
Nickel	ug/L	1.1	U	1.4	J	1	U	3.7	J
Potassium	ug/L	611	J	495	U	663	J	580	J
Selenium	ug/L	4.1	U	3.1	U	3.1	U	1	U
Silver	ug/L	1.1	UJ	1.4	UJ	1.4	U	2.9	UJ
Sodium	ug/L	27300	=	25100	=	27400	=	34400	=
Thallium	ug/L	5.5	U	3.3	U	3.1	U	1.3	U
Tin (Sn)	ug/L	3.4	U	4.7	U	4.7	U	1000	U
Vanadium	ug/L	0.79	U	0.8	U	0.8	U	2.3	U
Zinc	ug/L	1.6	U	11.3	U	36	=	2.4	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW003		G024GW003		G024GW003		
SampleID	024GW00301		024GW00302		024GW00303		024GW00304		
DateCollected	4/20/1998		10/29/1998		1/28/1999		6/10/1999		
DateExtracted	4/29/1998		11/6/1998		2/3/1999		6/15/1999		
DateAnalyzed	5/14/1998		11/10/1998		2/3/1999		6/16/1999		
SDGNumber	ECZG02		36149		37280		EN017		
Parameter	Units								
Aluminum	ug/L	14.3	J	119	J	167	J	25	UJ
Antimony	ug/L	5	U	2.7	U	2.7	U	14	U
Arsenic	ug/L	10.5	=	16.4	=	11.8	=	17.8	=
Barium	ug/L	39	=	28.1	=	35.3	=	14.4	J
Beryllium	ug/L	0.25	U	0.1	UJ	0.1	U	0.3	U
Cadmium	ug/L	0.3	U	0.3	U	0.3	U	1.8	U
Calcium	ug/L	37700	=	19800	=	40200	=	8170	=
Chromium, Total	ug/L	0.7	U	0.7	U	0.7	U	4.8	U
Cobalt	ug/L	0.9	U	1	U	1	U	3.6	UJ
Copper	ug/L	0.6	U	0.8	U	0.8	U	4.3	U
Iron	ug/L	3710	=	1460	=	1540	=	1230	=
Lead	ug/L	1.7	U	1.5	U	1.5	U	1.3	U
Magnesium	ug/L	8180	=	4040	=	5600	=	2110	J
Manganese	ug/L	114	=	50.2	=	25.6	=	41.9	=
Mercury	ug/L	0.1	U	0.21	U	0.1	U	0.2	U
Nickel	ug/L	1.1	U	1	U	1	U	2.7	U
Potassium	ug/L	3600	=	1990	J	2610	=	1260	J
Selenium	ug/L	4.1	U	3.1	U	5.1	=	1	U
Silver	ug/L	1.1	UJ	1.4	UJ	1.4	U	2.9	UJ
Sodium	ug/L	46600	=	76600	=	55500	=	89500	=
Thallium	ug/L	5.5	U	5.2	U	3.1	U	1.3	U
Tin (Sn)	ug/L	3.4	U	4.7	U	4.7	U	1000	U
Vanadium	ug/L	0.7	U	0.97	J	1.5	J	2.3	U
Zinc	ug/L	1.5	U	7.9	U	7	U	2.3	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004		G024GW004		G024GW004		G024GW004		
SampleID	024GW00401		024GW00402		024GW00403		024GW00404		
DateCollected	4/24/1998		10/29/1998		1/29/1999		6/10/1999		
DateExtracted	5/6/1998		11/6/1998		2/5/1999		6/15/1999		
DateAnalyzed	5/14/1998		11/10/1998		2/5/1999		6/16/1999		
SDGNumber	ECZG03		36149		37296		EN017		
Parameter	Units								
Aluminum	ug/L	191	J	57.2	J	46.9	U	42.4	J
Antimony	ug/L	5	U	2.8	U	3	J	14	U
Arsenic	ug/L	3.3	U	8.9	J	2.9	U	6.6	J
Barium	ug/L	57.2	=	46.1	=	42.7	=	33.3	J
Beryllium	ug/L	0.27	U	0.1	UJ	0.1	U	0.3	U
Cadmium	ug/L	0.3	U	0.3	U	0.3	U	1.8	U
Calcium	ug/L	34600	=	23100	=	62000	=	23100	=
Chromium, Total	ug/L	1.3	U	0.7	U	0.7	U	4.8	U
Cobalt	ug/L	0.91	J	1.3	J	1	U	3.6	UJ
Copper	ug/L	0.6	U	0.8	U	0.8	U	4.3	U
Iron	ug/L	1740	=	2870	=	222	=	2980	=
Lead	ug/L	1.7	U	1.5	U	1.5	U	1.3	U
Magnesium	ug/L	37500	=	31500	=	23700	=	28800	=
Manganese	ug/L	198	=	183	=	57.3	=	181	=
Mercury	ug/L	0.1	U	0.22	U	0.1	U	0.2	U
Nickel	ug/L	1.1	UJ	1	U	1	U	2.7	U
Potassium	ug/L	22600	=	21500	=	13000	=	17600	=
Selenium	ug/L	5	J	3.1	U	9	J	1	U
Silver	ug/L	1.1	U	1.4	UJ	1.4	U	2.9	UJ
Sodium	ug/L	82200	=	76000	=	86800	=	87600	=
Thallium	ug/L	5.5	U	3.1	U	3.1	U	1.3	U
Tin (Sn)	ug/L	3.4	U	4.7	U	4.7	U	1000	U
Vanadium	ug/L	1.3	J	0.8	U	2.8	J	2.3	U
Zinc	ug/L	0.4	UJ	6.2	U	2.7	U	4.8	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004	
SampleID	024HW00401	
DateCollected	4/24/1998	
DateExtracted	5/6/1998	
DateAnalyzed	5/14/1998	
SDGNumber	ECZG03	
Parameter	Units	
Aluminum	ug/L	199 J
Antimony	ug/L	5 U
Arsenic	ug/L	3.3 U
Barium	ug/L	56.9 =
Beryllium	ug/L	0.27 U
Cadmium	ug/L	0.3 U
Calcium	ug/L	33800 =
Chromium, Total	ug/L	0.7 U
Cobalt	ug/L	0.9 U
Copper	ug/L	0.6 U
Iron	ug/L	1760 =
Lead	ug/L	1.7 U
Magnesium	ug/L	36400 =
Manganese	ug/L	191 =
Mercury	ug/L	0.1 U
Nickel	ug/L	1.1 UJ
Potassium	ug/L	22200 =
Selenium	ug/L	4.1 U
Silver	ug/L	1.1 U
Sodium	ug/L	80100 =
Thallium	ug/L	5.5 U
Tin (Sn)	ug/L	3.4 U
Vanadium	ug/L	1 J
Zinc	ug/L	0.4 UJ

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001	G024GW001	G024GW001
SampleID	024GW00101	024GW00101	024GW00102
DateCollected	4/22/1998	4/22/1998	10/28/1998
DateExtracted		4/27/1998	
DateAnalyzed	4/27/1998	5/9/1998	10/30/1998
SDGNumber	ECZG02	ECZG02	36149
Parameter	Units		
1,2,4--Trichlorobenzene	ug/L	10	U
Chloromethane	ug/L	1	U
Vinyl chloride	ug/L	1	U
Bromomethane	ug/L	1	U
Chloroethane	ug/L	1	U
1,1-Dichloroethene	ug/L	1	U
Acetone	ug/L	10	U
Carbon Disulfide	ug/L	1	UJ
Methylene Chloride	ug/L	5	U
1,1-Dichloroethane	ug/L	1	U
Vinyl acetate	ug/L	2	U
Methyl ethyl ketone (2-Butanone)	ug/L	10	U
cis-1,2-Dichloroethylene	ug/L		
1,2-Dichloroethene (total)	ug/L	1	U
Chloroform	ug/L	1	U
1,1,1-Trichloroethane	ug/L	1	U
Carbon Tetrachloride	ug/L	1	U
1,2-Dichloroethane	ug/L	1	U
Benzene	ug/L	1	U
Trichloroethylene (TCE)	ug/L	1	U
1,2-Dichloropropane	ug/L	1	U
Bromodichloromethane	ug/L	1	U
2-Chloroethyl vinyl ether	ug/L	10	U
cis-1,3-Dichloropropene	ug/L	1	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U
Toluene	ug/L	1	U
trans-1,3-Dichloropropene	ug/L	1	U
1,1,2-Trichloroethane	ug/L	1	U
2-Hexanone	ug/L	10	U
Tetrachloroethylene (PCE)	ug/L	0.87	J

Analytical Data Summary

04/11/2006 1:47 PM

StationID	G024GW001		G024GW001		G024GW001	
SampleID	024GW00102		024GW00103		024GW00103	
DateCollected	10/28/1998		1/28/1999		1/28/1999	
DateExtracted	10/29/1998				1/31/1999	
DateAnalyzed	11/5/1998		2/2/1999		2/12/1999	
SDGNumber	36149		37280		37280	
Parameter	Units					
1,2,4--Trichlorobenzene	ug/L	11	U		10	U
Chloromethane	ug/L			5	U	
Vinyl chloride	ug/L			5	U	
Bromomethane	ug/L			5	U	
Chloroethane	ug/L			5	U	
1,1-Dichloroethene	ug/L			5	U	
Acetone	ug/L			5	R	
Carbon Disulfide	ug/L			5	U	
Methylene Chloride	ug/L			5	U	
1,1-Dichloroethane	ug/L			5	U	
Vinyl acetate	ug/L			5	U	
Methyl ethyl ketone (2-Butanone)	ug/L			5	U	
cis-1,2-Dichloroethylene	ug/L					
1,2-Dichloroethene (total)	ug/L			5	U	
Chloroform	ug/L			5	U	
1,1,1-Trichloroethane	ug/L			5	U	
Carbon Tetrachloride	ug/L			5	U	
1,2-Dichloroethane	ug/L			5	U	
Benzene	ug/L			5	U	
Trichloroethylene (TCE)	ug/L			5	U	
1,2-Dichloropropane	ug/L			5	U	
Bromodichloromethane	ug/L			5	U	
2-Chloroethyl vinyl ether	ug/L			5	R	
cis-1,3-Dichloropropene	ug/L			5	U	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L			5	U	
Toluene	ug/L			5	U	
trans-1,3-Dichloropropene	ug/L			5	U	
1,1,2-Trichloroethane	ug/L			5	U	
2-Hexanone	ug/L			5	U	
Tetrachloroethylene (PCE)	ug/L			5	U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001	G024GW001	G024GW001		
SampleID	024GW00104	024GW00104	024GW00104DL		
DateCollected	6/10/1999	6/10/1999	6/10/1999		
DateExtracted	6/15/1999	6/15/1999	6/15/1999		
DateAnalyzed	6/15/1999	6/20/1999	6/21/1999		
SDGNumber	EN017	EN017	EN017		
Parameter	Units				
1,2,4--Trichlorobenzene	ug/L		5	U	10 R
Chloromethane	ug/L	3	U		
Vinyl chloride	ug/L	3	U		
Bromomethane	ug/L	3	UJ		
Chloroethane	ug/L	3	U		
1,1-Dichloroethene	ug/L	3	U		
Acetone	ug/L	5	R		
Carbon Disulfide	ug/L	3	U		
Methylene Chloride	ug/L	3	U		
1,1-Dichloroethane	ug/L	3	U		
Vinyl acetate	ug/L	3	U		
Methyl ethyl ketone (2-Butanone)	ug/L	5	U		
cis-1,2-Dichloroethylene	ug/L	3	U		
1,2-Dichloroethene (total)	ug/L	3	U		
Chloroform	ug/L	3	U		
1,1,1-Trichloroethane	ug/L	3	U		
Carbon Tetrachloride	ug/L	3	U		
1,2-Dichloroethane	ug/L	3	U		
Benzene	ug/L	3	U		
Trichloroethylene (TCE)	ug/L	3	U		
1,2-Dichloropropane	ug/L	3	U		
Bromodichloromethane	ug/L	3	U		
2-Chloroethyl vinyl ether	ug/L	3	R		
cis-1,3-Dichloropropene	ug/L	3	U		
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	U		
Toluene	ug/L	3	U		
trans-1,3-Dichloropropene	ug/L	3	U		
1,1,2-Trichloroethane	ug/L	3	U		
2-Hexanone	ug/L	5	U		
Tetrachloroethylene (PCE)	ug/L	3	U		

Analytical Data Summary

04/11/2006 1:47 PM

StationID	G024GW002	G024GW002	G024GW002
SampleID	024GW00201	024GW00201	024GW00202
DateCollected	4/20/1998	4/20/1998	10/29/1998
DateExtracted		4/27/1998	
DateAnalyzed	4/27/1998	5/9/1998	11/3/1998
SDGNumber	ECZG02	ECZG02	36149
Parameter	Units		
1,2,4--Trichlorobenzene	ug/L	10	U
Chloromethane	ug/L	1	U
Vinyl chloride	ug/L	1	U
Bromomethane	ug/L	1	UJ
Chloroethane	ug/L	1	U
1,1-Dichloroethene	ug/L	1	U
Acetone	ug/L	10	U
Carbon Disulfide	ug/L	1	U
Methylene Chloride	ug/L	5	U
1,1-Dichloroethane	ug/L	1	U
Vinyl acetate	ug/L	2	U
Methyl ethyl ketone (2-Butanone)	ug/L	10	U
cis-1,2-Dichloroethylene	ug/L		
1,2-Dichloroethene (total)	ug/L	1	U
Chloroform	ug/L	1	U
1,1,1-Trichloroethane	ug/L	1	U
Carbon Tetrachloride	ug/L	1	U
1,2-Dichloroethane	ug/L	1	U
Benzene	ug/L	1	U
Trichloroethylene (TCE)	ug/L	1	U
1,2-Dichloropropane	ug/L	1	U
Bromodichloromethane	ug/L	1	U
2-Chloroethyl vinyl ether	ug/L	10	U
cis-1,3-Dichloropropene	ug/L	1	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U
Toluene	ug/L	1	U
trans-1,3-Dichloropropene	ug/L	1	U
1,1,2-Trichloroethane	ug/L	1	U
2-Hexanone	ug/L	10	U
Tetrachloroethylene (PCE)	ug/L	1	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW002	G024GW002	G024GW002
SampleID	024GW00202	024GW00203	024GW00203
DateCollected	10/29/1998	1/28/1999	1/28/1999
DateExtracted	10/30/1998		1/31/1999
DateAnalyzed	11/4/1998	2/2/1999	2/12/1999
SDGNumber	36149	37280	37280
Parameter	Units		
1,2,4--Trichlorobenzene	ug/L	10 U	10 U
Chloromethane	ug/L		5 U
Vinyl chloride	ug/L		5 U
Bromomethane	ug/L		5 U
Chloroethane	ug/L		5 U
1,1-Dichloroethene	ug/L		5 U
Acetone	ug/L		5 R
Carbon Disulfide	ug/L		5 U
Methylene Chloride	ug/L		5 U
1,1-Dichloroethane	ug/L		5 U
Vinyl acetate	ug/L		5 U
Methyl ethyl ketone (2-Butanone)	ug/L		5 U
cis-1,2-Dichloroethylene	ug/L		
1,2-Dichloroethene (total)	ug/L		5 U
Chloroform	ug/L		5 U
1,1,1-Trichloroethane	ug/L		5 U
Carbon Tetrachloride	ug/L		5 U
1,2-Dichloroethane	ug/L		5 U
Benzene	ug/L		5 U
Trichloroethylene (TCE)	ug/L		5 U
1,2-Dichloropropane	ug/L		5 U
Bromodichloromethane	ug/L		5 U
2-Chloroethyl vinyl ether	ug/L		5 R
cis-1,3-Dichloropropene	ug/L		5 U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L		5 U
Toluene	ug/L		5 U
trans-1,3-Dichloropropene	ug/L		5 U
1,1,2-Trichloroethane	ug/L		5 U
2-Hexanone	ug/L		5 U
Tetrachloroethylene (PCE)	ug/L		5 U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW002		G024GW002		G024GW003	
	SampleID	024GW00204		024GW00204		024GW00301	
	DateCollected	6/9/1999		6/9/1999		4/20/1998	
	DateExtracted	6/15/1999		6/15/1999			
	DateAnalyzed	6/15/1999		6/20/1999		4/27/1998	
	SDGNumber	EN017		EN017		ECZG02	
Parameter	Units						
1,2,4--Trichlorobenzene	ug/L			6	U		
Chloromethane	ug/L	3	U			1	U
Vinyl chloride	ug/L	3	U			1	U
Bromomethane	ug/L	3	UJ			1	UJ
Chloroethane	ug/L	3	U			1	U
1,1-Dichloroethene	ug/L	3	U			1	U
Acetone	ug/L	5	R			10	U
Carbon Disulfide	ug/L	3	U			1	U
Methylene Chloride	ug/L	3	U			5	U
1,1-Dichloroethane	ug/L	3	U			1	U
Vinyl acetate	ug/L	3	U			2	U
Methyl ethyl ketone (2-Butanone)	ug/L	5	U			10	U
cis-1,2-Dichloroethylene	ug/L	3	U				
1,2-Dichloroethene (total)	ug/L	3	U			1	U
Chloroform	ug/L	3	U			1	U
1,1,1-Trichloroethane	ug/L	3	U			1	U
Carbon Tetrachloride	ug/L	3	U			1	U
1,2-Dichloroethane	ug/L	3	U			1	U
Benzene	ug/L	3	U			1	U
Trichloroethylene (TCE)	ug/L	3	U			1	U
1,2-Dichloropropane	ug/L	3	U			1	U
Bromodichloromethane	ug/L	3	U			1	U
2-Chloroethyl vinyl ether	ug/L	3	R			10	U
cis-1,3-Dichloropropene	ug/L	3	U			1	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	U			10	U
Toluene	ug/L	3	U			1	U
trans-1,3-Dichloropropene	ug/L	3	U			1	U
1,1,2-Trichloroethane	ug/L	3	U			1	U
2-Hexanone	ug/L	5	U			10	U
Tetrachloroethylene (PCE)	ug/L	3	U			1	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW003		G024GW003		
SampleID	024GW00301		024GW00302		024GW00302		
DateCollected	4/20/1998		10/29/1998		10/29/1998		
DateExtracted	4/27/1998				10/30/1998		
DateAnalyzed	5/9/1998		11/3/1998		11/4/1998		
SDGNumber	ECZG02		36149		36149		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/L	10	U			10	U
Chloromethane	ug/L			5	U		
Vinyl chloride	ug/L			5	U		
Bromomethane	ug/L			5	U		
Chloroethane	ug/L			5	U		
1,1-Dichloroethene	ug/L			5	U		
Acetone	ug/L			5	U		
Carbon Disulfide	ug/L			5	U		
Methylene Chloride	ug/L			5	U		
1,1-Dichloroethane	ug/L			5	U		
Vinyl acetate	ug/L			5	U		
Methyl ethyl ketone (2-Butanone)	ug/L			5	U		
cis-1,2-Dichloroethylene	ug/L						
1,2-Dichloroethene (total)	ug/L			5	U		
Chloroform	ug/L			5	U		
1,1,1-Trichloroethane	ug/L			5	U		
Carbon Tetrachloride	ug/L			5	U		
1,2-Dichloroethane	ug/L			5	U		
Benzene	ug/L			5	U		
Trichloroethylene (TCE)	ug/L			5	U		
1,2-Dichloropropane	ug/L			5	U		
Bromodichloromethane	ug/L			5	U		
2-Chloroethyl vinyl ether	ug/L			5	R		
cis-1,3-Dichloropropene	ug/L			5	U		
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L			5	U		
Toluene	ug/L			5	U		
trans-1,3-Dichloropropene	ug/L			5	U		
1,1,2-Trichloroethane	ug/L			5	U		
2-Hexanone	ug/L			5	UJ		
Tetrachloroethylene (PCE)	ug/L			5	U		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003		G024GW003		G024GW003		
SampleID	024GW00303		024GW00303		024GW00304		
DateCollected	1/28/1999		1/28/1999		6/10/1999		
DateExtracted			1/31/1999		6/15/1999		
DateAnalyzed	2/2/1999		2/12/1999		6/15/1999		
SDGNumber	37280		37280		EN017		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/L		10	U			
Chloromethane	ug/L	5	U			3	U
Vinyl chloride	ug/L	5	U			3	U
Bromomethane	ug/L	5	U			3	UJ
Chloroethane	ug/L	5	U			3	U
1,1-Dichloroethene	ug/L	5	U			3	U
Acetone	ug/L	5	R			5	R
Carbon Disulfide	ug/L	5	U			3	U
Methylene Chloride	ug/L	5	U			3	U
1,1-Dichloroethane	ug/L	5	U			3	U
Vinyl acetate	ug/L	5	U			3	U
Methyl ethyl ketone (2-Butanone)	ug/L	5	U			5	U
cis-1,2-Dichloroethylene	ug/L					3	U
1,2-Dichloroethene (total)	ug/L	5	U			3	U
Chloroform	ug/L	5	U			3	U
1,1,1-Trichloroethane	ug/L	5	U			3	U
Carbon Tetrachloride	ug/L	5	U			3	U
1,2-Dichloroethane	ug/L	5	U			3	U
Benzene	ug/L	5	U			3	U
Trichloroethylene (TCE)	ug/L	5	U			3	U
1,2-Dichloropropane	ug/L	5	U			3	U
Bromodichloromethane	ug/L	5	U			3	U
2-Chloroethyl vinyl ether	ug/L	5	R			3	R
cis-1,3-Dichloropropene	ug/L	5	U			3	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	U			5	U
Toluene	ug/L	5	U			3	U
trans-1,3-Dichloropropene	ug/L	5	U			3	U
1,1,2-Trichloroethane	ug/L	5	U			3	U
2-Hexanone	ug/L	5	U			5	U
Tetrachloroethylene (PCE)	ug/L	5	U			3	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW003	G024GW004	G024GW004
	SampleID	024GW00304	024GW00401	024GW00401
	DateCollected	6/10/1999	4/24/1998	4/24/1998
	DateExtracted	6/15/1999		4/29/1998
	DateAnalyzed	6/20/1999	4/28/1998	5/19/1998
	SDGNumber	EN017	ECZG03	ECZG03
Parameter	Units			
1,2,4--Trichlorobenzene	ug/L	6	U	10 U
Chloromethane	ug/L		1 U	
Vinyl chloride	ug/L		1 U	
Bromomethane	ug/L		1 U	
Chloroethane	ug/L		1 U	
1,1-Dichloroethene	ug/L		1 U	
Acetone	ug/L		10 U	
Carbon Disulfide	ug/L		1 R	
Methylene Chloride	ug/L		5 U	
1,1-Dichloroethane	ug/L		1 U	
Vinyl acetate	ug/L		2 U	
Methyl ethyl ketone (2-Butanone)	ug/L		10 U	
cis-1,2-Dichloroethylene	ug/L			
1,2-Dichloroethene (total)	ug/L		1 U	
Chloroform	ug/L		1 U	
1,1,1-Trichloroethane	ug/L		1 U	
Carbon Tetrachloride	ug/L		1 U	
1,2-Dichloroethane	ug/L		1 U	
Benzene	ug/L		1 U	
Trichloroethylene (TCE)	ug/L		1 U	
1,2-Dichloropropane	ug/L		1 U	
Bromodichloromethane	ug/L		1 U	
2-Chloroethyl vinyl ether	ug/L		10 U	
cis-1,3-Dichloropropene	ug/L		1 U	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L		10 U	
Toluene	ug/L		1 U	
trans-1,3-Dichloropropene	ug/L		1 U	
1,1,2-Trichloroethane	ug/L		1 U	
2-Hexanone	ug/L		10 U	
Tetrachloroethylene (PCE)	ug/L		1 U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004	G024GW004	G024GW004
SampleID	024GW00402	024GW00402	024GW00403
DateCollected	10/29/1998	10/29/1998	1/29/1999
DateExtracted		10/30/1998	
DateAnalyzed	11/3/1998	11/4/1998	2/2/1999
SDGNumber	36149	36149	37296
Parameter	Units		
1,2,4--Trichlorobenzene	ug/L	10	U
Chloromethane	ug/L	5	U
Vinyl chloride	ug/L	5	U
Bromomethane	ug/L	5	U
Chloroethane	ug/L	5	U
1,1-Dichloroethene	ug/L	5	U
Acetone	ug/L	5	U
Carbon Disulfide	ug/L	5	U
Methylene Chloride	ug/L	5	U
1,1-Dichloroethane	ug/L	5	U
Vinyl acetate	ug/L	5	U
Methyl ethyl ketone (2-Butanone)	ug/L	5	U
cis-1,2-Dichloroethylene	ug/L		
1,2-Dichloroethene (total)	ug/L	5	U
Chloroform	ug/L	5	U
1,1,1-Trichloroethane	ug/L	5	U
Carbon Tetrachloride	ug/L	5	U
1,2-Dichloroethane	ug/L	5	U
Benzene	ug/L	5	U
Trichloroethylene (TCE)	ug/L	5	U
1,2-Dichloropropane	ug/L	5	U
Bromodichloromethane	ug/L	5	U
2-Chloroethyl vinyl ether	ug/L	5	R
cis-1,3-Dichloropropene	ug/L	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	U
Toluene	ug/L	5	U
trans-1,3-Dichloropropene	ug/L	5	U
1,1,2-Trichloroethane	ug/L	5	U
2-Hexanone	ug/L	5	U
Tetrachloroethylene (PCE)	ug/L	5	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004	G024GW004	G024GW004		
SampleID	024GW00403	024GW00404	024GW00404		
DateCollected	1/29/1999	6/10/1999	6/10/1999		
DateExtracted	1/31/1999	6/15/1999	6/15/1999		
DateAnalyzed	2/16/1999	6/15/1999	6/21/1999		
SDGNumber	37296	EN017	EN017		
Parameter	Units				
1,2,4--Trichlorobenzene	ug/L	10	U		6 U
Chloromethane	ug/L		3	U	
Vinyl chloride	ug/L		3	U	
Bromomethane	ug/L		3	UJ	
Chloroethane	ug/L		3	U	
1,1-Dichloroethene	ug/L		3	U	
Acetone	ug/L		5	R	
Carbon Disulfide	ug/L		3	U	
Methylene Chloride	ug/L		3	U	
1,1-Dichloroethane	ug/L		3	U	
Vinyl acetate	ug/L		3	U	
Methyl ethyl ketone (2-Butanone)	ug/L		5	U	
cis-1,2-Dichloroethylene	ug/L		3	U	
1,2-Dichloroethene (total)	ug/L		3	U	
Chloroform	ug/L		3	U	
1,1,1-Trichloroethane	ug/L		3	U	
Carbon Tetrachloride	ug/L		3	U	
1,2-Dichloroethane	ug/L		3	U	
Benzene	ug/L		3	U	
Trichloroethylene (TCE)	ug/L		3	U	
1,2-Dichloropropane	ug/L		3	U	
Bromodichloromethane	ug/L		3	U	
2-Chloroethyl vinyl ether	ug/L		3	R	
cis-1,3-Dichloropropene	ug/L		3	U	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L		5	U	
Toluene	ug/L		3	U	
trans-1,3-Dichloropropene	ug/L		3	U	
1,1,2-Trichloroethane	ug/L		3	U	
2-Hexanone	ug/L		5	U	
Tetrachloroethylene (PCE)	ug/L		3	U	

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW004	G024GW004
	SampleID	024HW00401	024HW00401
	DateCollected	4/24/1998	4/24/1998
	DateExtracted		4/29/1998
	DateAnalyzed	4/28/1998	5/19/1998
	SDGNumber	ECZG03	ECZG03
Parameter	Units		
1,2,4--Trichlorobenzene	ug/L		10 U
Chloromethane	ug/L	1	U
Vinyl chloride	ug/L	1	U
Bromomethane	ug/L	1	U
Chloroethane	ug/L	1	U
1,1-Dichloroethene	ug/L	1	U
Acetone	ug/L	10	U
Carbon Disulfide	ug/L	1	R
Methylene Chloride	ug/L	5	U
1,1-Dichloroethane	ug/L	1	U
Vinyl acetate	ug/L	2	U
Methyl ethyl ketone (2-Butanone)	ug/L	10	U
cis-1,2-Dichloroethylene	ug/L		
1,2-Dichloroethene (total)	ug/L	1	U
Chloroform	ug/L	1	U
1,1,1-Trichloroethane	ug/L	1	U
Carbon Tetrachloride	ug/L	1	U
1,2-Dichloroethane	ug/L	1	U
Benzene	ug/L	1	U
Trichloroethylene (TCE)	ug/L	1	U
1,2-Dichloropropane	ug/L	1	U
Bromodichloromethane	ug/L	1	U
2-Chloroethyl vinyl ether	ug/L	10	U
cis-1,3-Dichloropropene	ug/L	1	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U
Toluene	ug/L	1	U
trans-1,3-Dichloropropene	ug/L	1	U
1,1,2-Trichloroethane	ug/L	1	U
2-Hexanone	ug/L	10	U
Tetrachloroethylene (PCE)	ug/L	1	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001		G024GW001		G024GW001	
SampleID	024GW00101		024GW00101		024GW00102	
DateCollected	4/22/1998		4/22/1998		10/28/1998	
DateExtracted			4/27/1998			
DateAnalyzed	4/27/1998		5/9/1998		10/30/1998	
SDGNumber	ECZG02		ECZG02		36149	
Parameter	Units					
Dibromochloromethane	ug/L	1	U		5	U
Chlorobenzene	ug/L	1	U		5	U
Ethylbenzene	ug/L	1	U		5	U
m+p Xylene	ug/L					
o-Xylene	ug/L					
Xylenes, Total	ug/L	2	U		5	U
Styrene	ug/L	1	U		5	U
Bromoform	ug/L	1	U		5	U
1,1,2,2-Tetrachloroethane	ug/L	1	U		5	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001	G024GW001	G024GW001
SampleID	024GW00102	024GW00103	024GW00103
DateCollected	10/28/1998	1/28/1999	1/28/1999
DateExtracted	10/29/1998		1/31/1999
DateAnalyzed	11/5/1998	2/2/1999	2/12/1999
SDGNumber	36149	37280	37280
Parameter	Units		
Dibromochloromethane	ug/L	5	U
Chlorobenzene	ug/L	5	U
Ethylbenzene	ug/L	5	U
m+p Xylene	ug/L		
o-Xylene	ug/L		
Xylenes, Total	ug/L	5	U
Styrene	ug/L	5	U
Bromoform	ug/L	5	U
1,1,2,2-Tetrachloroethane	ug/L	5	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW001	G024GW001	G024GW001
SampleID	024GW00104	024GW00104	024GW00104DL
DateCollected	6/10/1999	6/10/1999	6/10/1999
DateExtracted	6/15/1999	6/15/1999	6/15/1999
DateAnalyzed	6/15/1999	6/20/1999	6/21/1999
SDGNumber	EN017	EN017	EN017
Parameter	Units		
Dibromochloromethane	ug/L	3	U
Chlorobenzene	ug/L	3	U
Ethylbenzene	ug/L	3	U
m+p Xylene	ug/L	3	U
o-Xylene	ug/L	3	U
Xylenes, Total	ug/L		
Styrene	ug/L	3	U
Bromoform	ug/L	3	U
1,1,2,2-Tetrachloroethane	ug/L	3	U

2

2

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW002	G024GW002	G024GW002
	SampleID	024GW00201	024GW00201	024GW00202
	DateCollected	4/20/1998	4/20/1998	10/29/1998
	DateExtracted		4/27/1998	
	DateAnalyzed	4/27/1998	5/9/1998	11/3/1998
	SDGNumber	ECZG02	ECZG02	36149
Parameter	Units			
Dibromochloromethane	ug/L	1 U		5 U
Chlorobenzene	ug/L	1 U		5 U
Ethylbenzene	ug/L	1 U		5 U
m+p Xylene	ug/L			
o-Xylene	ug/L			
Xylenes, Total	ug/L	2 U		5 U
Styrene	ug/L	1 U		5 U
Bromoform	ug/L	1 U		5 U
1,1,2,2-Tetrachloroethane	ug/L	1 U		5 U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW002	G024GW002	G024GW002
	SampleID	024GW00202	024GW00203	024GW00203
	DateCollected	10/29/1998	1/28/1999	1/28/1999
	DateExtracted	10/30/1998		1/31/1999
	DateAnalyzed	11/4/1998	2/2/1999	2/12/1999
	SDGNumber	36149	37280	37280
Parameter	Units			
Dibromochloromethane	ug/L		5 U	
Chlorobenzene	ug/L		5 U	
Ethylbenzene	ug/L		5 U	
m+p Xylene	ug/L			
o-Xylene	ug/L			
Xylenes, Total	ug/L		5 U	
Styrene	ug/L		5 U	
Bromoform	ug/L		5 U	
1,1,2,2-Tetrachloroethane	ug/L		5 U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW002	G024GW002	G024GW003
SampleID	024GW00204	024GW00204	024GW00301
DateCollected	6/9/1999	6/9/1999	4/20/1998
DateExtracted	6/15/1999	6/15/1999	
DateAnalyzed	6/15/1999	6/20/1999	4/27/1998
SDGNumber	EN017	EN017	ECZG02
Parameter	Units		
Dibromochloromethane	ug/L	3 U	1 U
Chlorobenzene	ug/L	3 U	1 U
Ethylbenzene	ug/L	3 U	1 U
m+p Xylene	ug/L	3 U	
o-Xylene	ug/L	3 U	
Xylenes, Total	ug/L		2 U
Styrene	ug/L	3 U	1 U
Bromoform	ug/L	3 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	3 U	1 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003	G024GW003	G024GW003
SampleID	024GW00301	024GW00302	024GW00302
DateCollected	4/20/1998	10/29/1998	10/29/1998
DateExtracted	4/27/1998		10/30/1998
DateAnalyzed	5/9/1998	11/3/1998	11/4/1998
SDGNumber	ECZG02	36149	36149
Parameter	Units		
Dibromochloromethane	ug/L	5	U
Chlorobenzene	ug/L	5	U
Ethylbenzene	ug/L	5	U
m+p Xylene	ug/L		
o-Xylene	ug/L		
Xylenes, Total	ug/L	5	U
Styrene	ug/L	5	U
Bromoform	ug/L	5	U
1,1,2,2-Tetrachloroethane	ug/L	5	U

Analytical Data Summary

04/11/2004 11:47 PM

StationID	G024GW003	G024GW003	G024GW003
SampleID	024GW00303	024GW00303	024GW00304
DateCollected	1/28/1999	1/28/1999	6/10/1999
DateExtracted		1/31/1999	6/15/1999
DateAnalyzed	2/2/1999	2/12/1999	6/15/1999
SDGNumber	37280	37280	EN017
Parameter	Units		
Dibromochloromethane	ug/L	5 U	3 U
Chlorobenzene	ug/L	5 U	3 U
Ethylbenzene	ug/L	5 U	3 U
m+p Xylene	ug/L		3 U
o-Xylene	ug/L		3 U
Xylenes, Total	ug/L	5 U	
Styrene	ug/L	5 U	3 U
Bromoform	ug/L	5 U	3 U
1,1,2,2-Tetrachloroethane	ug/L	5 U	3 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW003	G024GW004	G024GW004
SampleID	024GW00304	024GW00401	024GW00401
DateCollected	6/10/1999	4/24/1998	4/24/1998
DateExtracted	6/15/1999		4/29/1998
DateAnalyzed	6/20/1999	4/28/1998	5/19/1998
SDGNumber	EN017	ECZG03	ECZG03
Parameter	Units		
Dibromochloromethane	ug/L	1	U
Chlorobenzene	ug/L	1	U
Ethylbenzene	ug/L	1	U
m+p Xylene	ug/L		
o-Xylene	ug/L		
Xylenes, Total	ug/L	2	U
Styrene	ug/L	1	U
Bromoform	ug/L	1	U
1,1,2,2-Tetrachloroethane	ug/L	1	U

Analytical Summary

04/11/2002 4:47 PM

StationID	G024GW004	G024GW004	G024GW004
SampleID	024GW00402	024GW00402	024GW00403
DateCollected	10/29/1998	10/29/1998	1/29/1999
DateExtracted		10/30/1998	
DateAnalyzed	11/3/1998	11/4/1998	2/2/1999
SDGNumber	36149	36149	37296
Parameter	Units		
Dibromochloromethane	ug/L	5 U	5 U
Chlorobenzene	ug/L	5 U	5 U
Ethylbenzene	ug/L	5 U	5 U
m+p Xylene	ug/L		
o-Xylene	ug/L		
Xylenes, Total	ug/L	5 U	5 U
Styrene	ug/L	5 U	5 U
Bromoform	ug/L	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/L	5 U	5 U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024GW004	G024GW004	G024GW004
	SampleID	024GW00403	024GW00404	024GW00404
	DateCollected	1/29/1999	6/10/1999	6/10/1999
	DateExtracted	1/31/1999	6/15/1999	6/15/1999
	DateAnalyzed	2/16/1999	6/15/1999	6/21/1999
	SDGNumber	37296	EN017	EN017
Parameter	Units			
Dibromochloromethane	ug/L		3 U	
Chlorobenzene	ug/L		3 U	
Ethylbenzene	ug/L		3 U	
m+p Xylene	ug/L		3 U	
o-Xylene	ug/L		3 U	
Xylenes, Total	ug/L			
Styrene	ug/L		3 U	
Bromoform	ug/L		3 U	
1,1,2,2-Tetrachloroethane	ug/L		3 U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024GW004	G024GW004
SampleID	024HW00401	024HW00401
DateCollected	4/24/1998	4/24/1998
DateExtracted		4/29/1998
DateAnalyzed	4/28/1998	5/19/1998
SDGNumber	ECZG03	ECZG03

Parameter	Units				
Dibromochloromethane	ug/L	1	U		
Chlorobenzene	ug/L	1	U		
Ethylbenzene	ug/L	1	U		
m+p Xylene	ug/L				
o-Xylene	ug/L				
Xylenes, Total	ug/L	2	U		
Styrene	ug/L	1	U		
Bromoform	ug/L	1	U		
1,1,2,2-Tetrachloroethane	ug/L	1	U		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB001		G024SB001		G024SB002		
SampleID	024SB00101 (0-1ft)		024SB00102 (3-5ft)		024SB00201 (0-1ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	350	U	380	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	350	U	380	U	370	U
N-Nitrosodiphenylamine	ug/Kg	350	U	380	U	370	U
Phenol	ug/Kg	350	U	380	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	350	U	380	U	370	U
2-Chlorophenol	ug/Kg	350	U	380	U	370	U
1,3-Dichlorobenzene	ug/Kg	350	U	380	U	370	U
1,4-Dichlorobenzene	ug/Kg	350	U	380	U	370	U
Benzyl alcohol	ug/Kg	350	U	380	U	370	U
1,2-Dichlorobenzene	ug/Kg	350	U	380	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	350	U	380	U	370	U
N-Nitrosodi-n-propylamine	ug/Kg	350	U	380	U	370	U
Hexachloroethane	ug/Kg	350	U	380	U	370	U
Nitrobenzene	ug/Kg	350	U	380	U	370	U
Isophorone	ug/Kg	350	U	380	U	370	U
2-Nitrophenol	ug/Kg	350	U	380	U	370	U
2,4-Dimethylphenol	ug/Kg	350	U	380	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	350	U	380	U	370	U
2,4-Dichlorophenol	ug/Kg	350	U	380	U	370	U
Benzoic acid	ug/Kg	29	J	380	U	29	J
Naphthalene	ug/Kg	350	U	380	U	370	U
4-Chloroaniline	ug/Kg	350	U	380	U	370	U
Hexachlorobutadiene	ug/Kg	350	U	380	U	370	U
4-Chloro-3-methylphenol	ug/Kg	350	U	380	U	370	U
2-Methylnaphthalene	ug/Kg	350	U	380	U	370	U
Hexachlorocyclopentadiene	ug/Kg	350	U	380	U	370	U
2,4,6-Trichlorophenol	ug/Kg	350	U	380	U	370	U
2,4,5-Trichlorophenol	ug/Kg	870	U	950	U	920	U
2-Chloronaphthalene	ug/Kg	350	U	380	U	370	U
2-Nitroaniline	ug/Kg	870	U	950	U	920	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB002		G024SB003		G024SB003		
SampleID	024SB00202 (3-5ft)		024SB00301 (0-1ft)		024SB00302 (3-5ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	430	U	400	U	390	U
4-Methylphenol (p-Cresol)	ug/Kg	430	U	400	U	390	U
N-Nitrosodiphenylamine	ug/Kg	430	U	400	U	390	U
Phenol	ug/Kg	430	U	400	U	390	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	430	U	400	U	390	U
2-Chlorophenol	ug/Kg	430	U	400	U	390	U
1,3-Dichlorobenzene	ug/Kg	430	U	400	U	390	U
1,4-Dichlorobenzene	ug/Kg	430	U	400	U	390	U
Benzyl alcohol	ug/Kg	430	U	400	U	390	U
1,2-Dichlorobenzene	ug/Kg	430	U	400	U	390	U
2-Methylphenol (o-Cresol)	ug/Kg	430	U	400	U	390	U
N-Nitrosodi-n-propylamine	ug/Kg	430	U	400	U	390	U
Hexachloroethane	ug/Kg	430	U	400	U	390	U
Nitrobenzene	ug/Kg	430	U	400	U	390	U
Isophorone	ug/Kg	430	U	400	U	390	U
2-Nitrophenol	ug/Kg	430	U	400	U	390	U
2,4-Dimethylphenol	ug/Kg	430	U	400	U	390	U
bis(2-Chloroethoxy) Methane	ug/Kg	430	U	400	U	390	U
2,4-Dichlorophenol	ug/Kg	430	U	400	U	390	U
Benzoic acid	ug/Kg	42	J	50	J	67	J
Naphthalene	ug/Kg	430	U	400	U	390	U
4-Chloroaniline	ug/Kg	430	U	400	U	390	U
Hexachlorobutadiene	ug/Kg	430	U	400	U	390	U
4-Chloro-3-methylphenol	ug/Kg	430	U	400	U	390	U
2-Methylnaphthalene	ug/Kg	430	U	400	U	390	U
Hexachlorocyclopentadiene	ug/Kg	430	U	400	U	390	U
2,4,6-Trichlorophenol	ug/Kg	430	U	400	U	390	U
2,4,5-Trichlorophenol	ug/Kg	1100	U	1000	U	980	U
2-Chloronaphthalene	ug/Kg	430	U	400	U	390	U
2-Nitroaniline	ug/Kg	1100	U	1000	U	980	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB004		G024SB004		G024SB005		
SampleID	024SB00401 (0-1ft)		024SB00402 (3-5ft)		024SB00501 (0-1ft)		
DateCollected	1/28/2000		1/28/2000		12/15/1999		
DateExtracted	1/29/2000		1/29/2000		12/20/1999		
DateAnalyzed	2/2/2000		2/2/2000		12/23/1999		
SDGNumber	41899		41899		EN033		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	420	U	520	U	360	U
4-Methylphenol (p-Cresol)	ug/Kg	420	U	520	U	360	U
N-Nitrosodiphenylamine	ug/Kg	420	U	520	U	360	U
Phenol	ug/Kg	420	U	520	U	360	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	420	U	520	U	360	U
2-Chlorophenol	ug/Kg	420	U	520	U	360	U
1,3-Dichlorobenzene	ug/Kg	420	U	520	U	360	U
1,4-Dichlorobenzene	ug/Kg	420	U	34	J	360	U
Benzyl alcohol	ug/Kg	420	U	520	U	360	U
1,2-Dichlorobenzene	ug/Kg	420	U	520	U	360	U
2-Methylphenol (o-Cresol)	ug/Kg	420	U	520	U	360	U
N-Nitrosodi-n-propylamine	ug/Kg	420	U	520	U	360	U
Hexachloroethane	ug/Kg	420	U	520	U	360	U
Nitrobenzene	ug/Kg	420	U	520	U	360	U
Isophorone	ug/Kg	420	U	520	U	360	U
2-Nitrophenol	ug/Kg	420	U	520	U	360	U
2,4-Dimethylphenol	ug/Kg	420	U	520	U	360	U
bis(2-Chloroethoxy) Methane	ug/Kg	420	U	520	U	360	U
2,4-Dichlorophenol	ug/Kg	420	U	520	U	360	U
Benzoic acid	ug/Kg	40	J	74	J	1800	U
Naphthalene	ug/Kg	420	U	520	U	360	U
4-Chloroaniline	ug/Kg	420	U	520	U	360	U
Hexachlorobutadiene	ug/Kg	420	U	520	U	360	U
4-Chloro-3-methylphenol	ug/Kg	420	U	520	U	360	U
2-Methylnaphthalene	ug/Kg	420	U	57	J	340	J
Hexachlorocyclopentadiene	ug/Kg	420	U	520	U	360	U
2,4,6-Trichlorophenol	ug/Kg	420	U	520	U	360	U
2,4,5-Trichlorophenol	ug/Kg	1000	U	1300	U	360	U
2-Chloronaphthalene	ug/Kg	420	U	520	U	360	U
2-Nitroaniline	ug/Kg	1000	U	1300	U	360	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB005		G024SB005		G024SB006		
SampleID	024SB00502 (3-5ft)		024SB00502DL (3-5ft)		024CB00601 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	400	U	800	R	390	U
4-Methylphenol (p-Cresol)	ug/Kg	400	U	800	R	390	U
N-Nitrosodiphenylamine	ug/Kg	890	=	950	R	260	J
Phenol	ug/Kg	400	U	800	R	390	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	400	U	800	R	390	U
2-Chlorophenol	ug/Kg	400	U	800	R	390	U
1,3-Dichlorobenzene	ug/Kg	400	U	800	R	390	U
1,4-Dichlorobenzene	ug/Kg	400	U	800	R	390	U
Benzyl alcohol	ug/Kg	400	U	800	R	390	U
1,2-Dichlorobenzene	ug/Kg	400	U	800	R	390	U
2-Methylphenol (o-Cresol)	ug/Kg	400	U	800	R	390	U
N-Nitrosodi-n-propylamine	ug/Kg	400	U	800	R	390	U
Hexachloroethane	ug/Kg	400	U	800	R	390	U
Nitrobenzene	ug/Kg	400	U	800	R	390	U
Isophorone	ug/Kg	370	J	440	R	390	U
2-Nitrophenol	ug/Kg	400	U	800	R	390	U
2,4-Dimethylphenol	ug/Kg	400	U	800	R	390	U
bis(2-Chloroethoxy) Methane	ug/Kg	400	U	800	R	390	U
2,4-Dichlorophenol	ug/Kg	400	U	800	R	390	U
Benzoic acid	ug/Kg	2000	U	4000	R	2000	U
Naphthalene	ug/Kg	400	U	800	R	130	J
4-Chloroaniline	ug/Kg	400	U	800	R	390	U
Hexachlorobutadiene	ug/Kg	400	U	800	R	390	U
4-Chloro-3-methylphenol	ug/Kg	400	U	800	R	390	U
2-Methylnaphthalene	ug/Kg	8900	=	8900	R	110	J
Hexachlorocyclopentadiene	ug/Kg	400	U	800	R	390	U
2,4,6-Trichlorophenol	ug/Kg	400	U	800	R	390	U
2,4,5-Trichlorophenol	ug/Kg	400	U	800	R	390	U
2-Chloronaphthalene	ug/Kg	400	U	800	R	390	U
2-Nitroaniline	ug/Kg	400	U	800	R	390	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB006		G024SB006		G024SB006	
SampleID	024CB00602 (3-5ft)		024CB00602DL (3-5ft)		024SB00601 (0-1ft)	
DateCollected	12/15/1999		12/15/1999		12/15/1999	
DateExtracted	12/20/1999		12/20/1999		12/20/1999	
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999	
SDGNumber	EN033		EN033		EN033	
Parameter	Units					
2,2'-Oxybis(1-chloro)propane	ug/Kg	380 U	3800 R	390 U		
4-Methylphenol (p-Cresol)	ug/Kg	380 U	3800 R	390 U		
N-Nitrosodiphenylamine	ug/Kg	380 UJ	3800 R	640 J		
Phenol	ug/Kg	380 U	3800 R	390 U		
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380 U	3800 R	390 U		
2-Chlorophenol	ug/Kg	380 U	3800 R	390 U		
1,3-Dichlorobenzene	ug/Kg	380 U	3800 R	390 U		
1,4-Dichlorobenzene	ug/Kg	380 U	3800 R	390 U		
Benzyl alcohol	ug/Kg	380 U	3800 R	390 U		
1,2-Dichlorobenzene	ug/Kg	380 U	3800 R	390 U		
2-Methylphenol (o-Cresol)	ug/Kg	380 U	3800 R	390 U		
N-Nitrosodi-n-propylamine	ug/Kg	380 U	3800 R	390 U		
Hexachloroethane	ug/Kg	380 U	3800 R	390 U		
Nitrobenzene	ug/Kg	420 J	3800 R	390 U		
Isophorone	ug/Kg	1900 J	3800 R	390 U		
2-Nitrophenol	ug/Kg	380 U	3800 R	390 U		
2,4-Dimethylphenol	ug/Kg	380 U	3800 R	390 U		
bis(2-Chloroethoxy) Methane	ug/Kg	380 U	3800 R	390 U		
2,4-Dichlorophenol	ug/Kg	380 U	3800 R	390 U		
Benzoic acid	ug/Kg	1900 U	19000 R	2000 U		
Naphthalene	ug/Kg	8400 =	8400 R	390 U		
4-Chloroaniline	ug/Kg	380 U	3800 R	390 U		
Hexachlorobutadiene	ug/Kg	380 U	3800 R	390 U		
4-Chloro-3-methylphenol	ug/Kg	380 U	3800 R	390 U		
2-Methylnaphthalene	ug/Kg	35000 =	35000 R	390 U		
Hexachlorocyclopentadiene	ug/Kg	380 U	3800 R	390 U		
2,4,6-Trichlorophenol	ug/Kg	380 U	3800 R	390 U		
2,4,5-Trichlorophenol	ug/Kg	380 U	3800 R	390 U		
2-Chloronaphthalene	ug/Kg	380 U	3800 R	390 U		
2-Nitroaniline	ug/Kg	380 U	3800 R	390 U		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB006	G024SB006	G024SB007
SampleID	024SB00602 (3-5ft)	024SB00602DL (3-5ft)	024SB00701 (0-1ft)
DateCollected	12/15/1999	12/15/1999	12/15/1999
DateExtracted	12/20/1999	12/20/1999	12/20/1999
DateAnalyzed	12/23/1999	12/27/1999	12/23/1999
SDGNumber	EN033	EN033	EN033
Parameter	Units		
2,2'-Oxybis(1-chloro)propane	ug/Kg	390 U	3900 R 390 U
4-Methylphenol (p-Cresol)	ug/Kg	390 U	3900 R 390 U
N-Nitrosodiphenylamine	ug/Kg	3900 J	3100 R 390 U
Phenol	ug/Kg	390 U	3900 R 390 U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	390 U	3900 R 390 U
2-Chlorophenol	ug/Kg	390 U	3900 R 390 U
1,3-Dichlorobenzene	ug/Kg	390 U	3900 R 390 U
1,4-Dichlorobenzene	ug/Kg	390 U	3900 R 390 U
Benzyl alcohol	ug/Kg	390 U	3900 R 390 U
1,2-Dichlorobenzene	ug/Kg	390 U	3900 R 390 U
2-Methylphenol (o-Cresol)	ug/Kg	390 U	3900 R 390 U
N-Nitrosodi-n-propylamine	ug/Kg	390 U	3900 R 390 U
Hexachloroethane	ug/Kg	390 U	3900 R 390 U
Nitrobenzene	ug/Kg	390 UJ	3900 R 390 U
Isophorone	ug/Kg	390 UJ	3900 R 390 U
2-Nitrophenol	ug/Kg	390 U	3900 R 390 U
2,4-Dimethylphenol	ug/Kg	390 U	3900 R 390 U
bis(2-Chloroethoxy) Methane	ug/Kg	390 U	3900 R 390 U
2,4-Dichlorophenol	ug/Kg	390 U	3900 R 390 U
Benzoic acid	ug/Kg	1900 U	19000 R 1900 U
Naphthalene	ug/Kg	10000 =	10000 R 390 U
4-Chloroaniline	ug/Kg	390 U	3900 R 390 U
Hexachlorobutadiene	ug/Kg	390 U	3900 R 390 U
4-Chloro-3-methylphenol	ug/Kg	390 U	3900 R 390 U
2-Methylnaphthalene	ug/Kg	42000 =	42000 R 390 U
Hexachlorocyclopentadiene	ug/Kg	390 U	3900 R 390 U
2,4,6-Trichlorophenol	ug/Kg	390 U	3900 R 390 U
2,4,5-Trichlorophenol	ug/Kg	390 U	3900 R 390 U
2-Chloronaphthalene	ug/Kg	390 U	3900 R 390 U
2-Nitroaniline	ug/Kg	390 U	3900 R 390 U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB007		G024SB007		G024SB009		
SampleID	024SB00702 (3-5ft)		024SB00702DL (3-5ft)		024SB00901 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		1/28/2000		
DateExtracted	12/20/1999		12/20/1999		1/29/2000		
DateAnalyzed	12/23/1999		12/27/1999		2/2/2000		
SDGNumber	EN033		EN033		41899		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	410	U	820	R	410	U
4-Methylphenol (p-Cresol)	ug/Kg	410	U	820	R	410	U
N-Nitrosodiphenylamine	ug/Kg	410	U	820	R	410	U
Phenol	ug/Kg	410	U	820	R	410	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	410	U	820	R	410	U
2-Chlorophenol	ug/Kg	410	U	820	R	410	U
1,3-Dichlorobenzene	ug/Kg	410	U	820	R	410	U
1,4-Dichlorobenzene	ug/Kg	410	U	820	R	410	U
Benzyl alcohol	ug/Kg	410	U	820	R	410	U
1,2-Dichlorobenzene	ug/Kg	410	U	820	R	410	U
2-Methylphenol (o-Cresol)	ug/Kg	410	U	820	R	410	U
N-Nitrosodi-n-propylamine	ug/Kg	410	U	820	R	410	U
Hexachloroethane	ug/Kg	410	U	820	R	410	U
Nitrobenzene	ug/Kg	410	U	820	R	410	U
Isophorone	ug/Kg	700	=	760	R	410	U
2-Nitrophenol	ug/Kg	410	U	820	R	410	U
2,4-Dimethylphenol	ug/Kg	410	U	820	R	410	U
bis(2-Chloroethoxy) Methane	ug/Kg	410	U	820	R	410	U
2,4-Dichlorophenol	ug/Kg	410	U	820	R	410	U
Benzoic acid	ug/Kg	2100	U	4100	R	50	J
Naphthalene	ug/Kg	4200	=	4700	R	410	U
4-Chloroaniline	ug/Kg	410	U	820	R	410	U
Hexachlorobutadiene	ug/Kg	410	U	820	R	410	U
4-Chloro-3-methylphenol	ug/Kg	410	U	820	R	410	U
2-Methylnaphthalene	ug/Kg	11000	=	11000	R	410	U
Hexachlorocyclopentadiene	ug/Kg	410	U	820	R	410	U
2,4,6-Trichlorophenol	ug/Kg	410	U	820	R	410	U
2,4,5-Trichlorophenol	ug/Kg	410	U	820	R	1000	U
2-Chloronaphthalene	ug/Kg	410	U	820	R	410	U
2-Nitroaniline	ug/Kg	410	U	820	R	1000	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB009		G024SB010		G024SB010		
SampleID	024SB00902 (3-5ft)		024SB01001 (0-1ft)		024SB01002 (3-5ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	640	U	400	U	400	U
4-Methylphenol (p-Cresol)	ug/Kg	640	U	400	U	400	U
N-Nitrosodiphenylamine	ug/Kg	640	U	400	U	400	U
Phenol	ug/Kg	640	U	400	U	400	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	640	U	400	U	400	U
2-Chlorophenol	ug/Kg	640	U	400	U	400	U
1,3-Dichlorobenzene	ug/Kg	640	U	400	U	400	U
1,4-Dichlorobenzene	ug/Kg	640	U	400	U	400	U
Benzyl alcohol	ug/Kg	640	U	400	U	400	U
1,2-Dichlorobenzene	ug/Kg	640	U	400	U	400	U
2-Methylphenol (o-Cresol)	ug/Kg	640	U	400	U	400	U
N-Nitrosodi-n-propylamine	ug/Kg	640	U	400	U	400	U
Hexachloroethane	ug/Kg	640	U	400	U	400	U
Nitrobenzene	ug/Kg	640	U	400	U	400	U
Isophorone	ug/Kg	640	U	400	U	400	U
2-Nitrophenol	ug/Kg	640	U	400	U	400	U
2,4-Dimethylphenol	ug/Kg	640	U	400	U	400	U
bis(2-Chloroethoxy) Methane	ug/Kg	640	U	400	U	400	U
2,4-Dichlorophenol	ug/Kg	640	U	400	U	400	U
Benzoic acid	ug/Kg	80	J	36	J	51	J
Naphthalene	ug/Kg	640	U	400	U	400	U
4-Chloroaniline	ug/Kg	640	U	400	U	400	U
Hexachlorobutadiene	ug/Kg	640	U	400	U	400	U
4-Chloro-3-methylphenol	ug/Kg	640	U	400	U	400	U
2-Methylnaphthalene	ug/Kg	640	U	400	U	400	U
Hexachlorocyclopentadiene	ug/Kg	640	U	400	U	400	U
2,4,6-Trichlorophenol	ug/Kg	640	U	400	U	400	U
2,4,5-Trichlorophenol	ug/Kg	1600	U	1000	U	1000	U
2-Chloronaphthalene	ug/Kg	640	U	400	U	400	U
2-Nitroaniline	ug/Kg	1600	U	1000	U	1000	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028		
SampleID	FDSSH02801 (0-1ft)		FDSSH02801DL (0-1ft)		FDSSH02802 (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/13/1999		8/18/1999		8/13/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	360	U	3600	R	370	U
4-Methylphenol (p-Cresol)	ug/Kg	360	U	3600	R	370	U
N-Nitrosodiphenylamine	ug/Kg	360	U	3600	R	370	U
Phenol	ug/Kg	360	U	3600	R	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	360	U	3600	R	370	U
2-Chlorophenol	ug/Kg	360	U	3600	R	370	U
1,3-Dichlorobenzene	ug/Kg	360	U	3600	R	370	U
1,4-Dichlorobenzene	ug/Kg	360	U	3600	R	370	U
Benzyl alcohol	ug/Kg	360	U	3600	R	370	U
1,2-Dichlorobenzene	ug/Kg	360	U	3600	R	370	U
2-Methylphenol (o-Cresol)	ug/Kg	360	U	3600	R	370	U
N-Nitrosodi-n-propylamine	ug/Kg	360	U	3600	R	370	U
Hexachloroethane	ug/Kg	360	U	3600	R	370	U
Nitrobenzene	ug/Kg	360	U	3600	R	370	U
Isophorone	ug/Kg	360	U	3600	R	370	U
2-Nitrophenol	ug/Kg	360	U	3600	R	370	U
2,4-Dimethylphenol	ug/Kg	360	U	3600	R	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	360	U	3600	R	370	U
2,4-Dichlorophenol	ug/Kg	360	U	3600	R	370	U
Benzoic acid	ug/Kg	360	U	3600	R	370	U
Naphthalene	ug/Kg	3600	=	3600	R	1300	=
4-Chloroaniline	ug/Kg	360	U	3600	R	370	U
Hexachlorobutadiene	ug/Kg	360	U	3600	R	370	U
4-Chloro-3-methylphenol	ug/Kg	360	U	3600	R	370	U
2-Methylnaphthalene	ug/Kg	16000	=	16000	R	27000	=
Hexachlorocyclopentadiene	ug/Kg	360	U	3600	R	370	U
2,4,6-Trichlorophenol	ug/Kg	360	U	3600	R	370	U
2,4,5-Trichlorophenol	ug/Kg	890	U	8900	R	930	U
2-Chloronaphthalene	ug/Kg	360	U	3600	R	370	U
2-Nitroaniline	ug/Kg	890	U	8900	R	930	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH029		GFDSSH029		
SampleID	FDSSH02802DL (3-5ft)		FDSSH02901 (0-1ft)		FDSSH02901DL (0-1ft)		
DateCollected	7/28/1999		7/29/1999		7/29/1999		
DateExtracted	7/30/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/17/1999		8/13/1999		8/19/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	3700	R	410	U	1600	R
4-Methylphenol (p-Cresol)	ug/Kg	3700	R	410	U	1600	R
N-Nitrosodiphenylamine	ug/Kg	3700	R	410	U	1600	R
Phenol	ug/Kg	3700	R	410	U	1600	R
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	3700	R	410	U	1600	R
2-Chlorophenol	ug/Kg	3700	R	410	U	1600	R
1,3-Dichlorobenzene	ug/Kg	3700	R	410	U	1600	R
1,4-Dichlorobenzene	ug/Kg	3700	R	410	U	1600	R
Benzyl alcohol	ug/Kg	3700	R	410	U	1600	R
1,2-Dichlorobenzene	ug/Kg	3700	R	410	U	1600	R
2-Methylphenol (o-Cresol)	ug/Kg	3700	R	410	U	1600	R
N-Nitrosodi-n-propylamine	ug/Kg	3700	R	410	U	1600	R
Hexachloroethane	ug/Kg	3700	R	410	U	1600	R
Nitrobenzene	ug/Kg	3700	R	410	U	1600	R
Isophorone	ug/Kg	3700	R	410	U	1600	R
2-Nitrophenol	ug/Kg	3700	R	410	U	1600	R
2,4-Dimethylphenol	ug/Kg	3700	R	410	U	1600	R
bis(2-Chloroethoxy) Methane	ug/Kg	3700	R	410	U	1600	R
2,4-Dichlorophenol	ug/Kg	3700	R	410	U	1600	R
Benzoic acid	ug/Kg	3700	R	410	U	1600	R
Naphthalene	ug/Kg	1500	R	410	U	1600	R
4-Chloroaniline	ug/Kg	3700	R	410	U	1600	R
Hexachlorobutadiene	ug/Kg	3700	R	410	U	1600	R
4-Chloro-3-methylphenol	ug/Kg	3700	R	410	U	1600	R
2-Methylnaphthalene	ug/Kg	27000	R	410	U	1600	R
Hexachlorocyclopentadiene	ug/Kg	3700	R	410	U	1600	R
2,4,6-Trichlorophenol	ug/Kg	3700	R	410	U	1600	R
2,4,5-Trichlorophenol	ug/Kg	9300	R	1000	U	4100	R
2-Chloronaphthalene	ug/Kg	3700	R	410	U	1600	R
2-Nitroaniline	ug/Kg	9300	R	1000	U	4100	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH030		GFDSSH030		
SampleID	FDSSH02902 (3-5ft)		FDSSH03001 (0-1ft)		FDSSH03001DL (0-1ft)		
DateCollected	7/29/1999		7/28/1999		7/28/1999		
DateExtracted	8/2/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/17/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	420	U	390	U	780	R
4-Methylphenol (p-Cresol)	ug/Kg	420	U	390	U	780	R
N-Nitrosodiphenylamine	ug/Kg	420	U	390	U	780	R
Phenol	ug/Kg	420	U	390	U	780	R
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	420	U	390	U	780	R
2-Chlorophenol	ug/Kg	420	U	390	U	780	R
1,3-Dichlorobenzene	ug/Kg	420	U	390	U	780	R
1,4-Dichlorobenzene	ug/Kg	420	U	390	U	780	R
Benzyl alcohol	ug/Kg	420	U	390	U	780	R
1,2-Dichlorobenzene	ug/Kg	420	U	390	U	780	R
2-Methylphenol (o-Cresol)	ug/Kg	420	U	390	U	780	R
N-Nitrosodi-n-propylamine	ug/Kg	420	U	390	U	780	R
Hexachloroethane	ug/Kg	420	U	390	U	780	R
Nitrobenzene	ug/Kg	420	U	390	U	780	R
Isophorone	ug/Kg	420	U	390	U	780	R
2-Nitrophenol	ug/Kg	420	U	390	U	780	R
2,4-Dimethylphenol	ug/Kg	420	U	390	U	780	R
bis(2-Chloroethoxy) Methane	ug/Kg	420	U	390	U	780	R
2,4-Dichlorophenol	ug/Kg	420	U	390	U	780	R
Benzoic acid	ug/Kg	420	U	390	U	780	R
Naphthalene	ug/Kg	420	U	390	U	120	R
4-Chloroaniline	ug/Kg	420	U	390	U	780	R
Hexachlorobutadiene	ug/Kg	420	U	390	U	780	R
4-Chloro-3-methylphenol	ug/Kg	420	U	390	U	780	R
2-Methylnaphthalene	ug/Kg	420	U	390	U	780	R
Hexachlorocyclopentadiene	ug/Kg	420	U	390	U	780	R
2,4,6-Trichlorophenol	ug/Kg	420	U	390	U	780	R
2,4,5-Trichlorophenol	ug/Kg	1000	U	970	U	1900	R
2-Chloronaphthalene	ug/Kg	420	U	390	U	780	R
2-Nitroaniline	ug/Kg	1000	U	970	U	1900	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH031		GFDSSH031		
SampleID	FDSSH03002 (3-5ft)		FDSSH03101 (0-1ft)		FDSSH03102 (3-5ft)		
DateCollected	7/28/1999		7/29/1999		7/29/1999		
DateExtracted	7/30/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/13/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	340	U	380	U
4-Methylphenol (p-Cresol)	ug/Kg	370	U	340	U	380	U
N-Nitrosodiphenylamine	ug/Kg	370	U	340	U	380	U
Phenol	ug/Kg	370	U	340	U	380	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U	340	U	380	U
2-Chlorophenol	ug/Kg	370	U	340	U	380	U
1,3-Dichlorobenzene	ug/Kg	370	U	340	U	380	U
1,4-Dichlorobenzene	ug/Kg	370	U	340	U	380	U
Benzyl alcohol	ug/Kg	370	U	340	U	380	U
1,2-Dichlorobenzene	ug/Kg	370	U	340	U	380	U
2-Methylphenol (o-Cresol)	ug/Kg	370	U	340	U	380	U
N-Nitrosodi-n-propylamine	ug/Kg	370	U	340	U	380	U
Hexachloroethane	ug/Kg	370	U	340	U	380	U
Nitrobenzene	ug/Kg	370	U	340	U	380	U
Isophorone	ug/Kg	370	U	340	U	380	U
2-Nitrophenol	ug/Kg	370	U	340	U	380	U
2,4-Dimethylphenol	ug/Kg	370	U	340	U	380	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U	340	U	380	U
2,4-Dichlorophenol	ug/Kg	370	U	340	U	380	U
Benzoic acid	ug/Kg	370	U	340	U	380	U
Naphthalene	ug/Kg	370	U	340	U	380	U
4-Chloroaniline	ug/Kg	370	U	340	U	380	U
Hexachlorobutadiene	ug/Kg	370	U	340	U	380	U
4-Chloro-3-methylphenol	ug/Kg	370	U	340	U	380	U
2-Methylnaphthalene	ug/Kg	370	U	340	U	380	U
Hexachlorocyclopentadiene	ug/Kg	370	U	340	U	380	U
2,4,6-Trichlorophenol	ug/Kg	370	U	340	U	380	U
2,4,5-Trichlorophenol	ug/Kg	930	U	850	U	960	U
2-Chloronaphthalene	ug/Kg	370	U	340	U	380	U
2-Nitroaniline	ug/Kg	930	U	850	U	960	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB001		G024SB001		G024SB002		
SampleID	024SB00101 (0-1ft)		024SB00102 (3-5ft)		024SB00201 (0-1ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
3-Nitroaniline	ug/Kg	870	U	950	U	920	U
Dimethyl Phthalate	ug/Kg	350	U	380	U	370	U
2,6-Dinitrotoluene	ug/Kg	350	U	380	U	370	U
Acenaphthylene	ug/Kg	350	U	380	U	370	U
Acenaphthene	ug/Kg	350	U	380	U	370	U
2,4-Dinitrophenol	ug/Kg	870	U	950	U	920	U
Dibenzofuran	ug/Kg	350	U	380	U	370	U
2,4-Dinitrotoluene	ug/Kg	350	U	380	U	370	U
Diethyl Phthalate	ug/Kg	350	U	380	U	370	U
4-Nitrophenol	ug/Kg	870	U	950	U	920	U
Fluorene	ug/Kg	350	U	380	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	350	U	380	U	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	870	U	950	U	920	U
4-Nitroaniline	ug/Kg	870	U	950	U	920	U
4-Bromophenyl Phenyl Ether	ug/Kg	350	U	380	U	370	U
Hexachlorobenzene	ug/Kg	350	U	380	U	370	U
Pentachlorophenol	ug/Kg	870	U	950	U	920	U
Phenanthrene	ug/Kg	350	U	380	U	26	J
Anthracene	ug/Kg	350	U	380	U	370	U
Di-n-butyl Phthalate	ug/Kg	20	J	380	U	370	U
Flouranthene	ug/Kg	36	J	22	J	52	J
Pyrene	ug/Kg	27	J	380	U	46	J
Benzyl Butyl Phthalate	ug/Kg	350	U	380	U	370	U
Benzo(a)Anthracene	ug/Kg	20	J	380	U	31	J
3,3'-Dichlorobenzidine	ug/Kg	350	U	380	U	370	U
Chrysene	ug/Kg	350	U	380	U	44	J
bis(2-Ethylhexyl) Phthalate	ug/Kg	350	U	380	U	370	U
Di-n-octylphthalate	ug/Kg	350	U	380	U	370	U
Benzo(b)Fluoranthene	ug/Kg	350	U	380	U	39	J
Benzo(k)Fluoranthene	ug/Kg	350	U	380	U	28	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB002		G024SB003		G024SB003		
SampleID	024SB00202 (3-5ft)		024SB00301 (0-1ft)		024SB00302 (3-5ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
3-Nitroaniline	ug/Kg	1100	U	1000	U	980	U
Dimethyl Phthalate	ug/Kg	430	U	400	U	390	U
2,6-Dinitrotoluene	ug/Kg	430	U	400	U	390	U
Acenaphthylene	ug/Kg	430	U	400	U	390	U
Acenaphthene	ug/Kg	430	U	400	U	390	U
2,4-Dinitrophenol	ug/Kg	1100	U	1000	U	980	U
Dibenzofuran	ug/Kg	430	U	400	U	390	U
2,4-Dinitrotoluene	ug/Kg	430	U	400	U	390	U
Diethyl Phthalate	ug/Kg	430	U	400	U	390	U
4-Nitrophenol	ug/Kg	1100	U	1000	U	980	U
Fluorene	ug/Kg	430	U	400	U	390	U
4-Chlorophenyl Phenyl Ether	ug/Kg	430	U	400	U	390	U
4,6-Dinitro-2-methylphenol	ug/Kg	1100	U	1000	U	980	U
4-Nitroaniline	ug/Kg	1100	U	1000	U	980	U
4-Bromophenyl Phenyl Ether	ug/Kg	430	U	400	U	390	U
Hexachlorobenzene	ug/Kg	430	U	400	U	390	U
Pentachlorophenol	ug/Kg	1100	U	1000	U	980	U
Phenanthrene	ug/Kg	430	U	56	J	390	U
Anthracene	ug/Kg	430	U	400	U	390	U
Di-n-butyl Phthalate	ug/Kg	430	U	400	U	390	U
Flouranthene	ug/Kg	430	U	110	J	390	U
Pyrene	ug/Kg	430	U	85	J	390	U
Benzyl Butyl Phthalate	ug/Kg	430	U	400	U	390	U
Benzo(a)Anthracene	ug/Kg	430	U	69	J	390	U
3,3'-Dichlorobenzidine	ug/Kg	430	U	400	U	390	U
Chrysene	ug/Kg	430	U	72	J	390	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	430	U	400	U	390	U
Di-n-octylphthalate	ug/Kg	430	U	400	U	390	U
Benzo(b)Fluoranthene	ug/Kg	430	U	85	J	390	U
Benzo(k)Fluoranthene	ug/Kg	430	U	77	J	390	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB004		G024SB004		G024SB005		
SampleID	024SB00401 (0-1ft)		024SB00402 (3-5ft)		024SB00501 (0-1ft)		
DateCollected	1/28/2000		1/28/2000		12/15/1999		
DateExtracted	1/29/2000		1/29/2000		12/20/1999		
DateAnalyzed	2/2/2000		2/2/2000		12/23/1999		
SDGNumber	41899		41899		EN033		
Parameter	Units						
3-Nitroaniline	ug/Kg	1000	U	1300	U	360	U
Dimethyl Phthalate	ug/Kg	420	U	520	U	360	U
2,6-Dinitrotoluene	ug/Kg	420	U	520	U	360	U
Acenaphthylene	ug/Kg	21	J	38	J	360	U
Acenaphthene	ug/Kg	420	U	520	U	360	U
2,4-Dinitrophenol	ug/Kg	1000	U	1300	U	720	U
Dibenzofuran	ug/Kg	420	U	27	J	360	U
2,4-Dinitrotoluene	ug/Kg	420	U	520	U	360	U
Diethyl Phthalate	ug/Kg	420	U	520	U	360	U
4-Nitrophenol	ug/Kg	1000	U	1300	U	720	U
Fluorene	ug/Kg	420	U	520	U	360	U
4-Chlorophenyl Phenyl Ether	ug/Kg	420	U	520	U	360	U
4,6-Dinitro-2-methylphenol	ug/Kg	1000	U	1300	U	720	U
4-Nitroaniline	ug/Kg	1000	U	1300	U	360	U
4-Bromophenyl Phenyl Ether	ug/Kg	420	U	520	U	360	U
Hexachlorobenzene	ug/Kg	420	U	520	U	360	U
Pentachlorophenol	ug/Kg	1000	U	1300	U	720	U
Phenanthrene	ug/Kg	130	J	520	U	360	U
Anthracene	ug/Kg	420	U	520	U	360	U
Di-n-butyl Phthalate	ug/Kg	29	J	36	J	360	U
Flouranthene	ug/Kg	160	J	78	J	360	U
Pyrene	ug/Kg	130	J	79	J	360	U
Benzyl Butyl Phthalate	ug/Kg	420	U	520	U	360	U
Benzo(a)Anthracene	ug/Kg	71	J	75	J	360	U
3,3'-Dichlorobenzidine	ug/Kg	420	U	520	U	720	U
Chrysene	ug/Kg	110	J	86	J	360	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	420	U	520	U	360	U
Di-n-octylphthalate	ug/Kg	420	U	520	U	360	U
Benzo(b)Fluoranthene	ug/Kg	100	J	95	J	360	U
Benzo(k)Fluoranthene	ug/Kg	94	J	75	J	360	U

StationID	G024SB005		G024SB005		G024SB006		
SampleID	024SB00502 (3-5ft)		024SB00502DL (3-5ft)		024CB00601 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
3-Nitroaniline	ug/Kg	400	U	800	R	390	U
Dimethyl Phthalate	ug/Kg	400	U	800	R	390	U
2,6-Dinitrotoluene	ug/Kg	400	U	800	R	390	U
Acenaphthylene	ug/Kg	400	U	800	R	390	U
Acenaphthene	ug/Kg	400	U	800	R	370	J
2,4-Dinitrophenol	ug/Kg	800	U	1600	R	780	U
Dibenzofuran	ug/Kg	460	=	410	R	360	J
2,4-Dinitrotoluene	ug/Kg	400	U	800	R	390	U
Diethyl Phthalate	ug/Kg	400	U	800	R	390	U
4-Nitrophenol	ug/Kg	800	U	1600	R	780	U
Fluorene	ug/Kg	400	U	800	R	660	J
4-Chlorophenyl Phenyl Ether	ug/Kg	400	U	800	R	390	U
4,6-Dinitro-2-methylphenol	ug/Kg	800	U	1600	R	780	U
4-Nitroaniline	ug/Kg	400	U	800	R	390	U
4-Bromophenyl Phenyl Ether	ug/Kg	400	U	800	R	390	U
Hexachlorobenzene	ug/Kg	400	U	800	R	390	U
Pentachlorophenol	ug/Kg	800	U	1600	R	780	U
Phenanthrene	ug/Kg	2000	=	2000	R	3000	J
Anthracene	ug/Kg	120	J	800	R	720	J
Di-n-butyl Phthalate	ug/Kg	400	U	800	R	390	U
Flouranthene	ug/Kg	400	U	800	R	2500	J
Pyrene	ug/Kg	90	J	800	R	1800	J
Benzyl Butyl Phthalate	ug/Kg	400	U	800	R	390	U
Benzo(a)Anthracene	ug/Kg	400	U	800	R	960	J
3,3'-Dichlorobenzidine	ug/Kg	800	U	1600	R	780	U
Chrysene	ug/Kg	400	U	800	R	970	J
bis(2-Ethylhexyl) Phthalate	ug/Kg	400	U	800	R	200	J
Di-n-octylphthalate	ug/Kg	400	U	800	R	390	U
Benzo(b)Fluoranthene	ug/Kg	400	U	800	R	470	J
Benzo(k)Fluoranthene	ug/Kg	400	U	800	R	750	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB006		G024SB006		G024SB006		
SampleID	024CB00602 (3-5ft)		024CB00602DL (3-5ft)		024SB00601 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
3-Nitroaniline	ug/Kg	380	U	3800	R	390	U
Dimethyl Phthalate	ug/Kg	380	U	3800	R	390	U
2,6-Dinitrotoluene	ug/Kg	380	U	3800	R	390	U
Acenaphthylene	ug/Kg	380	U	3800	R	390	U
Acenaphthene	ug/Kg	380	U	3800	R	210	J
2,4-Dinitrophenol	ug/Kg	770	U	7700	R	780	U
Dibenzofuran	ug/Kg	1100	=	1100	R	290	J
2,4-Dinitrotoluene	ug/Kg	380	U	3800	R	390	U
Diethyl Phthalate	ug/Kg	380	U	3800	R	390	U
4-Nitrophenol	ug/Kg	770	U	7700	R	780	U
Fluorene	ug/Kg	2000	=	2700	R	390	UJ
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	3800	R	390	U
4,6-Dinitro-2-methylphenol	ug/Kg	770	U	7700	R	780	U
4-Nitroaniline	ug/Kg	380	U	3800	R	390	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	3800	R	390	U
Hexachlorobenzene	ug/Kg	380	U	3800	R	390	U
Pentachlorophenol	ug/Kg	770	U	7700	R	780	U
Phenanthrene	ug/Kg	4600	=	4400	R	1100	J
Anthracene	ug/Kg	260	J	3800	R	79	J
Di-n-butyl Phthalate	ug/Kg	380	U	3800	R	390	U
Flouranthene	ug/Kg	380	U	3800	R	390	UJ
Pyrene	ug/Kg	230	J	3800	R	390	UJ
Benzyl Butyl Phthalate	ug/Kg	380	U	3800	R	390	U
Benzo(a)Anthracene	ug/Kg	380	U	3800	R	390	UJ
3,3'-Dichlorobenzidine	ug/Kg	770	U	7700	R	780	U
Chrysene	ug/Kg	380	U	3800	R	390	UJ
bis(2-Ethylhexyl) Phthalate	ug/Kg	380	U	3800	R	390	U
Di-n-octylphthalate	ug/Kg	380	U	3800	R	390	U
Benzo(b)Fluoranthene	ug/Kg	380	U	3800	R	390	UJ
Benzo(k)Fluoranthene	ug/Kg	380	U	3800	R	390	UJ

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB006		G024SB006		G024SB007		
SampleID	024SB00602 (3-5ft)		024SB00602DL (3-5ft)		024SB00701 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
3-Nitroaniline	ug/Kg	390	U	3900	R	390	U
Dimethyl Phthalate	ug/Kg	390	U	3900	R	390	U
2,6-Dinitrotoluene	ug/Kg	390	U	3900	R	390	U
Acenaphthylene	ug/Kg	390	U	3900	R	390	U
Acenaphthene	ug/Kg	390	U	3900	R	390	U
2,4-Dinitrophenol	ug/Kg	780	U	7800	R	780	U
Dibenzofuran	ug/Kg	1400	=	1200	R	390	U
2,4-Dinitrotoluene	ug/Kg	390	U	3900	R	390	U
Diethyl Phthalate	ug/Kg	390	U	3900	R	390	U
4-Nitrophenol	ug/Kg	780	U	7800	R	780	U
Fluorene	ug/Kg	2400	=	3400	R	390	U
4-Chlorophenyl Phenyl Ether	ug/Kg	390	U	3900	R	390	U
4,6-Dinitro-2-methylphenol	ug/Kg	780	U	7800	R	780	U
4-Nitroaniline	ug/Kg	390	U	3900	R	390	U
4-Bromophenyl Phenyl Ether	ug/Kg	390	U	3900	R	390	U
Hexachlorobenzene	ug/Kg	390	U	3900	R	390	U
Pentachlorophenol	ug/Kg	780	U	7800	R	780	U
Phenanthrene	ug/Kg	5500	=	5500	R	390	U
Anthracene	ug/Kg	270	J	3900	R	390	U
Di-n-butyl Phthalate	ug/Kg	390	U	3900	R	390	U
Flouranthene	ug/Kg	390	U	3900	R	390	U
Pyrene	ug/Kg	250	J	3900	R	120	J
Benzyl Butyl Phthalate	ug/Kg	390	U	3900	R	390	U
Benzo(a)Anthracene	ug/Kg	390	U	3900	R	100	J
3,3'-Dichlorobenzidine	ug/Kg	780	U	7800	R	780	U
Chrysene	ug/Kg	390	U	3900	R	200	J
bis(2-Ethylhexyl) Phthalate	ug/Kg	390	U	3900	R	390	U
Di-n-octylphthalate	ug/Kg	390	U	3900	R	390	U
Benzo(b)Fluoranthene	ug/Kg	390	U	3900	R	260	J
Benzo(k)Fluoranthene	ug/Kg	390	U	3900	R	270	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB007		G024SB007		G024SB009	
SampleID	024SB00702 (3-5ft)		024SB00702DL (3-5ft)		024SB00901 (0-1ft)	
DateCollected	12/15/1999		12/15/1999		1/28/2000	
DateExtracted	12/20/1999		12/20/1999		1/29/2000	
DateAnalyzed	12/23/1999		12/27/1999		2/2/2000	
SDGNumber	EN033		EN033		41899	
Parameter	Units					
3-Nitroaniline	ug/Kg	410	U	820	R	1000 U
Dimethyl Phthalate	ug/Kg	410	U	820	R	440 =
2,6-Dinitrotoluene	ug/Kg	410	U	820	R	410 U
Acenaphthylene	ug/Kg	410	U	820	R	410 U
Acenaphthene	ug/Kg	410	U	820	R	410 U
2,4-Dinitrophenol	ug/Kg	820	U	1600	R	1000 U
Dibenzofuran	ug/Kg	380	J	410	R	410 U
2,4-Dinitrotoluene	ug/Kg	410	U	820	R	410 U
Diethyl Phthalate	ug/Kg	410	U	820	R	410 U
4-Nitrophenol	ug/Kg	820	U	1600	R	1000 U
Fluorene	ug/Kg	510	=	610	R	410 U
4-Chlorophenyl Phenyl Ether	ug/Kg	410	U	820	R	410 U
4,6-Dinitro-2-methylphenol	ug/Kg	820	U	1600	R	1000 U
4-Nitroaniline	ug/Kg	410	U	820	R	1000 U
4-Bromophenyl Phenyl Ether	ug/Kg	410	U	820	R	410 U
Hexachlorobenzene	ug/Kg	410	U	820	R	410 U
Pentachlorophenol	ug/Kg	820	U	1600	R	1000 U
Phenanthrene	ug/Kg	890	=	960	R	38 J
Anthracene	ug/Kg	410	U	820	R	410 U
Di-n-butyl Phthalate	ug/Kg	410	U	820	R	32 J
Flouranthene	ug/Kg	410	U	820	R	88 J
Pyrene	ug/Kg	110	J	820	R	74 J
Benzyl Butyl Phthalate	ug/Kg	410	U	820	R	410 U
Benzo(a)Anthracene	ug/Kg	410	U	820	R	50 J
3,3'-Dichlorobenzidine	ug/Kg	820	U	1600	R	410 U
Chrysene	ug/Kg	410	U	820	R	61 J
bis(2-Ethylhexyl) Phthalate	ug/Kg	410	U	820	R	410 U
DI-n-octylphthalate	ug/Kg	410	U	820	R	410 U
Benzo(b)Fluoranthene	ug/Kg	410	UJ	820	R	51 J
Benzo(k)Fluoranthene	ug/Kg	410	UJ	820	R	58 J

Analytical Data Summary

04/11/2006 1:47 PM

StationID	G024SB009		G024SB010		G024SB010		
SampleID	024SB00902 (3-5ft)		024SB01001 (0-1ft)		024SB01002 (3-5ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
3-Nitroaniline	ug/Kg	1600	U	1000	U	1000	U
Dimethyl Phthalate	ug/Kg	640	U	400	U	400	U
2,6-Dinitrotoluene	ug/Kg	640	U	400	U	400	U
Acenaphthylene	ug/Kg	640	U	400	U	400	U
Acenaphthene	ug/Kg	640	U	400	U	400	U
2,4-Dinitrophenol	ug/Kg	1600	U	1000	U	1000	U
Dibenzofuran	ug/Kg	640	U	400	U	400	U
2,4-Dinitrotoluene	ug/Kg	640	U	400	U	400	U
Diethyl Phthalate	ug/Kg	640	U	400	U	400	U
4-Nitrophenol	ug/Kg	1600	U	1000	U	1000	U
Fluorene	ug/Kg	640	U	400	U	400	U
4-Chlorophenyl Phenyl Ether	ug/Kg	640	U	400	U	400	U
4,6-Dinitro-2-methylphenol	ug/Kg	1600	U	1000	U	1000	U
4-Nitroaniline	ug/Kg	1600	U	1000	U	1000	U
4-Bromophenyl Phenyl Ether	ug/Kg	640	U	400	U	400	U
Hexachlorobenzene	ug/Kg	640	U	400	U	400	U
Pentachlorophenol	ug/Kg	1600	U	1000	U	1000	U
Phenanthrene	ug/Kg	33	J	21	J	400	U
Anthracene	ug/Kg	640	U	400	U	400	U
Di-n-butyl Phthalate	ug/Kg	50	J	23	J	400	U
Flouranthene	ug/Kg	150	J	57	J	400	U
Pyrene	ug/Kg	130	J	43	J	400	U
Benzyl Butyl Phthalate	ug/Kg	640	U	400	U	400	U
Benzo(a)Anthracene	ug/Kg	90	J	36	J	400	U
3,3'-Dichlorobenzidine	ug/Kg	640	U	400	U	400	U
Chrysene	ug/Kg	83	J	38	J	400	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	640	U	400	U	400	U
Di-n-octylphthalate	ug/Kg	640	U	400	U	400	U
Benzo(b)Fluoranthene	ug/Kg	82	J	35	J	400	U
Benzo(k)Fluoranthene	ug/Kg	68	J	30	J	400	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028		
SampleID	FDSSH02801 (0-1ft)		FDSSH02801DL (0-1ft)		FDSSH02802 (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/13/1999		8/18/1999		8/13/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
3-Nitroaniline	ug/Kg	890	U	8900	R	930	U
Dimethyl Phthalate	ug/Kg	360	U	3600	R	370	U
2,6-Dinitrotoluene	ug/Kg	360	U	3600	R	370	U
Acenaphthylene	ug/Kg	360	U	3600	R	370	U
Acenaphthene	ug/Kg	360	U	640	R	980	=
2,4-Dinitrophenol	ug/Kg	890	U	8900	R	930	U
Dibenzofuran	ug/Kg	360	U	620	R	370	U
2,4-Dinitrotoluene	ug/Kg	360	U	3600	R	370	U
Diethyl Phthalate	ug/Kg	360	U	3600	R	370	U
4-Nitrophenol	ug/Kg	890	U	8900	R	930	U
Fluorene	ug/Kg	950	=	1200	R	2000	=
4-Chlorophenyl Phenyl Ether	ug/Kg	360	U	3600	R	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	890	U	8900	R	930	U
4-Nitroaniline	ug/Kg	890	U	8900	R	930	U
4-Bromophenyl Phenyl Ether	ug/Kg	360	U	3600	R	370	U
Hexachlorobenzene	ug/Kg	360	U	3600	R	370	U
Pentachlorophenol	ug/Kg	890	U	8900	R	930	U
Phenanthrene	ug/Kg	1800	=	2100	R	4400	=
Anthracene	ug/Kg	360	U	3600	R	370	U
Di-n-butyl Phthalate	ug/Kg	360	U	3600	R	370	U
Flouranthene	ug/Kg	120	J	3600	R	370	U
Pyrene	ug/Kg	130	J	190	R	210	J
Benzyl Butyl Phthalate	ug/Kg	360	U	3600	R	370	U
Benzo(a)Anthracene	ug/Kg	35	J	3600	R	24	J
3,3'-Dichlorobenzidine	ug/Kg	360	U	3600	R	370	U
Chrysene	ug/Kg	75	J	3600	R	47	J
bis(2-Ethylhexyl) Phthalate	ug/Kg	140	J	3600	R	24	J
Di-n-octylphthalate	ug/Kg	360	U	3600	R	370	U
Benzo(b)Fluoranthene	ug/Kg	26	J	3600	R	370	U
Benzo(k)Fluoranthene	ug/Kg	360	U	3600	R	370	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH029		GFDSSH029		
SampleID	FDSSH02802DL (3-5ft)		FDSSH02901 (0-1ft)		FDSSH02901DL (0-1ft)		
DateCollected	7/28/1999		7/29/1999		7/29/1999		
DateExtracted	7/30/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/17/1999		8/13/1999		8/19/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
3-Nitroaniline	ug/Kg	9300	R	1000	U	4100	R
Dimethyl Phthalate	ug/Kg	3700	R	410	U	1600	R
2,6-Dinitrotoluene	ug/Kg	3700	R	410	U	1600	R
Acenaphthylene	ug/Kg	3700	R	410	U	1600	R
Acenaphthene	ug/Kg	1300	R	190	J	150	R
2,4-Dinitrophenol	ug/Kg	9300	R	1000	U	4100	R
Dibenzofuran	ug/Kg	770	R	64	J	1600	R
2,4-Dinitrotoluene	ug/Kg	3700	R	410	U	1600	R
Diethyl Phthalate	ug/Kg	3700	R	410	U	1600	R
4-Nitrophenol	ug/Kg	9300	R	1000	U	4100	R
Fluorene	ug/Kg	2400	R	130	J	84	R
4-Chlorophenyl Phenyl Ether	ug/Kg	3700	R	410	U	1600	R
4,6-Dinitro-2-methylphenol	ug/Kg	9300	R	1000	U	4100	R
4-Nitroaniline	ug/Kg	9300	R	1000	U	4100	R
4-Bromophenyl Phenyl Ether	ug/Kg	3700	R	410	U	1600	R
Hexachlorobenzene	ug/Kg	3700	R	410	U	1600	R
Pentachlorophenol	ug/Kg	9300	R	1000	U	4100	R
Phenanthrene	ug/Kg	4400	R	3000	=	2500	R
Anthracene	ug/Kg	3700	R	920	=	560	R
Di-n-butyl Phthalate	ug/Kg	3700	R	410	U	1600	R
Flouranthene	ug/Kg	3700	R	5700	=	5700	R
Pyrene	ug/Kg	250	R	5400	=	5400	R
Benzyl Butyl Phthalate	ug/Kg	3700	R	410	U	1600	R
Benzo(a)Anthracene	ug/Kg	3700	R	2900	=	2900	R
3,3'-Dichlorobenzidine	ug/Kg	3700	R	410	U	1600	R
Chrysene	ug/Kg	3700	R	2700	=	2700	R
bis(2-Ethylhexyl) Phthalate	ug/Kg	3700	R	410	U	170	R
Di-n-octylphthalate	ug/Kg	3700	R	410	U	1600	R
Benzo(b)Fluoranthene	ug/Kg	3700	R	2200	=	2200	R
Benzo(k)Fluoranthene	ug/Kg	3700	R	2000	=	2000	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH030		GFDSSH030		
SampleID	FDSSH02902 (3-5ft)		FDSSH03001 (0-1ft)		FDSSH03001DL (0-1ft)		
DateCollected	7/29/1999		7/28/1999		7/28/1999		
DateExtracted	8/2/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/17/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
3-Nitroaniline	ug/Kg	1000	U	970	U	1900	R
Dimethyl Phthalate	ug/Kg	420	U	390	U	780	R
2,6-Dinitrotoluene	ug/Kg	420	U	390	U	780	R
Acenaphthylene	ug/Kg	420	U	390	U	130	R
Acenaphthene	ug/Kg	420	U	390	U	170	R
2,4-Dinitrophenol	ug/Kg	1000	U	970	U	1900	R
Dibenzofuran	ug/Kg	420	U	390	U	780	R
2,4-Dinitrotoluene	ug/Kg	420	U	390	U	780	R
Diethyl Phthalate	ug/Kg	420	U	390	U	780	R
4-Nitrophenol	ug/Kg	1000	U	970	U	1900	R
Fluorene	ug/Kg	420	U	190	J	210	R
4-Chlorophenyl Phenyl Ether	ug/Kg	420	U	390	U	780	R
4,6-Dinitro-2-methylphenol	ug/Kg	1000	U	970	U	1900	R
4-Nitroaniline	ug/Kg	1000	U	970	U	1900	R
4-Bromophenyl Phenyl Ether	ug/Kg	420	U	390	U	780	R
Hexachlorobenzene	ug/Kg	420	U	390	U	780	R
Pentachlorophenol	ug/Kg	1000	U	970	U	1900	R
Phenanthrene	ug/Kg	420	U	1200	=	1400	R
Anthracene	ug/Kg	420	U	600	=	630	R
Di-n-butyl Phthalate	ug/Kg	420	U	390	U	780	R
Flouranthene	ug/Kg	37	J	4200	=	4200	R
Pyrene	ug/Kg	29	J	3100	=	3100	R
Benzyl Butyl Phthalate	ug/Kg	420	U	390	U	780	R
Benzo(a)Anthracene	ug/Kg	22	J	2200	=	2200	R
3,3'-Dichlorobenzidine	ug/Kg	420	U	390	U	780	R
Chrysene	ug/Kg	23	J	2200	=	2100	R
bis(2-Ethylhexyl) Phthalate	ug/Kg	420	U	44	J	780	R
Di-n-octylphthalate	ug/Kg	420	U	390	U	780	R
Benzo(b)Fluoranthene	ug/Kg	35	J	1900	=	1900	R
Benzo(k)Fluoranthene	ug/Kg	420	U	1600	=	2100	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH031		GFDSSH031		
SampleID	FDSSH03002 (3-5ft)		FDSSH03101 (0-1ft)		FDSSH03102 (3-5ft)		
DateCollected	7/28/1999		7/29/1999		7/29/1999		
DateExtracted	7/30/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/13/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
3-Nitroaniline	ug/Kg	930	U	850	U	960	U
Dimethyl Phthalate	ug/Kg	370	U	340	U	380	U
2,6-Dinitrotoluene	ug/Kg	370	U	340	U	380	U
Acenaphthylene	ug/Kg	370	U	340	U	380	U
Acenaphthene	ug/Kg	370	U	340	U	380	U
2,4-Dinitrophenol	ug/Kg	930	U	850	U	960	U
Dibenzofuran	ug/Kg	370	U	340	U	380	U
2,4-Dinitrotoluene	ug/Kg	370	U	340	U	380	U
Diethyl Phthalate	ug/Kg	370	U	340	U	380	U
4-Nitrophenol	ug/Kg	930	U	850	U	960	U
Fluorene	ug/Kg	500	=	340	U	380	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	340	U	380	U
4,6-Dinitro-2-methylphenol	ug/Kg	930	U	850	U	960	U
4-Nitroaniline	ug/Kg	930	U	850	U	960	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	U	340	U	380	U
Hexachlorobenzene	ug/Kg	370	U	340	U	380	U
Pentachlorophenol	ug/Kg	930	U	850	U	960	U
Phenanthrene	ug/Kg	290	J	340	U	380	U
Anthracene	ug/Kg	370	U	340	U	380	U
Di-n-butyl Phthalate	ug/Kg	370	U	17	J	380	U
Flouranthene	ug/Kg	76	J	99	J	380	U
Pyrene	ug/Kg	79	J	94	J	380	U
Benzyl Butyl Phthalate	ug/Kg	370	U	340	U	380	U
Benzo(a)Anthracene	ug/Kg	23	J	82	J	380	U
3,3'-Dichlorobenzidine	ug/Kg	370	U	340	U	380	U
Chrysene	ug/Kg	26	J	110	J	380	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	30	J	340	U	380	U
Di-n-octylphthalate	ug/Kg	370	U	340	U	380	U
Benzo(b)Fluoranthene	ug/Kg	370	U	140	J	380	U
Benzo(k)Fluoranthene	ug/Kg	370	U	73	J	380	U

Analytical Data Summary

04/11/2002 1:47 PM

		G024SB001		G024SB001		G024SB002	
		024SB00101 (0-1ft)		024SB00102 (3-5ft)		024SB00201 (0-1ft)	
		1/28/2000		1/28/2000		1/28/2000	
		1/29/2000		1/29/2000		1/29/2000	
		2/2/2000		2/2/2000		2/2/2000	
		41899		41899		41899	
Parameter	Units						
Benzo(a)Pyrene	ug/Kg	350	U	380	U	35	J
Indeno(1,2,3-c,d)pyrene	ug/Kg	350	U	380	U	21	J
Dibenz(a,h)anthracene	ug/Kg	350	U	380	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	350	U	380	U	22	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB002	G024SB003	G024SB003
SampleID	024SB00202 (3-5ft)	024SB00301 (0-1ft)	024SB00302 (3-5ft)
DateCollected	1/28/2000	1/28/2000	1/28/2000
DateExtracted	1/29/2000	1/29/2000	1/29/2000
DateAnalyzed	2/2/2000	2/2/2000	2/2/2000
SDGNumber	41899	41899	41899

Parameter	Units	G024SB002		G024SB003		G024SB003	
Benzo(a)Pyrene	ug/Kg	430	U	87	J	390	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	430	U	55	J	390	U
Dibenz(a,h)anthracene	ug/Kg	430	U	400	U	390	U
Benzo(g,h,i)Perylene	ug/Kg	430	U	64	J	390	U

Analytical Data Summary

04/11/2002 1:47 PM

		G024SB004		G024SB004		G024SB005	
StationID		G024SB004		G024SB004		G024SB005	
SampleID		024SB00401 (0-1ft)		024SB00402 (3-5ft)		024SB00501 (0-1ft)	
DateCollected		1/28/2000		1/28/2000		12/15/1999	
DateExtracted		1/29/2000		1/29/2000		12/20/1999	
DateAnalyzed		2/2/2000		2/2/2000		12/23/1999	
SDGNumber		41899		41899		EN033	
Parameter	Units						
Benzo(a)Pyrene	ug/Kg	110	J	140	J	360	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	76	J	68	J	360	U
Dibenz(a,h)anthracene	ug/Kg	29	J	30	J	360	U
Benzo(g,h,i)Perylene	ug/Kg	87	J	150	J	360	U

Analytical Data Summary

04/11/2002 11:47 PM

	StationID	G024SB005	G024SB005	G024SB006
	SampleID	024SB00502 (3-5ft)	024SB00502DL (3-5ft)	024CB00601 (0-1ft)
	DateCollected	12/15/1999	12/15/1999	12/15/1999
	DateExtracted	12/20/1999	12/20/1999	12/20/1999
	DateAnalyzed	12/23/1999	12/27/1999	12/23/1999
	SDGNumber	EN033	EN033	EN033
Parameter	Units			
Benzo(a)Pyrene	ug/Kg	400 U	800 R	680 J
Indeno(1,2,3-c,d)pyrene	ug/Kg	400 U	800 R	330 J
Dibenz(a,h)anthracene	ug/Kg	400 U	800 R	190 J
Benzo(g,h,i)Perylene	ug/Kg	400 U	800 R	310 J

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB006		G024SB006		G024SB006	
	SampleID	024CB00602 (3-5ft)		024CB00602DL (3-5ft)		024SB00601 (0-1ft)	
	DateCollected	12/15/1999		12/15/1999		12/15/1999	
	DateExtracted	12/20/1999		12/20/1999		12/20/1999	
	DateAnalyzed	12/23/1999		12/27/1999		12/23/1999	
	SDGNumber	EN033		EN033		EN033	
Parameter	Units						
Benzo(a)Pyrene	ug/Kg	380	U	3800	R	390	UJ
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	3800	R	390	U
Dibenz(a,h)anthracene	ug/Kg	380	U	3800	R	390	U
Benzo(g,h,i)Perylene	ug/Kg	380	U	3800	R	390	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB007	G024SB007	G024SB009
SampleID	024SB00702 (3-5ft)	024SB00702DL (3-5ft)	024SB00901 (0-1ft)
DateCollected	12/15/1999	12/15/1999	1/28/2000
DateExtracted	12/20/1999	12/20/1999	1/29/2000
DateAnalyzed	12/23/1999	12/27/1999	2/2/2000
SDGNumber	EN033	EN033	41899

Parameter	Units						
Benzo(a)Pyrene	ug/Kg	410	UJ	820	R	63	J
Indeno(1,2,3-c,d)pyrene	ug/Kg	410	UJ	820	R	38	J
Dibenz(a,h)anthracene	ug/Kg	410	UJ	820	R	30	J
Benzo(g,h,i)Perylene	ug/Kg	410	UJ	820	R	56	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB009		G024SB010		G024SB010	
SampleID	024SB00902 (3-5ft)		024SB01001 (0-1ft)		024SB01002 (3-5ft)	
DateCollected	1/28/2000		1/28/2000		1/28/2000	
DateExtracted	1/29/2000		1/29/2000		1/29/2000	
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000	
SDGNumber	41899		41899		41899	
Parameter	Units					
Benzo(a)Pyrene	ug/Kg	87	J	41	J	400 U
Indeno(1,2,3-c,d)pyrene	ug/Kg	48	J	29	J	400 U
Dibenz(a,h)anthracene	ug/Kg	48	J	400	U	400 U
Benzo(g,h,i)Perylene	ug/Kg	78	J	28	J	400 U

Analytical Data Summary

04/11/2002 1:47 PM

Parameter	Units	GFDSSH028		GFDSSH028		GFDSSH028	
		SampleID	DateCollected	SampleID	DateCollected	SampleID	DateCollected
		FDSSH02801 (0-1ft)	7/28/1999	FDSSH02801DL (0-1ft)	7/28/1999	FDSSH02802 (3-5ft)	7/28/1999
			7/30/1999		7/30/1999		7/30/1999
			8/13/1999		8/18/1999		8/13/1999
		SDGNumber 39715		39715		39715	
Benzo(a)Pyrene	ug/Kg	23	J	3600	R	370	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	360	U	3600	R	370	U
Dibenz(a,h)anthracene	ug/Kg	360	U	3600	R	370	U
Benzo(g,h,i)Perylene	ug/Kg	18	J	3600	R	370	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH028	GFDSSH029	GFDSSH029
	SampleID	FDSSH02802DL (3-5ft)	FDSSH02901 (0-1ft)	FDSSH02901DL (0-1ft)
	DateCollected	7/28/1999	7/29/1999	7/29/1999
	DateExtracted	7/30/1999	8/2/1999	8/2/1999
	DateAnalyzed	8/17/1999	8/13/1999	8/19/1999
	SDGNumber	39715	39715	39715
Parameter	Units			
Benzo(a)Pyrene	ug/Kg	3700 R	2600 =	1900 R
Indeno(1,2,3-c,d)pyrene	ug/Kg	3700 R	1300 =	780 R
Dibenz(a,h)anthracene	ug/Kg	3700 R	690 =	340 R
Benzo(g,h,i)Perylene	ug/Kg	3700 R	1400 =	830 R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH030		GFDSSH030		
SampleID	FDSSH02902 (3-5ft)		FDSSH03001 (0-1ft)		FDSSH03001DL (0-1ft)		
DateCollected	7/29/1999		7/28/1999		7/28/1999		
DateExtracted	8/2/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/17/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
Benzo(a)Pyrene	ug/Kg	420	U	2000	=	2300	R
Indeno(1,2,3-c,d)pyrene	ug/Kg	420	U	1200	=	1200	R
Dibenz(a,h)anthracene	ug/Kg	420	U	600	=	700	R
Benzo(g,h,i)Perylene	ug/Kg	420	U	1200	=	1300	R

Analytical Data Summary

04/11/2004 1:47 PM

StationID	GFDSSH030		GFDSSH031		GFDSSH031		
SampleID	FDSSH03002 (3-5ft)		FDSSH03101 (0-1ft)		FDSSH03102 (3-5ft)		
DateCollected	7/28/1999		7/29/1999		7/29/1999		
DateExtracted	7/30/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/13/1999		8/13/1999		8/13/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
Benzo(a)Pyrene	ug/Kg	370	U	94	J	380	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	370	U	39	J	380	U
Dibenz(a,h)anthracene	ug/Kg	370	U	340	U	380	U
Benzo(g,h,i)Perylene	ug/Kg	370	U	39	J	380	U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB001		G024SB001		G024SB002	
	SampleID	024SB00101 (0-1ft)		024SB00102 (3-5ft)		024SB00201 (0-1ft)	
	DateCollected	1/28/2000		1/28/2000		1/28/2000	
	DateExtracted	1/29/2000		1/29/2000		1/29/2000	
	DateAnalyzed	2/2/2000		2/2/2000		2/2/2000	
	SDGNumber	41899		41899		41899	
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg	350	U	380	U	370	U
Chloromethane	ug/Kg						
Vinyl chloride	ug/Kg						
Bromomethane	ug/Kg						
Chloroethane	ug/Kg						
1,1-Dichloroethene	ug/Kg						
Acetone	ug/Kg						
Carbon Disulfide	ug/Kg						
Methylene Chloride	ug/Kg						
1,1-Dichloroethane	ug/Kg						
Vinyl acetate	ug/Kg						
Methyl ethyl ketone (2-Butanone)	ug/Kg						
1,2-Dichloroethene (total)	ug/Kg						
Chloroform	ug/Kg						
1,1,1-Trichloroethane	ug/Kg						
Carbon Tetrachloride	ug/Kg						
1,2-Dichloroethane	ug/Kg						
Benzene	ug/Kg						
Trichloroethylene (TCE)	ug/Kg						
1,2-Dichloropropane	ug/Kg						
Bromodichloromethane	ug/Kg						
2-Chloroethyl vinyl ether	ug/Kg						
cis-1,3-Dichloropropene	ug/Kg						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg						
Toluene	ug/Kg						
trans-1,3-Dichloropropene	ug/Kg						
1,1,2-Trichloroethane	ug/Kg						
2-Hexanone	ug/Kg						
Tetrachloroethylene (PCE)	ug/Kg						
Dibromochloromethane	ug/Kg						

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB002		G024SB003		G024SB003		
SampleID	024SB00202 (3-5ft)		024SB00301 (0-1ft)		024SB00302 (3-5ft)		
DateCollected	1/28/2000		1/28/2000		1/28/2000		
DateExtracted	1/29/2000		1/29/2000		1/29/2000		
DateAnalyzed	2/2/2000		2/2/2000		2/2/2000		
SDGNumber	41899		41899		41899		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg	430	U	400	U	390	U
Chloromethane	ug/Kg						
Vinyl chloride	ug/Kg						
Bromomethane	ug/Kg						
Chloroethane	ug/Kg						
1,1-Dichloroethene	ug/Kg						
Acetone	ug/Kg						
Carbon Disulfide	ug/Kg						
Methylene Chloride	ug/Kg						
1,1-Dichloroethane	ug/Kg						
Vinyl acetate	ug/Kg						
Methyl ethyl ketone (2-Butanone)	ug/Kg						
1,2-Dichloroethene (total)	ug/Kg						
Chloroform	ug/Kg						
1,1,1-Trichloroethane	ug/Kg						
Carbon Tetrachloride	ug/Kg						
1,2-Dichloroethane	ug/Kg						
Benzene	ug/Kg						
Trichloroethylene (TCE)	ug/Kg						
1,2-Dichloropropane	ug/Kg						
Bromodichloromethane	ug/Kg						
2-Chloroethyl vinyl ether	ug/Kg						
cis-1,3-Dichloropropene	ug/Kg						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg						
Toluene	ug/Kg						
trans-1,3-Dichloropropene	ug/Kg						
1,1,2-Trichloroethane	ug/Kg						
2-Hexanone	ug/Kg						
Tetrachloroethylene (PCE)	ug/Kg						
Dibromochloromethane	ug/Kg						

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB004		G024SB004		G024SB005	
SampleID	024SB00401 (0-1ft)		024SB00402 (3-5ft)		024SB00501 (0-1ft)	
DateCollected	1/28/2000		1/28/2000		12/15/1999	
DateExtracted	1/29/2000		1/29/2000		12/20/1999	
DateAnalyzed	2/2/2000		2/2/2000		12/23/1999	
SDGNumber	41899		41899		EN033	
Parameter	Units					
1,2,4--Trichlorobenzene	ug/Kg	420	U	520	U	360
Chloromethane	ug/Kg					
Vinyl chloride	ug/Kg					
Bromomethane	ug/Kg					
Chloroethane	ug/Kg					
1,1-Dichloroethene	ug/Kg					
Acetone	ug/Kg					
Carbon Disulfide	ug/Kg					
Methylene Chloride	ug/Kg					
1,1-Dichloroethane	ug/Kg					
Vinyl acetate	ug/Kg					
Methyl ethyl ketone (2-Butanone)	ug/Kg					
1,2-Dichloroethene (total)	ug/Kg					
Chloroform	ug/Kg					
1,1,1-Trichloroethane	ug/Kg					
Carbon Tetrachloride	ug/Kg					
1,2-Dichloroethane	ug/Kg					
Benzene	ug/Kg					
Trichloroethylene (TCE)	ug/Kg					
1,2-Dichloropropane	ug/Kg					
Bromodichloromethane	ug/Kg					
2-Chloroethyl vinyl ether	ug/Kg					
cis-1,3-Dichloropropene	ug/Kg					
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg					
Toluene	ug/Kg					
trans-1,3-Dichloropropene	ug/Kg					
1,1,2-Trichloroethane	ug/Kg					
2-Hexanone	ug/Kg					
Tetrachloroethylene (PCE)	ug/Kg					
Dibromochloromethane	ug/Kg					

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB005		G024SB005		G024SB006		
SampleID	024SB00502 (3-5ft)		024SB00502DL (3-5ft)		024CB00601 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg	400	U	800	R	390	U
Chloromethane	ug/Kg						
Vinyl chloride	ug/Kg						
Bromomethane	ug/Kg						
Chloroethane	ug/Kg						
1,1-Dichloroethene	ug/Kg						
Acetone	ug/Kg						
Carbon Disulfide	ug/Kg						
Methylene Chloride	ug/Kg						
1,1-Dichloroethane	ug/Kg						
Vinyl acetate	ug/Kg						
Methyl ethyl ketone (2-Butanone)	ug/Kg						
1,2-Dichloroethene (total)	ug/Kg						
Chloroform	ug/Kg						
1,1,1-Trichloroethane	ug/Kg						
Carbon Tetrachloride	ug/Kg						
1,2-Dichloroethane	ug/Kg						
Benzene	ug/Kg						
Trichloroethylene (TCE)	ug/Kg						
1,2-Dichloropropane	ug/Kg						
Bromodichloromethane	ug/Kg						
2-Chloroethyl vinyl ether	ug/Kg						
cis-1,3-Dichloropropene	ug/Kg						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg						
Toluene	ug/Kg						
trans-1,3-Dichloropropene	ug/Kg						
1,1,2-Trichloroethane	ug/Kg						
2-Hexanone	ug/Kg						
Tetrachloroethylene (PCE)	ug/Kg						
Dibromochloromethane	ug/Kg						

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB006		G024SB006		G024SB006		
SampleID	024CB00602 (3-5ft)		024CB00602DL (3-5ft)		024SB00601 (0-1ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/20/1999		12/20/1999		12/20/1999		
DateAnalyzed	12/23/1999		12/27/1999		12/23/1999		
SDGNumber	EN033		EN033		EN033		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg	380	U	3800	R	390	U
Chloromethane	ug/Kg						
Vinyl chloride	ug/Kg						
Bromomethane	ug/Kg						
Chloroethane	ug/Kg						
1,1-Dichloroethene	ug/Kg						
Acetone	ug/Kg						
Carbon Disulfide	ug/Kg						
Methylene Chloride	ug/Kg						
1,1-Dichloroethane	ug/Kg						
Vinyl acetate	ug/Kg						
Methyl ethyl ketone (2-Butanone)	ug/Kg						
1,2-Dichloroethene (total)	ug/Kg						
Chloroform	ug/Kg						
1,1,1-Trichloroethane	ug/Kg						
Carbon Tetrachloride	ug/Kg						
1,2-Dichloroethane	ug/Kg						
Benzene	ug/Kg						
Trichloroethylene (TCE)	ug/Kg						
1,2-Dichloropropane	ug/Kg						
Bromodichloromethane	ug/Kg						
2-Chloroethyl vinyl ether	ug/Kg						
cis-1,3-Dichloropropene	ug/Kg						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg						
Toluene	ug/Kg						
trans-1,3-Dichloropropene	ug/Kg						
1,1,2-Trichloroethane	ug/Kg						
2-Hexanone	ug/Kg						
Tetrachloroethylene (PCE)	ug/Kg						
Dibromochloromethane	ug/Kg						

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB006	G024SB006	G024SB007	
	SampleID	024SB00602 (3-5ft)	024SB00602DL (3-5ft)	024SB00701 (0-1ft)	
	DateCollected	12/15/1999	12/15/1999	12/15/1999	
	DateExtracted	12/20/1999	12/20/1999	12/20/1999	
	DateAnalyzed	12/23/1999	12/27/1999	12/23/1999	
	SDGNumber	EN033	EN033	EN033	
Parameter	Units				
1,2,4--Trichlorobenzene	ug/Kg	390	U	3900	R
Chloromethane	ug/Kg				
Vinyl chloride	ug/Kg				
Bromomethane	ug/Kg				
Chloroethane	ug/Kg				
1,1-Dichloroethene	ug/Kg				
Acetone	ug/Kg				
Carbon Disulfide	ug/Kg				
Methylene Chloride	ug/Kg				
1,1-Dichloroethane	ug/Kg				
Vinyl acetate	ug/Kg				
Methyl ethyl ketone (2-Butanone)	ug/Kg				
1,2-Dichloroethene (total)	ug/Kg				
Chloroform	ug/Kg				
1,1,1-Trichloroethane	ug/Kg				
Carbon Tetrachloride	ug/Kg				
1,2-Dichloroethane	ug/Kg				
Benzene	ug/Kg				
Trichloroethylene (TCE)	ug/Kg				
1,2-Dichloropropane	ug/Kg				
Bromodichloromethane	ug/Kg				
2-Chloroethyl vinyl ether	ug/Kg				
cis-1,3-Dichloropropene	ug/Kg				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg				
Toluene	ug/Kg				
trans-1,3-Dichloropropene	ug/Kg				
1,1,2-Trichloroethane	ug/Kg				
2-Hexanone	ug/Kg				
Tetrachloroethylene (PCE)	ug/Kg				
Dibromochloromethane	ug/Kg				

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB007	G024SB007	G024SB009
SampleID	024SB00702 (3-5ft)	024SB00702DL (3-5ft)	024SB00901 (0-1ft)
DateCollected	12/15/1999	12/15/1999	1/28/2000
DateExtracted	12/20/1999	12/20/1999	1/29/2000
DateAnalyzed	12/23/1999	12/27/1999	2/2/2000
SDGNumber	EN033	EN033	41899

Parameter	Units	G024SB007		G024SB007		G024SB009	
1,2,4--Trichlorobenzene	ug/Kg	410	U	820	R	410	U
Chloromethane	ug/Kg						
Vinyl chloride	ug/Kg						
Bromomethane	ug/Kg						
Chloroethane	ug/Kg						
1,1-Dichloroethene	ug/Kg						
Acetone	ug/Kg						
Carbon Disulfide	ug/Kg						
Methylene Chloride	ug/Kg						
1,1-Dichloroethane	ug/Kg						
Vinyl acetate	ug/Kg						
Methyl ethyl ketone (2-Butanone)	ug/Kg						
1,2-Dichloroethene (total)	ug/Kg						
Chloroform	ug/Kg						
1,1,1-Trichloroethane	ug/Kg						
Carbon Tetrachloride	ug/Kg						
1,2-Dichloroethane	ug/Kg						
Benzene	ug/Kg						
Trichloroethylene (TCE)	ug/Kg						
1,2-Dichloropropane	ug/Kg						
Bromodichloromethane	ug/Kg						
2-Chloroethyl vinyl ether	ug/Kg						
cis-1,3-Dichloropropene	ug/Kg						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg						
Toluene	ug/Kg						
trans-1,3-Dichloropropene	ug/Kg						
1,1,2-Trichloroethane	ug/Kg						
2-Hexanone	ug/Kg						
Tetrachloroethylene (PCE)	ug/Kg						
Dibromochloromethane	ug/Kg						

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB009	G024SB010	G024SB010	
	SampleID	024SB00902 (3-5ft)	024SB01001 (0-1ft)	024SB01002 (3-5ft)	
	DateCollected	1/28/2000	1/28/2000	1/28/2000	
	DateExtracted	1/29/2000	1/29/2000	1/29/2000	
	DateAnalyzed	2/2/2000	2/2/2000	2/2/2000	
	SDGNumber	41899	41899	41899	
Parameter	Units				
1,2,4--Trichlorobenzene	ug/Kg	640	U	400	U
Chloromethane	ug/Kg				
Vinyl chloride	ug/Kg				
Bromomethane	ug/Kg				
Chloroethane	ug/Kg				
1,1-Dichloroethene	ug/Kg				
Acetone	ug/Kg				
Carbon Disulfide	ug/Kg				
Methylene Chloride	ug/Kg				
1,1-Dichloroethane	ug/Kg				
Vinyl acetate	ug/Kg				
Methyl ethyl ketone (2-Butanone)	ug/Kg				
1,2-Dichloroethene (total)	ug/Kg				
Chloroform	ug/Kg				
1,1,1-Trichloroethane	ug/Kg				
Carbon Tetrachloride	ug/Kg				
1,2-Dichloroethane	ug/Kg				
Benzene	ug/Kg				
Trichloroethylene (TCE)	ug/Kg				
1,2-Dichloropropane	ug/Kg				
Bromodichloromethane	ug/Kg				
2-Chloroethyl vinyl ether	ug/Kg				
cis-1,3-Dichloropropene	ug/Kg				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg				
Toluene	ug/Kg				
trans-1,3-Dichloropropene	ug/Kg				
1,1,2-Trichloroethane	ug/Kg				
2-Hexanone	ug/Kg				
Tetrachloroethylene (PCE)	ug/Kg				
Dibromochloromethane	ug/Kg				

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028		
SampleID	FDSSH02801 (0-1ft)		FDSSH02801 (0-1ft)		FDSSH02801DL (0-1ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted			7/30/1999		7/30/1999		
DateAnalyzed	8/4/1999		8/13/1999		8/18/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg			360	U	3600	R
Chloromethane	ug/Kg	6	UJ				
Vinyl chloride	ug/Kg	6	U				
Bromomethane	ug/Kg	6	UJ				
Chloroethane	ug/Kg	6	UJ				
1,1-Dichloroethene	ug/Kg	6	U				
Acetone	ug/Kg	80	=				
Carbon Disulfide	ug/Kg	6	U				
Methylene Chloride	ug/Kg	6	U				
1,1-Dichloroethane	ug/Kg	6	U				
Vinyl acetate	ug/Kg	6	U				
Methyl ethyl ketone (2-Butanone)	ug/Kg	6	U				
1,2-Dichloroethene (total)	ug/Kg	6	U				
Chloroform	ug/Kg	6	U				
1,1,1-Trichloroethane	ug/Kg	6	U				
Carbon Tetrachloride	ug/Kg	6	U				
1,2-Dichloroethane	ug/Kg	6	U				
Benzene	ug/Kg	6	U				
Trichloroethylene (TCE)	ug/Kg	6	U				
1,2-Dichloropropane	ug/Kg	6	U				
Bromodichloromethane	ug/Kg	6	U				
2-Chloroethyl vinyl ether	ug/Kg	6	U				
cis-1,3-Dichloropropene	ug/Kg	6	U				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg	6	U				
Toluene	ug/Kg	6	U				
trans-1,3-Dichloropropene	ug/Kg	6	U				
1,1,2-Trichloroethane	ug/Kg	6	U				
2-Hexanone	ug/Kg	6	U				
Tetrachloroethylene (PCE)	ug/Kg	6	U				
Dibromochloromethane	ug/Kg	6	U				

Analytical Data Summary

04/11/2006 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028		
SampleID	FDSSH02802 (3-5ft)		FDSSH02802 (3-5ft)		FDSSH02802DL (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted			7/30/1999		7/30/1999		
DateAnalyzed	8/5/1999		8/13/1999		8/17/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg			370	U	3700	R
Chloromethane	ug/Kg	7	U				
Vinyl chloride	ug/Kg	7	U				
Bromomethane	ug/Kg	7	U				
Chloroethane	ug/Kg	7	U				
1,1-Dichloroethene	ug/Kg	7	U				
Acetone	ug/Kg	7	U				
Carbon Disulfide	ug/Kg	7	U				
Methylene Chloride	ug/Kg	7	U				
1,1-Dichloroethane	ug/Kg	7	U				
Vinyl acetate	ug/Kg	7	U				
Methyl ethyl ketone (2-Butanone)	ug/Kg	7	U				
1,2-Dichloroethene (total)	ug/Kg	7	U				
Chloroform	ug/Kg	7	U				
1,1,1-Trichloroethane	ug/Kg	7	U				
Carbon Tetrachloride	ug/Kg	7	U				
1,2-Dichloroethane	ug/Kg	7	U				
Benzene	ug/Kg	7	U				
Trichloroethylene (TCE)	ug/Kg	7	U				
1,2-Dichloropropane	ug/Kg	7	U				
Bromodichloromethane	ug/Kg	7	U				
2-Chloroethyl vinyl ether	ug/Kg	7	U				
cis-1,3-Dichloropropene	ug/Kg	7	U				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg	7	U				
Toluene	ug/Kg	7	U				
trans-1,3-Dichloropropene	ug/Kg	7	U				
1,1,2-Trichloroethane	ug/Kg	7	U				
2-Hexanone	ug/Kg	7	U				
Tetrachloroethylene (PCE)	ug/Kg	7	U				
Dibromochloromethane	ug/Kg	7	U				

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH029		GFDSSH029		
SampleID	FDSSH02901 (0-1ft)		FDSSH02901 (0-1ft)		FDSSH02901DL (0-1ft)		
DateCollected	7/29/1999		7/29/1999		7/29/1999		
DateExtracted			8/2/1999		8/2/1999		
DateAnalyzed	8/3/1999		8/13/1999		8/19/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg			410	U	1600	R
Chloromethane	ug/Kg	5	U				
Vinyl chloride	ug/Kg	5	U				
Bromomethane	ug/Kg	5	U				
Chloroethane	ug/Kg	5	U				
1,1-Dichloroethene	ug/Kg	5	U				
Acetone	ug/Kg	5	U				
Carbon Disulfide	ug/Kg	5	U				
Methylene Chloride	ug/Kg	5	U				
1,1-Dichloroethane	ug/Kg	5	U				
Vinyl acetate	ug/Kg	5	U				
Methyl ethyl ketone (2-Butanone)	ug/Kg	5	U				
1,2-Dichloroethene (total)	ug/Kg	5	U				
Chloroform	ug/Kg	5	U				
1,1,1-Trichloroethane	ug/Kg	5	U				
Carbon Tetrachloride	ug/Kg	5	U				
1,2-Dichloroethane	ug/Kg	5	U				
Benzene	ug/Kg	5	U				
Trichloroethylene (TCE)	ug/Kg	5	U				
1,2-Dichloropropane	ug/Kg	5	U				
Bromodichloromethane	ug/Kg	5	U				
2-Chloroethyl vinyl ether	ug/Kg	5	U				
cis-1,3-Dichloropropene	ug/Kg	5	U				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg	5	U				
Toluene	ug/Kg	5	U				
trans-1,3-Dichloropropene	ug/Kg	5	U				
1,1,2-Trichloroethane	ug/Kg	5	U				
2-Hexanone	ug/Kg	5	U				
Tetrachloroethylene (PCE)	ug/Kg	5	U				
Dibromochloromethane	ug/Kg	5	U				

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH029		GFDSSH030		
SampleID	FDSSH02902 (3-5ft)		FDSSH02902 (3-5ft)		FDSSH03001 (0-1ft)		
DateCollected	7/29/1999		7/29/1999		7/28/1999		
DateExtracted			8/2/1999				
DateAnalyzed	8/4/1999		8/13/1999		8/5/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg		420	U			
Chloromethane	ug/Kg	5	UJ		5	U	
Vinyl chloride	ug/Kg	5	U		5	U	
Bromomethane	ug/Kg	5	UJ		5	U	
Chloroethane	ug/Kg	5	UJ		5	U	
1,1-Dichloroethene	ug/Kg	5	U		5	U	
Acetone	ug/Kg	5	U		5	U	
Carbon Disulfide	ug/Kg	5	U		5	U	
Methylene Chloride	ug/Kg	5	U		5	U	
1,1-Dichloroethane	ug/Kg	5	U		5	U	
Vinyl acetate	ug/Kg	5	U		5	U	
Methyl ethyl ketone (2-Butanone)	ug/Kg	5	U		5	U	
1,2-Dichloroethene (total)	ug/Kg	5	U		5	U	
Chloroform	ug/Kg	5	U		5	U	
1,1,1-Trichloroethane	ug/Kg	5	U		5	U	
Carbon Tetrachloride	ug/Kg	5	U		5	U	
1,2-Dichloroethane	ug/Kg	5	U		5	U	
Benzene	ug/Kg	5	U		5	U	
Trichloroethylene (TCE)	ug/Kg	5	U		5	U	
1,2-Dichloropropane	ug/Kg	5	U		5	U	
Bromodichloromethane	ug/Kg	5	U		5	U	
2-Chloroethyl vinyl ether	ug/Kg	5	U		5	U	
cis-1,3-Dichloropropene	ug/Kg	5	U		5	U	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg	5	U		5	U	
Toluene	ug/Kg	5	U		5	U	
trans-1,3-Dichloropropene	ug/Kg	5	U		5	U	
1,1,2-Trichloroethane	ug/Kg	5	U		5	U	
2-Hexanone	ug/Kg	5	U		5	U	
Tetrachloroethylene (PCE)	ug/Kg	5	U		5	U	
Dibromochloromethane	ug/Kg	5	U		5	U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH030		GFDSSH030		
SampleID	FDSSH03001 (0-1ft)		FDSSH03001DL (0-1ft)		FDSSH03002 (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999				
DateAnalyzed	8/13/1999		8/17/1999		8/5/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
1,2,4--Trichlorobenzene	ug/Kg	390	U	780	R		
Chloromethane	ug/Kg					7	U
Vinyl chloride	ug/Kg					7	U
Bromomethane	ug/Kg					7	U
Chloroethane	ug/Kg					7	U
1,1-Dichloroethene	ug/Kg					7	U
Acetone	ug/Kg					60	=
Carbon Disulfide	ug/Kg					7	U
Methylene Chloride	ug/Kg					7	U
1,1-Dichloroethane	ug/Kg					7	U
Vinyl acetate	ug/Kg					7	U
Methyl ethyl ketone (2-Butanone)	ug/Kg					7	U
1,2-Dichloroethene (total)	ug/Kg					7	U
Chloroform	ug/Kg					7	U
1,1,1-Trichloroethane	ug/Kg					7	U
Carbon Tetrachloride	ug/Kg					7	U
1,2-Dichloroethane	ug/Kg					7	U
Benzene	ug/Kg					7	U
Trichloroethylene (TCE)	ug/Kg					7	U
1,2-Dichloropropane	ug/Kg					7	U
Bromodichloromethane	ug/Kg					7	U
2-Chloroethyl vinyl ether	ug/Kg					7	U
cis-1,3-Dichloropropene	ug/Kg					7	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg					7	U
Toluene	ug/Kg					7	U
trans-1,3-Dichloropropene	ug/Kg					7	U
1,1,2-Trichloroethane	ug/Kg					7	U
2-Hexanone	ug/Kg					7	U
Tetrachloroethylene (PCE)	ug/Kg					7	U
Dibromochloromethane	ug/Kg					7	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH031		GFDSSH031	
SampleID	FDSSH03002 (3-5ft)		FDSSH03101 (0-1ft)		FDSSH03101 (0-1ft)	
DateCollected	7/28/1999		7/29/1999		7/29/1999	
DateExtracted	7/30/1999				8/2/1999	
DateAnalyzed	8/13/1999		8/3/1999		8/13/1999	
SDGNumber	39715		39715		39715	
Parameter	Units					
1,2,4--Trichlorobenzene	ug/Kg	370	U			340 U
Chloromethane	ug/Kg			5	UJ	
Vinyl chloride	ug/Kg			5	U	
Bromomethane	ug/Kg			5	UJ	
Chloroethane	ug/Kg			5	UJ	
1,1-Dichloroethene	ug/Kg			5	U	
Acetone	ug/Kg			5	U	
Carbon Disulfide	ug/Kg			5	U	
Methylene Chloride	ug/Kg			5	U	
1,1-Dichloroethane	ug/Kg			5	U	
Vinyl acetate	ug/Kg			5	U	
Methyl ethyl ketone (2-Butanone)	ug/Kg			5	U	
1,2-Dichloroethene (total)	ug/Kg			5	U	
Chloroform	ug/Kg			5	U	
1,1,1-Trichloroethane	ug/Kg			5	U	
Carbon Tetrachloride	ug/Kg			5	U	
1,2-Dichloroethane	ug/Kg			5	U	
Benzene	ug/Kg			5	U	
Trichloroethylene (TCE)	ug/Kg			5	U	
1,2-Dichloropropane	ug/Kg			5	U	
Bromodichloromethane	ug/Kg			5	U	
2-Chloroethyl vinyl ether	ug/Kg			5	U	
cis-1,3-Dichloropropene	ug/Kg			5	U	
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg			5	U	
Toluene	ug/Kg			5	U	
trans-1,3-Dichloropropene	ug/Kg			5	U	
1,1,2-Trichloroethane	ug/Kg			5	U	
2-Hexanone	ug/Kg			5	U	
Tetrachloroethylene (PCE)	ug/Kg			5	U	
Dibromochloromethane	ug/Kg			5	U	

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH031		GFDSSH031	
	SampleID	FDSSH03102 (3-5ft)		FDSSH03102 (3-5ft)	
	DateCollected	7/29/1999		7/29/1999	
	DateExtracted			8/2/1999	
	DateAnalyzed	8/3/1999		8/13/1999	
	SDGNumber	39715		39715	
Parameter	Units				
1,2,4--Trichlorobenzene	ug/Kg			380	U
Chloromethane	ug/Kg	5	U		
Vinyl chloride	ug/Kg	5	U		
Bromomethane	ug/Kg	5	U		
Chloroethane	ug/Kg	5	U		
1,1-Dichloroethene	ug/Kg	5	U		
Acetone	ug/Kg	5	U		
Carbon Disulfide	ug/Kg	1	J		
Methylene Chloride	ug/Kg	5	U		
1,1-Dichloroethane	ug/Kg	5	U		
Vinyl acetate	ug/Kg	5	U		
Methyl ethyl ketone (2-Butanone)	ug/Kg	5	U		
1,2-Dichloroethene (total)	ug/Kg	5	U		
Chloroform	ug/Kg	5	U		
1,1,1-Trichloroethane	ug/Kg	5	U		
Carbon Tetrachloride	ug/Kg	5	U		
1,2-Dichloroethane	ug/Kg	5	U		
Benzene	ug/Kg	5	U		
Trichloroethylene (TCE)	ug/Kg	5	U		
1,2-Dichloropropane	ug/Kg	5	U		
Bromodichloromethane	ug/Kg	5	U		
2-Chloroethyl vinyl ether	ug/Kg	5	U		
cis-1,3-Dichloropropene	ug/Kg	5	U		
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/Kg	5	U		
Toluene	ug/Kg	5	U		
trans-1,3-Dichloropropene	ug/Kg	5	U		
1,1,2-Trichloroethane	ug/Kg	5	U		
2-Hexanone	ug/Kg	5	U		
Tetrachloroethylene (PCE)	ug/Kg	5	U		
Dibromochloromethane	ug/Kg	5	U		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB001	G024SB001	G024SB002	
SampleID	024SB00101 (0-1ft)	024SB00102 (3-5ft)	024SB00201 (0-1ft)	
DateCollected	1/28/2000	1/28/2000	1/28/2000	
DateExtracted	1/29/2000	1/29/2000	1/29/2000	
DateAnalyzed	2/2/2000	2/2/2000	2/2/2000	
SDGNumber	41899	41899	41899	
Parameter	Units			
Chlorobenzene	ug/Kg			
Ethylbenzene	ug/Kg			
Xylenes, Total	ug/Kg			
Styrene	ug/Kg			
Bromoform	ug/Kg			
1,1,2,2-Tetrachloroethane	ug/Kg			

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB002	G024SB003	G024SB003
SampleID	024SB00202 (3-5ft)	024SB00301 (0-1ft)	024SB00302 (3-5ft)
DateCollected	1/28/2000	1/28/2000	1/28/2000
DateExtracted	1/29/2000	1/29/2000	1/29/2000
DateAnalyzed	2/2/2000	2/2/2000	2/2/2000
SDGNumber	41899	41899	41899
Parameter	Units		
Chlorobenzene	ug/Kg		
Ethylbenzene	ug/Kg		
Xylenes, Total	ug/Kg		
Styrene	ug/Kg		
Bromoform	ug/Kg		
1,1,2,2-Tetrachloroethane	ug/Kg		

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB004	G024SB004	G024SB005
	SampleID	024SB00401 (0-1ft)	024SB00402 (3-5ft)	024SB00501 (0-1ft)
	DateCollected	1/28/2000	1/28/2000	12/15/1999
	DateExtracted	1/29/2000	1/29/2000	12/20/1999
	DateAnalyzed	2/2/2000	2/2/2000	12/23/1999
	SDGNumber	41899	41899	EN033
Parameter	Units			
Chlorobenzene	ug/Kg			
Ethylbenzene	ug/Kg			
Xylenes, Total	ug/Kg			
Styrene	ug/Kg			
Bromoform	ug/Kg			
1,1,2,2-Tetrachloroethane	ug/Kg			

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB005	G024SB005	G024SB006
	SampleID	024SB00502 (3-5ft)	024SB00502DL (3-5ft)	024CB00601 (0-1ft)
	DateCollected	12/15/1999	12/15/1999	12/15/1999
	DateExtracted	12/20/1999	12/20/1999	12/20/1999
	DateAnalyzed	12/23/1999	12/27/1999	12/23/1999
	SDGNumber	EN033	EN033	EN033
Parameter	Units			
Chlorobenzene	ug/Kg			
Ethylbenzene	ug/Kg			
Xylenes, Total	ug/Kg			
Styrene	ug/Kg			
Bromoform	ug/Kg			
1,1,2,2-Tetrachloroethane	ug/Kg			

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB006	G024SB006	G024SB006
	SampleID	024CB00602 (3-5ft)	024CB00602DL (3-5ft)	024SB00601 (0-1ft)
	DateCollected	12/15/1999	12/15/1999	12/15/1999
	DateExtracted	12/20/1999	12/20/1999	12/20/1999
	DateAnalyzed	12/23/1999	12/27/1999	12/23/1999
	SDGNumber	EN033	EN033	EN033
Parameter	Units			
Chlorobenzene	ug/Kg			
Ethylbenzene	ug/Kg			
Xylenes, Total	ug/Kg			
Styrene	ug/Kg			
Bromoform	ug/Kg			
1,1,2,2-Tetrachloroethane	ug/Kg			

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	G024SB006	G024SB006	G024SB007
	SampleID	024SB00602 (3-5ft)	024SB00602DL (3-5ft)	024SB00701 (0-1ft)
	DateCollected	12/15/1999	12/15/1999	12/15/1999
	DateExtracted	12/20/1999	12/20/1999	12/20/1999
	DateAnalyzed	12/23/1999	12/27/1999	12/23/1999
	SDGNumber	EN033	EN033	EN033
Parameter	Units			
Chlorobenzene	ug/Kg			
Ethylbenzene	ug/Kg			
Xylenes, Total	ug/Kg			
Styrene	ug/Kg			
Bromoform	ug/Kg			
1,1,2,2-Tetrachloroethane	ug/Kg			

Analytical Data Summary

04/11/2004 1:47 PM

StationID	G024SB007	G024SB007	G024SB009
SampleID	024SB00702 (3-5ft)	024SB00702DL (3-5ft)	024SB00901 (0-1ft)
DateCollected	12/15/1999	12/15/1999	1/28/2000
DateExtracted	12/20/1999	12/20/1999	1/29/2000
DateAnalyzed	12/23/1999	12/27/1999	2/2/2000
SDGNumber	EN033	EN033	41899
Parameter	Units		
Chlorobenzene	ug/Kg		
Ethylbenzene	ug/Kg		
Xylenes, Total	ug/Kg		
Styrene	ug/Kg		
Bromoform	ug/Kg		
1,1,2,2-Tetrachloroethane	ug/Kg		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB009	G024SB010	G024SB010
SampleID	024SB00902 (3-5ft)	024SB01001 (0-1ft)	024SB01002 (3-5ft)
DateCollected	1/28/2000	1/28/2000	1/28/2000
DateExtracted	1/29/2000	1/29/2000	1/29/2000
DateAnalyzed	2/2/2000	2/2/2000	2/2/2000
SDGNumber	41899	41899	41899
Parameter	Units		
Chlorobenzene	ug/Kg		
Ethylbenzene	ug/Kg		
Xylenes, Total	ug/Kg		
Styrene	ug/Kg		
Bromoform	ug/Kg		
1,1,2,2-Tetrachloroethane	ug/Kg		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028	GFDSSH028	GFDSSH028
SampleID	FDSSH02801 (0-1ft)	FDSSH02801 (0-1ft)	FDSSH02801DL (0-1ft)
DateCollected	7/28/1999	7/28/1999	7/28/1999
DateExtracted		7/30/1999	7/30/1999
DateAnalyzed	8/4/1999	8/13/1999	8/18/1999
SDGNumber	39715	39715	39715
Parameter	Units		
Chlorobenzene	ug/Kg	6 U	
Ethylbenzene	ug/Kg	6 J	
Xylenes, Total	ug/Kg	6 U	
Styrene	ug/Kg	6 U	
Bromoform	ug/Kg	6 U	
1,1,2,2-Tetrachloroethane	ug/Kg	6 U	

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH028	GFDSSH028	GFDSSH028
	SampleID	FDSSH02802 (3-5ft)	FDSSH02802 (3-5ft)	FDSSH02802DL (3-5ft)
	DateCollected	7/28/1999	7/28/1999	7/28/1999
	DateExtracted		7/30/1999	7/30/1999
	DateAnalyzed	8/5/1999	8/13/1999	8/17/1999
	SDGNumber	39715	39715	39715
Parameter	Units			
Chlorobenzene	ug/Kg	7	U	
Ethylbenzene	ug/Kg	7	U	
Xylenes, Total	ug/Kg	7	U	
Styrene	ug/Kg	7	U	
Bromoform	ug/Kg	7	U	
1,1,2,2-Tetrachloroethane	ug/Kg	7	U	

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH029	GFDSSH029	GFDSSH029
	SampleID	FDSSH02901 (0-1ft)	FDSSH02901 (0-1ft)	FDSSH02901DL (0-1ft)
	DateCollected	7/29/1999	7/29/1999	7/29/1999
	DateExtracted		8/2/1999	8/2/1999
	DateAnalyzed	8/3/1999	8/13/1999	8/19/1999
	SDGNumber	39715	39715	39715
Parameter	Units			
Chlorobenzene	ug/Kg	5	U	
Ethylbenzene	ug/Kg	5	U	
Xylenes, Total	ug/Kg	5	U	
Styrene	ug/Kg	5	U	
Bromoform	ug/Kg	5	U	
1,1,2,2-Tetrachloroethane	ug/Kg	5	U	

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029	GFDSSH029	GFDSSH030
SampleID	FDSSH02902 (3-5ft)	FDSSH02902 (3-5ft)	FDSSH03001 (0-1ft)
DateCollected	7/29/1999	7/29/1999	7/28/1999
DateExtracted		8/2/1999	
DateAnalyzed	8/4/1999	8/13/1999	8/5/1999
SDGNumber	39715	39715	39715
Parameter	Units		
Chlorobenzene	ug/Kg	5 U	5 U
Ethylbenzene	ug/Kg	5 U	5 U
Xylenes, Total	ug/Kg	5 U	5 U
Styrene	ug/Kg	5 U	5 U
Bromoform	ug/Kg	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/Kg	5 U	5 U

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH030	GFDSSH030	GFDSSH030	
	SampleID	FDSSH03001 (0-1ft)	FDSSH03001DL (0-1ft)	FDSSH03002 (3-5ft)	
	DateCollected	7/28/1999	7/28/1999	7/28/1999	
	DateExtracted	7/30/1999	7/30/1999		
	DateAnalyzed	8/13/1999	8/17/1999	8/5/1999	
	SDGNumber	39715	39715	39715	
Parameter	Units				
Chlorobenzene	ug/Kg			7	U
Ethylbenzene	ug/Kg			7	U
Xylenes, Total	ug/Kg			7	U
Styrene	ug/Kg			7	U
Bromoform	ug/Kg			7	U
1,1,2,2-Tetrachloroethane	ug/Kg			7	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030	GFDSSH031	GFDSSH031
SampleID	FDSSH03002 (3-5ft)	FDSSH03101 (0-1ft)	FDSSH03101 (0-1ft)
DateCollected	7/28/1999	7/29/1999	7/29/1999
DateExtracted	7/30/1999		8/2/1999
DateAnalyzed	8/13/1999	8/3/1999	8/13/1999
SDGNumber	39715	39715	39715
Parameter	Units		
Chlorobenzene	ug/Kg	5	U
Ethylbenzene	ug/Kg	5	U
Xylenes, Total	ug/Kg	5	U
Styrene	ug/Kg	5	U
Bromoform	ug/Kg	5	U
1,1,2,2-Tetrachloroethane	ug/Kg	5	U

Analytical Data Summary

04/11/2002 11:47 PM

StationID	GFDSSH031	GFDSSH031		
SampleID	FDSSH03102 (3-5ft)	FDSSH03102 (3-5ft)		
DateCollected	7/29/1999	7/29/1999		
DateExtracted		8/2/1999		
DateAnalyzed	8/3/1999	8/13/1999		
SDGNumber	39715	39715		
Units				
Chlorobenzene	ug/Kg	5 U		
Ethylbenzene	ug/Kg	5 U		
Xylenes, Total	ug/Kg	5 U		
Styrene	ug/Kg	5 U		
Bromoform	ug/Kg	5 U		
1,1,2,2-Tetrachloroethane	ug/Kg	5 U		

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028	
SampleID	FDSSH02801 (0-1ft)		FDSSH02801DL (0-1ft)		FDSSH02802 (3-5ft)	
DateCollected	7/28/1999		7/28/1999		7/28/1999	
DateExtracted	7/30/1999		7/30/1999		7/30/1999	
DateAnalyzed	8/5/1999		8/24/1999		8/5/1999	
SDGNumber	39715		39715		39715	
Parameter	Units					
Aldrin	ug/Kg	1.5 U	15 R	1.5 U		
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	1.5 U	15 R	1.5 U		
Alpha-chlordane	ug/Kg	1.5 U	15 R	1.5 U		
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	1.5 U	15 R	1.5 U		
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	1.5 U	15 R	1.5 U		
Dieldrin	ug/Kg	2.8 U	28 R	2.9 U		
Endosulfan I	ug/Kg	1.5 U	15 R	1.5 U		
Endosulfan II	ug/Kg	2.8 U	28 R	2.9 U		
Endosulfan Sulfate	ug/Kg	2.8 U	28 R	2.9 U		
Endrin Aldehyde	ug/Kg	8.8 =	28 R	2.9 U		
Endrin Ketone	ug/Kg	3 U	28 R	3 U		
Endrin	ug/Kg	2.8 U	28 R	2.9 U		
Gamma BHC (Lindane)	ug/Kg	1.5 U	15 R	1.5 U		
Gamma-chlordane	ug/Kg	2.5 =	15 R	1.5 U		
Heptachlor Epoxide	ug/Kg	1.5 U	15 R	1.5 U		
Heptachlor	ug/Kg	1.5 U	15 R	1.5 U		
Methoxychlor	ug/Kg	15 U	150 R	15 U		
p,p'-DDD	ug/Kg	29 J	28 R	10 =		
p,p'-DDE	ug/Kg	4.9 U	28 R	2.9 U		
p,p'-DDT	ug/Kg	23 U	28 R	2.9 U		
Toxaphene	ug/Kg	94 U	940 R	96 U		

Analytical Data Summary

04/11/2002 1:47 PM

Parameter	Units	GFDSSH028		GFDSSH029		GFDSSH029	
		SampleID	DateCollected	SampleID	DateCollected	SampleID	DateCollected
		FDSSH02802DL (3-5ft)	7/28/1999	FDSSH02901 (0-1ft)	7/29/1999	FDSSH02901DL (0-1ft)	7/29/1999
			7/30/1999		8/2/1999		8/2/1999
			8/12/1999		8/17/1999		8/18/1999
		SDGNumber	39715	SDGNumber	39715	SDGNumber	39715
Aldrin	ug/Kg	15	R	1.6	U	16	R
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	15	R	1.6	U	16	R
Alpha-chlordane	ug/Kg	15	R	1.6	U	16	R
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	15	R	1.6	U	16	R
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	15	R	1.6	U	16	R
Dieldrin	ug/Kg	29	R	3.1	U	31	R
Endosulfan I	ug/Kg	15	R	1.6	U	16	R
Endosulfan II	ug/Kg	29	R	3.1	U	31	R
Endosulfan Sulfate	ug/Kg	29	R	3.1	U	31	R
Endrin Aldehyde	ug/Kg	29	R	56	J	86	R
Endrin Ketone	ug/Kg	29	R	3	U	31	R
Endrin	ug/Kg	29	R	3.1	U	30	R
Gamma BHC (Lindane)	ug/Kg	15	R	1.6	U	16	R
Gamma-chlordane	ug/Kg	15	R	1.6	U	16	R
Heptachlor Epoxide	ug/Kg	15	R	1.6	U	16	R
Heptachlor	ug/Kg	15	R	1.6	U	16	R
Methoxychlor	ug/Kg	150	R	16	U	160	R
p,p'-DDD	ug/Kg	29	R	3.1	U	31	R
p,p'-DDE	ug/Kg	29	R	28.1	U	31	R
p,p'-DDT	ug/Kg	29	R	52	J	52	R
Toxaphene	ug/Kg	960	R	100	U	1000	R

Analytical Data Summary

04/11/2002 1:47 PM

	StationID	GFDSSH029		GFDSSH029		GFDSSH030	
	SampleID	FDSSH02902 (3-5ft)		FDSSH02902DL (3-5ft)		FDSSH03001 (0-1ft)	
	DateCollected	7/29/1999		7/29/1999		7/28/1999	
	DateExtracted	8/2/1999		8/2/1999		7/30/1999	
	DateAnalyzed	8/17/1999		8/18/1999		8/5/1999	
	SDGNumber	39715		39715		39715	
Parameter	Units						
Aldrin	ug/Kg	1.6	U	16	R	1.5	U
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	1.6	U	16	R	1.5	U
Alpha-chlordane	ug/Kg	1.6	U	16	R	1.5	U
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	1.6	U	16	R	1.5	U
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	1.6	U	16	R	1.5	U
Dieldrin	ug/Kg	3.1	U	31	R	2.8	UJ
Endosulfan I	ug/Kg	1.6	U	16	R	1.5	U
Endosulfan II	ug/Kg	3.1	U	31	R	2.8	U
Endosulfan Sulfate	ug/Kg	3.1	U	31	R	2.8	U
Endrin Aldehyde	ug/Kg	3.1	U	31	R	2.8	U
Endrin Ketone	ug/Kg	3	U	31	R	3	U
Endrin	ug/Kg	3.1	U	31	R	2.8	U
Gamma BHC (Lindane)	ug/Kg	1.6	U	16	R	1.5	U
Gamma-chlordane	ug/Kg	1.6	U	16	R	2.3	U
Heptachlor Epoxide	ug/Kg	1.6	U	16	R	1.5	U
Heptachlor	ug/Kg	1.6	U	16	R	1.5	U
Methoxychlor	ug/Kg	16	U	160	R	15	U
p,p'-DDD	ug/Kg	3.1	U	31	R	2.8	UJ
p,p'-DDE	ug/Kg	3.1	U	31	R	2.8	U
p,p'-DDT	ug/Kg	3.1	U	31	R	23	U
Toxaphene	ug/Kg	100	U	1000	R	94	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH030		GFDSSH030		
SampleID	FDSSH03001DL (0-1ft)		FDSSH03002 (3-5ft)		FDSSH03002DL (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/24/1999		8/5/1999		8/24/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
Aldrin	ug/Kg	15	R	1.5	U	15	R
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	15	R	1.5	U	15	R
Alpha-chlordane	ug/Kg	15	R	1.5	U	15	R
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	15	R	1.5	U	15	R
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	15	R	1.5	U	15	R
Dieldrin	ug/Kg	28	R	2.9	U	29	R
Endosulfan I	ug/Kg	15	R	1.5	U	15	R
Endosulfan II	ug/Kg	28	R	2.9	U	29	R
Endosulfan Sulfate	ug/Kg	28	R	2.9	U	29	R
Endrin Aldehyde	ug/Kg	28	R	2.9	U	29	R
Endrin Ketone	ug/Kg	28	R	3	U	29	R
Endrin	ug/Kg	28	R	2.9	U	29	R
Gamma BHC (Lindane)	ug/Kg	15	R	1.5	U	15	R
Gamma-chlordane	ug/Kg	15	R	1.5	U	15	R
Heptachlor Epoxide	ug/Kg	15	R	1.5	U	15	R
Heptachlor	ug/Kg	15	R	1.5	U	15	R
Methoxychlor	ug/Kg	150	R	15	U	150	R
p,p'-DDD	ug/Kg	28	R	2.9	U	29	R
p,p'-DDE	ug/Kg	28	R	2.9	U	29	R
p,p'-DDT	ug/Kg	28	R	2.9	U	29	R
Toxaphene	ug/Kg	940	R	96	U	960	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH031		GFDSSH031		GFDSSH031		
SampleID	FDSSH03101 (0-1ft)		FDSSH03101DL (0-1ft)		FDSSH03102 (3-5ft)		
DateCollected	7/29/1999		7/29/1999		7/29/1999		
DateExtracted	8/2/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/17/1999		8/18/1999		8/17/1999		
SDGNumber	39715		39715		39715		
Parameter	Units						
Aldrin	ug/Kg	1.4	U	270	R	1.5	U
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	1.4	U	270	R	1.5	U
Alpha-chlordane	ug/Kg	2400	J	2400	R	310	=
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	1.4	U	270	R	1.5	U
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	1.4	U	270	R	1.5	U
Dieldrin	ug/Kg	2.6	U	520	R	3	U
Endosulfan I	ug/Kg	1.4	U	270	R	1.5	U
Endosulfan II	ug/Kg	2.6	U	520	R	3	U
Endosulfan Sulfate	ug/Kg	12.4	U	520	R	3	U
Endrin Aldehyde	ug/Kg	2.6	U	520	R	3	U
Endrin Ketone	ug/Kg	3	U	520	R	3	U
Endrin	ug/Kg	2.6	U	520	R	3	U
Gamma BHC (Lindane)	ug/Kg	1.4	U	270	R	1.5	U
Gamma-chlordane	ug/Kg	2700	J	2700	R	330	=
Heptachlor Epoxide	ug/Kg	270	J	270	R	29	J
Heptachlor	ug/Kg	110	J	270	R	18	=
Methoxychlor	ug/Kg	59	J	2700	R	15	U
p,p'-DDD	ug/Kg	2.6	U	520	R	3	U
p,p'-DDE	ug/Kg	2.6	U	520	R	6.8	U
p,p'-DDT	ug/Kg	54	J	520	R	3	U
Toxaphene	ug/Kg	87	U	17000	R	99	U

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH031
SampleID	FDSSH03102DL (3-5ft)
DateCollected	7/29/1999
DateExtracted	8/2/1999
DateAnalyzed	8/18/1999
SDGNumber	39715

Parameter	Units		
Aldrin	ug/Kg	31	R
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	31	R
Alpha-chlordane	ug/Kg	310	R
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	31	R
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	31	R
Dieldrin	ug/Kg	60	R
Endosulfan I	ug/Kg	31	R
Endosulfan II	ug/Kg	60	R
Endosulfan Sulfate	ug/Kg	60	R
Endrin Aldehyde	ug/Kg	60	R
Endrin Ketone	ug/Kg	60	R
Endrin	ug/Kg	60	R
Gamma BHC (Lindane)	ug/Kg	31	R
Gamma-chlordane	ug/Kg	330	R
Heptachlor Epoxide	ug/Kg	31	R
Heptachlor	ug/Kg	31	R
Methoxychlor	ug/Kg	310	R
p,p'-DDD	ug/Kg	60	R
p,p'-DDE	ug/Kg	60	R
p,p'-DDT	ug/Kg	60	R
Toxaphene	ug/Kg	2000	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH028		GFDSSH028		
SampleID	FDSSH02801 (0-1ft)		FDSSH02801DL (0-1ft)		FDSSH02802 (3-5ft)		FDSSH02802DL (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/5/1999		8/24/1999		8/5/1999		8/12/1999		
SDGNumber	39715		39715		39715		39715		
Parameter	Units								
PCB-1016 (Arochlor 1016)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1221 (Arochlor 1221)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1232 (Arochlor 1232)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1242 (Arochlor 1242)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1248 (Arochlor 1248)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1254 (Arochlor 1254)	ug/Kg	37	U	37	R	38	U	38	R
PCB-1260 (Arochlor 1260)	ug/Kg	37	U	37	R	38	U	38	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH029		GFDSSH029		GFDSSH029		GFDSSH029		
SampleID	FDSSH02901 (0-1ft)		FDSSH02901DL (0-1ft)		FDSSH02902 (3-5ft)		FDSSH02902DL (3-5ft)		
DateCollected	7/29/1999		7/29/1999		7/29/1999		7/29/1999		
DateExtracted	8/2/1999		8/2/1999		8/2/1999		8/2/1999		
DateAnalyzed	8/17/1999		8/18/1999		8/17/1999		8/18/1999		
SDGNumber	39715		39715		39715		39715		
Parameter	Units								
PCB-1016 (Arochlor 1016)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1221 (Arochlor 1221)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1232 (Arochlor 1232)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1242 (Arochlor 1242)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1248 (Arochlor 1248)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1254 (Arochlor 1254)	ug/Kg	38	U	38	R	40	U	40	R
PCB-1260 (Arochlor 1260)	ug/Kg	38	U	38	R	40	U	40	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH030		GFDSSH030		GFDSSH030		
SampleID	FDSSH03001 (0-1ft)		FDSSH03001DL (0-1ft)		FDSSH03002 (3-5ft)		FDSSH03002DL (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/28/1999		7/28/1999		
DateExtracted	7/30/1999		7/30/1999		7/30/1999		7/30/1999		
DateAnalyzed	8/5/1999		8/24/1999		8/5/1999		8/24/1999		
SDGNumber	39715		39715		39715		39715		
Parameter	Units								
PCB-1016 (Arochlor 1016)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1221 (Arochlor 1221)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1232 (Arochlor 1232)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1242 (Arochlor 1242)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1248 (Arochlor 1248)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1254 (Arochlor 1254)	ug/Kg	42	U	42	R	35	U	35	R
PCB-1260 (Arochlor 1260)	ug/Kg	42	U	42	R	35	U	35	R

Analytical Data Summary

04/11/2002 11:47 PM

	StationID	GFDSSH031		GFDSSH031		GFDSSH031		GFDSSH031	
	SampleID	FDSSH03101 (0-1ft)		FDSSH03101DL (0-1ft)		FDSSH03102 (3-5ft)		FDSSH03102DL (3-5ft)	
	DateCollected	7/29/1999		7/29/1999		7/29/1999		7/29/1999	
	DateExtracted	8/2/1999		8/2/1999		8/2/1999		8/2/1999	
	DateAnalyzed	8/17/1999		8/18/1999		8/17/1999		8/18/1999	
	SDGNumber	39715		39715		39715		39715	
Parameter	Units								
PCB-1016 (Arochlor 1016)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1221 (Arochlor 1221)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1232 (Arochlor 1232)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1242 (Arochlor 1242)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1248 (Arochlor 1248)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1254 (Arochlor 1254)	ug/Kg	35	U	35	R	38	U	38	R
PCB-1260 (Arochlor 1260)	ug/Kg	35	U	35	R	38	U	38	R

Analytical Data Summary

04/11/2002 1:47 PM

StationID	G024SB005		G024SB005		G024SB006		G024SB006		
SampleID	024SB00501 (0-1ft)		024SB00502 (3-5ft)		024CB00601 (0-1ft)		024CB00602 (3-5ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/29/1999		12/29/1999		12/29/1999		12/29/1999		
DateAnalyzed	1/13/2000		1/3/2000		1/3/2000		1/3/2000		
SDGNumber	EN033		EN033		EN033		EN033		
Parameter	Units								
Aluminum	mg/Kg	7030	=	7600	=	8840	=	5650	=
Antimony	mg/Kg	0.46	J	0.53	J	0.54	J	0.23	J
Arsenic	mg/Kg	2.5	=	8.1	=	5.3	=	1.5	=
Barium	mg/Kg	31.2	=	16.6	J	16	J	18.7	=
Beryllium	mg/Kg	0.46	U	0.33	U	0.28	U	0.18	U
Cadmium	mg/Kg	0.02	U	0.14	U	0.14	U	0.03	U
Calcium	mg/Kg	1960	=	481	=	2460	=	101	J
Chromium, Total	mg/Kg	9.6	J	22.6	J	29.7	J	7.5	J
Cobalt	mg/Kg	2.2	J	1.4	J	1.8	J	1.1	J
Copper	mg/Kg	3	J	0.86	J	1.2	J	0.74	J
Iron	mg/Kg	4920	=	19100	=	21600	=	6200	=
Lead	mg/Kg	110	J	6.6	J	40.7	J	4.9	J
Magnesium	mg/Kg	418	J	634	J	517	J	389	J
Manganese	mg/Kg	23.2	=	54.5	=	36.1	=	25.8	=
Mercury	mg/Kg	0.05	U	0.04	=	0.05	=	0.05	U
Nickel	mg/Kg	3.4	=	2.2	J	2.8	J	1.7	J
Potassium	mg/Kg	206	J	365	J	281	J	215	J
Selenium	mg/Kg	0.45	J	2.2	=	1.7	=	0.62	J
Silver	mg/Kg	0.04	U	0.05	U	0.05	U	0.04	U
Sodium	mg/Kg	90.1	J	99.4	J	115	J	68.5	J
Thallium	mg/Kg	0.2	UJ	0.23	UJ	0.22	UJ	0.2	UJ
Tin (Sn)	mg/Kg	2.7	U	2.9	U	3.2	U	3	U
Vanadium	mg/Kg	13.8	=	43.9	=	39.8	=	11.5	=
Zinc	mg/Kg	38.5	J	8.7	J	23.5	J	5.6	J

Analytical Data Summary

04/11/2002 11:47 PM

StationID	G024SB006		G024SB006		G024SB007		G024SB007		
SampleID	024SB00601 (0-1ft)		024SB00602 (3-5ft)		024SB00701 (0-1ft)		024SB00702 (3-5ft)		
DateCollected	12/15/1999		12/15/1999		12/15/1999		12/15/1999		
DateExtracted	12/29/1999		12/29/1999		12/29/1999		12/29/1999		
DateAnalyzed	1/3/2000		1/3/2000		1/3/2000		1/3/2000		
SDGNumber	EN033		EN033		EN033		EN033		
Parameter	Units								
Aluminum	mg/Kg	8490	=	5700	=	5650	=	4650	=
Antimony	mg/Kg	0.41	J	0.27	J	0.37	J	0.25	UJ
Arsenic	mg/Kg	5.7	=	1.6	=	8.1	=	2.8	=
Barium	mg/Kg	15.8	J	22.4	=	19.9	=	8.5	J
Beryllium	mg/Kg	0.23	U	0.17	U	0.31	U	0.11	U
Cadmium	mg/Kg	0.14	U	0.03	U	0.03	U	0.03	U
Calcium	mg/Kg	3060	=	267	J	16600	=	253	J
Chromium, Total	mg/Kg	25.9	J	8	J	15.4	J	10.8	J
Cobalt	mg/Kg	1.3	J	0.92	J	1.6	J	0.76	J
Copper	mg/Kg	1.1	J	0.75	J	10.4	J	0.39	J
Iron	mg/Kg	19900	=	6670	=	5880	=	9870	=
Lead	mg/Kg	58.9	J	16	J	62.1	J	3.3	J
Magnesium	mg/Kg	489	J	389	J	898	J	262	J
Manganese	mg/Kg	37	=	25.5	=	74.8	=	16.9	=
Mercury	mg/Kg	0.04	=	0.05	U	0.06	=	0.06	=
Nickel	mg/Kg	2.7	J	1.7	J	5.4	=	1.4	J
Potassium	mg/Kg	263	J	214	J	302	J	102	J
Selenium	mg/Kg	1.5	=	0.76	J	0.72	J	1.1	=
Silver	mg/Kg	0.05	U	0.05	U	0.05	U	0.05	U
Sodium	mg/Kg	103	J	77.2	J	169	J	39.5	U
Thallium	mg/Kg	0.22	UJ	0.22	UJ	0.23	UJ	0.25	UJ
Tin (Sn)	mg/Kg	3	U	3.3	U	3.5	U	1.5	U
Vanadium	mg/Kg	34.4	=	12.6	=	16.6	=	18.2	=
Zinc	mg/Kg	11.7	J	5.9	J	47.2	J	4.7	J

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH028		GFDSSH028		GFDSSH029		GFDSSH029		
SampleID	FDSSH02801 (0-1ft)		FDSSH02802 (3-5ft)		FDSSH02901 (0-1ft)		FDSSH02902 (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/29/1999		7/29/1999		
DateExtracted	8/17/1999		8/17/1999		8/17/1999		8/17/1999		
DateAnalyzed	8/18/1999		8/18/1999		8/18/1999		8/18/1999		
SDGNumber	39715		39715		39715		39715		
Parameter	Units								
Aluminum	mg/Kg	4350	=	15500	=	11700	=	17700	=
Antimony	mg/Kg	0.31	UJ	0.31	UJ	0.34	UJ	0.32	UJ
Arsenic	mg/Kg	1.4	=	9.3	=	10.9	=	7.8	=
Barium	mg/Kg	16.3	=	31.7	=	28.9	=	24.6	=
Beryllium	mg/Kg	0.25	J	0.52	J	0.33	J	0.34	J
Cadmium	mg/Kg	0.04	J	0.03	U	0.04	U	0.04	U
Calcium	mg/Kg	886	=	647	=	3680	=	1420	=
Chromium, Total	mg/Kg	4.9	=	25.6	=	19.9	=	31.6	=
Cobalt	mg/Kg	1.5	J	3.1	=	2	J	3	J
Copper	mg/Kg	1.8	U	1.2	U	8	=	2.4	J
Iron	mg/Kg	2280	=	19800	=	15300	=	24600	=
Lead	mg/Kg	63.4	=	9.6	=	41	=	12.9	=
Magnesium	mg/Kg	194	=	964	=	944	=	2320	=
Manganese	mg/Kg	15.4	=	72.6	=	47.1	=	78.1	=
Mercury	mg/Kg	0.04	=	0.13	=	0.09	=	0.06	=
Nickel	mg/Kg	2.2	J	5.1	=	5.2	=	5.8	=
Potassium	mg/Kg	89.6	J	409	=	325	=	666	=
Selenium	mg/Kg	0.37	U	0.47	J	0.55	J	0.39	U
Silver	mg/Kg	0.14	U	0.14	U	0.15	U	0.14	U
Sodium	mg/Kg	232	J	335	J	209	J	185	J
Thallium	mg/Kg	0.38	U	0.39	U	0.42	U	0.41	U
Tin (Sn)	mg/Kg	3	U	3.2	U	3.7	U	4.5	U
Vanadium	mg/Kg	5.8	=	42.2	=	25.8	=	37.9	=
Zinc	mg/Kg	16	=	18.5	=	67.5	=	34.2	=

Analytical Data Summary

04/11/2002 1:47 PM

StationID	GFDSSH030		GFDSSH030		GFDSSH031		GFDSSH031		
SampleID	FDSSH03001 (0-1ft)		FDSSH03002 (3-5ft)		FDSSH03101 (0-1ft)		FDSSH03102 (3-5ft)		
DateCollected	7/28/1999		7/28/1999		7/29/1999		7/29/1999		
DateExtracted	8/17/1999		8/17/1999		8/17/1999		8/17/1999		
DateAnalyzed	8/18/1999		8/18/1999		8/18/1999		8/18/1999		
SDGNumber	39715		39715		39715		39715		
Parameter	Units								
Aluminum	mg/Kg	7820	=	7860	=	8820	=	15300	=
Antimony	mg/Kg	0.34	UJ	0.31	UJ	0.31	UJ	0.32	UJ
Arsenic	mg/Kg	4.8	=	2.4	=	3.9	=	8.3	=
Barium	mg/Kg	23.4	=	13.6	=	22.6	=	23.7	=
Beryllium	mg/Kg	0.37	J	0.17	J	0.36	J	0.38	J
Cadmium	mg/Kg	0.28	J	0.03	U	0.03	U	0.04	U
Calcium	mg/Kg	101000	=	1170	=	853	=	693	=
Chromium, Total	mg/Kg	17	=	14.8	=	17.6	=	38.3	=
Cobalt	mg/Kg	5.3	=	1	J	2.2	J	2.1	J
Copper	mg/Kg	5.1	J	0.69	U	2	J	1.4	U
Iron	mg/Kg	12000	=	11200	=	12500	=	28900	=
Lead	mg/Kg	179	=	22.2	=	8.4	=	9.6	=
Magnesium	mg/Kg	1630	=	627	=	845	=	963	=
Manganese	mg/Kg	117	=	22	=	36.5	=	18.8	=
Mercury	mg/Kg	0.39	=	0.04	J	0.05	=	0.26	=
Nickel	mg/Kg	7.6	=	1.8	J	3.4	J	4.1	J
Potassium	mg/Kg	422	=	302	=	394	=	486	=
Selenium	mg/Kg	0.42	U	0.38	U	0.38	U	1.7	=
Silver	mg/Kg	0.15	U	0.14	U	0.14	U	0.14	U
Sodium	mg/Kg	421	=	320	J	240	J	278	J
Thallium	mg/Kg	0.43	U	0.39	U	0.39	U	0.62	J
Tin (Sn)	mg/Kg	3.6	U	4.2	U	4.2	U	3.6	U
Vanadium	mg/Kg	21.8	=	23.1	=	22.2	=	48.4	=
Zinc	mg/Kg	47.8	=	18.3	=	18.3	=	16.8	=

SWMU 24 Add. Subsurface Soil Data

STATION	CHEM_NAME	RESULT	UNIT	QUALITY	DATE_COL
GFDSSH028	Methylene Chloride	0.00700	mg/kg	U	07/28/1999
GFDSSH030	Methylene Chloride	0.00700	mg/kg	U	07/28/1999
GFDSSH029	Methylene Chloride	0.00500	mg/kg	U	07/29/1999
GFDSSH031	Methylene Chloride	0.00500	mg/kg	U	07/29/1999



HEARTLAND

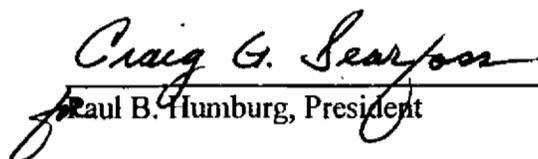
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 37280
Date: March 23, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone G
Date Sampled: January 28, 1999
Number of Samples: 4 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles, Metals

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


Paul B. Humburg, President

3-24-99
Date

SDG# 37280

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	VOA	SVOA	MET	
024GW00103	WATER	X	X	X	
024TW00103	WATER	X			
024GW00203	WATER	X	X	X	
024GW00303	WATER	X	X	X	
Total Billable Samples (Water/Soil)		4	0	3	0

VOA= Volatiles
SVOA= Semivolatiles
MET= Metals

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 37280

A validation was performed on the Volatile Data from SDG 37280. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- Matrix Spike/Matrix Spike Duplicates
- * Laboratory Control Samples
- * Field Duplicates
- * Compound Identification /Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Initial Calibration

The initial calibration analyzed on 01-21-99, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All samples	acetone (0.024)
	2-chloroethyl vinyl ether (0.015)

Continuing Calibration

The continuing calibration, UL8001.D, contained compounds with RRFs less than 0.050. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as rejected (UR).

All samples	acetone (0.023)
	2-chloroethyl vinyl ether (0.009)

Matrix Spike/Matrix Spike Duplicate

The matrix spike and matrix spike duplicate pair associated with sample 024-G-W001-03 did not exhibit results for spiked compound 2-chloroethyl vinyl ether (0%/0%). Qualify the non detect results in sample 024-G-W001-03 as rejected (UR).

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
All samples	acetone 2-chloroethyl vinyl ether	+/-	J/UR
All Samples	acetone 2-chloroethyl vinyl ether	+/-	J/UR
024-G-W001-03	2-chloroethyl vinyl ether	-	UR

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 37280

A validation was performed on the Semivolatile Data from SDG 37280. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- * Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Field Duplicates
- * Compound Identification /Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

<u>Associated blank</u>	<u>Compound</u>	<u>Concentration</u>	<u>Action Level</u>
SBLK01	benzoic acid	5Jug/L	25ug/L

<u>Samples</u>	<u>Compound</u>	<u>Qualification</u>
024-G-W001-03	benzoic acid	CRQL
024-G-W002-03		
024-G-W003-03		

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
024-G-W001-03	benzoic acid	+	CRQL
024-G-W002-03			
024-G-W003-03			

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 37280

A validation was performed on the Metals Data from SDG 37280. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- Matrix Spike Recovery
- Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- * ● Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The calibration and preparation blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Sodium	69.7 ug/l	no impact
Zinc	6.26 ug/l	all water samples below 31.3 ug/l
Barium	0.6 ug/l	no impact
Magnesium	50.4 ug/l	no impact
Sodium	98.5 ug/l	no impact

The USEPA requires that all sample values below five times the preparation, field or calibration blank contamination be qualified as non-detect, "U".

Matrix Spike results

The Matrix Spike recovery for waters for Aluminum (69.7%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" and "UJ".

Matrix Duplicate results

The RPD for waters for Aluminum (32%) was greater than 20%. All positive results are qualified as estimated, "J".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all water samples below 31.3 ug/l	Zn.	+	U
all water samples	Al.	+/U	J/UJ
all water samples	Al.	+	J
all "B" results	all analytes	B	J

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # EN017

A validation was performed on the Volatile Data from SDG EN017. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike duplicate
- * Field Duplicates
- * Compound Identification/Quantitation

* - All criteria were met for this parameter

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
All Samples	acetone	+/-	J/UR
All Samples	acetone 2-chloroethyl vinyl ether	+/-	J/UR
All Samples	bromomethane	+/-	J/UJ

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # EN017

A validation was performed on the Semivolatile Data from SDG EN017. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- * Calibrations
- Internal Standard Performance
- Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike duplicate
- * Field Duplicates
- Compound Identification/Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Internal Standards

Sample 024GW00104 exhibited low internal standard results for perylene-d12. Qualify all associated results as estimated (J/UJ).

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

<u>Associated blank</u>	<u>Compound</u>	<u>Concentration</u>	<u>Action Level</u>
SBLK1	bis(2-ethylhexyl)phthalate	1J ug/L	10 ug/L

<u>Samples</u>	<u>Compound</u>	<u>Qualification</u>
024GW00204	bis(2-ethylhexyl)phthalate	CRQL
024GW00304		
024GW00104		
024GW00404		

Compound Identification/Quantitation

Do not use sample 024GW00104DL, the dilution was not necessary.

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
024GW00104	<i>All Associated Compounds</i> perylene-d12	+/-	J/UJ
024GW00204 024GW00304 024GW00104 024GW00404	bis(2-ethylhexyl)phthalate	+	CRQL
024GW00104DL	all results	+/-	do not use

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 Methods for Appendix IX metals; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # EN017

A validation was performed on the metals Data from SDG EN017. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- * ● Matrix Spike Recovery
- * ● Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- * ● Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Iron	37.7 ug/l	no impact
Manganese	1.6 ug/l	no impact
Sodium	58.9 ug/l	no impact
Zinc	7.4 ug/l	all water samples below 37.0 ug/l
Barium	1.5 ug/l	no impact
Beryllium	0.3 ug/l	all water samples below 1.5 ug/l

Iron	3.5 ug/l	no impact
Selenium	1.0 ug/l	no impact

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Aluminum	-74.3 ug/l	all water samples below 743 ug/l
Calcium	-39.9 ug/l	no impact
Cobalt	-4.8 ug/l	all water samples below 48.0 ug/l
Magnesium	-37.7 ug/l	no impact
Silver	-4.3 ug/l	all water samples below 43.0 ug/l

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all water samples below 37.0 ug/l	Zn.	+	U
all water samples below 1.5 ug/l	Be.		
all water samples below 743 ug/l	Al.	+/U	J/UJ
all water samples below 48.0 ug/l	Co.		
all water samples below 43.0 ug/l	Ag.		
all "B" results	all analytes	B	J



800-588-7982
MEMPHIS, TENNESSEE

CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
MCLESTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

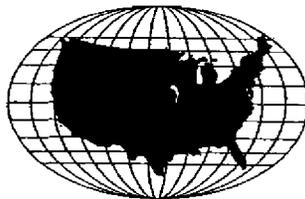
9906274
CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
PROJECT/JOB NO: 2908-001-07-00
COC NO: 2907-001-08-440-00
PO NO: 1840
REL NO: 30
LAB NAME: Laucke

CLIENT: Naval Base Charleston
LOCATION: Zone G
SAMPLERS: (SIGNATURE) [Signature]
PROJECT MANAGER: Charlie Vernoy
TELE/FAX NO: 843 884 0029 / 856 0107

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION		NO. OF CONTAINERS	ANALYSIS REQUIRED			REMARKS
					TEMP.	CHEMICAL		VOA 8260	SVA 8270	Metals 6010/7000	
VBGG1024GW00304	6-10-99	1120	W	12 Amber 12 Poly 40 mL Vial	4°C	VOA HCL Metz HNO ₃	6	X	X	X	14 Day Final boxed Results 28 Day Hardcopy + EDD'S
VBGG1024GW00104	↓	1335	W	↓	↓	↓	6	X	X	X	↓
VBGG1024GW00404	↓	1615	W	↓	↓	↓	6	X	X	X	↓
VBGG1024TW00404	↓	—	W	40 ML Vial	↓	↓	3	X			↓
Remainder of page is void 6-10-99											

RELINQUISHER: [Signature] DATE: 6/10/99
 INTD: Todd B. Temple TIME: 1800
 COMPANY: ENSAFE
 RECEIVER: JAS DATE: 6/11/99
 PRINTED: JOSIE A SMITH TIME: [Blank]
 COMPANY: Laucke
 METHOD OF SHIPMENT: FedEx
 SHIPMENT NO: 80960967432
 SEND RESULTS: [Blank]
 COMMENTS: 14 Day Final Results, 28 day Hardcopy + EDD'S



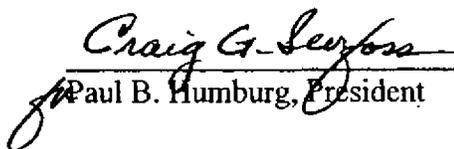
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: EN033
Date: January 24, 2000
Client Name: Ensafe
Project/Site Name: Charleston Zone G
Date Sampled: December 15, 1999
Number of Samples: 16 Non-Aqueous Sample(s) with 0 MS/MSD(s)
6 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Laucks Testing Laboratories
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
February, 1994
QA/QC Level: EPA DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Semivolatiles, Metals, SPLP Metals and Total Organic Carbon

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


Paul B. Humburg, President

1-31-00.
Date

SDG# EN033

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	SVOA		MET		SPLP-MET		TOC	
024SB00501	SOIL		X		X				
024SB00502	SOIL		X		X				
024SB00601	SOIL		X		X				
024CB00601	SOIL		X		X				
024SB00602	SOIL		X		X				
024CB00602	SOIL		X		X				
024SB00701	SOIL		X		X				
024SB00702	SOIL		X		X				
638SB00501	SOIL		X		X				X
638CB00501	SOIL		X		X				X
638SB00502	SOIL		X		X				X
638CB00502	SOIL		X		X				X
638SB00601	SOIL		X						
638SB00602	SOIL		X						
638SB00701	SOIL				X				X
638SB00702	SOIL				X				X
638SB00501	WATER					X			
638CB00501	WATER					X			
638SB00502	WATER					X			
638CB00502	WATER					X			
638SB00701	WATER					X			
638SB00702	WATER					X			
Total Billable Samples (Water/Soil)		0	14	0	14	6	0	0	6

SVOA= Semivolatiles

MET= Metals

SPLP-MET= SPLP Metals

TOC= Total Organic Carbon

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # EN033

A validation was performed on the Semivolatile Data from SDG EN033. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike/Matrix Spike duplicate
- Field Duplicates
- Compound Identification/Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Initial Calibration

The initial calibration, analyzed on 11-19-99, contained compounds with %Ds greater than 15% and less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

638SB00502	di-n-butylphthalate (23.2%)
638CB00501	benzo(b)fluoranthene (16.1%)
638SB00602	
638SB00502	
638SB00601	

638CB00501	benzo(g,h,i)perylene (16.1%)
638SB00602	

The initial calibration, analyzed on 11-08-99, contained compounds with %Ds greater than 15% and less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

024CB00601	benzo(b)fluoranthene (20.0%)
024SB00701	benzo(k)fluoranthene (16.3%)
638SB00501	

Internal Standards

The following samples exhibited low internal standard area recoveries for perylene-d12. Qualify all associated compound results as estimated (J/UJ).

638SB00602
024SB00702

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 3

Field Duplicate

Sample 024SB00601 and duplicate sample 024CB00601 exhibited non comparable results, with RPDs greater than 50%, for the compounds listed below. Qualify all results for these compounds as estimated (J/UJ).

fluorene (200%)
n-nitrosodiphenylamine (84%)
phenanthrene (93%)
anthracene (146%)
fluoranthene (200%)
pyrene (200%)
benzo(a)anthracene (200%)
chrysene (200%)
benzo(b)fluoranthene (200%)
benzo(k)fluoranthene (200%)
benzo(a)pyrene (200%)

Sample 024SB00602 and duplicate sample 024CB00602 exhibited non comparable results, with RPDs greater than 50%, for the compounds listed below. Qualify all results for these compounds as estimated (J/UJ).

n-nitrosodiphenylamine (200%)
nitrobenzene (200%)
isophorone (200%)

Compound Identification/Quantitation

Do not use the E-flagged compound results for the samples listed below, in favor of the D-flagged compound results in the dilutions.

024SB00502
024SB00602
024CB00602
024SB00702

Do not use sample 638SB00602DL due to unnecessary analysis.

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 4

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
638SB00502	di-n-butylphthalate	+	J
638CB00501 638SB00602 638SB00502 638SB00601	benzo(b)fluoranthene	+	J
638CB00501 638SB00602	benzo(g,h,i)perylene	+	J
024CB00601 024SB00701 638SB00501	benzo(b)fluoranthene benzo(k)fluoranthene	+	J
638SB00602 024SB00702	<i>All Associated compounds</i> perylene-d12	+/-	J/UJ
024SB00601 024CB00601	fluorene n-nitrosodiphenylamine phenanthrene anthracene fluoranthene pyrene benzo(a)anthracene chrysene benzo(b)fluoranthene benzo(k)fluoranthene benzo(a)pyrene	+/-	J/UJ
024SB00602 024CB00602	n-nitrosodiphenylamine nitrobenzene isophorone	+/-	J/UJ

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

Page 2

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
024SB00502 024SB00602 024CB00602 024SB00702	all E-flagged compounds	+	do not use
024SB00502DL 024SB00602DL 024CB00602DL 024SB00702DL	all results except D-flagged compounds	+/-	do not use
638SB00602DL	all results	+/-	do not use

*

DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE METALS (SOILS AND SPLP) AND TOC

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 methods: the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # EN033

A validation was performed on the Metals for soils and SPLP and TOC Data from SDG EN033. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- Matrix Spike Recovery
- Matrix Duplicates
- Field Duplicates
- * ● Laboratory Control Samples
- Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Barium	0.05 mg/kg	no impact
Beryllium	0.15 mg/kg	all soil samples below 0.75 mg/kg
Cadmium	0.03 mg/kg	all soil samples below 0.15 mg/kg
Calcium	13.6 mg/kg	no impact
Iron	2.92 mg/kg	no impact
Lead	0.43 mg/kg	no impact
Manganese	0.05 mg/kg	no impact

Zinc	0.31 mg/kg	no impact
Tin	3.17 mg/kg	all soil samples below 15.9 mg/kg
Zinc	2.0 ug/l	no impact

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

The preparation blanks exhibited negative bias for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Aluminum	-6.10 mg/kg	no impact
Cobalt	-0.08 mg/kg	all soil samples below 0.8 mg/kg
Thallium	-0.60 mg/kg	all soil samples below 6.0 mg/kg

This reviewer qualifies all samples results below 10 times the absolute value of the negative blank value.

Matrix Spike Recovery results

The matrix spike recoveries for soils for Antimony (51%) and Lead (34%) were below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

The matrix spike recoveries for soils for Chromium (130%), Copper (129%) and Manganese (172%) were above the upper control limits (>125%). All positive results are qualified as estimated, "J".

Matrix Duplicate results

The matrix duplicate RPD results for SPLP samples for Copper (>CRDL) was greater than one times the CRDL and the RPD for soils for Lead (59%) was greater than 35%. All positive results are qualified as estimated, "J". The difference for soils for Aluminum (24%), Chromium (25%), Lead (24%) and Zinc (29%) were not greater than 35% and will not be qualified for soils.

Field Duplicate RPD results

The RPD for field duplicate samples 638SB00501 and 638CB00501 (soils only) for Lead (81%) was greater than 50%. The RPD for field duplicate samples 638SB00501 and 638CB00501 (SPLP samples only) for Aluminum (100%) and Iron (98%) were greater than 35%. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Serial Dilution recovery results

The serial dilution results for SPLP samples for Magnesium and for soils for Copper, Magnesium, Zinc and Potassium were greater than 10%. All positive results are qualified as estimated, "J".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 0.75 mg/kg	Be.	+	U
all soil samples below 0.15 mg/kg	Cd.		
all soil samples below 15.9 mg/kg	Sn.		
all soil samples below 0.8 mg/kg	Co.	+/U	J/UJ
all soil samples below 6.0 mg/kg	Tl.		
all soil samples	Sb and Pb.	+/U	J/UJ
all soil samples	Cr, Cu and Mn.	+	J
all SPLP samples	Cu.	+	J
all soil samples	Pb.		
all SPLP samples	Mg	+	J
all soil samples	Cu, Mg, Zn and K.		
638SB00501/638CB00501	Pb.	+/U	J/UJ
638SB00501/638CB00501	Al and Fe.		
all "B" results	all analytes	B	J

CHAIN OF CUSTODY RECORD

PROJECT/JOB NO: 29070-0842

COC NO: _____

PO NO: 1840 52

REL NO: 38

LAB NAME: LANCUS

800-588-7962
MEMPHIS, TENNESSEE
CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CLIENT: Navy Clean CNC PROJECT MANAGER: T. Haverkost
LOCATION: Zone G / AOC 63F TELE/FAX NO.: (843) 884-0029
SAMPLERS: (SIGNATURE) William Herrick

ANALYSIS REQUIRED					REMARKS
NO. OF CONTAINERS	SVOCs	Metals	SPLP Metals	TOC	

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION		NO. OF CONTAINERS	SVOCs	Metals	SPLP Metals	TOC	REMARKS
					TEMP.	CHEMICAL						
7/11 NBCG/63F5B00501	11/15/99	1120	S	Glass 8 oz	Ice	None	4	✓	✓	✓	✓	
7/10 NBCG/63F5B00502	"	1120	S	"	"	"	4	✓	✓	✓	✓	Dup for 01
7/11 NBCG/63F5B00502	"	1130	S	"	"	"	4	✓	✓	✓	✓	
7/12 NBCG/63F5B00504	"	1130	S	"	"	"	4	✓	✓	✓	✓	Dup for 02
13 NBCG/63F5B00601	"	1205	S	"	"	"	1	✓				
14 NBCG/63F5B00612	"	1215	S	"	"	"	1	✓				
7/15 NBCG/63F5B00701	"	1500	S	"	"	"	3		✓	✓	✓	offsite to 00
7/16 NBCG/63F5B00702	"	1510	S	"	"	"	3		✓	✓	✓	

RELINQUISHER: <u>Fred Erdmann</u>	DATE: _____	RECEIVER: <u>Mike Baxter</u>	DATE: 12/16	RELINQUISHER: _____	DATE: _____	RECEIVER: _____
PRINTED: Fred Erdmann	TIME: _____	PRINTED: Mike Baxter	TIME: 9:15	PRINTED: _____	TIME: _____	PRINTED: _____
COMPANY: EnSafe		COMPANY: Lanch's Lab		COMPANY: _____		COMPANY: _____

METHOD OF SHIPMENT: Fed Exp.
SHIPMENT NO. 814795922636
SEND RESULTS TO: Charles Verney

COMMENTS: _____



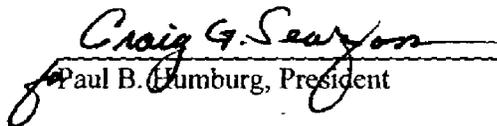
HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 39715
Date: October 15, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone G
Date Sampled: July 28 & 29, 1999
Number of Samples: 22 Non-Aqueous Sample(s) with 0 MS/MSD(s)
1 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Southwest Laboratory of Oklahoma, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
February, 1994
QA/QC Level: DQO Level III
Method(s) Utilized: SW846 Third Edition
Analytical Fractions: Volatiles, Semivolatiles, Pesticides, PCBs, SPLP Pesticides, SPLP
PCBs, Metals, SPLP Metals and Total Organic Carbons

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


Paul B. Humburg, President

10-18-99.
Date

SDG# 39715

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	VOA	SVOA	PEST	PCB	SP-PEST	SP-PCB	MET	SP-MET	TOC									
FDSTB03101	WATER	X																	
FDSSH02801	SOIL	X	X	X				X											
FDSSH02802	SOIL	X	X	X				X											
FDSSH02901	SOIL	X	X	X				X											
FDSSH02902	SOIL	X	X	X				X											
FDSSH03001	SOIL	X	X	X				X											
FDSCH03001	SOIL	X	X	X				X											
FDSSH03002	SOIL	X	X	X				X											
FDSSH03101	SOIL	X	X	X				X											
FDSCH03101	SOIL	X	X	X				X											
FDSSH03102	SOIL	X	X	X				X											
003SB01101	SOIL			X															
003SB01102	SOIL			X															
003SB01201	SOIL			X															
003CB01201	SOIL			X															
003SB01202	SOIL			X															
003SB01402	SOIL			X		X				X									
633SB01101	SOIL			X															
633CB01101	SOIL			X															
633SB01102	SOIL			X															
633SB01202	SOIL			X	X		X			X									
643SB01302	SOIL			X		X		X	X	X									
642SB01102	SOIL							X	X	X									
Total Billable Samples (Water/Soil)		1	10	0	10	0	20	0	1	0	2	0	1	0	12	0	2	0	4

VOA= Volatiles
 SVOA= Semivolatiles
 PEST= Pesticides
 PCB= PCBs
 SP-PEST= SPLP Pesticides

SP-PCB= SPLP PCBs
 MET= Metals
 SP-MET= SPLP Metals
 TOC= Total Organic Carbons

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8260B; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39715

A validation was performed on the Volatile Data from SDG 39715. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- Calibrations
- * Internal Standard Performance
- * Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- * Field Duplicates
- * Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing Calibration

The continuing calibration, R34039, contained compounds with %Ds greater than 50% and less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

FDSSH02801	chloromethane (54.3%)
FDSCH03101	bromomethane (77.9%)
FDSSH02902	chloroethane (70.6%)

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
FDSSH02801	chloromethane	+/-	J/UJ
FDSCH03101	bromomethane		
FDSSH02902	chloroethane		

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW846 Method 8270C; the National Functional Guidelines for Organic Data Review, and DQO Level III. All comments made within this report should be considered when examining the analytical results.

SDG # 39715

A validation was performed on the Semivolatile Data from SDG 39715. The data was evaluated based on the following parameters.

- * Data Completeness
- * Holding Times
- * GC/MS Tuning
- * Calibrations
- * Internal Standard Performance
- Blanks
- * Surrogate Recoveries
- * Laboratory Control Samples
- * Matrix Spike / Matrix Spike Duplicate
- Field Duplicates
- Compound Identification / Quantitation

* - All criteria were met for this parameter

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Blank

The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Method Blank

<u>Associated blank</u>	<u>Compound</u>	<u>Concentration</u>	<u>Action Level</u>
SBLK2	bis(2-ethylhexyl)phthalate	28 J ug/Kg	280 ug/Kg

<u>Samples</u>	<u>Compound</u>	<u>Qualification</u>
FDSSH03101 FDSCH03101 FDSSH03102 FDSSH02901 FDSSH02902	bis(2-ethylhexyl)phthalate	CRQL

Field Duplicate

Sample FDSSH03001 and duplicate sample FDSCH03001 did not exhibit comparable results for the compounds listed below. Qualify these compounds as estimated (J).

anthracene (38%)
fluoranthene (85%)
pyrene (76%)
benzo(a)anthracene (96%)
chrysene (94%)
benzo(b)fluoranthene (81%)
benzo(k)fluoranthene (114%)
benzo(a)pyrene (114%)
indeno(1,2,3-cd)pyrene (96%)
dibenz(a,h)anthracene (89%)
benzo(g,h,i)perylene (74%)

DATA ASSESSMENT AND NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 3

Compound Identification / Quantitation

Do not use the E-flagged compounds in the samples listed below, in favor of the D-flagged compound results in the dilution.

FDSSH02901

FDSSH02802

FDSSH02801

FDSSH03001

System Performance and Overall Assessment

The data as presented requires qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
FDSSH03101 FDSCH03101 FDSSH03102 FDSSH02901 FDSSH02902	bis(2-ethylhexyl)phthalate	+	CRQL
FDSSH03001 FDSCH03001	anthracene fluoranthene pyrene benzo(a)anthracene chrysene benzo(b)fluoranthene benzo(k)fluoranthene benzo(a)pyrene indeno(1,2,3-cd)pyrene dibenz(a,h)anthracene benzo(g,h,i)perylene	+	J
FDSSH02901 FDSSH02802 FDSSH02801 FDSSH03001	all E-flagged compounds	+	do not use
FDSSH02901DL FDSSH02802DL FDSSH02801DL FDSSH03001DL	all results except D-flagged compounds	+/-	do not use

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081/8082; the National Functional Guidelines for Organic Data Validation, 2/93, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 39715

A validation was performed on the Pesticide/PCB Data from SDG 39715. The data was evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC Performance
- Calibration
- * • Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- Field Duplicates
- Compound Identification
- Compound Quantitation

* - All criteria were met for this parameter.

Calibrations

The continuing calibration standards INDAL340, 8/24/99, 0847, on both columns, exhibited %Ds greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

003SB01102	4,4'-DDT (30.7%/20.2%)
FDSSH02801	
FDSSH02901	
FDSSH02902	

**DATA ASSESSMENT NARRATIVE
PESTICIDES/PCBs**

PAGE 2

Calibrations (continued)

The continuing calibration standards INDBL315Z, 8/17/99, 1410, exhibited a %D greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

FDSSH03101 endosulfan sulfate (35.6%)
FDSCH03101

The continuing calibration standard INDBL315U, 8/11/99, 1722, on both columns, exhibited %Ds greater than 15% but less than 50% for which qualifications were required. For the following samples and compound, the reported positive results are qualified as estimated, J.

003SB01201 4,4'-DDE (16.9%/19.5%)
003CB01201
003SB01202

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries above the QC limits. All reported positive results are qualified as estimated, J.

<u>Sample</u>	<u>Surrogate</u>	<u>%R</u>	<u>Compounds</u>
FDSCH03101	DCB	185%	pesticides
FDSSH02901	DCB	2618%/2081%	pesticides

Field Duplicates

The field duplicate pair of the following samples exhibited non-compliant RPDs for the noted compounds. The reported positive and non-detect results are qualified as estimated, J/UJ.

FDSSH03001 dieldrin (200%)
FDCSH03001 4,4'-DDD (200%)

**DATA ASSESSMENT NARRATIVE
PESTICIDES/PCBs**

PAGE 3

Field Duplicates (continued)

The field duplicate pair of the following samples exhibited non-compliant RPDs for the noted compounds. The reported positive and non-detect results are qualified as estimated, J/UJ.

FDSSH03101	heptachlor (67%)
FDCSH03101	heptachlor epoxide (200%)
	4,4'-DDT (76%)
	Methoxychlor (101%)
	Alpha-chlordane (98%)
	Gamma-chlordane (98%)

Compound Identification

Several samples exhibited column quantitation %Ds greater than 40%. The following guidelines were used to qualify the data:

1. No qualifications are required for positive sample results which exhibited column quantitation differences <40%. The "P" flag is removed from the result.
2. The positive sample result which exhibited a column quantitation difference >40%, but ≤100% is qualified as estimated, J.
3. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and is <10X the respective compound CRQL, is qualified as non-detect, U. (All multi-component results are exempt from this rule.)
4. The positive single component pesticide sample result which exhibited a column quantitation difference >100% and >10X the respective compound CRQL, is qualified as presumptively present at an estimated concentration, NJ. (All multi-component results are exempt from this rule.)
5. The positive multi-component pesticide sample result which exhibited a column quantitation difference >100% and <10X the respective multi-component CRQL is qualified as presumptively present at an estimated concentration, NJ.

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 4

Compound Identification, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

<u>Sample ID</u>	<u>Compound</u>	<u>%D</u>	<u>Lab Qual.</u>	<u>HESI Qual.</u>	<u>Ref. #</u>
003SB01101DL	4,4'-DDT	56.9%	P	J	2
003SB01201DL	4,4'-DDD	190%	P	NJ	4
003CB01201	4,4'-DDD	54.0%	P	J	2
	Gamma-chlordane	324%	P	U	3
003SB01202DL	4,4'-DDD	197%	P	NJ	4
003SB01402	gamma-chlordane	999.9%	P	U	3
643SB01302	4,4'-DDT	34.9%	P		1
	Gamma-chlordane	30.4%	P		1
FDSSH02801	4,4'-DDE	492%	P	U	3
	4,4'-DDD	78.4%	P	J	2
	4,4'-DDT	101%	P	U	3
	Endrin aldehyde	37.5%	P		1
	Gamma-chlordane	28.0%	P		1
FDSSH02901	4,4'-DDE	320%	P	U	3
	4,4'-DDT	41.6%	P	J	2
	Endrin aldehyde	55.1%	P	J	2
FDSSH03001	4,4'-DDT	153%	P	U	3
	Gamma-chlordane	148%	P	U	3
FDSCH03001	4,4'-DDT	186%	P	U	3
	Endrin aldehyde	75%	P	J	2
	Gamma-chlordane	44.8%	P	J	2
FDSSH03101	heptachlor epoxide	99.6%	P	J	2
	Endosulfan sulfate	356%	P	U	3

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 5

Compound Identification, Continued

The following samples and compounds have been qualified for high column quantitation %Ds.

<u>Sample ID</u>	<u>Compound</u>	<u>%D</u>	<u>Lab Qual.</u>	<u>HESI Qual.</u>	<u>Ref. #</u>
FDSCH03101	endosulfan sulfate	304%	P	NJ	4
FDSSH03102	heptachlor epoxide	123%	P	NJ	4
	4,4'-DDE	268%	P	U	3

Compound Quantitation

For the following samples, the E flagged results (with corresponding D flagged results) are not used in favor of the corresponding D flagged results reported from the dilution analyses. All other results reported in the dilution analyses are not used in favor of the results reported from the undiluted or lessor dilution analyses.

003SB01101
003SB01201
003CB01201
003SB01202
643SB01302
FDSSH03101
FDSCH03101
FDSSH03102

For the following samples, the reported results are not used in favor fo the results reported from the undiluted analyses. The dilutions were not required because there were no compounds reported in the samples that were above the calibration curve range.

003SB01102DL
633SB01101DL
633CB01101DL
633SB01102DL
FDSSH02801DL
FDSSH02802DL
FDSSH03001DL
FDSCH03001DL
FDSSH03002DL

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 6

Compound Identification (continued)

For the following samples and noted compounds, the laboratory reported the greater quantitated result rather than the lesser quantitated result. The reviewer has amended the sample results to reflect the lesser quantitated result based on the results reported on the Form 10.

FDSSH02901	4,4'-DDE
FDSSH02801	4,4'-DDE 4,4'-DDT
FDSSH03101	endosulfan sulfate
FDSCH03101	endosulfan sulfate

For the following samples, the reported E flagged results for the compounds noted below are qualified as estimated, J, because they are above the calibration range of the instrument, but were diluted out of the corresponding dilution analysis of the sample.

003SB01201	4,4'-DDE
003CB01201	
003SB01202	
003CB01201	4,4'-DDD
FDSSH03101	4,4'-DDT
FDSCH03101	

For the following samples, the reported E flagged results for the compounds noted below are qualified as estimated, J, because they are above the calibration range of the instrument, but were diluted out of the corresponding dilution analysis of the sample.

FDSSH03101	4,4'-DDT
FDSCH03101	heptachlor endosulfan sulfate
FDSSH03101	heptachlor epoxide
FDSSH03102	

**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

PAGE - 6

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
003SB01102 FDSSH02801 FDSSH02901 FDSSH02902	4,4'-DDT (30.7%/20.2%)	+	J
FDSSH03101 FDSCH03101	endosulfan sulfate (35.6%)	+	J
003SB01201 003CB01201 003SB01202	4,4'-DDE (16.9%/19.5%)	+	J
FDSCH03101 FDSSH02901	pesticides	+	J
FDSSH03001 FDCSH03001	dieldrin (200%) 4,4'-DDD (200%)	+/-	J/UJ
FDSSH03101 FDCSH03101	heptachlor (67%) heptachlor epoxide (200%) 4,4'-DDT (76%) Methoxychlor (101%) Alpha-chlordane (98%) Gamma-chlordane (98%)	+/-	J/UJ
ALL	All P < 40%	+	
ALL	All P > 40% But ≤ 100%	+	J
ALL	single component pests All P > 100% And < 10X CRQL	+	U

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
ALL	single component pests All P > 100% And > 10X CRQL	+	NJ
ALL	multi-component pests All P > 100% And < 10X CRQL	+	NJ
003SB01101 003SB01201 003CB01201 003SB01202 643SB01302 FDSSH03101 FDSCH03101 FDSSH03102	E flagged results with corresponding +E D flagged results present		Do Not Use
003SB01101DL 003SB01201DL 003CB01201DL 003SB01202DL 643SB01302DL FDSSH03101DL FDSCH03101DL FDSSH03102DL	All except corresponding D flagged results	+/-	Do Not Use
003SB01102DL 633SB01101DL 633CB01101DL 633SB01102DL FDSSH02801DL FDSSH02802DL FDSSH03001DL FDSCH03001DL FDSSH03002DL	All Compounds	+/-	Do Not Use

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
FDSSH02901	4,4'-DDE	+120E	+28.1
FDSSH02801	4,4'-DDE	+29	+4.9P
	4,4'-DDT	+46	+23P
FDSSH03101	endosulfan sulfate	+56E	+12.4P
FDSCH03101	endosulfan sulfate	+170E	+42P
003SB01201	4,4'-DDE	+E	J
003CB01201			
003SB01202			
003CB01201	4,4'-DDD	+E	J
FDSSH03101	4,4'-DDT	+E	J
FDSCH03101			
FDSSH03101	4,4'-DDT	+E	J
FDSCH03101	heptachlor endosulfan sulfate		
FDSSH03101	heptachlor epoxide	+E	J
FDSSH03102			

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SPLP PESTICIDES/PCBs

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Methods 8081/8082; the National Functional Guidelines for Organic Data Validation, 2/93, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 39715A

A validation was performed on the Pesticide/PCB Data from SDG 39715A. The data was evaluated based on the following parameters:

- * • Data Completeness
- Holding Times
- * • GC Performance
- Calibration
- * • Blanks
- Surrogate Recoveries
- * • Matrix Spike/Matrix Spike Duplicates
- * • Field Duplicates
- * • Compound Identification
- * • Compound Quantitation

* - All criteria were met for this parameter.

Holding Times

The following samples were extracted thirty-one (31) to thirty-two (32) days outside the extraction holding time. The reported non-detect results are rejected, UR.

003SB01402

633SB01202

643SB01302

**DATA ASSESSMENT NARRATIVE
SPLP PESTICIDES/PCBs**

PAGE 2

Calibrations

The continuing calibration standard INDAL314L exhibited a %D greater than 50% but less than 90%. For the following samples and compound, the reported positive and non-detect results are qualified as estimated, J/UJ.

All Samples Endrin (80.1%)

Surrogate Recoveries

The following samples exhibited non-compliant surrogate recoveries below the QC limits. All reported positive and non-detect results are qualified as estimated, J/UJ.

<u>Sample</u>	<u>Surrogate</u>	<u>%R</u>	<u>Compounds</u>
643SB01302	DCB	26%/29%	pesticides
003SB01402	DCB	42%/45%	pesticides
643SB01302	DCB	38%	PCBs
003SB01402	DCB	26%	PCBs

System Performance and Overall Assessment

The data, as reported, did require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>
003SB01402 633SB01202 643SB01302	All Compounds	-	UR
All Samples	Endrin (80.1%)	+/-	J/UJ
643SB01302 003SB01402 643SB01302 003SB01402	pesticides pesticides PCBs PCBs	+/-	J/UJ

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 Methods; the Functional Guidelines for Inorganic Data Validation, February 1994, and DQO Level III requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDGs # 39726

A validation was performed on the Metals Data from SDG 39726. The data was evaluated based on the following parameters.

- * ● Data Completeness
- * ● Holding Times
- * ● Calibrations
- Blanks
- * ● Interferences
- Matrix Spike Recovery
- * ● Matrix Duplicates
- * ● Field Duplicates
- * ● Laboratory Control Samples
- * ● Serial Dilutions

* - All criteria were met for this parameter.

Preparation and Field Blanks

The preparation and calibration blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Copper	0.36 mg/kg	all soil samples below 1.8 mg/kg
Zinc	1.47 mg/kg	no impact
Tin	2.66 mg/kg	all soil samples below 13.5 mg/kg
Calcium	394 ug/l	no impact
Copper	1.0 ug/l	no impact
Thallium	2.6 ug/l	no impact
Zinc	34.3 ug/l	all water samples below 172 ug/l

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as non-detect, "U".

Matrix Spike Recovery results

The matrix spike recovery for soils for Antimony (55%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

All sample results left with a "B" qualifier after all other qualifications, will be qualified with a "J" qualifier in place of the "B". Value is below the CRDL but greater than the IDL.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all soil samples below 1.8 mg/kg	Cu.	+	U
all soil samples below 13.5 mg/kg	Sn.		
all water samples below 172 ug/l	Zn.		
all soil samples	Sb.	+	J
all "B" results	all analytes	B	J

Data Validation Summary - Charleston Naval Complex - Zone G, SWMU 24

TO: Casey Hudson/CH2M HILL/ORL

FROM: Amy Juchem/CH2M HILL/GNA
Herb Kelly/CH2M HILL/GNA

DATE: December 17, 2002

The purpose of this memorandum is to present the results of the data validation process for the samples collected in Zone G, SWMU 24. The samples were collected on October 10, 2002.

The specific samples and analytical fractions reviewed are summarized below in Table 1.

The Quality Control areas that were reviewed and the resulting findings are documented within each subsection that follows. This data was validated for compliance with the analytical method requirements. This process also included a review of the data to assess the accuracy, precision, and completeness based upon procedures described in the guidance documents such as the Environmental Protection Agency (EPA) *National Functional Guidelines for Inorganic Data Review (EPA 2002)* and *National Functional Guidelines for Organic Data Review (EPA 1999)*. Quality assurance/quality control (QA/QC) summary forms and data reports were reviewed.

Samples were submitted to General Engineering Laboratories, Inc., in Charleston, South Carolina, for the following analyses: SW-846 8260 Volatile Organic Compounds (VOC), and SW-846 8270 Semivolatile Organic Compounds (SVOC).

Sample results that were not within the acceptance limits were appended with a qualifying flag, which consisted of a single- or double-letter code that indicated a possible problem with the data. The qualifying flags originated during the data review and validation processes. These also include the secondary, or the two-digit "sub-qualifier" flags. The secondary qualifiers provide the reasoning behind the assignment of a qualifier flag to the data. The secondary qualifiers are presented and defined below.

Attachment 1 lists the changes in data qualifiers, due to the validation process.

The following primary flags were used to qualify the data:

- [=] Detected. The analyte was analyzed for and detected at the concentration shown.
- [J] Estimated. The analyte was present but the reported value may not be accurate or precise.
- [U] Undetected. The analyte was analyzed for but not detected above the method detection limit.
- [UJ] Detection limit estimated. The analyte was analyzed for but qualified as not detected; the result is estimated.
- [R] Rejected. The data is not useable.

Secondary Data Validation Qualifiers

<u>Code</u>	<u>Definition</u>
2S	Second Source
BL	Blank
BD	Blank Spike/Blank Spike Duplicate or (LCS/LCSD) Precision
BS	Blank Spike/LCS
CC	Continuing Calibration Verification
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's → J's)
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
LR	Concentration exceeded Linear Range
MD	MS/MSD or LCS/LCSD Precision
MS	Matrix Spike/Matrix Spike Duplicate
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction/Re-analysis
SD	Serial Dilution
SS	Spiked Surrogate
TD	Total vs Dissolved
TN	Tune

Table 1 - Chemical Analytical Methods – Field and Quality Control Samples

SPC	Sample ID	Sample ID	Lab Sample ID	Matrix	Sample Type	Depth (ft)	Flow (L/min)	Date	10/10/02	10/10/02
68643	FIELDQC	024EB011M1	68643001	WQ	EB			10/10/02	X	X
68643	FIELDQC	024TB011M1	68643002	WQ	TB			10/10/02	X	
68643	LABQC	1200315563	1200315563	WQ	LB					X
68643	LABQC	1200315570	1200315570	WQ	BS					X
68643	LABQC	1200317586	1200317586	WQ	LB				X	
68643	LABQC	1200317587	1200317587	WQ	BS				X	
68646	G024SB011	024SB01103	68646001	SO	N	2.5	3	10/10/02	X	X
68646	G024SB012	024SB01203	68646002	SO	N	2	2.5	10/10/02	X	X
68646	G024SB013	024SB01303	68646003	SO	N	2.5	3	10/10/02	X	X
68646	G024SB013	024CB01303	68646004	SO	FD	2.5	3	10/10/02	X	X
68646	G024SB014	024SB01403	68646005	SO	N	2.5	3	10/10/02	X	X
68646	LABQC	1200315571	1200315571	SQ	LB					X
68646	LABQC	1200315572	1200315572	SQ	BS					X
68646	LABQC	1200316756	1200316756	SQ	LB				X	
68646	LABQC	1200316757	1200316757	SQ	BS				X	
68646	LABQC	1200316758	1200316758	SQ	BD				X	
68646	LABQC	1200317590	1200317590	SQ	LB				X	
68646	LABQC	1200317591	1200317591	SQ	BS				X	
68646	LABQC	1200317592	1200317592	SQ	LB				X	
68646	LABQC	1200317593	1200317593	SQ	LB				X	
68646	LABQC	1200317594	1200317594	SQ	BS				X	
68646	LABQC	1200317892	1200317892	SQ	LB					X
68646	LABQC	1200317893	1200317893	SQ	BS					X

MATRIX CODE

WQ – Water QC Sample

SO – Soil

SQ – Soil QC Sample

SAMPLE TYPE CODE

BS - Blank Spike

BD – Blank Spike Duplicate

EB - Equipment Blank

TB – Trip Blank

FD - Field Duplicate

N - Native Sample

LB - Laboratory Blank

ANALYSIS CODE

- Volatile Organic Compounds

- Semivolatile Organic Compounds

Organic Parameters

Quality Control Review

The following list represents the QA/QC measures that were reviewed during the data quality evaluation procedure for organic data.

- **Holding Times** – The holding times are evaluated to verify that samples were extracted and analyzed within holding times.
- **Blank samples** – Method blanks, equipment blanks, ambient field blanks, and trip blanks were provided for this project. Blank samples enable the reviewer to determine if an analyte may be attributed to sampling or laboratory procedures, rather than environmental contamination from site activities.
- **Surrogate Recoveries** – Surrogate Compounds are added to each sample and the recoveries are used to monitor lab performance and possible matrix interference.
- **Lab Control Sample (LCS)** – This sample is a "controlled matrix", either laboratory reagent water or Ottawa sand, in which target compounds have been added prior to extraction/analysis. The recoveries serve as a monitor of the overall performance of each step during the analysis, including sample preparation.
- **Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples** – Spike recovery is used to evaluate potential matrix interferences, as well as accuracy. Precision information is also determined by calculating the reproducibility between the recoveries of each spiked parameter.
- **GC/MS Tuning** – The mass spectrum of the tuning compound is evaluated for method compliance. The criteria are established to verify the proper mass assignment and mass resolution.
- **Initial Calibration** – The initial calibration ensures that the instrument is capable of producing acceptable qualitative and quantitative data for the compounds of interest.
- **Continuing Calibration** – The continuing calibration checks satisfactory performance of the instrument and its predicted response to the target compounds.
- **Field Duplicate Samples** – These samples are collected to determine precision between a native and its duplicate. This information can only be determined when target compounds are detected.
- **Internal Standards** – The internal standards (retention time and response) are evaluated for method compliance. The internal standards are used in quantitation of the target parameters and monitor the instrument sensitivity and response for stability during each analysis.

Volatile Organic Compounds (VOC) Analyses

The QA/QC parameters for VOC analyses for all of the samples were within acceptable control limits, except as noted below:

Blanks

The VOC target parameters detected in blank samples are listed in Table 2.

TABLE 2

Blank Contamination: VOCs

Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

ID#	Sample ID	Lab Sample ID	Sample Type	Parameter	Lab Result	Units	Reporting Limit (Blank Contamination)
68643	024EB011M1	68643001	EB	1,4-Dichlorobenzene	0.26	µg/L	0.3 µg/L
68646	024EB011M1	68643001	EB	1,4-Dichlorobenzene	0.26	µg/L	0.3 µg/L

If a target parameter determined to be a common contaminant was reported in a field sample, and the concentration was below the level determined to be due to blank contamination, the following actions were taken:

- If the concentration was above the reporting limit, the numeric result was unchanged, but it was flagged "U", as undetected.
- If the concentration was below the reporting limit, the numeric result was changed to the value of the reporting limit, and it was flagged "U", as undetected.

The results qualified due to blank contamination are listed in Attachment 1.

Recoveries - Surrogate, MS/MSD and LCS/LCSD

All Surrogate, Matrix Spike (MS), Matrix Spike Duplicate (MSD), Laboratory Control Sample (LCS), and Laboratory Control Sample Duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted in Table 3 below.

TABLE 3

Surrogate, MS/MSD and LCS/LCSD Recoveries Out of QC Limits: VOCs

Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

ID#	Sample ID	Parameter	Recovery	Reporting Limit	Lab Sample ID	Notes
68643	1200317587 LCS	2-Chloroethyl vinyl ether	64.8*	70-135	68643001 (EB), 68643002 (TB)	No Flags Applied (Field Blanks only)
		1,2,3-Trichlorobenzene	148*	70-135		
68643	024EB011M1	Dibromofluoromethane (surrogate)	132*	80-120	024EB011M1	No Flags Applied (Field Blanks only)

TABLE 3
 Surrogate, MS/MSD and LCS/LCSD Recoveries Out of QC Limits: VOCs
 Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Site	Sample	Parameter	Result	Control Limits	Sample	Flags
68643	024EB011M1	Toluene-d8 (surrogate)	116*	88-110	024EB011M1	No Flags Applied (Field Blanks only)
		Bromofluorobenzene	126*	86-115		
68643	024TB011M1	Dibromofluoromethane (surrogate)	128*	80-120	024TB011M1	No Flags Applied (Field Blanks only)
		Toluene-d8 (surrogate)	114*	88-110		
		Bromofluorobenzene	125*	86-115		
68646	024SB01203	Bromofluorobenzene	155*	59-113	024SB01203	Detects only - J
68646	1200317591 LCS	2-Chloroethyl vinyl ether	138*	70-130	68646001, 68646003, 68646004, 68646005	Detects only - J
68646	1200317594 LCS	Vinyl chloride	135.2*	70-130	68646002	Detects only - J
		Chloroethane	131.2*	70-130		
		1,2,3-Trichlorobenzene	148*	70-130		
		2-Chloroethyl vinyl ether	64.8*	70-130	68646002	Detects-J, non-detects-UJ

* - out of control limits

Initial and Continuing Calibration Criteria

All initial calibration criteria and continuing calibration criteria were met, except as listed in Table 4.

TABLE 4
 Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: VOCs
 Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Sample	Parameter	Result	Flags
VOA2-ICAL-09/20/02, 1553	1,2,3-Trichlorobenzene	R ² = 0.981	68643 - All, 68646002
VOA2-CCAL-10/16/02, 0631	Chloromethane	21.6% low	68643 - All, 68646002

TABLE 4

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: VOCs
Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Instrument/Calibration Date	Analyte	Relative Standard Deviation or Percent Difference (%)	Associated Samples
VOA2-CCAL-10/16/02, 0631	2-Chloroethyl vinyl ether	RRF=0.038 33.4% low	68643 – All, 68646002
	1,2,4-Trichlorobenzene	27.5% high	
	1,2,3-Trichlorobenzene	50.6% high	
VOA2-CCAL-10/15/02, 1939	Chloromethane	24.6% high	68646001, 68646003, 68646004, 68646005
	2-Chloroethyl vinyl ether	58.7% high	

Flags were applied to the compounds in the associated samples in the following manner:

- When the percent Relative Standard Deviation (%RSD) or correlation coefficient (R^2) was out in the initial calibration, all associated samples were qualified. Detected compounds were flagged "J" and non-detected compounds were flagged "UJ", as estimated.
- When the percent difference (%D) was low in the continuing calibration standards, detected compounds were flagged "J" and non-detected compounds were flagged "UJ", as estimated.
- When the percent difference (%D) was high in the continuing calibration standards, detected compounds were flagged "J", as estimated. Non-detected compounds were not flagged.
- When the Relative Response Factor (RRF) was low in the continuing calibration, detected compounds were flagged "J", and non-detected compounds were flagged "UJ", as estimated.

Semivolatile Organic Compounds (SVOC) Analyses

The QA/QC parameters for the SVOC analyses for all of the samples were within acceptable control limits, except as noted below.

Blanks

The SVOC target parameters detected in blank samples are listed in Table 5.

TABLE 5

Blank Contamination: SVOCs

Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Sample ID	Sample ID	Sample ID	Location	Contaminant	Reported Value	Unit	Reporting Limit
68643	1200315563 MB	1200315563	LB	Di-n-butylphthalate	1.3	µg/L	13.0 µg/L
68646	1200315571 MB	1200315571	LB	Diethylphthalate	197.0	µg/Kg	1970.0 µg/Kg

If a target parameter determined to be a common contaminant was reported in a field sample, and the concentration was below the level determined to be due to blank contamination, the following actions were taken:

- If the concentration was above the reporting limit, the numeric result was unchanged, but it was flagged "U", as undetected.
- If the concentration was below the reporting limit, the numeric result was changed to the value of the reporting limit, and it was flagged "U", as undetected.

The results qualified due to blank contamination are listed in Attachment 1.

Recoveries - Surrogate, MS/MSD and LCS

All Surrogate, Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS) recoveries were within acceptable quality control limits, except as noted in Table 6 below.

TABLE 6

Surrogate, MS/MSD and LCS Recoveries Out of QC Limits: SVOCs

Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Sample ID	Sample ID	Contaminant	Reported Value	Control Limits	Sample ID	Notes
68646	1200317893 LCS	Benzyl alcohol	278*	70-130	68646001	Detects only - J
		Benzoic acid	68*	70-130	68646001	Detects-J, non-detects-UJ
		Carbazole	54*	58-100		

* - out of control limits

Initial and Continuing Calibration Criteria

All initial calibration criteria and continuing calibration criteria were met, except as listed in Table 7 below.

TABLE 7

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: SVOCs
 Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Initial/Continuing Calibration Criteria (ID#)	ANALYTE	Relative Standard Deviation (RSD) (%)	Associated Samples
MSD4-ICAL-10/05/02, 1142	2,4-Dinitrophenol	R ² =0.983	68646001
	Indeno(1,2,3-cd)pyrene	R ² =0.988	
	Dibenzo(a,h)anthracene	R ² =0.987	
	Benzo(g,h,i)perylene	R ² =0.987	
MSD4-CCAL-10/15/02, 1036	Bis(2-Chloroethyl)ether	22.2% low	68646001
	Benzoic acid	26.9% low	
	2,4-Dinitrophenol	23.3% low	
	p-Nitroaniline	24.9% high	
MSD2-ICAL-10/01/02, 1205	Benzoic acid	R ² =0.983	68646002, 68646003, 68646004, 68646005
MSD2-CCAL-10/14/02, 1501	Bis(2-Chloroethyl)ether	29.7% low	68646002, 68646003, 68646004, 68646005
	Bis(2-Chloroisopropyl)ether	27.1% low	
	Bis(2-Chloroethoxy)methane	24.4% low	
	Benzoic acid	RRF=0.036 31.0% low	
	2,4-Dinitrophenol	25.0% high	
MSD5-ICAL-09/28/02, 1706	4-Nitrophenol	R ² =0.985	68646001
	Indeno(1,2,3-cd)pyrene	R ² =0.989	
	Dibenzo(a,h)anthracene	R ² =0.989	
	Benzo(g,h,i)perylene	R ² =0.988	
MSD5-CCAL-10/17/02, 1149	Bis(2-Chloroethyl)ether	102.0% high	68646001
	Benzyl alcohol	46.4% low	
	o-Cresols	50.6% high	
	Hexachlorocyclopentadiene	31.6% low	
	2,4,5-Trichlorophenol	26.4% high	

TABLE 7

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: SVOCs
 Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Sample ID	Compound	Deviation	Sample ID
MSD5-CCAL-10/17/02, 1149	4-Nitrophenol	27.3% high	68646001

Flags were applied to the compounds in the associated samples in the following manner:

- When the percent Relative Standard Deviation (%RSD) or correlation coefficient (R^2) was out in the initial calibration, all associated samples were qualified. Detected compounds were flagged "J" and non-detected compounds were flagged "UJ", as estimated.
- When the percent difference (%D) was low in the continuing calibration standards, detected compounds were flagged "J" and non-detected compounds were flagged "UJ", as estimated.
- When the percent difference (%D) was high in the continuing calibration standards, detected compounds were flagged "J", as estimated. Non-detected compounds were not flagged.
- When the Relative Response Factor (RRF) was low in the continuing calibration, detected compounds were flagged "J", and non-detected compounds were flagged "UJ", as estimated.

Field Duplicate Samples

All Field Duplicate Samples were within acceptable quality control limits, except as noted in Table 8 below. According to EPA *National Functional Guidelines*, no flags are applied due to Field Duplicate precision.

TABLE 8

Field Duplicate RPDs Out of QC Limits: SVOCs
 Charleston Naval Complex, Zone G, SWMU 24, Charleston, SC

Sample ID	Sample	Compound	Concentration 1	Concentration 2	RPD (%)	QC Limit
68646	024SB01303 / 024CB01303	2-Methylnaphthalene	1460 µg/Kg	2260 µg/Kg	43.0*	35

* - out of control limits

Rejected Data

No data were rejected based upon the validation process for this sampling event.

Conclusion

A review of the analytical data submitted regarding the investigation of Zone G, SWMU 24 at the Charleston Naval Complex, Charleston, South Carolina by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered usable as qualified.

The analytical data had minor QC concerns as indicated above, however, it did not affect data usability for those specific results. The validation review demonstrated that the analytical systems were generally in control and the data results can be used in the decision making process.

Attachment 1 - Chapter Qualifiers and Results
Zone G, SWM - Data Validation

Parameter Class	Analytical Method	Parameter	SDG	Sample ID	Lab Sample ID	Matrix	Lab Result	Lab Qual	Final Result	Final Qual	Units	Reasons
SVOA	SW8270C	2,4-DINITROPHENOL	68646	024CB01303	68646004	SO	1860	U	1860	UJ	ug/kg	CC
SVOA	SW8270C	4-NITROPHENOL	68646	024SB01103	68646001	SO	1860	U	1860	UJ	ug/kg	IC
SVOA	SW8270C	BENZO(g,h,i)PERYLENE	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	IC
SVOA	SW8270C	Benzoic acid	68646	024SB01103	68646001	SO	1860	U	1860	UJ	ug/kg	BS
SVOA	SW8270C	Benzoic acid	68646	024SB01203	68646002	SO	1840	U	1840	UJ	ug/kg	IC,CC
SVOA	SW8270C	Benzoic acid	68646	024SB01303	68646003	SO	1890	U	1890	UJ	ug/kg	IC,CC
SVOA	SW8270C	Benzoic acid	68646	024CB01303	68646004	SO	1860	U	1860	UJ	ug/kg	IC,CC
SVOA	SW8270C	Benzoic acid	68646	024SB01403	68646005	SO	1950	U	1950	UJ	ug/kg	IC,CC
SVOA	SW8270C	Benzyl alcohol	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	CC
SVOA	SW8270C	bis(2-CHLOROETHOXY) METHANE	68646	024SB01203	68646002	SO	380	U	380	UJ	ug/kg	CC
SVOA	SW8270C	bis(2-CHLOROETHOXY) METHANE	68646	024SB01303	68646003	SO	391	U	391	UJ	ug/kg	CC
SVOA	SW8270C	bis(2-CHLOROETHOXY) METHANE	68646	024CB01303	68646004	SO	384	U	384	UJ	ug/kg	CC
SVOA	SW8270C	bis(2-CHLOROETHOXY) METHANE	68646	024SB01403	68646005	SO	403	U	403	UJ	ug/kg	CC
SVOA	SW8270C	2-CHLOROETHYL ETHER	68646	024SB01203	68646002	SO	380	U	380	UJ	ug/kg	CC
SVOA	SW8270C	2-CHLOROETHYL ETHER	68646	024SB01303	68646003	SO	391	U	391	UJ	ug/kg	CC
SVOA	SW8270C	2-CHLOROETHYL ETHER	68646	024CB01303	68646004	SO	384	U	384	UJ	ug/kg	CC
SVOA	SW8270C	2-CHLOROETHYL ETHER	68646	024SB01403	68646005	SO	403	U	403	UJ	ug/kg	CC
SVOA	SW8270C	Bis(2-Chloroisopropyl)Ether	68646	024SB01203	68646002	SO	380	U	380	UJ	ug/kg	CC
SVOA	SW8270C	Bis(2-Chloroisopropyl)Ether	68646	024SB01303	68646003	SO	391	U	391	UJ	ug/kg	CC
SVOA	SW8270C	Bis(2-Chloroisopropyl)Ether	68646	024CB01303	68646004	SO	384	U	384	UJ	ug/kg	CC
SVOA	SW8270C	Bis(2-Chloroisopropyl)Ether	68646	024SB01403	68646005	SO	403	U	403	UJ	ug/kg	CC
SVOA	SW8270C	CARBAZOLE	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	BS
SVOA	SW8270C	DIBENZ(a,h)ANTHRACENE	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	IC
SVOA	SW8270C	DIETHYL PHTHALATE	68646	024SB01203	68646002	SO	127	J	380	U	ug/kg	BL
SVOA	SW8270C	DIETHYL PHTHALATE	68646	024SB01403	68646005	SO	95.2	J	403	U	ug/kg	BL
SVOA	SW8270C	HEXACHLOROCYCLOPENTADIENE	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	CC
SVOA	SW8270C	INDENO(1,2,3-c,d)PYRENE	68646	024SB01103	68646001	SO	384	U	384	UJ	ug/kg	IC
VOA	SW8260B	1,1-DICHLOROETHENE	68646	024SB01203	68646002	SO	0.63	J	0.63	J	ug/kg	SS
VOA	SW8260B	1,2,3-Trichlorobenzene	68646	024SB01203	68646002	SO	5.1	U	5.1	UJ	ug/kg	IC
VOA	SW8260B	2-Chloroethyl vinyl ether	68646	024SB01203	68646002	SO	10.3	U	10.3	UJ	ug/kg	CC,BS
VOA	SW8260B	CHLOROMETHANE	68646	024SB01203	68646002	SO	10.3	U	10.3	UJ	ug/kg	CC
VOA	SW8260B	METHYLENE CHLORIDE	68646	024SB01203	68646002	SO	2.1	J	2.1	J	ug/kg	SS

CH2M HILL Chain of Custody/ Laboratory Analysis Form

Laboratory: GEL		Project Name: Charleston Navy Complex		Site Name: Zone G, SWMU 24														Lab Batch/SDG: <u>68643%/68646%</u>		
Project Number: 158814.PM.04		TAT:		QA Level: level 3		Address: GNV: 3011 SW Williston Rd., Gainesville, FL 32605		Address: ATL: 115 Perimeter Center Place NE, Suite 700, Atlanta, GA 30346-1278		Send Report To: see last page of COC		EDD: CNC format								
Sample ID	Station ID	Sample Description	Depth		Date & Time Collected	Matrix	# of containers	1 - 4 ounce jar	3 - 5g Encore + 1 2oz jar	3 - 40mL vial, HCl	2 - 1L amber								Comments	
			Begin	End																
024SB01103	G024SB011	Soil	2.5	3	10/10/2002 / 1025	SO	4	X	X											
024SB01203	G024SB012	Soil	2	2.5	10/10/2002 / 1035	SO	4	X	X											
024SB01303	G024SB013	Soil	2.5	3	10/10/2002 / 1055	SO	4	X	X											
024CB01303	G024SB013	Soil	2.5	3	10/10/2002 / 1055	SO	4	X	X											
024SB01403	G024SB014	Soil	2.5	3	10/10/2002 / 1125	SO	4	X	X											
024EB011M1	G024EB011				10/10/2002 / 1130	SQ	5			X	X									EB
024TB011M1	G024TB011				10/10/2002 / Lab provided	SQ	3			X										TB

Sampled By: D. Gates Date/Time: 10/10/02 / MS notes Relinquished by: [Signature] Date/Time: 10/10/02 / 1530
 Additional Samplers: A. Odomer
 Received By Lab: [Signature] Date/Time: 10-10-02 / 1642 Relinquished by: _____ Date/Time: _____
 Received By: _____ Date/Time: _____ Shipped Via: UPS FedEx Hand Other Tracking#: _____
 Remarks: Fax results to David Lane 352-271-4846 and Herb Kelly. Temperature: _____

Receipt Exceptions: _____

Table E-1
 SSL Calculation
 Charleston Naval Complex
 Zone G - SWMU 24

		Parameter	Methylene chloride
Chemical Specific Input Parameters			
Cw	= Target groundwater concentration MCL (mg/L)		5.00E-03
H	= Henry's Law Constant, dimensionless		8.98E-02
Kd	= Soil-water sorption coefficient (cm ³ water / g soil = L/kg) = Koc x foc where koc = organic carbon-water sorption coefficient, (cm ³ (ml) water) / (g soluble organic carbon) foc = Fraction of organic content, dimensionless	0.013	1.30E-01 1.00E+01
Site Specific Input Parameters			
Sw	= Width of Source Parallel to Groundwater Flow Direction (impacted soil zone)	129.5 m	425 ft
da	= Aquifer Thickness	8.5 m	28 ft
d	= Groundwater Mixing Zone thickness	8.53 m	28.0 ft
	(paved)		
	(unpaved)	8.53 m	28.0 ft
i	= Groundwater Gradient		1.5E-02 (unitless)
Ks	= Saturated Hydraulic Conductivity	445.0 m/yr	1460.0 ft/yr
θw	= Volumetric Water Content of Soil Pore Space	0.3 cm ³ _{vapor} /cm ³ _{soil}	0.3 in ³ _{vapor} /in ³ _{soil}
θv	= Volumetric Vapor Content of Soil Pore Space	0.15 cm ³ _{vapor} /cm ³ _{soil}	0.15 in ³ _{vapor} /in ³ _{soil}
ρs	= Soil Bulk Density	1.5 g/cm ³	93.64 lb _m /ft ³
qi	= Water Infiltration Rate	0.0086 m/yr	0.0283 ft/yr
	(paved)		
	(unpaved)	0.1372 m/yr	0.4500 ft/yr
Partition Term, Cw/Csoil, (L/kg)			3.39E-01
Dilution Term, dimensionless	(paved)		5.19E+01
	(unpaved)		4.21E+00
Csoil/Cw = Partition term * Dilution term (mg/kg / mg/L) = L/kg	(paved)		1.76E+01
	(unpaved)		1.43E+00
Calculated Site Specific Target Level for Soil			
Csoil	calculated source soil concentration (SSL, mg/kg) Cw*(partition term)*(dilution term)	(paved)	0.088
		(unpaved)	0.0071

$$\frac{C_{soil}}{C_w} = \left(\frac{\theta_w + K_d \rho_s + H \theta_v}{\rho_s} \right) \left(\frac{K_s i d + q_i S_w}{q_i S_w} \right)$$

Cwt is the MCL from EPA National Drinking Water Standards (March 2001).
 H from Table 36 of the Soil Screening Guidance, Technical Background Document (EPA, 1996)
 Kd = koc x foc
 koc from Table 39 of the Soil Screening Guidance, Technical Background Document (EPA, 1996) or from the Superfund Chemical Data Matrix (Aroclor-1260).
 foc calculated as the mean foc from TOC measurements from Zone G.
 Sw is estimated as the longest distance along groundwater flow path at SWMU 24 (680 ft)
 d is calculated as $d = (0.0112 L^2)^{0.5} + da(1 - e^{-L q_i / K_s da})$ or da, whichever is less.
 da is based on the groundwater elevation in the GIS (8 ft msl) - the top of Ashley elevation (-20 ft. GIS).
 i Calculated from data in the GIS (mean = 0.015 ft/ft, CH2MHill, 2002)
 Ks Based on CH2MHill's hydraulic conductivity theme in the GIS (4 ft/d)
 θw is the default value presented in the Soil Screening Guidance: User's Guide (EPA, 1996)
 θv is calculated as total porosity (0.45, assumed) - θw (0.3) = 0.15.
 ρs is the default value presented in the Soil Screening Guidance: User's Guide (EPA, 1996)
 qi is a derived value (5.4 in/yr) based on annual precipitation, evapo-transportation, and runoff coefficient values for the Charleston area.

SWMU 24 Comments

This document presents CH2M-Jones' response to specific comments related to SWMU 24 made by the South Carolina Department of Health and Environmental Control (SCDHEC) on the basis of its review of the *Zone G RCRA Facility Investigation (RFI) Report, Revision 0* (EnSafe, 1998).

Comments Made by Stacey French

Comment:

1. Section 10.15 SWMU 24 Waste Oil Reclamation Facility, Page 10.15.1

This section states that SWMU 24 was originally investigated under the petroleum program, however, there is no discussion of the results of that investigation. Please revise this section to include a discussion of the findings of previous investigations. In addition to revising this section, please include any sample data collected in previous investigations in the RFI Report. This section should include any discussion about investigations of any piping associated with the tanks.

Response:

The results of the petroleum investigation are presented in Tables 10.15.1 through 10.15.8 and discussed in Sections 10.15.2 through 10.15.4 in the *Zone G RFI Report, Revision 0* [EnSafe, Inc. (EnSafe) 1998]. In addition, the results of the original RFI investigation including the petroleum investigation are presented in Section 2.0 of this RFI Report Addendum.

Comment:

2. Figure 10.15-1 Soil and Groundwater Sampling Locations SWMU 24

This figure shows the locations of samples taken during the RFI at SWMU 24. This figure should be modified to include any samples taken in previous investigations handled under the petroleum program. Section 10.15 indicates that this area includes SWMU 3. Please revise the figure to include the location of SWMU 3. This figure should also include the location of any piping associated with the tanks.

Response:

The soil sample locations from the original RFI (i.e., GFDSSH024 through GFDSSH027, GFDSSC069, GFDSSC072 through GFDSSC075, and GFDSSC085 through GFDSSC089) and the soil sample locations from the additional RFI sampling investigation (i.e., G024SB001 through G024SB007, G024SB009, G024SB010, and GFDSSH028 through GFDSSH031) are depicted on Figure 4-1 which is provided in this RFI Report Addendum.

Figure 2-3 in this RFI Report Addendum provides the locations of the five DPT borings (i.e., LF699GP044 through LF699GP046, LF699GP048, and LF037GP052) advanced within SWMU 24 to investigate potential impacts from the sanitary sewer system which is identified as SWMU 37 and the storm sewer system identified as AOC 699. This figure also presents the locations of the four site monitoring wells (i.e., G024GW001 through G240GW004).

SWMU 3 was investigated separately and the RCRA RFI Addendum for this site will be submitted under separate cover. Figure 1-2 provided in this RFI Report Addendum depicts the layout of SWMU 24 including the location of SWMU 3.

Comment:

3. Section 10.15.3 Soil Sampling and Analysis, Page 10.15.5, Lines 15 & 16

This sentence states that ten CPT and four hand auger soil samples were collected during the screening investigation. Figure 10.15.-1 shows the location of 11 CPT and 3 hand auger soil samples. Please revise this section and Figure 10.15-1 to clarify this discrepancy.

The location of the soil samples shown on Figure 10.15-1 indicates that all sides of tank 39-D were sampled during the RFI. If the sample locations provided are correct only two sides of tank 39-A appear to be adequately sampled. The rationale for not sampling every side of tank 39-A is unclear. The Department's position is that this area should have been investigated, and that there was not sufficient delineation at the site. Please revise section 10.11.12 to clearly indicate the rationale.

Response:

Hand auger soil sample FDSSH02401 was inadvertently identified on Figure 10.15-1 [Zone G RFI Report, Revision 0 (EnSafe, 1998)] as a CPT boring. Figure 2-2 provided in this RFI Report Addendum depicts the 10 CPT points as soil borings and the four hand auger soil samples as surface soil samples.

Surface and subsurface soil samples were collected in locations surrounding tank 39-A during the additional RFI sampling investigations completed in July and December 1999 and January 2000. The results of the soil sampling events are discussed in Section 4-1 of this RFI Report Addendum. Soil sample locations are presented on Figure 4-1 of this RFI Report Addendum.

Comment:

4. Table 11.1 Site Conclusions and Zone G Preliminary Recommendations

The Department does not agree with the recommendation presented for this site. See comment number 3. Additional investigation is needed prior to selection of a remedy for this site. This should be discussed in section 11.14.

Response:

Thirteen additional surface and subsurface soil samples were collected at SWMU 24 during the additional RFI sampling investigations completed subsequent to the Zone G RFI Report, Revision 0 (EnSafe, 1998). In addition, additional groundwater samples were collected from the four monitoring wells at SWMU 24 during two additional events conducted in 1999. The results of the additional RFI sampling investigations are provided in Section 4 of this RFI Report Addendum. As a result, of the additional RFI sampling investigations, SWMU 24 is recommended for no further action.

Comments Made by Susan Byrd

Comment:

1. Section 10.15.3. Other Organic Compounds in Soil, Page 10.15.22

The text states that VOC and SVOC analytical results will be used to evaluate TPH since no RBC is available for TPH. Supplemental Guidance to RAGS, Human Health Bulletin No. 2 states that a surrogate compound such as hexane can be used to obtain toxicity values. Therefore, the TPH detected at SWMU 24 should not be eliminated as a COPC, and should be evaluated in the Human Health Risk Assessment.

Response:

TPH was not considered a COPC because its analytical results from the original RFI sampling investigation were used as a screening evaluation for the presence of petroleum hydrocarbons in the sampled media. In addition, there is no specific screening criteria available for TPH. Analytical results were used to evaluate the scope for additional soil sample collection events including analyses which included volatile organic compounds (VOCs) (namely, benzene, ethylbenzene, toluene, and xylenes) and semi-volatile organic compounds (SVOCs) which includes polycyclic aromatic hydrocarbons (PAHs). Because TPH is comprised of numerous organic compounds its toxicity was evaluated by review of the VOC and SVOC analytical results. The results of the additional RFI sampling investigations are provided in Section 4 of this RFI Report Addendum.