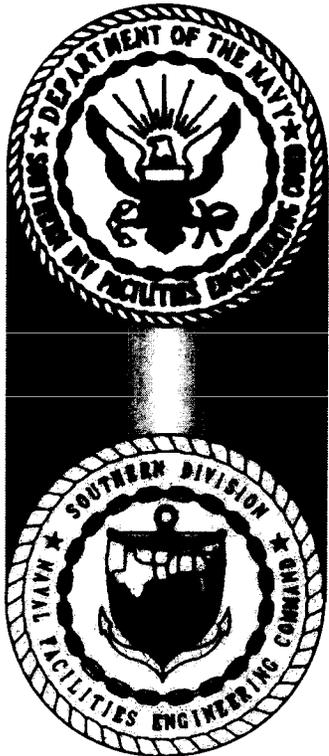


N61165.AR.003350
CNC CHARLESTON
5090.3a

CORRECTIVE MEASURES STUDY/INTERIM MEASURES COMPLETION REPORT SOLID
WASTE MANAGEMENT UNIT 42 (SWMU 42) AREA OF CONCERN 505 (AOC 505) ZONE A
CNC CHARLESTON SC
8/30/2002
CH2M HILL

CMS Work Plan/IM Completion Report

SWMU 42/AOC 505, Zone A



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

SWMU 38 - Zone A
SWMU 41 - A
SWMU 24 - A
AOC 505

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

CH2M Jones

August 2002

Revision No. 1
Contract N62467-99-C-0960



CH2MHILL

CH2M HILL
3011 S.W. Williston Road
Gainesville, FL
32608-3928
Mailing address:
P.O. Box 147009
Gainesville, FL
32614-7009
Tel 352.335.7991
Fax 352.335.2959

August 30, 2002

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

Re: CMS Work Plan/IM Completion Report (Revision 1) – SWMU 42/AOC 505,
Zone A

Dear Mr. Scaturo:

Enclosed please find four copies of the CMS Work Plan/IM Completion Report (Revision 1) for SWMU 42/AOC 505 in Zone A 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.

A complete Revision 1 binder is attached. The items that are included as new material, in accordance with SCDHEC review and comments, are as follows:

- Revised pages vi, vii; 1-4, 2-3, 2-4, and Table 4-2 (4-19)
- New Appendix J: CH2M-Jones Responses to SCDHEC Comments on the *CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A* (Revision 0)
- New Appendix K: Analytical Data Relevant to SWMU 42 from the Groundwater Investigation Conducted at SWMU 39 (Appendix K-1) and Data Validation Reports (Appendix K-2)
- New Appendix L: Copy of the Technical Memorandum: *Supplemental Information to Support the Conclusion that SWMU 42 is not the Source of CVOC Groundwater Contamination at A042GW02D*, and supporting material

The principal author of this document is Paul Favara. Please contact him at 352/335-5877, extension 2396, if you have any questions or comments.

Mr. David Scaturo
Page 2

Sincerely,

CH2M HILL

A handwritten signature in cursive script, appearing to read "Dean Williamson".

Dean Williamson, P.E.

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

CH2M HILL
3011 S.W. Williston Road
Gainesville, FL
32608-3928
Mailing address:
P.O. Box 147009
Gainesville, FL
32614-7009
Tel 352.335.7991
Fax 352.335.2959



December 21, 2001

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

Re: CMS Work Plan/IM Completion Report (Revision 0) – SWMU 42/AOC 505, Zone A

Dear Mr. Scaturo:

Enclosed please find four copies of the CMS Work Plan/IM Completion Report (Revision 0) for SWMU 42/AOC 505 in Zone A 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 Paul Favara. Please contact him at 352/335-5877, extension 2396, if you have any questions or comments.

Sincerely,

CH2M HILL

A handwritten signature in black ink that reads "Dean Williamson".

Dean Williamson, P.E.

cc: ✓ Rob Harrell/Navy, w/att
Gary Foster/CH2M HILL, w/att

CMS WORK PLAN/IM COMPLETION REPORT

SWMU 42/AOC 505, Zone A



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

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

PREPARED BY
CH2M-Jones

August 2002

Revision 1
Contract N62467-99-C-0960
158814.ZA.PR.04

**Certification Page for the CMS Work Plan/Interim Measure
Completion Report (Revision 1) — SWMU 42 and AOC 505,
Zone A**

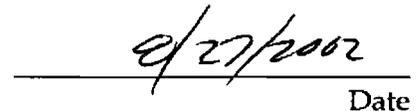
I, Dean Williamson, certify that this report has been prepared under my direct supervision. The data and information are, to the best of my knowledge, accurate and correct, and the report has been prepared in accordance with current standards of practice for engineering.

South Carolina

P.E. No. 21428



Dean Williamson, P.E.



Date

1 Contents

2 Section	Page
3 Acronyms and Abbreviations.....	viii
4 1.0 Introduction	1-1
5 1.1 Background and Summary for CMS Work Plan/IM Completion Report.....	1-1
6 1.2 Purpose of the CMS Work Plan/IM Completion Report.....	1-2
7 1.3 Report Organization	1-3
8 Figure 1-1 Location of Zone A within the CNC	1-5
9 2.0 Summary of RFI Conclusions for SWMU 42/AOC 505.....	2-1
10 2.1 Soil Results	2-1
11 2.1.1 Arsenic.....	2-1
12 2.1.2 BEQs.....	2-2
13 2.1.3 Beryllium	2-2
14 2.1.4 Lead.....	2-2
15 2.2 Groundwater Results.....	2-2
16 2.2.1 Aluminum.....	2-3
17 2.2.2 Arsenic.....	2-3
18 2.2.3 Chromium.....	2-3
19 2.2.4 Manganese	2-3
20 2.2.5 Vanadium.....	2-3
21 2.2.6 Silver	2-3
22 2.2.7 1,1-DCE.....	2-4
23 2.2.8 1,1,2,2-TCA.....	2-4
24 2.2.9 PCE.....	2-4
25 3.0 Summary of Interim Measures at SWMU 42/AOC 505.....	3-1
26 4.0 Summary of Additional Investigations.....	4-1
27 4.1 Surface Soil.....	4-1
28 4.2 Subsurface Soil.....	4-2
29 4.3 Groundwater	4-2
30 4.4 Screening Summary for Post-RFI Data	4-2
31 Table 4-1 Detected Compounds in Surface Soil Samples, Post-RFI	4-3
32 Table 4-2 Summary of Groundwater Analytical Results, Post-RFI.....	4-18
33 Figure 4-1 Post-RFI Sample Locations	4-20
34 Figure 4-2 Monitoring Well Locations.....	4-21

1 Contents, Continued

2	5.0	COPC/COC Refinement.....	5-1
3		5.1 Surface Soil.....	5-1
4		5.1.1 Arsenic and BEQs	5-1
5		5.1.2 Beryllium.....	5-1
6		5.1.3 Calcium.....	5-2
7		5.1.4 Thallium	5-2
8		5.2 Subsurface Soil.....	5-2
9		5.2.1 Arsenic.....	5-2
10		5.2.2 BEQs.....	5-3
11		5.2.3 Beryllium.....	5-4
12		5.3 Groundwater	5-4
13		5.3.1 Aluminum.....	5-4
14		5.3.2 Arsenic.....	5-5
15		5.3.3 Chromium.....	5-5
16		5.3.4 Manganese	5-5
17		5.3.5 Silver	5-6
18		5.3.6 Vanadium.....	5-6
19		5.3.7 TCE.....	5-7
20		5.3.8 1,1,2,2-TCA.....	5-7
21		5.3.9 PCE.....	5-7
22		5.3.10 Acetone.....	5-8
23		5.3.11 cis-1,2-DCE.....	5-8
24		5.3.12 Total DCE.....	5-9
25		5.4 COC Selection.....	5-9
26		Table 5-1 Thallium Detected in Surface Soil	5-10
27		Table 5-2 Arsenic and BEQs Detected in Subsurface Soil.....	5-11
28		Table 5-3 Detected COPCs in Groundwater	5-14
29		Figure 5-1 Subsurface BEQs >Background	5-18
30	6.0	Summary of Information Related to Site Closeout Issues	6-1
31		6.1 Presence of Inorganics in Groundwater	6-1
32		6.2 Potential Linkage to Sanitary Sewers (SWMU 37).....	6-1
33		6.3 Potential Linkage to Storm Sewers (AOC 699).....	6-1
34		6.4 Potential Linkage to Railroad Lines (AOC 504)	6-2

1 Contents, Continued

2	6.5	Potential Migration Pathways to Surface Water Bodies	6-2
3	6.6	Potential Contamination in Oil/Water Separators	6-2
4	6.7	Land Use Control Management Plan.....	6-3
5	7.0	Interim Measure Completion Report	7-1
6	7.1	Pre-Excavation Delineation Sampling	7-1
7	7.2	Waste Characterization Sampling	7-2
8	7.3	Excavation.....	7-2
9	7.4	Residual Arsenic and BEQ Exposure Concentrations (Post-Excavation).....	7-3
10	7.5	Interim Measure Outcome	7-4
11		Table 7-1 TCLP Analytical Results for A042SB068	7-5
12		Figure 7-1 Pre-excavation Sample Locations	7-6
13		Figure 7-2 Pre-excavation Sample Results	7-7
14		Figure 7-3 Revised Excavation Limits.....	7-8
15		Figure 7-4 Arsenic Exposure Concentrations and Excavation Area	7-9
16		Figure 7-5 BEQ Exposure Concentrations and Excavation Area	7-10
17		Figure 7-6 Post-excavation Exposure Concentrations	7-11
18	8.0	Recommendations	8-1
19	9.0	References	9-1
20			
21		Appendices	
22	A	Excerpts from the <i>Zone A RFI Report, Revision 0</i> (EnSafe, 1998a)	
23	B	IM Completion Report for SWMU 42/AOC 505, Zone A (DET, 1997)	
24	C	Analytical Data for Subsequent Sampling Events	
25	D	Data Validation Reports for Subsequent Sampling Events	
26	E	IM Delineation Sampling Results and Waste Characterization (TCLP) Data	
27	F	Data Validation Reports for IM Delineation Sampling Events	
28	G	Backfill Analytical Results	
29	H	Waste Manifest and Load Tickets	
30	I	CH2M-Jones Responses to SCDHEC Comments on the IM Work Plan for SWMU	
31		42/AOC 505, Revision 0 (CH2M-Jones, 2001b)	
32	J	CH2M-Jones Responses to SCDHEC Comments on the <i>CMS Work Plan/IM</i>	
33		<i>Completion Report for SWMU 42/AOC 505, Revision 0</i> (CH2M-Jones, December 2001)	

1 Contents, Continued

- 2 K Analytical Data Relevant to SWMU 42 from the Groundwater Investigation
- 3 Conducted at SWMU 39 (Appendix K-1); Data Validation Reports (Appendix K-2)
- 4 L Copy of the *Technical Memorandum: Supplemental Information to Support the Conclusion*
- 5 *that SWMU 42 is not the Source of CVOC Groundwater Contamination at A042GW02D;*
- 6 *and supporting material*

1 Acronyms and Abbreviations

2	1,1-DCE	1,1-Dichloroethene
3	cis/trans 1,2-DCE	cis/trans 1,2-Dichloroethene
4	1,1,2,2-TCA	1,1,2,2-Tetrachloroethane
5	AOC	Area of concern
6	AST	Aboveground storage tank
7	BCT	BRAC Cleanup Team
8	BEQ	Benzo[a]pyrene equivalent
9	BRAC	Base Realignment and Closure Act
10	BRC	Background reference concentration
11	CA	Corrective action
12	CFR	<i>Code of Federal Regulations</i>
13	CMS	Corrective Measures Study
14	CNC	Charleston Naval Complex
15	COC	Chemical of concern
16	COPC	Chemical of potential concern
17	DAF	Dilution attenuation factor
18	DET	Environmental Detachment Charleston
19	DPT	Direct-push technology
20	EnSafe	EnSafe Inc.
21	EPA	U.S. Environmental Protection Agency
22	ft bls	Feet below land surface
23	HI	Hazard index
24	ILCR	Incremental Lifetime Cancer Risk
25	IM	Interim measure
26	IM CR	Interim Measure Completion Report
27	MCL	Maximum contaminant level
28	MCS	Media cleanup standard
29	$\mu\text{g/L}$	Microgram per liter
30	$\mu\text{g/kg}$	Microgram per kilogram

1 **Acronyms and Abbreviations, Continued**

2	mg/kg	Milligram per kilogram
3	NAVBASE	Naval Base
4	NFA	No further action
5	OWS	Oil/water separator
6	PCB	Polychlorinated biphenyl
7	PCE	Tetrachloroethene
8	RBC	Risk-based concentration
9	RCRA	Resource Conservation and Recovery Act
10	RFA	RCRA Facility Assessment
11	RFI	RCRA Facility Investigation
12	SCDHEC	South Carolina Department of Health and Environmental Control
13	SSL	Soil screening level
14	SVOC	Semivolatile organic compound
15	SWMU	Solid waste management unit
16	TCE	Trichloroethene
17	TCLP	Toxicity characteristic leachate procedure
18	UCL ₉₅	95-percent Upper Confidence Limit
19	UST	Underground storage tank
20	VOC	Volatile organic compound
21	WMI	Waste Management, Inc.
22	WP	Work plan
23	yd ³	Cubic yards

Section 1.0

1.0 Introduction

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

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

1.1 Background and Summary for CMS Work Plan/Interim Measure Completion Report

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

Solid Waste Management Unit (SWMU) 42, a former asphalt plant, is located in the southwest corner of Zone A. The plant operated from 1947 until 1962, and has since been demolished. Because the facility was taken out of service in the early 1960s, minimal information is available regarding the dimensions, design features, operating practices, or waste disposal methods. The site currently contains a concrete rack used to support asphalt-related aboveground storage tanks (ASTs) that were previously located at the site. Currently, there are no tanks located at SWMU 42/ Area of Concern (AOC) 505.

AOC 505, located in the southwest corner of Zone A, overlaps a portion of SWMU 42. The area was used to store creosote cross-tie/railroad ballasts during the 1960s and 1970s. AOC 505 includes Building 1803, a former golf maintenance shop, in which pesticides used at the golf course were handled. Since operations at this unit were discontinued in the 1970s, minimal information was found concerning the unit's design features, dates of operation, or operating practices.

The surrounding unpaved area of SWMU 42/AOC 505 contains rock and asphalt debris.

1 The RFIs for SWMU 42 and AOC 505 were conducted concurrently. The location of SWMU
2 42/AOC 505 is presented in Figure 1-1. The *Zone A RFI Report, Revision 0* (EnSafe, 1998a)
3 recommended that chemicals of concern (COCs) in soil and groundwater at the site be
4 further evaluated in a Corrective Measures Study (CMS).

5 Following the completion of the RFI report, the Southern Division Naval Facilities
6 Engineering Command (SOUTHDIV) determined that an interim measure (IM) would be
7 performed at both SWMU 42 and AOC 505 to remove and dispose of lead-contaminated soil
8 with concentrations above 400 milligrams per kilogram (mg/kg).

9 A subsequent IM was completed in October 2001 by CH2M-Jones. The purpose of this
10 additional IM was to remove arsenic- and benzo(a)pyrene equivalent (BEQ)-contaminated
11 soils to levels that would allow the site to be classified for unrestricted (residential) land
12 use.

13 **1.2 Purpose of the CMS Work Plan/IM Completion Report**

14 This CMS Work Plan (CMS WP)/IM Completion Report (IM CR) provides information
15 about SWMU 42/AOC 505 that supports a recommendation for No Further Action (NFA).
16 It provides a summary of the sampling and analysis conducted during the original RFI field
17 activities, post-RFI field activities, and summarizes the results of the two IMs that were
18 completed at the site.

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

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

29 Information regarding the above issues is also provided in this CMS WP/IM CR to expedite
30 evaluation of closure of the site.

31 Provided that the information presented in this document, as well as responses to SCDHEC
32 comments regarding the above issues, are adequate to address these site closeout items, it is

1 expected that the BCT will concur that NFA is appropriate for the site. At that time, a
2 Statement of Basis will be prepared for this site that will be made available for public
3 comment in accordance with SCDHEC policy. This will allow for public participation in the
4 final remedy selection.

5 **1.3 Report Organization**

6 This CMS WP/IM CR consists of the following sections, including this introductory section:

7 **1.0 Introduction** — Presents the purpose of this report as well as background information
8 relating to the CMS WP and IM CR.

9 **2.0 Summary of RFI Conclusions for SWMU 42/AOC 505** — Summarizes the results of
10 samples collected at SWMU 42/AOC 505 during the original RFI.

11 **3.0 Summary of Interim Measures at SWMU 42/AOC 505**— Briefly describes the two IMs
12 that were conducted during 1998 and 2001 at SWMU 42/AOC 505.

13 **4.0 Summary of Additional Investigations** — Presents a summary of the data collected
14 after completion of the *Zone A RFI Report, Revision 0*.

15 **5.0 COC/COPC Refinement** — Provides further evaluation of chemicals of potential
16 concern (COPCs) based on current screening criteria for RFI and additional data, to assess
17 them as COCs.

18 **6.0 Summary of Information Related to Site Closeout Issues**— Discusses the various site
19 issues that the BCT agreed to evaluate prior to site closeout.

20 **7.0 Interim Measure Completion Report** — Presents the IM CR for removal of arsenic- and
21 BEQ-contaminated soils; this IM was completed by CH2M-Jones in October 2001.

22 **8.0 Recommendations** — Provides recommendations for proceeding with site closure.

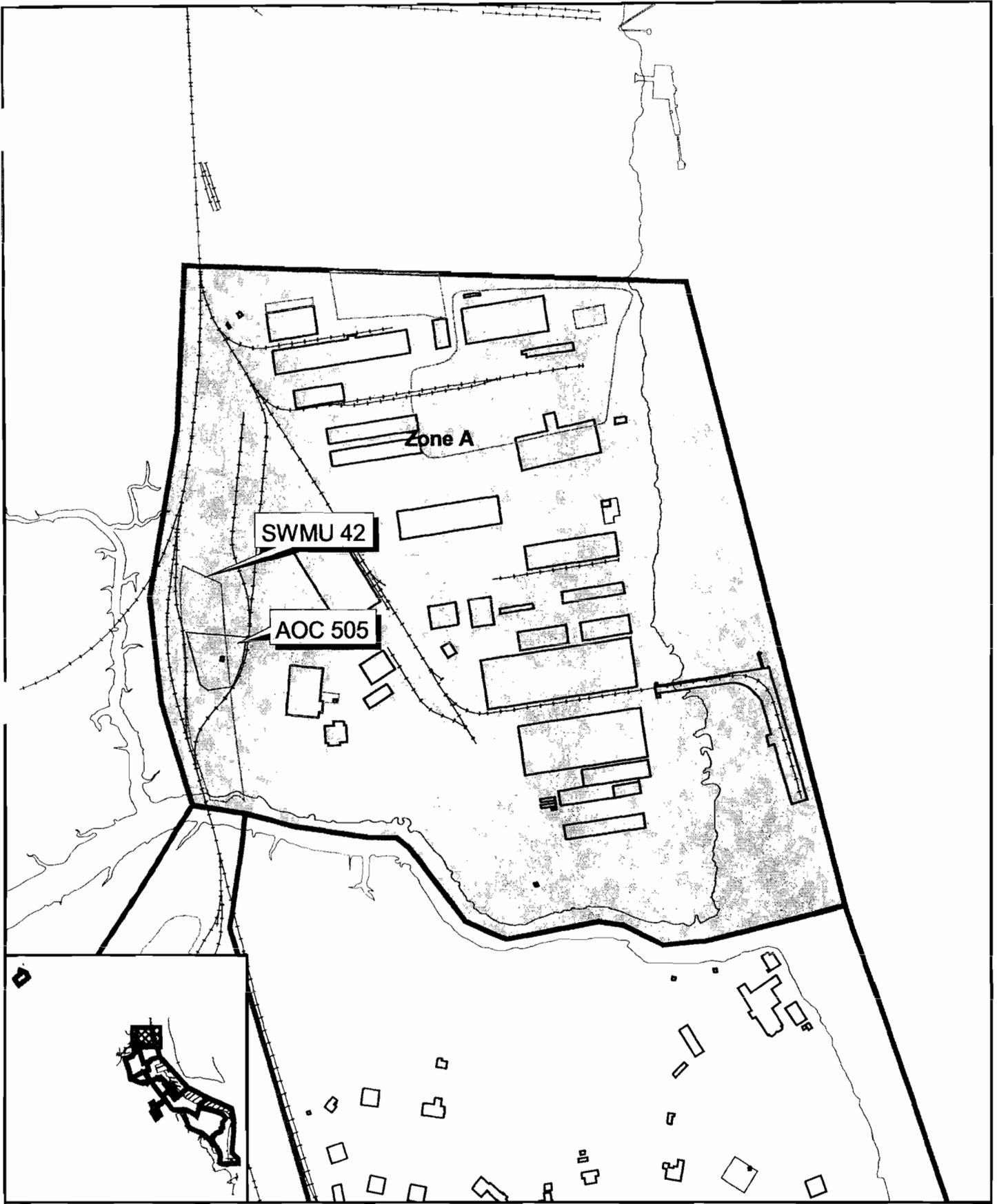
23 **9.0 References** — Lists the references used in this document.

24 **Appendix A** contains excerpts from the *Zone A RFI Report, Revision 0*.

25 **Appendix B** contains the IM Completion Report issued for the IM that was conducted in
26 1997 by the Environmental Detachment Charleston (DET).

27 **Appendix C** contains the analytical data collected from sampling events that were
28 conducted subsequent to the *Zone A RFI Report, Revision 0*.

- 1 **Appendix D** contains the data validation reports for the sampling events conducted
2 subsequent to the *Zone A RFI Report, Revision 0*.
- 3 **Appendix E** contains the IM analytical data from the delineation samples collected at
4 SWMU 42/AOC 505, as well as additional investigation samples collected to the north of
5 the excavation areas.
- 6 **Appendix F** contains the validation reports for the IM analytical data.
- 7 **Appendix G** contains analytical results for the backfill used to fill excavations at the site.
- 8 **Appendix H** contains the waste manifest from Waste Management, Inc. (WMI) for soil
9 disposal.
- 10 **Appendix I** contains responses to SCDHEC's comments on the IM WP for SWMU 42/AOC
11 505, Revision 0 (CH2M-Jones 2001b).
- 12 **Appendix J** contains CH2M-Jones' responses to SCDHEC comments on the *CMS Work*
13 *Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Revision 0* (CH2M-Jones, December
14 2001).
- 15 **Appendix K** contains analytical data and the data validation reports (Appendices K-1 and
16 K-2, respectively) that are relevant to SWMU 42, from the SWMU 39 groundwater
17 investigation conducted by CH2M-Jones in March 2002.
- 18 **Appendix L** contains a copy of the *Technical Memorandum: Supplemental Information to*
19 *Support the Conclusion that SWMU 42 is not the Source of CVOC Groundwater Contamination at*
20 *A042GW02D*, and supporting material.
- 21 All tables and figures appear at the end of their respective sections.



-  Railroads
-  Shoreline
-  AOC Boundary
-  SWMU Boundary
-  Buildings
-  Zone Boundary

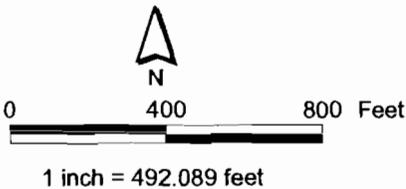


Figure 1-1
Area Map
SWMU 42/AOC 505
Charleston Naval Complex

2.0 Summary of RFI Conclusions for SWMU 42/AOC 505

The status of the *Zone A RFI Report, Revision 0* is final (EnSafe, 1998a). Results of the RFI for SWMU 42/AOC 505 are discussed in Section 10.5 of the *Zone A RFI Report, Revision 0*.

Arsenic, BEQs, and beryllium were identified as COCs in surface soil in the RFI report. These chemicals were identified as COCs because they exceeded at least one RFI screening criterion, including regulatory, risk-based, or background values. Detection of COCs in subsurface soil resulted in the recommendation that they be included in the CMS.

Aluminum, arsenic, chromium, manganese, silver, vanadium, tetrachloroethene (PCE), 1,1,2,2-trichloroethane (1,1,2,2-TCA), 1,1-dichloroethene (1,1-DCE), and manganese were identified as COCs in shallow groundwater. The constituents listed above are discussed in the following subsections.

Excerpts from the approved RFI report are presented in Appendix A.

2.1 Soil Results

Results from the soil sample collections were compared in the *Zone A RFI Report, Revision 0* to the applicable screening criteria (U.S. Environmental Protection Agency [EPA] Region III residential risk-based concentrations [RBCs], EPA Office of Solid Waste and Emergency Response [OSWER] SSLs, or background values). Analytes that exceeded the screening criteria were further evaluated in the risk assessment to determine which of these parameters were considered COCs at SWMU 42/AOC 505.

2.1.1 Arsenic

Arsenic was detected in the majority of soil samples collected at SWMU 42/AOC 505. Twelve surface soil samples presented exceedances of both the RBC for arsenic (0.43 mg/kg) and the Zone A background reference concentration (BRC) (9.4 mg/kg). Four subsurface soil samples exceeded the BRC only, and one subsurface soil sample exceeded the soil screening level (SSL) of 15 mg/kg. Additionally, the exposure point-based risk assessment indicated that arsenic contributed to an overall estimated Incremental Lifetime Cancer Risk (ILCR) above 1E-06. The risk analysis also showed that arsenic was the sole contributor to a hazard index (HI) estimation of greater than 1.0 (HI>1.0).

2.1.2 BEQs

BEQs exceeded the BEQ RBC of 88 micrograms per kilogram ($\mu\text{g}/\text{kg}$) in 22 surface soil samples and five subsurface soil samples. Twenty-nine semivolatile organic compounds (SVOCs) were detected in soil samples collected at SWMU 42/AOC 505. Because all of the RBC exceedances were cPAH compounds, as well as their contribution to the ILCR, BEQs were determined to be COCs in surface soil at SWMU 42/AOC 505.

2.1.3 Beryllium

Beryllium exceeded its RBC of 0.15 mg/kg in 11 surface soil samples collected at SWMU 42/AOC 505. Beryllium was listed as a COC in the *Zone A RFI Report, Revision 0* due to its contribution to the ILCR.

2.1.4 Lead

Lead was detected at two soil sample locations (A505SB005: 491 mg/kg; A042SB009: 1,180 mg/kg) at concentrations above the generally accepted residential soil cleanup level of 400 mg/kg. However, lead was not identified as a COC in the RFI report. As is discussed in Section 3.0 of this CMS WP/IM CR, soils with elevated levels of lead were removed as part of an IM conducted after completion of the *Zone A RFI Report, Revision 0*.

2.2 Groundwater Results

Results from the groundwater analyses were compared in the *Zone A RFI Report, Revision 0* to EPA Region III residential RBCs. Analytes that exceeded the screening criteria were further evaluated in the risk assessment to determine which of these parameters were considered COCs at SWMU 42/AOC 505 (see Appendix A, Section 10.5.6 of the *Zone A RFI Report, Revision 0*). This analysis resulted in the identification of the following groundwater COCs:

- Aluminum
- Arsenic
- Chromium
- Manganese
- Vanadium
- Silver
- 1,1-DCE
- 1,1,2,2-TCA
- PCE

1 Appendix A contains excerpts from the RFI report which show frequency of detection and
2 RFI monitoring well locations.

3 **2.2.1 Aluminum**

4 Aluminum was detected in 12 of 16 groundwater samples collected at SWMU 42/AOC 505.
5 Aluminum exceeded its RBC (3,700 micrograms per liter [$\mu\text{g}/\text{L}$]) in two samples. There is
6 no MCL for aluminum. Aluminum was considered a COC in the RFI report due to its
7 contribution to the cumulative HI.

8 **2.2.2 Arsenic**

9 Arsenic was detected in three of 16 groundwater samples collected at SWMU 42/AOC 505.
10 Arsenic exceeded its Zone A BRC ($7.4 \mu\text{g}/\text{L}$) and RBC ($0.045 \mu\text{g}/\text{L}$) in the third sampling
11 event collected from A505GW001 ($9.0 \mu\text{g}/\text{L}$). The MCL for arsenic is $50 \mu\text{g}/\text{L}$. Arsenic was
12 considered a COC due to its contribution to the ILCR and HI.

13 **2.2.3 Chromium**

14 Chromium was detected in four of 16 groundwater samples collected at SWMU 42/AOC
15 505; two samples exceeded the reference concentration of $8.7 \mu\text{g}/\text{L}$. The MCL for chromium
16 is $100 \mu\text{g}/\text{L}$. Chromium was considered a COC in the RFI report due to its contribution to
17 the cumulative HI.

18 **2.2.4 Manganese**

19 Manganese was detected in all 16 groundwater samples collected at SWMU 42/AOC 505. It
20 exceeded its Zone A BRC ($577 \mu\text{g}/\text{L}$) and RBC ($84 \mu\text{g}/\text{L}$) four times at two locations
21 (A042GW00201: $827 \mu\text{g}/\text{L}$; A042GW00202: $690 \mu\text{g}/\text{L}$; A042GW00203: $656 \mu\text{g}/\text{L}$; and
22 A042GW00302: $692 \mu\text{g}/\text{L}$). There is no MCL for manganese. Manganese was considered a
23 COC in the RFI report due to its contribution to the cumulative HI.

24 **2.2.5 Vanadium**

25 Vanadium was detected in three of 16 groundwater samples collected at SWMU 42/AOC
26 505; two of these samples exceeded the reference concentration of $5.4 \mu\text{g}/\text{L}$. There is no
27 MCL for vanadium. Vanadium was considered a COC in the RFI report due to its
28 contribution to the cumulative HI.

29 **2.2.6 Silver**

30 Silver was detected in one of 16 groundwater samples collected at SWMU 42/AOC 505, and
31 exceeded its RBC of $18 \mu\text{g}/\text{L}$ in one sample (A042GW00304: $111 \mu\text{g}/\text{L}$). No BRC was

1 determined for silver. There is no MCL for silver. Silver was considered a COC due to its
2 contribution to the cumulative HI.

3 **2.2.7 1,1-DCE**

4 1,1-DCE was detected in one of 16 groundwater samples collected at SWMU 42/AOC 505. It
5 exceeded its RBC (0.044 $\mu\text{g/L}$) once in the first sampling event at A505GW001 (01a)(1.0 J
6 $\mu\text{g/L}$). The MCL for 1,1-DCE is 7 $\mu\text{g/L}$. 1,1-DCE was considered a COC in the RFI report
7 due to its contribution to the ILCR.

8 **2.2.8 1,1,2,2-TCA**

9 1,1,2,2-TCA was detected in one of 16 groundwater samples collected at SWMU 42/AOC
10 505. It exceeded its RBC (0.053 $\mu\text{g/L}$) once in the first sampling event at
11 A505GW001(01a)(1.5 J $\mu\text{g/L}$). There is no MCL for 1,1,2,2-TCA. 1,1,2,2-TCA was considered
12 a COC in the RFI report due to its contribution to the ILCR.

13 **2.2.9 PCE**

14 PCE was detected in three of 16 groundwater samples collected at SWMU 42/AOC 505.
15 PCE exceeded its RBC (1.1 $\mu\text{g/L}$) in the first three sampling events at a single location
16 (A042GW001: 5.9, 1.4 J, and 1.5 J $\mu\text{g/L}$). The MCL for PCE is 5 $\mu\text{g/L}$. PCE was considered a
17 COC in the RFI report due to its contribution to the ILCR.

3.0 Summary of Interim Measures at SWMU 42/AOC 505

Following the completion of the *Zone A RFI Report, Revision 0* (EnSafe, 1998a), SOUTHDIV determined that an IM would be performed by the Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), United States Navy, Portsmouth, Virginia, Environmental Detachment Charleston. The objective of the IM was to remove and dispose of lead-impacted soil with concentrations above 400 mg/kg.

The IM removed approximately 5.4 cubic yards (yd³) of lead-impacted soil. The removal areas were located around soil boring locations A505SB005 (in AOC 505) and A042SB009 (in SWMU 42), both of which measured 6 x 6 x 2 ft deep. Following the removal of the lead-impacted soil, confirmatory samples were collected along the sidewalls and the bottom of the excavation area. No samples reported lead concentrations above 400 mg/kg. The final IM Completion Report, which presents excavation areas and sample locations, is presented in Appendix B of this report.

A subsequent IM was completed by CH2M-Jones in October 2001. The purpose of this additional IM was to remove arsenic- and BEQ-impacted soils to levels that would allow the site to be classified for unrestricted (residential) land use. The details associated with the activities performed during this IM are presented in Section 7.0 of this CMS WP/IM CR.

4.0 Summary of Additional Investigations

This section summarizes site activities conducted subsequent to the *Zone A RFI Report, Revision 0* (EnSafe, 1998a), and provides an interpretation of the analytical data associated with these activities.

The *Zone A CMS Work Plan* (EnSafe, 1998b) was prepared following the completion of the *Zone A RFI Report, Revision 0*. Data collection components for SWMU 42/AOC 505 included the following:

- Collection of additional surface soil samples for arsenic, beryllium, and SVOC analysis to refine estimates of the extent of arsenic and beryllium in soil, and to assess whether roadway paving and railroad cross-ties are a primary source of surface soil BEQ contamination.
- Sampling of the monitoring wells installed during the RFI for volatile organic compound (VOC) and metals analysis.
- Installation of a deep monitoring well with subsequent analysis of VOCs (resulting from SCDHEC comments on the *Zone A CMS Work Plan*).

SCDHEC comments on the *Interim Measure Work Plan, SWMU 42/AOC 505, Zone A* (CH2M-Jones, 2001b) resulted in the collection of additional soil samples in an area to the north of SWMU 42/AOC 505. Subsequent to the IM WP activities, an IM Soil Sampling Plan Addendum (CH2M-Jones, August 2001) was implemented to address SCDHEC comments regarding potential source areas north of SWMU 42/AOC 505. The sampling plan specified the collection of four surface and subsurface soil samples, analyzing them for VOCs, SVOCs, metals, pesticides, herbicides, polychlorinated biphenyls (PCBs), and cyanide.

4.1 Surface Soil

Table 4-1 summarizes the metals, pesticides, SVOCs, and VOCs detected in surface soil samples. The locations of the additional RFI samples, collected by EnSafe, are presented in Figure 4-1. Samples that exceeded all COPC screening parameters (i.e., background range of concentrations, RBC, and SSL) are in bold text and outlined within the table. The screening criteria used to evaluate analytical results are those currently approved by the CNC BCT (see *Project Team Notebook and Instructions, Revision 1A*, CH2M-Jones, December 2001c).

1 This analysis resulted in the following exceedances of COPC screening criteria:

- 2 • Arsenic, one sample
- 3 • Calcium, two samples
- 4 • Thallium, two samples

5 The details associated with these exceedances (location, date, concentration) are presented
6 in Table 4-1. No criteria were exceeded for SVOAs, pesticides, or VOCs.

7 The analytical reports for the additional RFI sampling results are presented in Appendix C.
8 Data validation reports for these additional samples are presented in Appendix D.

9 **4.2 Subsurface Soil**

10 No subsurface soil samples were collected. Subsurface soils were intended to be collected at
11 stations A042SB050 through A042SB053S; however, the presence of shallow groundwater at
12 these locations prevented the collection of samples.

13 **4.3 Groundwater**

14 The four existing monitoring wells that were installed for the RFI were sampled for VOCs
15 and metals. Additionally, a deep monitoring well was installed next to sample location
16 A042GW002. This well was sampled for the same parameters as the existing shallow wells.
17 The locations of the monitoring wells are presented in Figure 4-2.

18 The data, collected by the Navy/EnSafe team, showed the following exceedances of
19 screening criteria:

- 20 • Acetone, one sample
- 21 • Cis-1,2-dichloroethene (cis-1,2-DCE), one sample

22 The details associated with these exceedances (wells, date, concentration) are presented in
23 Table 4-2.

24 **4.4 Screening Summary for Post-RFI Data**

25 Results of screening the post-RFI data, as presented in the sections above, indicate that
26 arsenic, calcium, and thallium are identified as COPCs in surface soil. Subsurface soils were
27 not sampled. Groundwater COPCs identified in the additional RFI screening include
28 acetone and cis-1,2-DCE.

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Metals									
Aluminum	A042SB050	042SB05001	31-Aug-01	5,350	J	3,640	11,800	7,800	NA
	A042SB051	042SB05101	31-Aug-01	3,440	J				
	A042SB052	042SB05201	31-Aug-01	5,340	J				
	A042SB053	042SB05301	31-Aug-01	4,150	J				
Arsenic	A042SB050	042SB05001	31-Aug-01	6.7	=	1.7	30	0.43	14.5
	A042SB051	042SB05101	31-Aug-01	2.85	=				
	A042SB052	042SB05201	31-Aug-01	7.2	=				
	A042SB053	042SB05301	31-Aug-01	3.07	=				
	A042SB029	042SB02901	13-Oct-98	3.5	=				
	A042SB034	042SB03401	13-Oct-98	4.4	=				
	A042SB035	042SB03501	13-Oct-98	2.8	=				
	A042SB032	042SB03201	13-Oct-98	0.62	J				
	A042SB036	042SB03601	13-Oct-98	1.4	=				
	A042SB026	042SB02601	13-Oct-98	0.9	J				
	A042SB031	042SB03101	13-Oct-98	5.3	=				
	A042SB038	042SB03801	13-Oct-98	2.9	=				
	A042SB039	042SB03901	13-Oct-98	1.8	=				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Arsenic	A042SB030	042SB03001	13-Oct-98	3.8	=	1.7	30	0.43	14.5
	A042SB040	042SB04001	13-Oct-98	4.8	J				
	A042SB033	042SB03301	13-Oct-98	0.65	J				
	A042SB041	042SB04101	14-Oct-98	2.4	=				
	A042SB037	042SB03701	13-Oct-98	3.3	=				
	A042SB046	042SB04601	22-Feb-99	36.9	=				
	A042SB027	042SB02701	13-Oct-98	1.4	=				
	A042SB049	042SB04901	22-Feb-99	4.6	=				
	A042SB048	042SB04801	22-Feb-99	2.1	=				
	A042SB047	042SB04701	22-Feb-99	14.3	=				
	A042SB042	042SB04201	14-Oct-98	8.6	=				
	A042SB045	042SB04501	22-Feb-99	4.5	=				
	A042SB044	042SB04401	22-Feb-99	28	=				
	A042SB028	042SB02801	13-Oct-98	1.1	=				
	A042SB043	042SB04301	14-Oct-98	3	=				
Barium	A042SB050	042SB05001	31-Aug-01	36	J	6.5	47	550	800
	A042SB051	042SB05101	31-Aug-01	16.7	J				
	A042SB052	042SB05201	31-Aug-01	32.2	J				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (Hi=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Barium	A042SB053	042SB05301	31-Aug-01	17.7	J	6.5	47	550	800
Beryllium	A042SB050	042SB05001	31-Aug-01	0.326	J	0.32	0.32	16	31.5
	A042SB051	042SB05101	31-Aug-01	0.182	J				
	A042SB052	042SB05201	31-Aug-01	0.159	J				
	A042SB053	042SB05301	31-Aug-01	0.164	J				
	A042SB030	042SB03001	13-Oct-98	0.12	J				
	A042SB029	042SB02901	13-Oct-98	0.17	J				
	A042SB027	042SB02701	13-Oct-98	0.11	J				
	A042SB028	042SB02801	13-Oct-98	0.08	J				
	A042SB032	042SB03201	13-Oct-98	0.14	J				
	A042SB026	042SB02601	13-Oct-98	0.1	J				
	A042SB031	042SB03101	13-Oct-98	0.25	J				
	A042SB033	042SB03301	13-Oct-98	0.14	J				
	A042SB034	042SB03401	13-Oct-98	0.24	J				
	A042SB035	042SB03501	13-Oct-98	0.22	J				
	A042SB037	042SB03701	13-Oct-98	0.12	J				
	A042SB038	042SB03801	13-Oct-98	0.27	J				
	A042SB039	042SB03901	13-Oct-98	0.25	J				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Beryllium	A042SB040	042SB04001	13-Oct-98	0.57	=	0.32	0.32	16	31.5
	A042SB041	042SB04101	14-Oct-98	0.16	J				
	A042SB042	042SB04201	14-Oct-98	0.2	J				
	A042SB043	042SB04301	14-Oct-98	0.17	J				
	A042SB036	042SB03601	13-Oct-98	0.21	J				
Cadmium	A042SB050	042SB05001	31-Aug-01	0.257	J	2.8	2.8	7.8	4
	A042SB051	042SB05101	31-Aug-01	0.88	J				
	A042SB052	042SB05201	31-Aug-01	0.068	J				
	A042SB053	042SB05301	31-Aug-01	0.409	J				
Calcium	A042SB050	042SB05001	31-Aug-01	27,200	=	797	78,900	NA	NA
	A042SB051	042SB05101	31-Aug-01	176,000	=				
	A042SB052	042SB05201	31-Aug-01	10,900	=				
	A042SB053	042SB05301	31-Aug-01	144,000	=				
Chromium, Total	A042SB050	042SB05001	31-Aug-01	11.1	=	5.7	34	23 ^d	19 ^d
	A042SB051	042SB05101	31-Aug-01	14.7	=				
	A042SB052	042SB05201	31-Aug-01	6.73	=				
	A042SB053	042SB05301	31-Aug-01	11.8	=				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Cobalt	A042SB050	042SB05001	31-Aug-01	2.31	J	1.6	4.4	470	NA
	A042SB051	042SB05101	31-Aug-01	2.16	J				
	A042SB052	042SB05201	31-Aug-01	0.922	J				
	A042SB053	042SB05301	31-Aug-01	2.07	J				
Copper	A042SB050	042SB05001	31-Aug-01	29.5	=	2.2	71	310	NA
	A042SB051	042SB05101	31-Aug-01	40.8	=				
	A042SB052	042SB05201	31-Aug-01	13.2	=				
	A042SB053	042SB05301	31-Aug-01	29.6	=				
Iron	A042SB050	042SB05001	31-Aug-01	6,570	=	1,530	15,700	NA	NA
	A042SB051	042SB05101	31-Aug-01	4,380	=				
	A042SB052	042SB05201	31-Aug-01	3,750	=				
	A042SB053	042SB05301	31-Aug-01	4,500	=				
Lead	A042SB050	042SB05001	31-Aug-01	39	=	4.1	93	400	400
	A042SB051	042SB05101	31-Aug-01	54.7	=				
	A042SB052	042SB05201	31-Aug-01	58.3	=				
	A042SB053	042SB05301	31-Aug-01	39.2	=				
	A042SBC04	042SBC0401	16-Mar-99	163	=				
	A042SBC01	042SBC0101	16-Mar-99	61.5	=				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Lead	A042SBC02	042SBC0201	16-Mar-99	48.7	=	4.1	93	400	400
	A042SBC03	042SBC0301	16-Mar-99	323	=				
Magnesium	A042SB050	042SB05001	31-Aug-01	567	J	231	3,150	NA	NA
	A042SB051	042SB05101	31-Aug-01	2,040	=				
	A042SB052	042SB05201	31-Aug-01	447	J				
	A042SB053	042SB05301	31-Aug-01	1,700	=				
Manganese	A042SB050	042SB05001	31-Aug-01	66.4	J	8.7	66	160	NA
	A042SB051	042SB05101	31-Aug-01	144	J				
	A042SB052	042SB05201	31-Aug-01	48.5	J				
	A042SB053	042SB05301	31-Aug-01	148	J				
Mercury	A042SB050	042SB05001	31-Aug-01	0.04	=	0.12	0.3	2.3	1
	A042SB051	042SB05101	31-Aug-01	0.02	=				
	A042SB052	042SB05201	31-Aug-01	0.217	=				
	A042SB053	042SB05301	31-Aug-01	0.015	=				
Nickel	A042SB050	042SB05001	31-Aug-01	8.91	=	3.2	15	160	65
	A042SB051	042SB05101	31-Aug-01	11.2	=				
	A042SB052	042SB05201	31-Aug-01	3.44	J				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Nickel	A042SB053	042SB05301	31-Aug-01	8.24	=	3.2	15	160	65
Potassium	A042SB050	042SB05001	31-Aug-01	336	J	128	675	NA	NA
	A042SB051	042SB05101	31-Aug-01	460	J				
	A042SB052	042SB05201	31-Aug-01	272	J				
	A042SB053	042SB05301	31-Aug-01	411	J				
Selenium	A042SB052	042SB05201	31-Aug-01	0.466	J	0.7	0.88	39	2.5
Sodium	A042SB052	042SB05201	31-Aug-01	26	J	195	653	NA	NA
Thallium	A042SB051	042SB05101	31-Aug-01	2.47	=	ND	ND	0.55	0.35
	A042SB053	042SB05301	31-Aug-01	1.95	J				
Vanadium	A042SB050	042SB05001	31-Aug-01	16.3	=	4.9	28	55	3,000
	A042SB051	042SB05101	31-Aug-01	10.8	=				
	A042SB052	042SB05201	31-Aug-01	8.72	J				
	A042SB053	042SB05301	31-Aug-01	9.62	J				
Zinc	A042SB050	042SB05001	31-Aug-01	49.3	J	4.5	168	2,300	6,000
	A042SB051	042SB05101	31-Aug-01	84.5	J				
	A042SB052	042SB05201	31-Aug-01	66.6	J				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Zinc	A042SB053	042SB05301	31-Aug-01	77.8	J	4.5	168	2,300	6,000
Inorganics									
Cyanide	A042SB053	042SB05301	31-Aug-01	0.0695	U	NA	NA	160	75
	A042SB050	042SB05001	31-Aug-01	0.287	U				
	A042SB051	042SB05101	31-Aug-01	0.15	U				
	A042SB052	042SB05201	31-Aug-01	0.121	U				
Pesticides									
Alpha-chlordane	A042SB050	042SB05001	31-Aug-01	0.006	J	NA	NA	1.8	5
	A042SB051	042SB05101	31-Aug-01	0.0014	J				
	A042SB052	042SB05201	31-Aug-01	0.0384	=				
Chlordane	A042SB052	042SB05201LR	31-Aug-01	0.268	=	NA	NA	1.8	5
Gamma-chlordane	A042SB050	042SB05001	31-Aug-01	0.0098	J	NA	NA	1.8	5
	A042SB051	042SB05101	31-Aug-01	0.0027	J				
	A042SB052	042SB05201	31-Aug-01	0.0491	=				
p,p'-DDD	A042SB050	042SB05001	31-Aug-01	0.007	J	NA	NA	2.7	8
	A042SB051	042SB05101	31-Aug-01	0.0018	J				
	A042SB052	042SB05201	31-Aug-01	0.0036	J				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
p,p'-DDE	A042SB050	042SB05001	31-Aug-01	0.0224	J	NA	NA	1.9	27
	A042SB051	042SB05101	31-Aug-01	0.0065	J				
	A042SB052	042SB05201	31-Aug-01	0.0238	J				
	A042SB053	042SB05301	31-Aug-01	0.0024	J				
p,p'-DDT	A042SB050	042SB05001	31-Aug-01	0.0257	J	NA	NA	1.9	16
	A042SB052	042SB05201	31-Aug-01	0.0165	J				
SVOCs									
2-Methylnaphthalene	A042SB050	042SB05001	31-Aug-01	0.269	J	NA	NA	160	NA
	A042SB051	042SB05101	31-Aug-01	0.0135	J				
	A042SB052	042SB05201	31-Aug-01	0.0096	J				
Acenaphthylene	A042SB051	042SB05101	31-Aug-01	0.0087	J	NA	NA	470	285
Anthracene	A042SB051	042SB05101	31-Aug-01	0.0125	J	NA	NA	2.3	6,000
Benzo(a)Anthracene	A042SB033	042SB03301	13-Oct-98	0.081	J	0.25	0.66	NA	NA
	A042SB040	042SB04001	13-Oct-98	0.15	J				
	A042SB042	042SB04201	14-Oct-98	0.24	J				
Benzo(k)Fluoranthrene	A042SB042	042SB04201	14-Oct-98	0.18	J	0.39	1.10	NA	NA

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Benzo(a)Pyrene	A042SB033	042SB03301	13-Oct-98	0.069	J				
	A042SB040	042SB04001	13-Oct-98	0.11	J				
	A042SB051	042SB05101	31-Aug-01	0.102	J	0.34	0.83	0.087 ^c	4
	A042SB052	042SB05201	31-Aug-01	0.113	J				
	A042SB053	042SB05301	31-Aug-01	0.0804	J				
	A042SB042	042SB04201	14-Oct-98	0.25	J				
	A042SB040	042SB04001	13-Oct-98	0.12	J				
Benzo(b)Fluoranthene	A042SB033	042SB03301	13-Oct-98	0.07	J				
	A042SB050	042SB05001	31-Aug-01	0.164	J	0.39	1.18	0.87 ^c	2.5
	A042SB051	042SB05101	31-Aug-01	0.198	J				
	A042SB052	042SB05201	31-Aug-01	0.211	J				
	A042SB053	042SB05301	31-Aug-01	0.141	J				
	A042SB042	042SB04201	14-Oct-98	0.29	J				
	A042SB033	042SB03301	13-Oct-98	0.29	J				
Benzo(g,h,i)Perylene	A042SB040	042SB04001	13-Oct-98	0.13	J				
	A042SB051	042SB05101	31-Aug-01	0.0645	J	NA	NA	NA	NA

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
	A042SB042	042SB04201	14-Oct-98	0.18	J				
	A042SB040	042SB04001	13-Oct-98	0.051	J				
Benzyl Butyl Phthalate	A042SB051	042SB05101	31-Aug-01	2.57	=	NA	NA	1,600	465
bis(2-Ethylhexyl) Phthalate	A042SB051	042SB05101	31-Aug-01	0.341	J	NA	NA	46 ^c	1,800
	A042SB041	042SB04101	14-Oct-98	0.24	J				
	A042SB037	042SB03701	13-Oct-98	0.067	J				
	A042SB034	042SB03401	13-Oct-98	0.11	J				
Carbazole	A042SB051	042SB05101	31-Aug-01	0.0073	J	NA	NA	32 ^c	0.3
Chrysene	A042SB050	042SB05001	31-Aug-01	0.111	J	0.19	0.98	87 ^c	80
	A042SB051	042SB05101	31-Aug-01	0.0859	J				
	A042SB052	042SB05201	31-Aug-01	0.124	J				
	A042SB053	042SB05301	31-Aug-01	0.0583	J				
	A042SB040	042SB04001	13-Oct-98	0.15	J				
	A042SB042	042SB04201	14-Oct-98	0.29	J				
	A042SB033	042SB03301	13-Oct-98	0.12	J				
Dibenzofuran	A042SB050	042SB05001	31-Aug-01	0.0384	J	NA	NA	31	NA

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
	A042SB051	042SB05101	31-Aug-01	0.0046	J				
Dibenzo(a,h) Anthracene	A042SB040	042SB04001	13-Oct-98	0.041	J	0.23	0.23	NA	NA
Flouranthrene	A042SB050	042SB05001	31-Aug-01	0.0572	J	NA	NA	310	2,150
	A042SB051	042SB05101	31-Aug-01	0.119	J				
	A042SB052	042SB05201	31-Aug-01	0.0928	J				
	A042SB053	042SB05301	31-Aug-01	0.059	J				
	A042SB033	042SB03301	13-Oct-98	0.2	J				
	A042SB041	042SB04101	14-Oct-98	0.037	J				
	A042SB042	042SB04201	14-Oct-98	0.51	=				
	A042SB040	042SB04001	13-Oct-98	0.33	J				
Phenanthrene	A042SB050	042SB05001	31-Aug-01	0.0928	J	NA	NA	2.3	6,000
	A042SB051	042SB05101	31-Aug-01	0.049	J				
	A042SB040	042SB04001	13-Oct-98	0.13	J				
	A042SB033	042SB03301	13-Oct-98	0.12	J				
	A042SB042	042SB04201	14-Oct-98	0.15	J				
Indeno (1,2,3-c,d) Pyrene	A042SB040	042SB04001	13-Oct-98	0.09	J	0.21	0.67	NA	NA

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
	A042SB042	042SB04201	14-Oct-98	0.17	J				
Pyrene	A042SB050	042SB05001	31-Aug-01	0.0776	J	NA	NA	230	2,100
	A042SB051	042SB05101	31-Aug-01	0.128	J				
	A042SB052	042SB05201	31-Aug-01	0.0949	J				
	A042SB053	042SB05301	31-Aug-01	0.0733	J				
	A042SB042	042SB04201	14-Oct-98	0.58	=				
	A042SB040	042SB04001	13-Oct-98	0.23	J				
	A042SB033	042SB03301	13-Oct-98	0.15	J				
BEQs	A042SB050	042SB05001	31-Aug-01	0.394	=	NA	1.304 ^e	0.87	NA
	A042SB051	042SB05101	31-Aug-01	0.330	=				
	A042SB052	042SB05201	31-Aug-01	0.348	=				
	A042SB053	042SB05301	31-Aug-01	0.295	=				
	A042SB026	042SB02601	13-Oct-98	0.428	=				
	A042SB027	042SB02701	13-Oct-98	0.451	=				
	A042SB028	042SB02801	13-Oct-98	0.462	=				
BEQs	A042SB029	042SB02901	13-Oct-98	0.439	=				
	A042SB030	042SB03001	13-Oct-98	0.439	=	NA	1.304 ^e	0.87	NA
	A042SB031	042SB03101	13-Oct-98	0.428	=				

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
	A042SB032	042SB03201	13-Oct-98	0.439	=				
	A042SB033	042SB03301	13-Oct-98	0.292	=				
	A042SB034	042SB03401	13-Oct-98	0.439	=				
	A042SB035	042SB03501	13-Oct-98	0.439	=				
	A042SB036	042SB03601	13-Oct-98	0.462	=				
	A042SB037	042SB03701	13-Oct-98	0.439	=				
	A042SB038	042SB03801	13-Oct-98	0.428	=				
	A042SB039	042SB03901	13-Oct-98	0.428	=				
	A042SB040	042SB04001	13-Oct-98	0.199	=				
	A042SB041	042SB04101	14-Oct-98	0.428	=				
	A042SB042	042SB04201	14-Oct-98	0.507	=				
	A042SB043	042SB04301	14-Oct-98	0.428	=				
VOCs									
Ethylbenzene	A042SB050	042SB05001	31-Aug-01	0.00078	J	NA	NA	780	0.7
m+p Xylene	A042SB050	042SB05001	31-Aug-01	0.0038	J	NA	NA	16,000	10
	A042SB051	042SB05101	31-Aug-01	0.001	J				
m+p Xylene	A042SB053	042SB05301	31-Aug-01	0.0016	J	NA	NA	16,000	10
o-Xylene	A042SB050	042SB05001	31-Aug-01	0.0018	J	NA	NA	16,000	9

TABLE 4-1
 Detected Compounds in Surface Soil Samples, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Toluene	A042SB051	042SB05101	31-Aug-01	0.00048	J				
	A042SB053	042SB05301	31-Aug-01	0.00071	J				
	A042SB050	042SB05001	31-Aug-01	0.0059	J	NA	NA	1,600	0.6
	A042SB051	042SB05101	31-Aug-01	0.00081	J				
	A042SB052	042SB05201	31-Aug-01	0.00057	J				
	A042SB053	042SB05301	31-Aug-01	0.0024	J				
Xylenes, Total	A042SB050	042SB05001	31-Aug-01	0.0056	J	NA	NA	16,000	10
	A042SB051	042SB05101	31-Aug-01	0.0015	J				
	A042SB053	042SB05301	31-Aug-01	0.0023	J				

^a Hazard Index (HI) reduced by one order of magnitude for non-carcinogenic compounds.

^b Soil Screening Level (SSL) adjusted to a Dilution Attenuation Factor (DAF) of 10 (DAF=1 for VOCs)

^c Carcinogen.

^d indicates that the value is based on Cr⁺⁶.

^e Background concentration from *Background PAHs Study Report - Technical Information for Development of Background BEQ Values* (CH2M-Jones, 2001)

= indicates that the compound was detected, the reported value is equal to the sample concentration.

J indicates that the compound was detected, the reported concentration is estimated.

U indicates that the compound was not detected, the reported concentration is the detection limit.

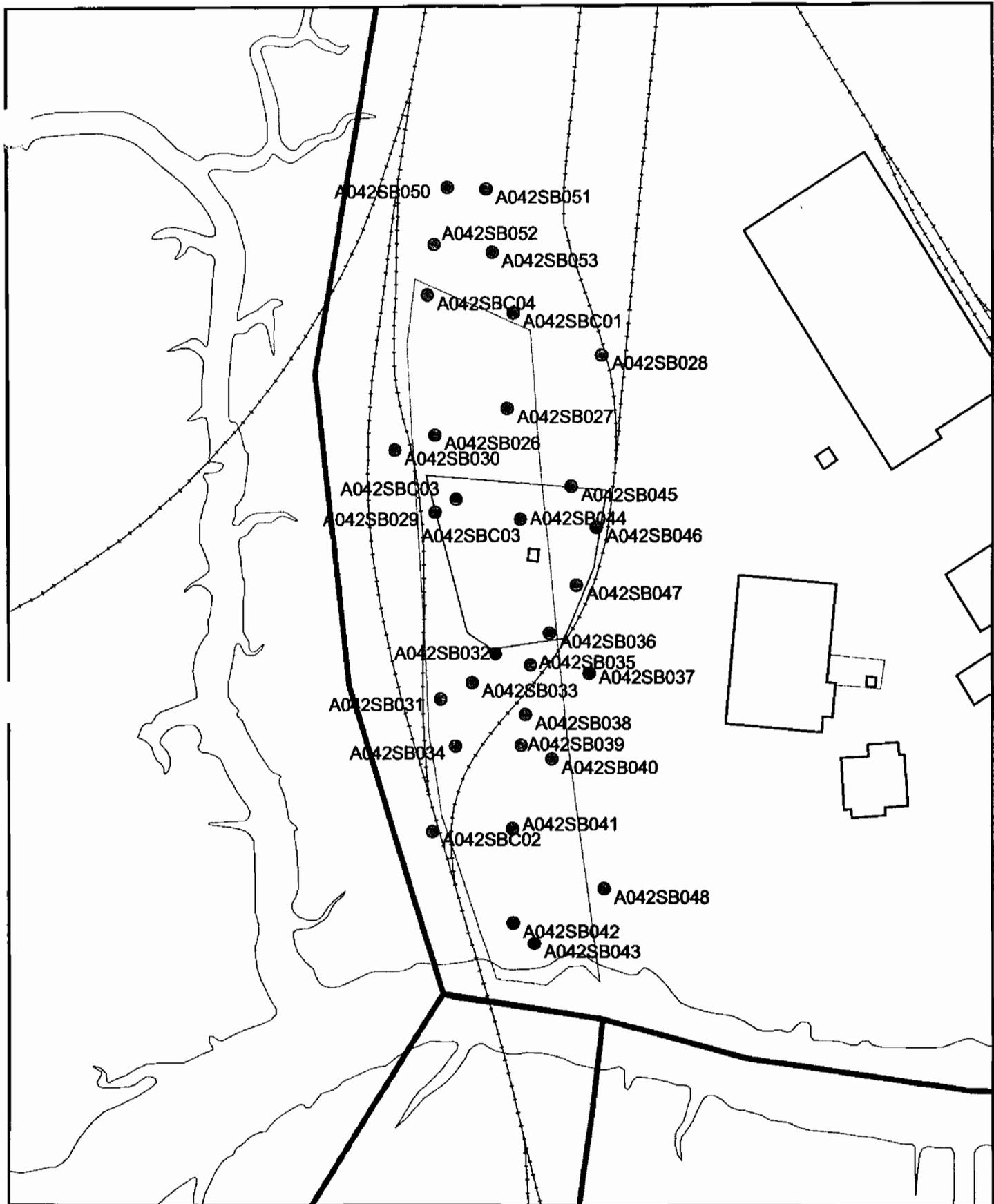
TABLE 4-2
 Summary of Groundwater Analytical Results, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range		MCL (µg/L)	RBC (µg/L)
						Min	Max		
Aluminum	A042GW003	042GW003C1	15-Oct-98	457	=	66	5,220	NA	3,700
	A042GW002	042GW002C1	15-Oct-98	209	=				
Arsenic	A505GW001	505GW001C1a	15-Oct-98	4	J	3	68	50	NA
Barium	A042GW002	042GW002C1	15-Oct-98	22.7	J	21	102	2,000	NA
Cobalt	A042GW002	042GW002C1	15-Oct-98	8.8	J	10	10	NA	220
Chromium	A505GW001	505GW001C1a	15-Oct-98	5.8	J	0.84	128	100	NA
Manganese	A042GW002	042GW002C1	15-Oct-98	402	J	80	577	NA	73
	A505GW001	505GW001C1a	15-Oct-98	319	J				
	A042GW001	042GW001C1	15-Oct-98	318	J				
	A042GW003	042GW003C1	15-Oct-98	20.6	J				
Iron	A505GW001	505GW001C1a	15-Oct-98	23,700	=	7,320	72,100	NA	1,100
	A042GW002	042GW002C1	15-Oct-98	7,260	=				
	A042GW001	042GW001C1	15-Oct-98	796	=				
	A042GW003	042GW003C1	15-Oct-98	373	=				
	A042GW002	042GW00203a	09-Aug-99	35.6	=				
	A042GW02D	042GW02D03	09-Aug-99	0.6	=				

TABLE 4-2
 Summary of Groundwater Analytical Results, Post-RFI Investigation
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range		MCL (µg/L)	RBC (µg/L)
						Min	Max		
Acetone	A505GW001	505GW00102	09-Oct-98	130	=	NA	NA	NA	61
	A505GW001	505GW001M1	04-Apr-02	10	U				
cis-1,2-Dichloroethylene	A042GW02D	042GW02D03	09-Aug-99	88	=	NA	NA	70	NA
trans-1,2-Dichloroethene	A042GW02D	042GW02D03	09-Aug-99	2	J	NA	NA	100	NA
Trichloroethylene (TCE)	A042GW02D	042GW02D03	09-Aug-99	3	J	NA	NA	5	NA

= indicates that the compound was detected, the reported value is equal to the sample concentration.
 J indicates that the compound was detected, the reported concentration is estimated.
 NA not applicable/not available
 U indicates that the compound was not detected, the reported concentration is the detection limit.



- Surface Soil
- ▭ Zone Boundary
- ∨ Railroads
- ∨ Shoreline
- ▭ AOC Boundary
- ▭ SWMU Boundary
- ▭ Buildings

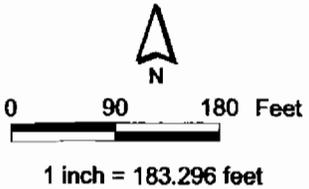
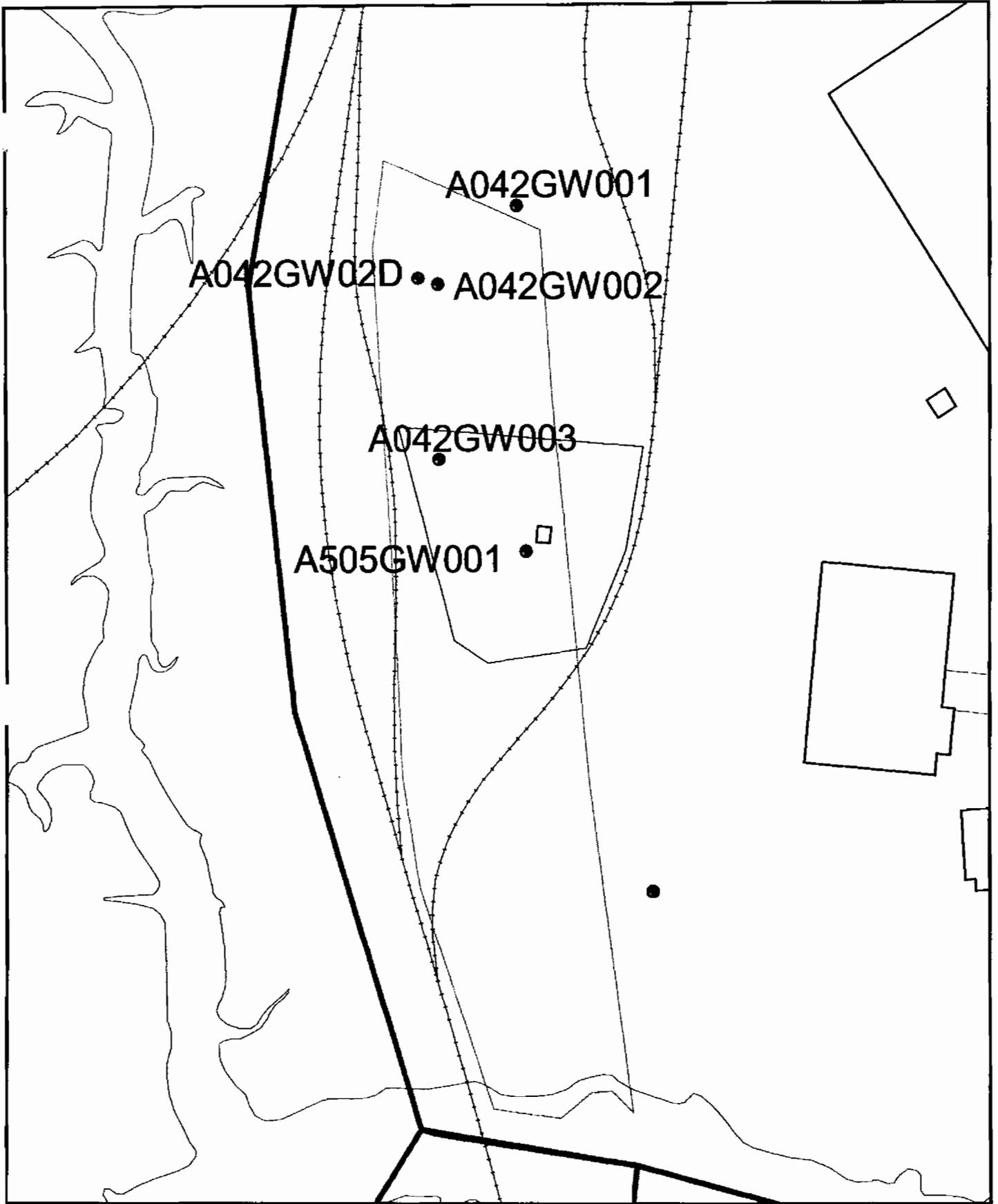


Figure 4-1
 Post RFI Sample Locations
 SWMU 42/AOC 505
 Charleston Naval Complex



- Samples: Groundwater Samples
- Railroads
- Shoreline
- AOC Boundary
- SWMU Boundary
- Buildings

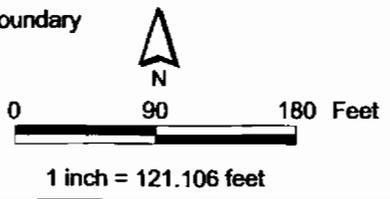


Figure 4-2
 Monitor Well Locations
 SWMU 42/AOC 505
 Charleston Naval Complex

Section 5.0

1 **5.0 COPC/COC Refinement**

2 This section discusses chemicals that were identified in the *Zone A RFI Report, Revision 0*
3 (EnSafe, 1998a) as COCs (see Section 2.0 of this report), and COPCs that were identified in
4 subsequent sampling events (see Section 4.0). Factors that determine whether a COPC
5 meets the criteria for being a COC are discussed for each parameter. Chemicals detected
6 above background levels and screening criteria, such as an RBC (HI=0.1), are discussed in
7 further detail to determine if the site soils and groundwater present unacceptable human
8 health risk under an unrestricted (residential) land use scenario.

9 **5.1 Surface Soil**

10 On the basis of the data collected during and after completion of the *Zone A RFI Report,*
11 *Revision 0*, it was determined that site surface soil concentrations of selected metals and
12 BEQs required further evaluation. The COCs in surface soil that were identified in the RFI
13 report and during additional RFI sampling efforts are:

- 14 • Arsenic
- 15 • BEQs
- 16 • Beryllium
- 17 • Calcium
- 18 • Thallium

19 **5.1.1 Arsenic and BEQs**

20 Arsenic and BEQs were the focus of an IM completed at SWMU 42/AOC 505 in October
21 2001 by CH2M-Jones. The IM (see Section 7.0) was performed because BEQ and arsenic
22 concentrations in soil exceeded levels that would allow the site to be used for residential
23 purposes. As such, the BEQs and arsenic were considered COCs, and therefore do not
24 require further screening or evaluation in this section. The IM resulted in the removal of
25 BEQ- and arsenic- contaminated soils to levels that satisfied media cleanup levels.

26 **5.1.2 Beryllium**

27 Review of site data (54 sample results) and comparison to the most recent RBC value (EPA
28 Region III RBC Table [October 2000]) for beryllium (160 mg/kg) indicate that beryllium
29 does not exceed the current RBC value at any location within SWMU 42/AOC 505. The
30 highest concentration of beryllium reported was 0.57 mg/kg.

1 **5.1.3 Calcium**

2 Calcium will not be considered a COC because there is no SSL or RBC defined for this
3 constituent. Calcium is a naturally occurring earth mineral, and is an essential nutrient.

4 **5.1.4 Thallium**

5 Thallium was screened using the RBC, SSL, and background range of grid sample values
6 from Zone A, as presented in Table 5-1. Two samples were reported at concentrations
7 exceeding the RBC and SSL. Thallium represents the only non-carcinogenic constituent
8 detected at concentrations greater than its RBC (HI=0.1) in the four surface soil samples
9 (A042SB050 through A042SB053, see Figure 4-1). Because thallium is the only constituent
10 that exceeds its non-carcinogenic RBC, it is appropriate to screen it against an RBC based on
11 HI=1.0 (or 5.5 mg/kg). Re-screening against this value results in thallium not exceeding the
12 RBC.

13 The SSL for thallium (1.8 mg/kg) was exceeded in two samples, but only marginally, as
14 presented in Table 5-1. As described in the *EPA Soil Screening Guidance: Technical Background*
15 *Document* (EPA, 1996), the average concentration in a release area must exceed an SSL in
16 order for the migration from soil to groundwater to be of concern at a site. No release to the
17 area of thallium detections above the SSL have been identified. The average concentration
18 of the four samples collected in the vicinity of the thallium levels in excess of SSLs is 1.33
19 mg/kg. This value is less than the SSL of 1.8 mg/kg.

20 Considering the information provided above, thallium does not warrant further
21 consideration as a COC and will not be considered further in this CMS WP.

22 **5.2 Subsurface Soil**

23 The *Zone A RFI Report, Revision 0* did not identify any specific COCs in subsurface soil.
24 Rather, because arsenic, beryllium, and BEQs were COCs in surface soil, and they were
25 detected in the subsurface soil, it was recommended that these constituents be further
26 evaluated in the CMS.

27 **5.2.1 Arsenic**

28 Arsenic results from subsurface soil samples were compared to the SSL and background
29 range of concentrations. The basis for the range of background concentrations was grid
30 sample data from both Zone A and Zone C. Zone C was included in the evaluation because
31 the land use for Zone C is similar to that for Zone A, more background samples were
32 collected at Zone C, and it is in close proximity to SWMU 42/AOC 505.

1 Two samples were reported with concentrations greater than the SSL. Evaluation of the
2 data presented in Table 5-2 shows that the arsenic detected in subsurface soil is within the
3 background range of arsenic concentrations reported in the area. Therefore, further
4 consideration of arsenic as a COC in subsurface soil at SWMU 42/AOC 505 is not
5 warranted.

6 **5.2.2 BEQs**

7 BEQ results from subsurface soil samples were compared to the background range of
8 concentrations. The basis for this range was the site-wide reference concentration which
9 was established for subsurface soils in the *Background PAHs Study Report – Technical*
10 *Information for Development of Background BEQ Values* (CH2M-Jones, 2001a).

11 Evaluation of the data presented in Table 5-2 shows that two samples exceeded the
12 background value of 1.40 mg/kg for subsurface soil. One sample exceedance (A042SB01702:
13 2.297 µg/kg) is located adjacent to a railroad line at the southwestern portion of SWMU 42.
14 The other sample exceedance (A505SB01702: 3.348 µg/kg) is located in the north-central
15 portion of AOC 505. The locations of these samples are presented in Figure 5-1. Both of
16 these exceedances were isolated occurrences; samples in the immediate vicinity show
17 values less than the background range of concentrations for subsurface soil.

18 Two monitoring wells (A042GW003 and A505GW001) are located near the location of the
19 subsurface soil exceedance in AOC 505. Both wells were sampled for SVOCs on one
20 occasion. All results were reported as non-detect, indicating that BEQs in groundwater near
21 the 3.348 µg/kg (A505SB01702) subsurface soil exceedance are not impacted by the BEQs in
22 the subsurface soil.

23 Thus, BEQs in subsurface soil should not be considered COCs for the following reasons:

- 24 • They were infrequently detected in subsurface soil above background level
- 25 • They are in the immediate vicinity of numerous other subsurface data points with
26 reported levels below background level
- 27 • There is no direct exposure pathway to subsurface soil
- 28 • Groundwater in the vicinity of one elevated subsurface soil sample was non-detect for
29 BEQs
- 30 • BEQs are typically very immobile in soil and groundwater and are attenuated readily if
31 they do reach groundwater

1 **5.2.3 Beryllium**

2 Review of site data (28 sample results) and comparison to the most recent EPA RBC value
 3 (EPA Region III RBC Table, [October 2000]) for beryllium (160 mg/kg) indicates that
 4 beryllium does not exceed the current RBC value at any location within SWMU 42/AOC
 5 505. The highest concentration of beryllium reported was 0.34 mg/kg.

6 **5.3 Groundwater**

7 Aluminum, arsenic, chromium, manganese, vanadium, silver, 1,1-DCE, 1,1,2,2-TCA, and
 8 PCE were identified as COCs in the *Zone A RFI Report, Revision 0*. Acetone and cis-1,2-DCE
 9 were reported as exceeding screening criteria in groundwater samples collected after the
 10 original RFI activities were completed, and were classified as COPCs. The full data set was
 11 screened to refine COPCs/COCs and to finalize COCs in groundwater. The results of the
 12 screening are presented in Table 5-3.

13 **5.3.1 Aluminum**

14 Aluminum was reported in excess of the background range (66 to 5,520 µg/L) of
 15 concentrations and RBC (3,700 µg/L) in two samples from the same monitoring well
 16 (A042GW003). Two groundwater samples were subsequently collected from this well, and
 17 were reported at levels below the RBC, as presented below:

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Aluminum	042GW00301	229	=	12/04/1995
	042GW00302	27,200	J	04/24/1996
	042GW00303	6,760	=	06/21/1996
	042GW00304	296	U	10/09/1996
	042GW003C1	457	=	10/15/1998

18

19 Aluminum was only temporarily detected at concentrations above the RBC; subsequent
 20 data show aluminum to be present at levels below the RBC. Therefore, aluminum is not a
 21 COC in groundwater at SWMU 42/AOC 505 and will not be further evaluated in this CMS
 22 WP. There is no maximum contaminant level (MCL) for aluminum.

1 **5.3.2 Arsenic**

2 Review of the results presented in Table 5-3 shows that arsenic was not detected at levels
 3 above its MCL of 50 µg/L. Therefore, arsenic is not considered a COC in groundwater at
 4 SWMU 42/AOC 505 and will not be further evaluated in this CMS WP.

5 **5.3.3 Chromium**

6 Review of the results presented in Table 5-3 shows that chromium was not detected at
 7 levels above its MCL of 100 µg/L. Therefore, chromium is not considered a COC in
 8 groundwater at SWMU 42/AOC 505 and will not be further evaluated in this CMS WP.

9 **5.3.4 Manganese**

10 Manganese exceeded its background range of concentrations in the first three samples
 11 collected at A042GW002. However, the two most recent values were reported at
 12 concentrations below the maximum background value (577 µg/L). Manganese values have
 13 steadily decreased over time at this well location. One possible reason for the initially high
 14 results could be that more suspended solids were present in groundwater samples during
 15 the earlier sampling events. Additional sampling may have helped to develop the well and
 16 reduce the amount of suspended matter that was collected in subsequent sampling events.

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Manganese	042GW00201	827	=	12/05/1995
	042GW00202	690	=	04/24/1996
	042GW00203	656	J	06/21/1996
	042GW00204	533	=	10/09/1996
	042GW002C1	402	J	10/15/1998

17

18 Manganese exceeded the background range of concentrations in the second sampling event
 19 at A042GW003. It was the only detection of manganese above the background range at this
 20 well, and the three subsequent sample results were reported at less than the maximum
 21 background concentration. Manganese concentrations in this well have steadily decreased
 22 after the second sampling event. Additionally, the last two samples were reported at
 23 concentrations less than the RBCs. Manganese is a naturally occurring mineral in
 24 groundwater in many background wells at the CNC. There is no MCL for manganese.

1

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Manganese	042GW00301	365	=	12/04/1995
	042GW00302	692	=	04/24/1996
	042GW00303	549	J	06/21/1996
	042GW00304	18.6	=	10/09/1996
	042GW003C1	20.6	J	10/15/1998

2

3 Given that manganese concentrations are steadily decreasing at wells where an exceedance
 4 of the background range previously occurred, and all concentrations from recent sampling
 5 events are less than the maximum background concentration or RBC, further consideration
 6 of manganese as a COC in groundwater is not warranted.

7 **5.3.5 Silver**

8 Silver was reported at a concentration of 111 µg/L in one monitoring well sample; this
 9 value exceeded its RBC of 18 µg/L; this value represents the only detection of silver in any
 10 of the groundwater samples at SWMU 42/AOC 505, as represented below:

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Silver	042GW00301	3	U	12/04/1995
	042GW00302	7	U	04/24/1996
	042GW00303	6	U	06/21/1996
	042GW00304	111	=	10/09/1996
	042GW003C1	4.5	U	10/15/1998

11

12 The one sample collected subsequent to the 111 µg/L value was reported as non-detect, as
 13 were the three previously reported sample results. There is no MCL for silver. Given that
 14 silver exceeded the RBC only once in five sampling events, and the most recent sampling
 15 event was reported as non-detect, silver is not a considered a COC in groundwater at
 16 SWMU 42/AOC 505, and will not be further evaluated in this CMS WP.

17 **5.3.6 Vanadium**

18 Vanadium was reported in excess of the background range (1 to 14 µg/L) and RBC (26
 19 µg/L) in one sample. Two groundwater samples were subsequently collected from this well
 20 and were reported at levels below the RBC, as presented below:

1

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Vanadium	042GW00301	4	U	12/04/1995
	042GW00302	61	=	04/24/1996
	042GW00303	9	J	06/21/1996
	042GW00304	0.96	U	10/09/1996
	042GW003C1	3.2	U	10/15/1998

2

3 Vanadium was only temporarily detected at concentrations above the RBC; subsequent data
 4 show vanadium to be present at levels below the RBC. There is no MCL for vanadium.
 5 Therefore, vanadium is not considered a COC in groundwater at SWMU 42/AOC 505 and
 6 will not be further evaluated in this CMS WP.

7 5.3.7 TCE

8 TCE was detected in three samples; all were reported at concentrations less than the MCL (5
 9 µg/L). Therefore, TCE is not considered a COC in groundwater at SWMU 42/AOC 505 and
 10 will not be further evaluated in this CMS WP.

11 5.3.8 1,1,2,2-TCA

12 1,1,2,2-TCA was detected in the first groundwater sample collected at A505GW001, at a
 13 concentration of 1.5J µg/L. The four subsequent samples did not detect 1,1,2,2-TCA. The
 14 fact that only one "J" flagged sample was reported suggests 1,1,2,2-TCA is not a threat in
 15 groundwater at SWMU 42/AOC 505. Therefore, 1,1,2,2-TCA is not considered a COC in
 16 groundwater at SWMU 42/AOC 505 and will not be further evaluated in this CMS WP.
 17 There is no MCL for 1,1,2,2-TCA.

18 5.3.9 PCE

19 PCE was reported at a concentration of 5.9 µg/L in the first of six samples collected at
 20 A042GW001. This value exceeded the MCL of 5 µg/L:

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
PCE	042GW00101	5.9	=	12/05/1995
	042GW00111	5	U	04/03/1996
	042GW00102	1.5	J	04/24/1996
PCE	042GW00103	1.4	J	06/21/1996

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
	042GW00104	5	U	10/09/1996
	042GW00102a	5	U	10/08/1998

1

2 The five most recent samples were reported with concentrations below the MCL. Therefore,
 3 PCE is not considered a COC in groundwater at SWMU 42/ AOC 505 and will not be
 4 further evaluated in this CMS WP.

5 5.3.10 Acetone

6 Acetone was detected once in monitoring well 505GW001, during the last sampling event.
 7 Acetone was not detected in any other monitoring well in SWMU 42/ AOC 505 (from a total
 8 of 29 results). The fact that acetone was only detected in one of 30 samples, and at such a
 9 high concentration, suggests that a laboratory contaminant or field contaminant could have
 10 been the cause of the high value.

Parameter	Sample ID	Result (µg/L)	Qualifier	Date Collected
Acetone	505GW00101a	10	U	12/05/1995
	505GW00111	10	U	04/03/1996
	505GW00102b	5	U	04/24/1996
	505GW00103	10	U	06/26/1996
	505GW00104	10	U	10/10/1996
	505GW00102	130	=	10/09/1998

11

12 5.3.11 Cis-1,2-DCE

13 Cis-1,2-DCE was detected at a concentration of 88 µg/L in A042GW02D in August 1999,
 14 exceeding the MCL of 70 µg/L. This was the only sample collected at this well. The fact that
 15 only cis-1,2-DCE (a degradation product of PCE and TCE) was detected at the deep well
 16 and that the concentrations for cis-1,2-dichloroethene in shallower wells were much lower
 17 (one value at 4 J µg/L and 19 values reported as non-detect), supports the position that the
 18 VOCs reported at SWMU 42 are from an upgradient source. Thus, it is recommended that
 19 cis,-1,2-DCE be considered a COC for SWMU 39, but not at SWMU 42/ AOC 505.

20 The elevated level of cis-1,2-DCE will be addressed as part of the SWMU 39 project.

1 **5.3.12 Total Dichloroethene**

2 One sample was reported with a detection of 2.0 J $\mu\text{g}/\text{L}$ of total dichloroethene. This value
3 is less than the RBC of 55 $\mu\text{g}/\text{L}$. Therefore, total dichloroethene is not considered a COC in
4 groundwater at SWMU 42/AOC 505 and will not be further evaluated in this CMS WP.

5 **5.4 COC Selection**

6 Based on the information presented in this section, arsenic and BEQs represent the only
7 COCs in surface soil. No COCs were identified in subsurface soil or groundwater for
8 SWMU 42/AOC 505. However, it is recommended that cis-1,2-DCE be considered a COPC
9 for SWMU 39.

TABLE 5-1
 Thallium Detected in Surface Soil
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Concentration (mg/kg)	Qualifier	Zone A Background Range		RBC (HI=0.1) ^a	SSL (DAF=10) ^b
						Min	Max		
Thallium	A042SB014	042SB01402	29-Mar-96	0.48	J	NA	NA	0.55	1.8
	A042SB011	042SB01101	29-Mar-96	0.42	J				
	A042SB053	042SB05301	31-Aug-01	1.95	J				
	A042SB051	042SB05101	31-Aug-01	2.47	=				

^a Hazard Index (HI) reduced by one order of magnitude for non-carcinogenic compounds.

^b Soil Screening Level (SSL) adjusted to a Dilution Attenuation Factor (DAF) of 10 (DAF=1 for VOCs)

= indicates that the compound was detected, the reported value is equal to the sample concentration.

J indicates that the compound was detected, the reported concentration is estimated.

NA not available/not applicable

TABLE 5-2
Arsenic and BEQs Detected in Subsurface Soil
CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Sample ID	Concentration	Unit	Qualifier	Zone A Background Range ^a		RBC (HI=0.1)	SSL (DAF=10) ^b
					Min	Max		
Arsenic	042SB01702	21.4	mg/kg	=	1.1	34	0.43	14.5
	504SB008A2	16.5	mg/kg	=				
	042SB00102	12.1	mg/kg	=				
	042SB02002	12	mg/kg	=				
	042SB00202	11.3	mg/kg	J				
	042SB00802	9.5	mg/kg	=				
	042SB01102	6.3	mg/kg	=				
	042SB00302	6.2	mg/kg	=				
	505SB00802	6	mg/kg	=				
	042SB00502	5.9	mg/kg	=				
	505SB00702	5.4	mg/kg	=				
	042SB01802	5.3	mg/kg	=				
	504SB002A2	5.1	mg/kg	=				
	042SB00402	5	mg/kg	=				
	042SB01202	4.9	mg/kg	=				
	042SB01502	4.7	mg/kg	=				
	042SB00602	4.3	mg/kg	=				
	042SB02102	4.2	mg/kg	=				
	042SB01402	4.2	mg/kg	=				
	042SB00702	3.8	mg/kg	=				
	037SB001A2	3.7	mg/kg	=				
	042SB00902	3.4	mg/kg	=				
	042SB01902	3.4	mg/kg	=				
	504SB005A2	3.1	mg/kg	=				
	042SB01302	3	mg/kg	=				
	505SB00402	2.7	mg/kg	=				
	505SB01002	2.1	mg/kg	J				
	504SB007A2	1.9	mg/kg	=				

TABLE 5-2
 Arsenic and BEQs Detected in Subsurface Soil
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Sample ID	Concentration	Unit	Qualifier	Zone A Background Range ^a		RBC (HI=0.1)	SSL (DAF=10) ^b
					Min	Max		
Arsenic	042SB01602	1.2	mg/kg	J	1.1	34	0.43	14.5
	505SB00502	0.93	mg/kg	U				
	505SB00102	0.92	mg/kg	U				
	505SB01102	0.92	mg/kg	U				
	505SB00302	0.9	mg/kg	U				
	504SB001A2	0.87	mg/kg	J				
	504SB006A2	0.69	mg/kg	J				
BEQ	505SB01702	3.480	μg/kg	=	1.4 ^c		NA	NA
	042SB01702	2.297	μg/kg	=				
	505SB01002	0.994	μg/kg	U				
	042SB00502	0.971	μg/kg	U				
	505SB00702	0.959	μg/kg	U				
	042SB00602	0.948	μg/kg	U				
	042SB00902	0.948	μg/kg	U				
	042SB01202	0.948	μg/kg	U				
	505SB01302	0.948	μg/kg	U				
	042SB00102	0.936	μg/kg	U				
	042SB00202	0.936	μg/kg	U				
	042SB00702	0.936	μg/kg	U				
	042SB01402	0.936	μg/kg	U				
	042SB00302	0.913	μg/kg	U				
	042SB00802	0.913	μg/kg	U				
	505SB00102	0.913	μg/kg	U				
	505SB00802	0.913	μg/kg	U				
	042SB01102	0.901	μg/kg	U				
	042SB01602	0.901	μg/kg	U				
	042SB01802	0.901	μg/kg	U				
505SB01902	0.901	μg/kg	U					

TABLE 5-2

Arsenic and BEQs Detected in Subsurface Soil

CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Sample ID	Concentration	Unit	Qualifier	Zone A Background Range ^a		RBC (HI=0.1)	SSL (DAF=10) ^b
					Min	Max		
BEQ	505SB00502	0.901	µg/kg	=		1.4 ^c	NA	NA
	042SB00402	0.89	µg/kg	U				
	505SB00302	0.89	µg/kg	U				
	505SB01102	0.890	µg/kg	U				
	042SB01502	0.878	µg/kg	U				
	505SB01802	0.878	µg/kg	U				
	042SB02102	0.867	µg/kg	U				
	042SB01902	0.837	µg/kg	=				
	042SB02002	0.809	µg/kg	U				
	505SB00402	0.731	µg/kg	=				
	505SB01502	0.485	µg/kg	U				
	505SB01602	0.474	µg/kg	U				
	042SB01302	0.472	µg/kg	=				
	504SB005A2	0.462	µg/kg	U				
	504SB006A2	0.462	µg/kg	U				
	505SB01202	0.451	µg/kg	U				
	504SB008A2	0.450	µg/kg	=				
	504SB002A2	0.445	µg/kg	=				
	037SB001A2	0.439	µg/kg	U				
	504SB001A2	0.439	µg/kg	U				
	504SB007A2	0.283	µg/kg	=				

^a Background range for arsenic are the minimum and maximum concentrations detected in Zone A and Zone C B59 subsurface soil grid samples

^b SSLs are from EPA's Soil Screening Guidance: User's Guide, Appendix A (May 1996), DAF = 10.

^c Background value for BEQ is subsurface soil background value, as presented in *Technical Memorandum: PAHs Background Study* (CH2M-Jones, 2001).

= indicates that the compound was detected, the reported value is equal to the sample concentration.

J indicates that the compound was detected, the reported concentration is estimated.

NA not applicable/not available

U indicates that the compound was not detected, the reported concentration is the detection limit.

TABLE 5-3
 Detected COPCs in Groundwater
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range			RBC (HI=0.1) ^a
						Min	Max	MCL	
Aluminum	A042GW001	042GW00101	12/05/1995	649	=	66	5,220	NA	3,700
	A042GW001	042GW00102	04/24/1996	1,230	J				
	A042GW001	042GW00103	06/21/1996	477	=				
	A042GW001	042GW00104	10/09/1996	364	=				
	A042GW002	042GW00201	12/05/1995	2,020	=				
	A042GW002	042GW00203	06/21/1996	77	J				
	A042GW002	042GW002C1	10/15/1998	209	=				
	A042GW003	042GW00301	12/04/1995	229	=				
	A042GW003	042GW00302	04/24/1996	27,200	J				
	A042GW003	042GW00303	06/21/1996	6,760	=				
	A042GW003	042GW003C1	10/15/1998	457	=				
	A505GW001	505GW00101a	12/05/1995	675	=				
	A505GW001	505GW00102b	04/24/1996	1,930	J				
	A505GW001	505GW00103	06/26/1996	272	=				
	Silver	A042GW003	042GW00304	10/09/1996	111	=	1	1	NA
Arsenic	A042GW002	042GW00204	10/09/1996	2.9	J	3	68	50	NA
	A505GW001	505GW00103	06/26/1996	9	J				

TABLE 5-3
 Detected COPCs in Groundwater
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range			RBC (HI=0.1) ^a
						Min	Max	MCL	
Arsenic	A505GW001	505GW00104	10/10/1996	6.4	J	3	68	50	NA
	A505GW001	505GW001C1a	10/15/1998	4	J				
Chromium	A042GW002	042GW00201	12/05/1995	4.9	J	5	10	100	NA
	A505GW001	505GW00102b	04/24/1996	6.4	J				
	A042GW003	042GW00302	04/24/1996	45.9	=				
	A042GW003	042GW00303	06/21/1996	9.7	J				
	A505GW001	505GW001C1a	10/15/1998 0:00	5.8	J				
Manganese	A042GW001	042GW00101	12/05/1995	353	=	80	577	NA	73
	A042GW001	042GW00102	04/24/1996	306	=				
	A042GW001	042GW00103	06/21/1996	313	J				
	A042GW001	042GW00104	10/09/1996	218	=				
	A042GW001	042GW001C1	10/15/1998	318	J				
	A042GW002	042GW00201	12/05/1995	827	=				
	A042GW002	042GW00202	04/24/1996	690	=				
	A042GW002	042GW00203	06/21/1996	656	J				
	A042GW002	042GW00204	10/09/1996	533	=				
	A042GW002	042GW002C1	10/15/1998	402	J				

TABLE 5-3
 Detected COPCs in Groundwater
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range			RBC (HI=0.1) ^a
						Min	Max	MCL	
Manganese	A042GW003	042GW00301	12/04/1995	365	=	80	577	NA	73
	A042GW003	042GW00302	04/24/1996	692	=				
	A042GW003	042GW00303	06/21/1996	549	J				
	A042GW003	042GW00304	10/09/1996	18.6	=				
	A042GW003	042GW003C1	10/15/1998	20.6	J				
	A505GW001	505GW00101a	12/05/1995	232	=				
	A505GW001	505GW00102b	04/24/1996	281	=				
	A505GW001	505GW00103	06/26/1996	287	=				
	A505GW001	505GW00104	10/10/1996	323	J				
	A505GW001	505GW001C1a	10/15/1998	319	J				
Vanadium	A042GW003	042GW00302	04/24/1996	61	=	1	14	NA	26
	A042GW003	042GW00303	06/21/1996	9	J				
	A505GW001	505GW00104	10/10/1996	1.5	J				
Trichloroethene	A042GW001	042GW00102	04/24/1996	1.4	J	NA	NA	5	NA
	A042GW001	042GW00103	06/21/1996	1.6	J				
	A042GW02D	042GW02D03	08/09/1999	3	J				
1,1-Dichloroethene	A505GW001	505GW00101a	12/05/1995	1	J	NA	NA	7	NA

TABLE 5-3
 Detected COPCs in Groundwater
 CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Parameter	Location	Sample ID	Date Collected	Result (µg/L)	Qualifier	Zone A Background Range			RBC (HI=0.1) ^a
						Min	Max	MCL	
1,1,2,2-Tetrachloroethane	A505GW001	505GW00101a	12/05/1995	1.5	J	NA	NA	NA	0.053
cis-1,2-Dichloroethene	A042GW02D	042GW02D03	08/09/1999	88	=	NA	NA	70	NA
	A042GW002	042GW00203a	08/09/1999	4	J				
Total Dichloroethene	A042GW02D	042GW02D03	08/09/1999	2	J	NA	NA	NA	55
Tetrachloroethene	A042GW001	042GW00101	12/05/1995	5.9	=	NA	NA	5	NA
	A042GW001	042GW00102	04/24/1996	1.5	J				
	A042GW001	042GW00103	06/21/1996	1.4	J				
Acetone	A505GW001	505GW00102	10/09/1998	130	=	NA	NA	NA	61

^a Hazard Index (HI) reduced by one order of magnitude for non-carcinogenic compounds.

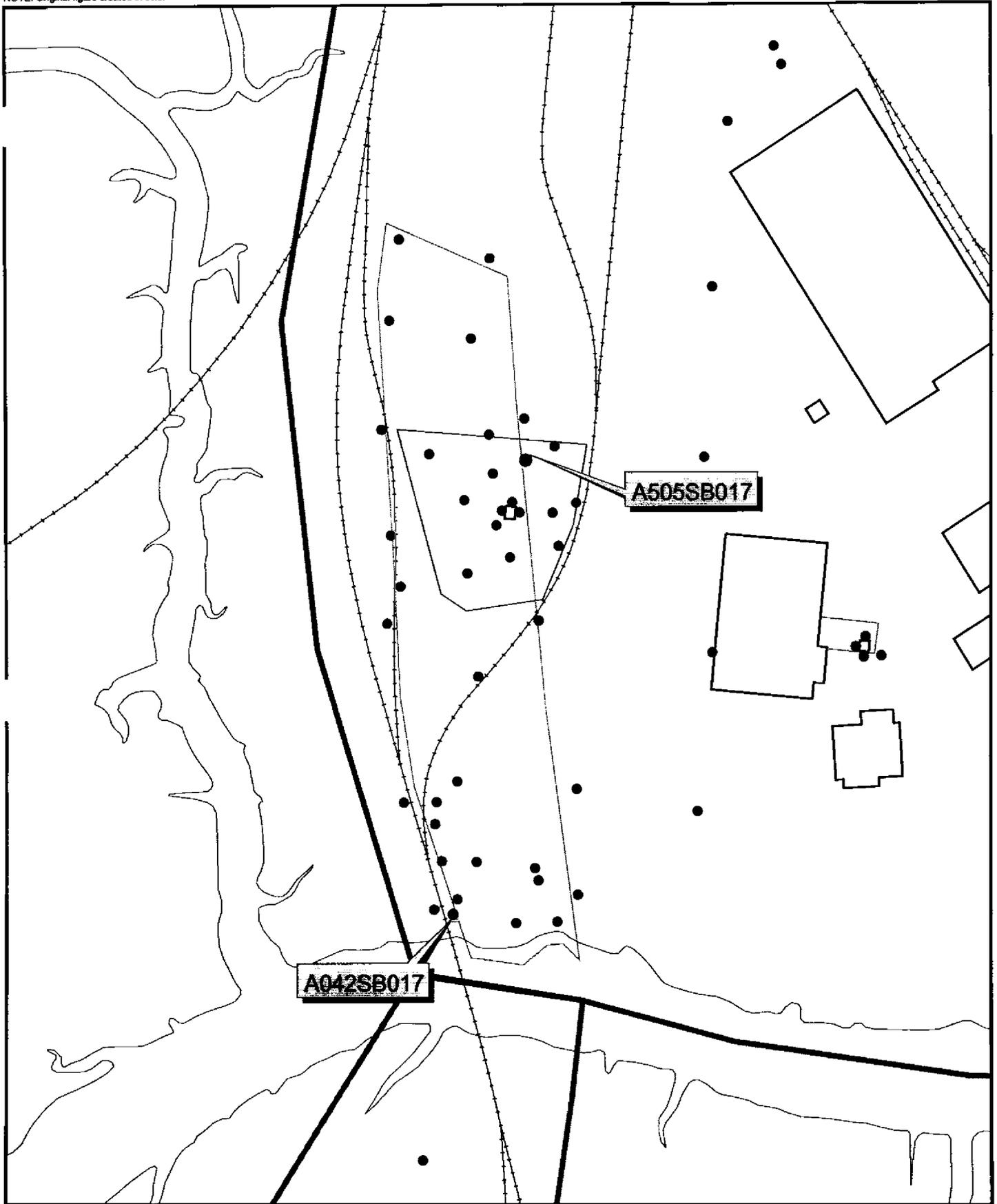
= indicates that the compound was detected, the reported value is equal to the sample concentration.

J indicates that the compound was detected, the reported concentration is estimated.

NA not applicable/not available

U indicates that the compound was not detected, the reported concentration is the detection limit.

NOTE: Original figure created in color



- Railroads
- Shoreline
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary

• BEQ Sample Locations



0 100 200 Feet

1 inch = 156.764 feet

Figure 5-1
subsurface BEQs > Background
sWMU42/AOC 505
Charleston Naval Complex

CH2MHILL

6.0 Summary of Information Related to Site Closeout Issues

6.1 Presence of Inorganics in Groundwater

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

Metals have been consistently detected in groundwater at concentrations below applicable screening criteria at SWMU 42/AOC 505. No further evaluation or corrective action for groundwater at this site is warranted.

6.2 Potential Linkage to Sanitary Sewers (SWMU 37)

SWMU 42/AOC 505 was an asphalt plant and creosote cross-tie/railroad ballast storage area and golf course maintenance building. No data have been found to indicate that this unit was connected to the sanitary sewer. Therefore, there is no known linkage between SWMU 42/AOC 505 and the sanitary sewers, and no data indicate that this site has likely impacted the sanitary sewer system. Further evaluation of this issue for SWMU 42/AOC 505 is not warranted.

6.3 Potential Linkage to Storm Sewers (AOC 699)

Potential linkage of a SWMU or AOC to the storm sewer refers to the possibility of a groundwater plume at a SWMU or AOC migrating into a storm water sewer from within which it would subsequently migrate to the water bodies around the CNC, or to the presence of a cross connection between the sanitary sewer and storm sewer, which could transport pollutants directly to surface waters.

Arsenic and BEQs represent the only COCs at SWMU 42/AOC 505; however, these constituents were determined not to be COCs in groundwater. Furthermore, no COCs were identified in groundwater at an elevation that could impact the sanitary sewer system. As a

1 result, there is no reason to suspect that SWMU 42/AOC 505 has impacted the storm sewer
2 system.

3 **6.4 Potential Linkage to Railroad Lines (AOC 504)**

4 Several railroad lines transect the SWMU 42/AOC 505 site. It is possible that some of the
5 elevated polycyclic aromatic hydrocarbon (PAH) and arsenic concentrations observed near
6 these railroad lines are the result of the presence of the railroad lines. However, no known
7 linkages between the sites and the railroad lines are known to exist. Further evaluation of
8 this issue is not warranted.

9 **6.5 Potential Migration Pathways to Surface Water Bodies**

10 Surface water was studied separately as part of the *Zone J RFI Report, Revision 0* (EnSafe,
11 2000a). The *Zone J RFI Report, Revision 0* includes the investigated surface water bodies. The
12 nearest investigated surface water body to SWMU 42/AOC 505 is Noisette Creek, which is
13 adjacent to the southern boundary of the site.

14 There are two possible migration pathways for contaminants to affect surface water:
15 overland flow via storm water runoff, and subsurface flow via groundwater. Due to the fact
16 that a significant source area of contamination was not present at SWMU 42/AOC 505,
17 surface water runoff from SWMU 42/AOC 505 would not be an ecological concern at
18 Noisette Creek. Therefore, further evaluation of a potential pathway for contaminant
19 migration via storm water runoff is not warranted.

20 A shallow groundwater contaminant plume was not identified at SWMU 42/AOC 505.
21 Therefore, further evaluation of a potential contaminant migration via groundwater
22 migration is not warranted at SWMU 42/AOC 505.

23 **6.6 Potential Contamination in Oil/Water Separators**

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

27 Neither the RFA nor the RFI Report refers to the presence or possible presence of an OWS at
28 SWMU 42/AOC 505. Additionally, there is no reference to an OWS at this facility in the
29 base-wide OWS report prepared by the Navy for Y2000 (Hunt, 2000). Therefore, further
30 evaluation of this issue at SWMU 42/AOC 505 is not warranted.

1 **6.7 Land Use Control Management Plan**

- 2 With the completion of the IM at SWMU 42/ AOC 505, which removed arsenic- and BEQ-
3 impacted surface soils to levels that would allow the site to be classified for unrestricted
4 (residential) land use, land use controls are not expected to be necessary at the site.

1 **7.0 Interim Measure Completion Report**

2 All data for SWMU 42/AOC 505 were evaluated during the planning of the IM. Results of
3 the evaluation show that concentrations of arsenic and BEQs exceeded levels that would
4 allow the site to be classified for unrestricted (residential) land use. The IM WP specified
5 removal of soils with elevated concentrations of arsenic and BEQs.

6 **7.1 Pre-Excavation Delineation Sampling**

7 This section provides a summary of the pre-excavation sampling at SWMU 42/AOC 505.
8 The proposed excavation limits were presented in the IM WP (CH2M-Jones, 2001b). Pre-
9 excavation samples were collected on September 5, 2001, at the limits of the proposed
10 excavations, to ensure that the appropriate soil would be removed. As the IM WP specified
11 removal of surface soil only, samples were collected from one depth interval (0 to 1 foot
12 below land surface [ft bls]) at each sampling location. These locations were chosen to define
13 the horizontal extent of arsenic- and BEQ-impacted surface soil. Sample locations are shown
14 on Figure 7-1. Arsenic and BEQ data are presented in Figure 7-2. The analytical data and
15 validation reports for the samples collected on September 5, 2001 are presented in
16 Appendices E and F, respectively.

17 The MCS for arsenic- and BEQ-contaminated soil was established in the IM WP as 29
18 mg/kg, and 1,304 $\mu\text{g}/\text{kg}$, respectively. The objective of the IM was to ensure that, upon
19 completion of the IM, the exposure concentration for an appropriate exposure area was
20 equal to or less than (\leq) the MCS. Note that it is possible for individual soil samples within
21 SWMU 42/AOC 505 to exceed the statistically-based MCS, provided that the 95-percent
22 upper confidence limit (UCL_{95}) concentration for the exposure unit is below the MCS.

23 In general, the results of the pre-excavation sampling effort concluded that the limits of the
24 excavation for arsenic- and BEQ-impacted soil, as presented in the IM WP, would be
25 adequate for removal of soils that exceed the exposure-based MCS, with one exception. The
26 presence of a large oak tree on the western edge of the southern arsenic excavation
27 necessitated that the footprint of the excavation be modified so as to not damage the tree.
28 The western limit of the excavation was moved in approximately 15 feet (to the east).
29 Additionally, thick brush on the east side of the excavation prevented delineation sampling
30 in that area; the eastern side of the excavation was moved 30 feet to the west.

1 The southern excavation area required soil removal because one sample was reported as
2 having arsenic at a concentration of 31.6 mg/kg. This location was re-sampled during the
3 pre-excavation delineation efforts. The identification for the new sample is A042SB06001
4 (see Figure 7-1); the result was reported as 9.86 mg/kg for arsenic (see Figure 7-2). This
5 result indicates that the original 31.6 mg/kg arsenic level was not representative of a larger
6 area.

7 Additionally, the four pre-excavation delineation samples were all reported with values less
8 than the MCS of 29 mg/kg. Therefore, even though the areal extent of pre-excavation
9 sampling was reduced from approximately 1,020 feet to 100 square feet, the reduced size
10 was justified because the extent of soils exceeding the MCS was small. Figure 7-3 presents
11 the footprint of the excavation as proposed in the IM WP, as well as the revised footprint
12 that was used as a basis for soil removal completed as part of the IM.

13 **7.2 Waste Characterization Sampling**

14 This subsection provides a summary of the waste characterization sampling at SWMU
15 42/AOC 505. The waste characterization analysis was completed to determine if the waste
16 was hazardous by characteristic. One soil sample was collected for toxicity characteristic
17 leachate procedure (TCLP) analysis. The sample was a composite of four soil samples
18 collected within the footprint of the southern arsenic excavation area. This area was
19 considered representative of the northern excavation area, as the contaminant levels in the
20 soil were similar. The TCLP extract was analyzed for the eight RCRA metals. A summary of
21 the analytical results from the waste characterization sampling is presented in Table 7-1.
22 The validation report for the data analysis is presented in Appendix F.

23 The results for the waste characterization samples indicate that the extracted metals were
24 below the appropriate regulatory levels. Therefore, the soil is non-hazardous (40 CFR 261),
25 as no constituent exceeded its TCLP regulatory level.

26 **7.3 Excavation**

27 On October 30, 2001, personnel and equipment were mobilized to SWMU 42/AOC 505 to
28 begin preparing the site for removal activities in accordance with the approved SWMU
29 42/AOC 505 IM WP. Approximately 390 tons of arsenic- and BEQ-impacted soil were
30 removed from SWMU 42/AOC 505. Following the removal of arsenic- and BEQ-impacted
31 soil, the excavation was backfilled with clean fill obtained from the Butler Ware Trucking
32 Co. The backfill was compacted and graded to match the existing grade. Two samples of the

1 fill were analyzed; a data summary for this laboratory analysis is presented in Appendix G.
2 BEQs were not detected in either sample (reported as 392 U $\mu\text{g}/\text{kg}$). Arsenic was detected at
3 concentrations of 0.94 and 0.95 mg/kg.

4 The excavated soil was disposed of by WMI at the Oakridge Landfill, 2183 Highway 78,
5 P.O. Box 145, Dorchester, SC 29437. Waste manifests and load tickets are included in
6 Appendix H.

7 **7.4 Residual Arsenic and BEQ Exposure Concentrations** 8 **(Post-Excavation)**

9 The MCSs for arsenic and BEQs are 29 mg/kg and 1,304 $\mu\text{g}/\text{kg}$, respectively. The objective
10 of the IM was to ensure that, upon IM completion, a half-acre parcel exposure concentration
11 is equal to or less than (\leq) the MCS. Note that it is possible for individual soil samples
12 within SWMU 42/AOC 505 to exceed the statistically-based MCS, provided that the UCL_{95}
13 concentration is lower than the MCS. A half-acre box was used as an exposure area for
14 future unrestricted (residential) land use, where statistical upper-bound averages (i.e.,
15 UCL_{95}) are at or below reference levels for arsenic.

16 The site exposure concentrations and excavation limits for arsenic- and BEQ-impacted soil,
17 as proposed in the IM WP, are presented in Figures 7-4 and 7-5, respectively (these figures
18 present exposure concentrations as calculated using site concentration before the IM was
19 implemented). After the IM was complete, exposure concentrations were recalculated for
20 the three exposure areas from which soil was removed.

21 Exposure Box 1 had an elevated arsenic level near the railroad line. Exposure Box 2 had an
22 elevated BEQ level near the railroad line. As outlined in the IM WP, these soils were not
23 targeted for removal because the reported concentrations were within the range of railroad
24 line-specific background values for these constituents. Nevertheless, the exposure
25 concentrations were calculated with and without these values.

26 The data set for calculating the post-excavation exposure concentrations was generally the
27 same as the pre-excavation data set. The main difference was that the post-excavation data
28 set was modified to incorporate the delineation (pre-excavation) samples and replace the
29 elevated sample results that were removed from the excavation with backfill results (0.95
30 mg/kg for arsenic, and 392 $\mu\text{g}/\text{kg}$ for BEQ).

31 Figure 7-6 shows the exposure concentrations for each of the three exposure boxes where
32 soil was removed. Review of these data shows that the exposure concentrations are less
33 than the MCSs for arsenic- and BEQ- contaminated soil.

1 **7.5 Interim Measure Outcome**

2 Samples collected prior to excavation were intended to provide information on the areal
3 extent of arsenic- and BEQ-impacted soil. They were also intended to serve as confirmation
4 samples. The pre-excavation samples were adequate for delineating the extent of the soils
5 that required removal.

6 As previously stated, the goal of the IM was remove arsenic- and BEQ-impacted surface
7 soils to levels that would allow the site to be classified for unrestricted (residential) land
8 use. The information presented in Section 7.4 and Figure 7-6 shows that the goal of the IM
9 was achieved.

10 Based on the data presented, arsenic- and BEQ-impacted soil at SWMU 42/AOC 505 have
11 been adequately remediated, and no further investigative or remedial actions are warranted
12 at the site.

TABLE 7-1

TCLP Analytical Results for A042SB068

CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Charleston Naval Complex

Sample ID	Parameter	Concentration ($\mu\text{g/L}$)	Qualifier	Regulatory Criteria ($\mu\text{g/L}$)
A042SB068	Arsenic, TCLP	26	U	5,000
	Barium, TCLP	286	=	100,000
	Cadmium, TCLP	14.1	J	1,000
	Chromium, TCLP	5.7	U	5,000
	Lead, TCLP	892	=	5,000
	Selenium, TCLP	34.9	U	1,000
	Silver, TCLP	6.66	U	5,000

= Indicates that the analyte was detected, the reported value is equal to the sample concentration.

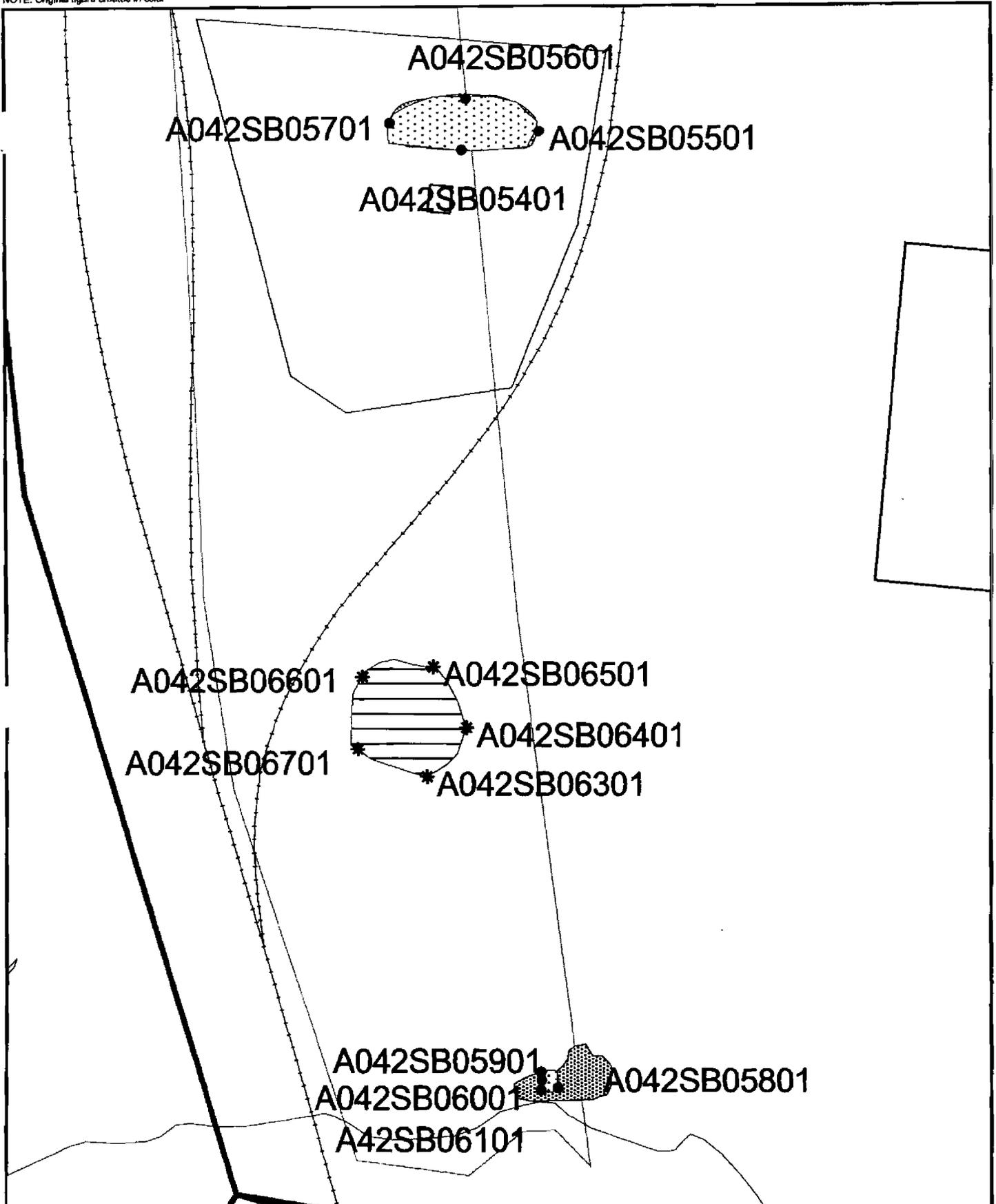
$\mu\text{g/L}$ Micrograms per liter

J Indicates that the analyte was detected, the reported value is an estimated concentration.

TCLP Toxicity characteristic leachate procedure

U Indicates that the analyte was not detected, the reported value is the detection limit.

NOTE: Original figure created in color



- Arsenic Sample ID's
- Final Excavation Limits
- IM WP Excavation Limits
- * BEQ Sample ID's
- BEQ Excavation
- Railroads

- Shoreline
- AOC Boundary
- SWMU Boundary
- Zone Boundary 0



60 120 Feet

1 inch = 72.6639 feet

Figure 7-1
Pre-Excavation Sample Locations
SWMU 42/AOC 505
Charleston Naval Complex

CH2MHILL

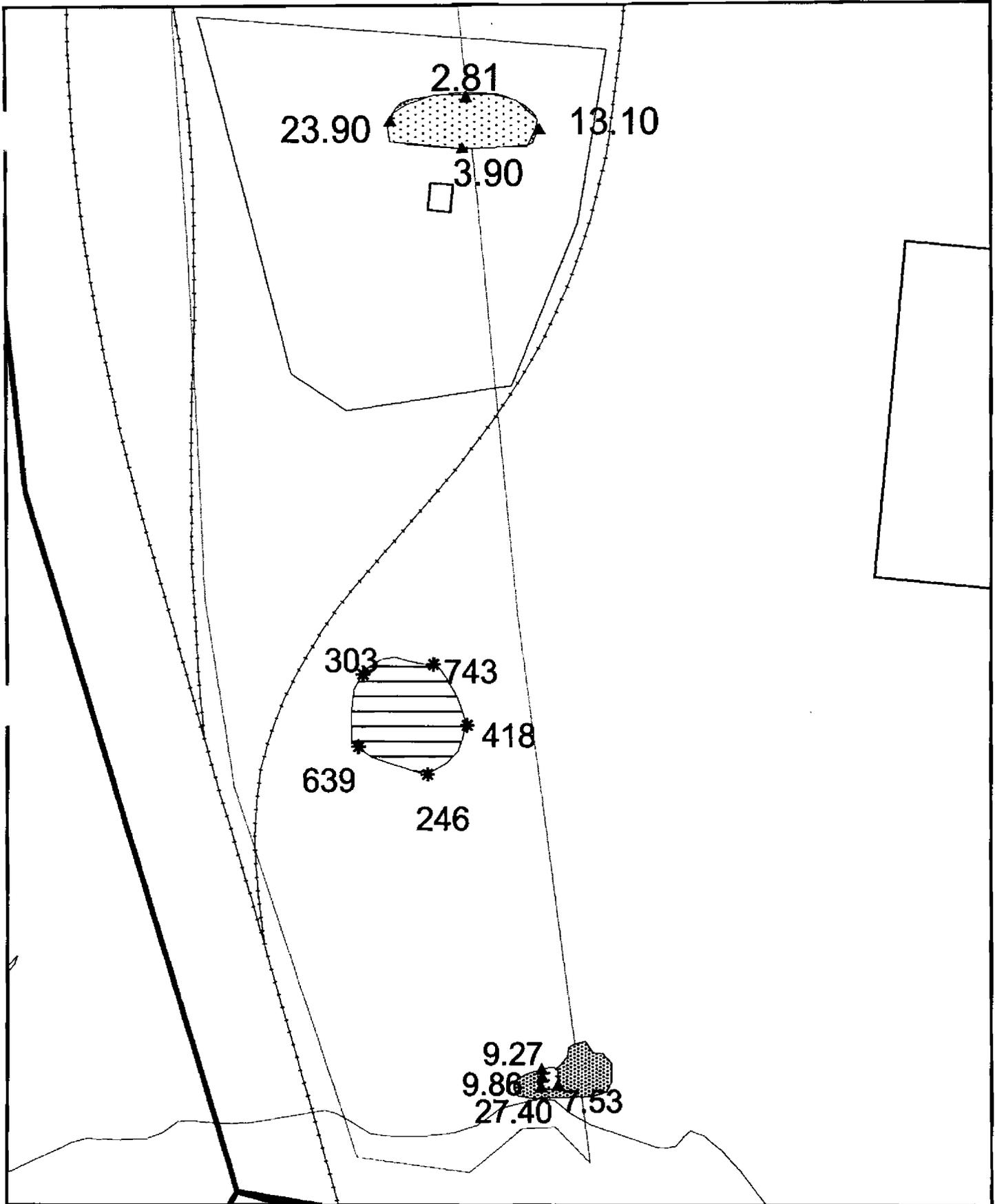
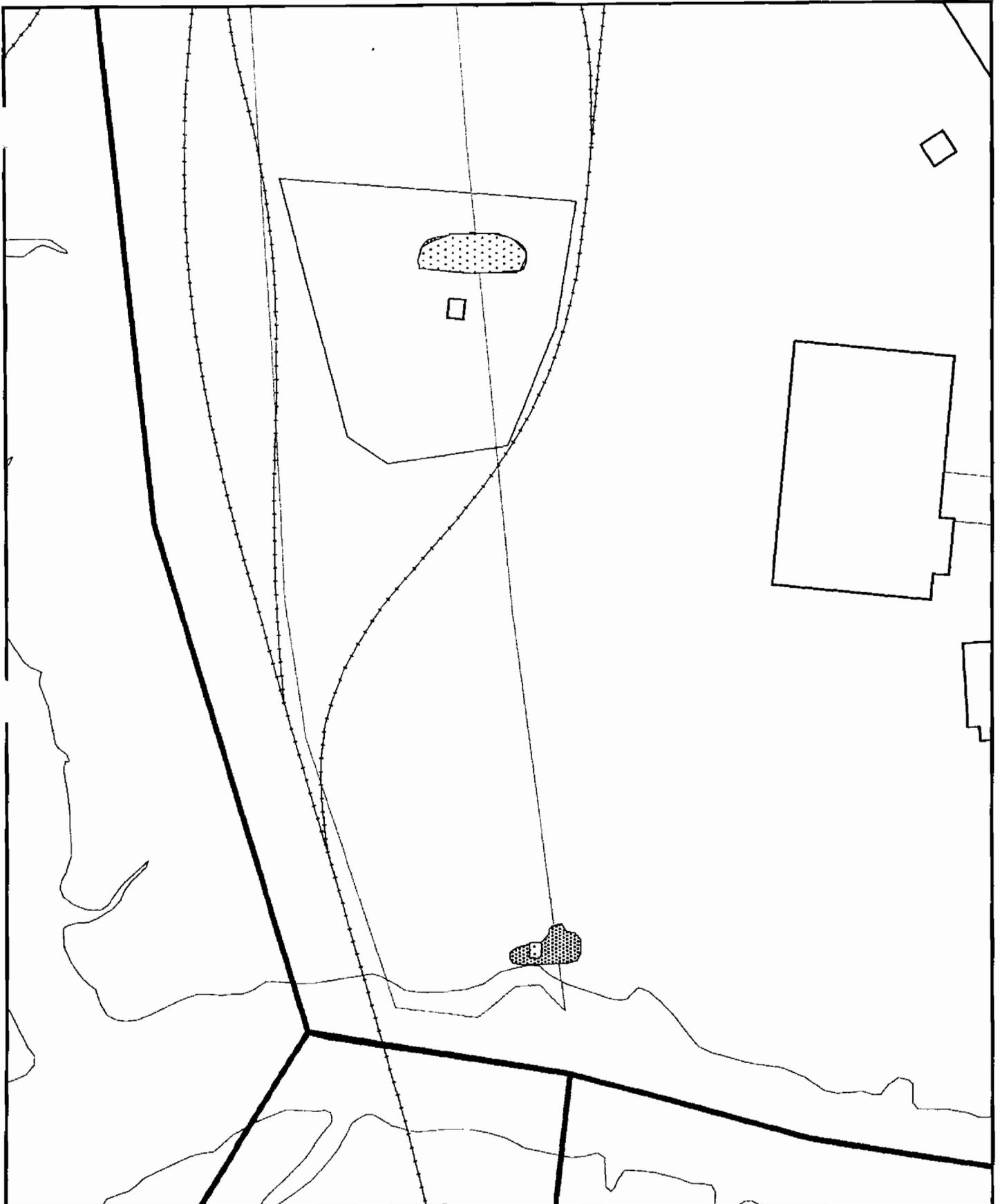


Figure 7-2
 Pre-Excavation Sample Results
 SWMU 42/AOC 505
 Charleston Naval Complex

▲ Pre-Excavation Samples, Arsenic, mg/kg √ Shoreline
 [Dotted] Final Excavation Limits [White] AOC Boundary
 [Horizontally Striped] IM WP Excavation Limits [White] SWMU Boundary
 * Pre-Excavation Samples, BEQ, ug/kg
 [Stippled] BEQ Excavation
 [Double Line] Railroads [Black] Zone Boundary

0 60 120 Feet
 1 inch = 72.6639 feet



- | | |
|-------------------------|---------------|
| Final Excavation Limits | Buildings |
| IM WP Excavation Limits | Zone Boundary |
| Railroads | |
| Shoreline | |
| AOC Boundary | |
| SWMU Boundary | |

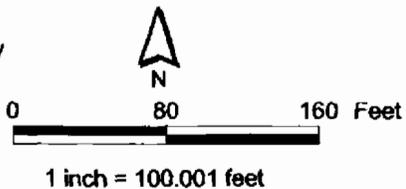


Figure 7-3
 Revised Excavation Limits
 SWMU 42/AOC 505
 Charleston Naval Complex

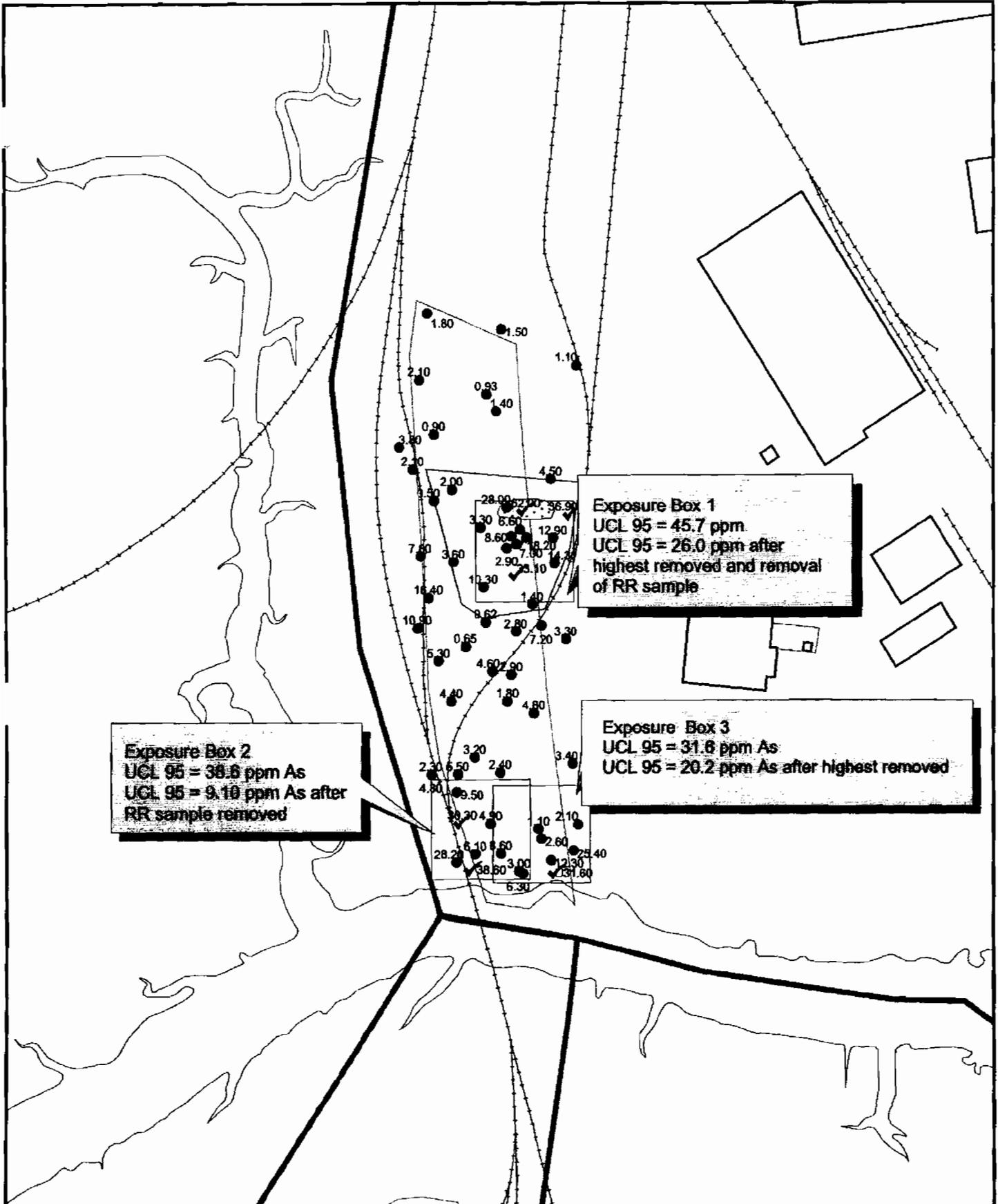
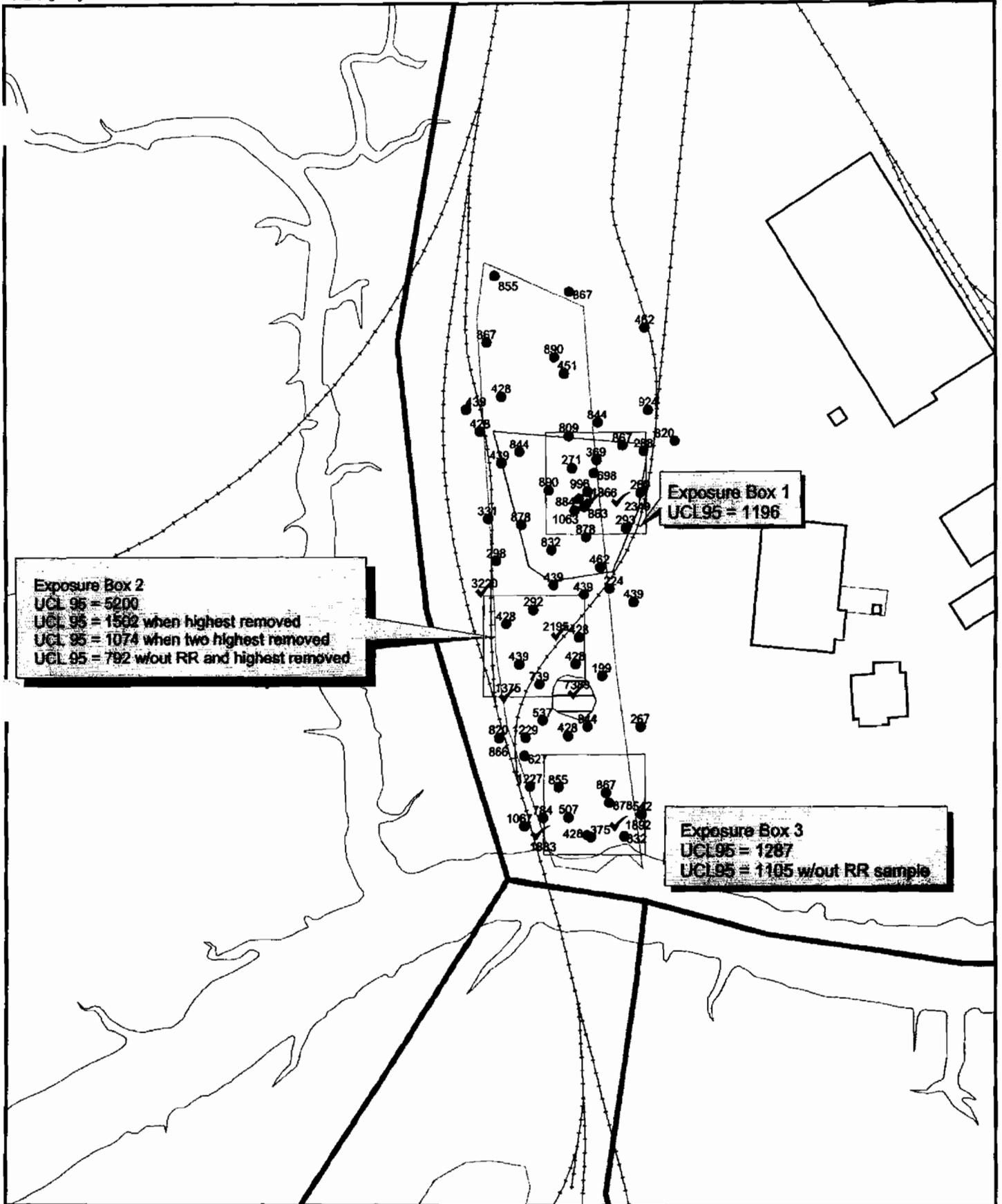


Figure 7-4
 As Exposure Conc. and Excavation Area
 SWMU 42/AOC 505
 Charleston Naval Complex

NOTE: Original figure created in color



Exposure Box 2
 UCL 95 = 5200
 UCL 95 = 1502 when highest removed
 UCL 95 = 1074 when two highest removed
 UCL 95 = 792 w/out RR and highest removed

Exposure Box 1
 UCL95 = 1196

Exposure Box 3
 UCL95 = 1287
 UCL95 = 1105 w/out RR sample

- < 1,304 ug/kg
- ✓ > 1,304 ug/kg
- ▭ BEQ Excavation
- ▭ Exposure Boxes BEQs

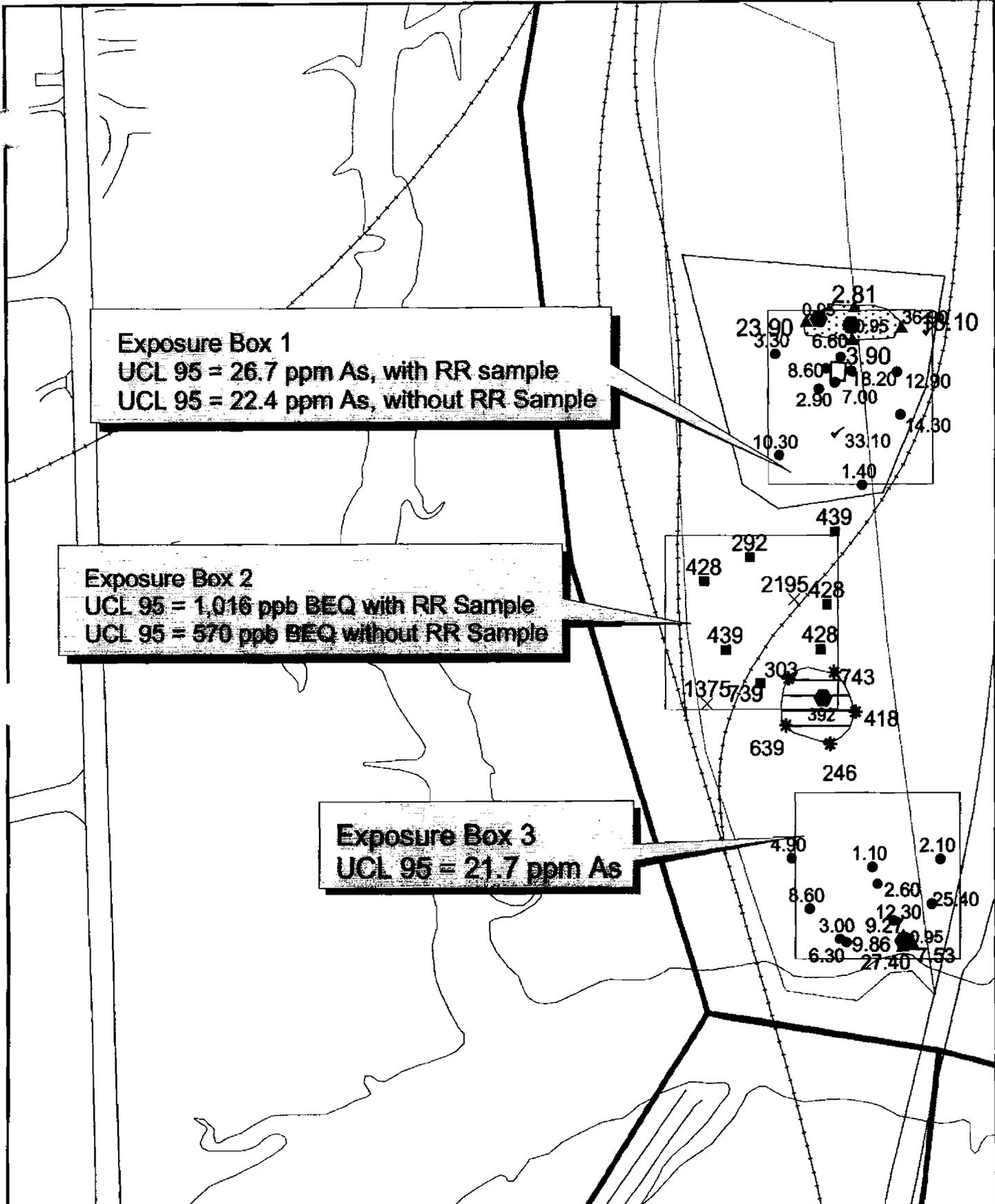


0 100 200 Feet

1 inch = 192.461 feet

Figure 7-5
 BEQ Exposure Concentrations
 SWMU 42/AOC 505
 Charleston Naval Complex





Exposure Box 1
 UCL 95 = 26.7 ppm As, with RR sample
 UCL 95 = 22.4 ppm As, without RR Sample

Exposure Box 2
 UCL 95 = 1,016 ppb BEQ with RR Sample
 UCL 95 = 570 ppb BEQ without RR Sample

Exposure Box 3
 UCL 95 = 21.7 ppm As

- Exposure Area and Concentration
- BEQ in Backfill, ug/kg
- <29 ppm As
- ▲ Pre-Excavation Samples, Arsenic, mg/kg
- ◆ Final As Excavation Limits
- BEQ Excavation
- <1304 ppb BEQ
- × >1304 ppb BEQ
- ★ Pre-Excavation Samples, BEQ, ug/kg

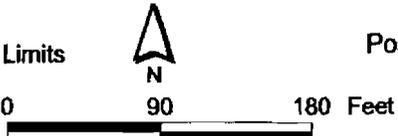


Figure 7-6
 Post-Excavation Exposure Concentrations
 SWMU 42/AOC 505
 Charleston Naval Complex

File Path: c:\pauls\rcview\apra\swmu 42.apr, Date: 19 Dec 2001 9:32, User: PFAVARA, CMSWP: Figure 7-6 Post-Excavation Exposure Concentrations

1 **8.0 Recommendations**

- 2 The information presented in this CMS WP/IM Completion Report supports the conclusion
3 that NFA is warranted at SWMU 42/AOC 505. RFI and post-RFI data were screened and
4 evaluated through a COC/COPC screening refinement process, resulting in arsenic and
5 BEQs (in surface soil) as the only COCs at the site. These COCs were addressed in an IM
6 completed in October 2001. The IM reduced arsenic and BEQ exposure concentrations to
7 less than the MCSs. The IM discussed in Section 7.0 is expected to be the final remedial
8 action at SWMU 42/AOC 505. Therefore, CH2M-Jones recommends that the status of the
9 site be changed to NFA.
- 10 Once the BCT concurs that NFA is appropriate for the site, a Statement of Basis will be
11 prepared and made available for public comment, in accordance with SCDHEC policy.

1 9.0 References

- 2 CH2M-Jones. *Background PAHs Study Report – Technical Information for Development of*
3 *Background BEQ Values*. Charleston Naval Complex, North Charleston, South Carolina.
4 February 2001a.
- 5 CH2M-Jones. *Interim Measure Work Plan – SWMU 42/AOC 505, Building 1646, Zone C,*
6 *Charleston Naval Complex*. Revision 1. June 2001b.
- 7 CH2M-Jones. *Project Team Notebook and Instructions, Revision 1A*. December 2001c.
- 8 EnSafe Inc. *Zone A RFI Report*. Revision 0. Department of the Navy, Southern Division,
9 Naval Facilities Engineering Command, North Charleston, South Carolina. 1998a.
- 10 EnSafe Inc. *Zone A CMS Work Plan*. Revision 0. Department of the Navy, Southern Division,
11 Naval Facilities Engineering Command, North Charleston, South Carolina. 1998b.
- 12 Hunt M. A. *Oil Water Separator Data*. Southern Division, Naval Facilities Engineering
13 Command, North Charleston, South Carolina. September 2000.
- 14 U.S. Environmental Protection Agency (EPA). *Soil Screening Guidance: Technical Background*
15 *Document*. May 1996.

Table 10.5.2
SWMU 42/AOC 505
Third-Round Soil Sampling Summary

Interval	Samples Collected	Analyses Performed	Justification
Upper	8 ^a	SVOCs	To delineate the extent of BEQs above the RBC in soil.
Lower	2 ^b	SVOCs	To delineate the extent of BEQs in subsurface soil.

Notes:

- a = Four samples from SWMU 42, four from AOC 505, one duplicate collected from each group.
- b = Both samples from AOC 505

10.5.2 Nature and Extent of Contamination in Soil

Organic and inorganic compound analytical results for soil are summarized in Table 10.5.3 and Table 10.5.4. Appendix D is a complete analytical data report for all Zone A samples, including SWMU 42 and AOC 505.

Table 10.5.3
SWMU 42/AOC 505
Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Volatile Organic Compounds						
(41 samples collected: 21 upper interval, 17 lower interval, and 3 Geoprobe[®] interval samples collected. 2 samples duplicated for Appendix IX analysis)						
Acetone	Upper	1/21	10	NA	7,800,000	0
	Lower	7/17	12 - 55	29	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.3
 SWMU 42/AOC 505
 Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Volatile Organic Compounds						
(41 samples collected: 21 upper interval, 17 lower interval, and 3 Geoprobe [®] interval samples collected. 2 samples duplicated for Appendix IX analysis)						
2-Butanone (MEK)	Upper	0/21	NA	NA	47,000,000	0
	Lower	3/17	1.3 - 16	6.6	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
Carbon disulfide	Upper	1/21	88	NA	7,800,000	0
	Lower	1/17	2.3	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
2-hexanone	Upper	0/21	NA	NA	3,100,000	NA
	Lower	1/17	1.2	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
Methylene chloride	Upper	0/21	NA	NA	85,000	0
	Lower	1/17	2.9	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
Tetrachloroethene	Upper	1/21	1.3	NA	12,000	0
	Lower	1/17	2.3	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
Toluene	Upper	4/21	1.3 - 2.0	1.6	16,000,000	0
	Lower	0/17	NA	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA
Trichloroethene	Upper	4/21	1.7 - 5.4	3.0	58,000	0
	Lower	0/17	NA	NA	NA	NA
	Geoprobe	0/3	NA	NA	NA	NA

Table 10.5.3
SWMU 42/AOC 505
Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Semivolatile Organic Compounds (81 samples collected: 46 upper interval and 35 lower interval, 9 samples duplicated for Appendix IX analysis)						
BEQ ^a	Upper	28/46	0.12 - 7.153	690	88	22
	Lower	6/35	0.16 - 3.226	1.140	NA	NA
Acenaphthene	Upper	1/46	720	NA	4,700,000	0
	Lower	1/35	120	NA	NA	NA
Acenaphthylene	Upper	6/46	41 - 200	135	4,700,000	0
	Lower	2/35	160 - 485	320	NA	NA
Anthracene	Upper	8/46	67 - 1,400	420	23,000,000	0
	Lower	2/35	310 - 470	390	NA	NA
bis(2-ethylhexyl)-phthalate (BEHP)	Upper	6/46	46 - 99	73	46,000	0
	Lower	4/35	89 - 220	140	NA	NA
Benzo(a)anthracene	Upper	23/46	38 - 5,000	650	880	3
	Lower	5/35	78 - 1,350	700	NA	NA
Benzo(a)pyrene	Upper	24/46	57 - 5,500	680	88	22
	Lower	5/35	88 - 1,900	840	NA	NA
Benzo(b)fluoranthene	Upper	23/46	45 - 5,800	1,010	880	9
	Lower	5/35	91 - 1,750	810	NA	NA
Benzo(g,h,i)perylene	Upper	23/46	61 - 1,800	470	3,100,000	0
	Lower	5/35	72 - 1,850	710	NA	NA
Benzo(k)fluoranthene	Upper	23/46	77 - 5,400	800	8,800	0
	Lower	5/35	90 - 1,600	800	NA	NA
Butylbenzylphthalate	Upper	2/46	160 - 390	280	16,000,000	0
	Lower	0/35	NA	NA	NA	NA

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.3
 SWMU 42/AOC 505
 Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Semivolatile Organic Compounds (81 samples collected: 46 upper interval and 35 lower interval, 9 samples duplicated for Appendix IX analysis)						
Carbazole	Upper	3/46	290 - 1,100	610	32,000	0
	Lower	1/35	290	NA	NA	NA
4-chloro-3-methylphenol	Upper	1/46	78	NA	NA	NA
	Lower	1/35	86	NA	NA	NA
2-chlorophenol	Upper	0/46	NA	NA	390,000	0
	Lower	1/35	110	NA	NA	NA
Chrysene	Upper	28/46	65 - 5,100	770	88,000	0
	Lower	6/35	91 - 1,700	710	NA	NA
Dibenz(a,h)-anthracene	Upper	14/46	57 - 560	240	88	10
	Lower	4/35	100 - 810	380	NA	NA
Dibenzofuran	Upper	2/46	45 - 460	250	310,000	0
	Lower	2/35	96 - 130	110	NA	NA
di-n-butylphthalate	Upper	4/46	58 - 200	120	7,800,000	0
	Lower	0/35	NA	NA	NA	NA
di-n-octylphthalate	Upper	1/46	49	NA	1,600,000	0
	Lower	0/35	NA	NA	NA	NA
Fluoranthene	Upper	23/46	85 - 9,400	1,400	1,100,000	0
	Lower	6/35	120 - 2,500	1,200	NA	NA
Fluorene	Upper	1/46	780	NA	3,100,000	0
	Lower	1/35	250	NA	NA	NA
Indeno(1,2,3-cd)-pyrene	Upper	23/46	58 - 1,900	440	880	0
	Lower	3/35	65 - 1,750	640	NA	NA

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.3
SWMU 42/AOC 505
Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Semivolatile Organic Compounds						
(81 samples collected: 46 upper interval and 35 lower interval, 9 samples duplicated for Appendix IX analysis)						
2-methylnaphthalene	Upper	2/46	38 - 43	41	3,100,000	0
	Lower	3/35	114 - 390	230	NA	NA
3-methylphenol (m-cresol)	Upper	0/46	NA	NA	3,900,000	0
	Lower	1/35	71	NA	NA	NA
4-methylphenol (P-cresol)	Upper	0/46	NA	NA	390,000	0
	Lower	1/35	53	NA	NA	NA
Naphthalene	Upper	1/46	480	NA	3,100,000	0
	Lower	3/35	200 - 300	240	NA	NA
N-Nitrosodiphenylamine	Upper	1/46	43	NA	130,000	0
	Lower	0/35	NA	NA	NA	NA
Phenanthrene	Upper	18/46	110 - 5,200	630	3,100,000	0
	Lower	6/35	85 - 1,450	520	NA	NA
Phenol	Upper	1/46	78	NA	47,000,000	0
	Lower	1/35	100	NA	NA	NA
Pyrene	Upper	27/46	50 - 6,900	1,050	2,300,000	0
	Lower	7/35	120 - 2,300	920	NA	NA
Pesticides/PCBs						
(49 samples collected: 27 upper interval and 22 lower interval, 9 samples duplicated for Appendix IX analysis)						
Aldrin	Upper	0/27	NA	NA	38	0
	Lower	1/22	2.4	NA	NA	NA
Aroclor-1260	Upper	5/27	83 - 1,800	630	320	1
	Lower	2/22	26 - 59	43	NA	NA
alpha-chlordane	Upper	5/27	2.0 - 17.0	6.1	1,800	0
	Lower	0/22	NA	NA	NA	NA

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.3
 SWMU 42/AOC 505
 Organic Compounds Detected in Soil

Compound	Sampling Interval	Frequency of Detection	Range of Detection ($\mu\text{g}/\text{kg}$)	Mean of Detections ($\mu\text{g}/\text{kg}$)	RBC ($\mu\text{g}/\text{kg}$)	Number of Samples Exceeding RBC
Pesticides/PCBs						
(49 samples collected: 27 upper interval and 22 lower interval, 9 samples duplicated for Appendix IX analysis)						
gamma-chlordane	Upper	3/27	3.4 - 17	8.4	1,800	0
	Lower	0/22	NA	NA	NA	NA
4,4'-DDD	Upper	7/27	9.0 - 700	230	2,700	0
	Lower	2/22	1.7 - 3.8	2.8	NA	NA
4,4'-DDE	Upper	16/27	12 - 2,500	200	1,900	1
	Lower	1/22	1.2	NA	NA	NA
4,4'-DDT	Upper	14/27	6.9 - 2,300	210	1,900	1
	Lower	4/22	4.3 - 19.4	9.4	NA	NA
Endosulfan sulfate	Upper	0/27	NA	NA	470,000 ^a	0
	Lower	1/22	10	NA	NA	NA
Endrin	Upper	1/27	3.8	NA	23,000	0
	Lower	1/22	4.4	NA	NA	NA
Endrin ketone	Upper	0/3	NA	NA	23,000 ^b	0
	Lower	1/6	45	NA	NA	NA
Heptachlor epoxide	Upper	0/27	NA	NA	70	0
	Lower	1/22	6	NA	NA	NA
Dioxins						
(2 samples collected, 1 upper interval and 1 lower interval)						
TCDD TEQ ^c	Upper	1/1	0.00155	NA	1	0
	Lower	1/1	0.00042	NA	1	0

Notes:

- a = Geoprobe interval samples were collected from 2' to 4' bgs.
- b = Calculated from method described in USEPA *Interim Supplemental Guidance to RAGS: Region IV Bulletins, Human Health Risk Assessment*, Bulletin No. 2, November 1995
- c = RBC not available for this compound; fluoranthene RBC used as surrogate.
- d = RBC not available for this compound; endosulfan RBC used as surrogate.
- e = RBC not available for this compound; endrin RBC used as surrogate.
- NA = Not applicable

Table 10.5.4
SWMU 42/AOC 505
Inorganics Detected in Soil

Element	Sample Interval	Freq. of Detections	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding ^a
Inorganics							
(60 samples collected: 32 upper interval and 28 lower interval, 4 samples duplicated for Appendix IX analysis)							
Aluminum	Upper	32/32	1,200 - 9,700	5,030	12,800	76,000	0
	Lower	28/28	1,710 - 23,900	8,110	28,240	NA	0
Antimony	Upper	8/32	0.36 - 1.5	0.82	**	31	0
	Lower	5/28	0.36 - 13.6	3.35	**	NA	NA
Arsenic	Upper	31/32	1.1 - 62.0	12.5	9.4	0.43	12
	Lower	24/28	1.2 - 21.4	6.2	9.8	NA	4
Barium	Upper	32/32	6.7 - 160	28	53.0	5,500	0
	Lower	28/28	4.0 - 108	24	40.0	NA	3
Beryllium	Upper	14/32	0.09 - 0.38	0.22	**	0.15	11
	Lower	15/28	0.11 - 0.34	0.19	**	NA	NA
Cadmium	Upper	9/32	0.05 - 0.32	0.18	**	39	0
	Lower	4/28	0.05 - 0.41	0.25	**	NA	NA
Calcium	Upper	32/32	267 - 54,500	7,450	NA	NA	NA
	Lower	28/28	179 - 2,890	1,150	NA	NA	NA
Chromium	Upper	32/32	2.6 - 29.2	10.4	50.4	390	0
	Lower	28/28	2.1 - 36.1	12.0	63.4	NA	0
Chromium (hexavalent)	Lower	1/1	0.12	NA	NA	390	0
Cobalt	Upper	18/32	0.26 - 16.6	2.2	4.4	4,700	0
	Lower	14/28	0.21 - 2.3	0.94	1.7	NA	2
Copper	Upper	32/32	1.70 - 192	25.4	165	3,100	0
	Lower	26/28	0.73 - 39.5	5.1	33.7	NA	1
Iron	Upper	32/32	1,760 - 47,500	6,840	NA	NA	NA
	Lower	28/28	1,500 - 36,700	10,100	NA	NA	NA
Lead	Upper	32/32	4.2 - 1,180	120	140	400 ^b	2
	Lower	28/28	2.2 - 216	29.7	22.0	400 ^b	0

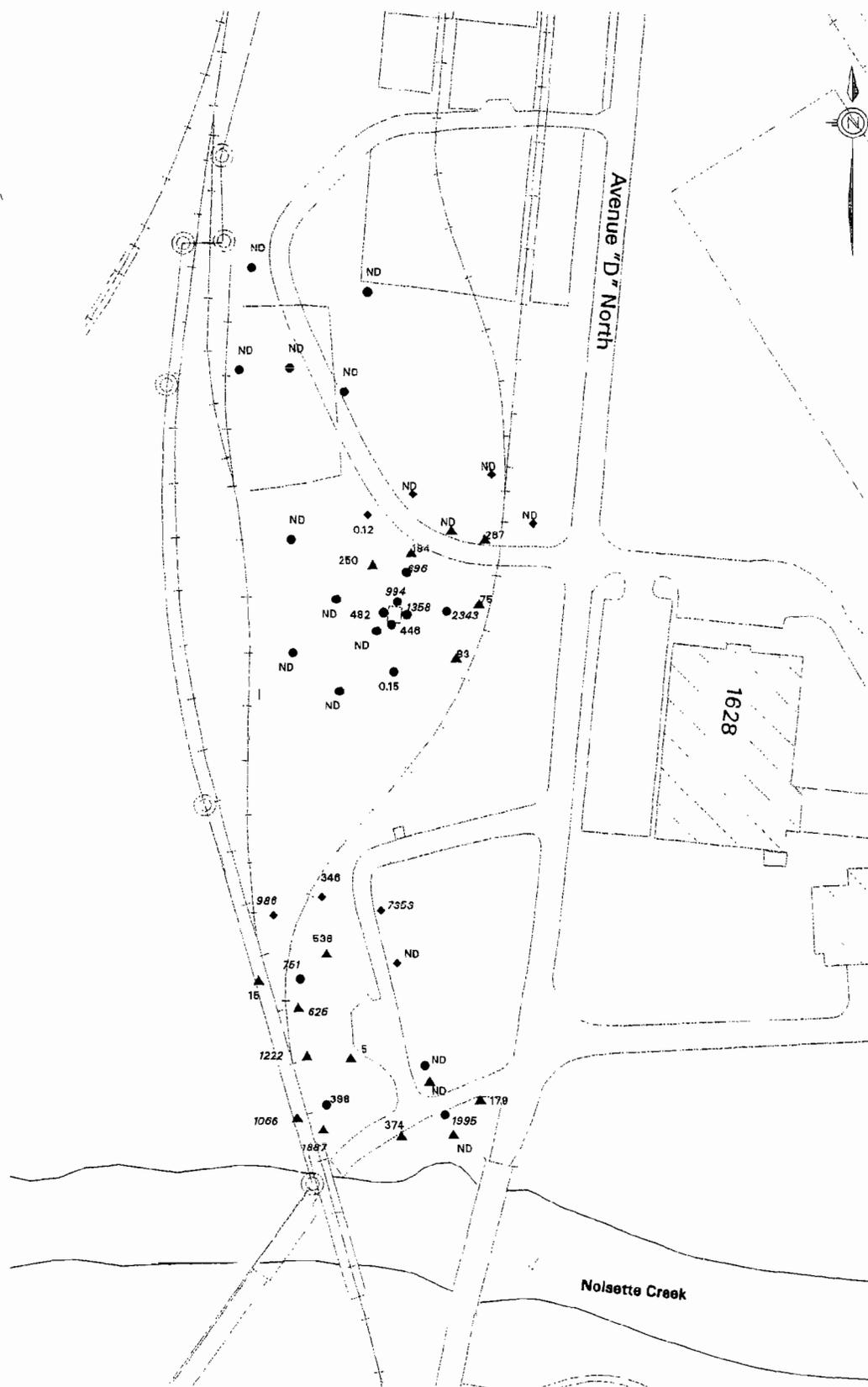
Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.4
 SWMU 42/AOC 505
 Inorganics Detected in Soil

Element	Sample Interval	Freq. of Detections	Range of Detections (mg/kg)	Mean of Detections (mg/kg)	Reference Conc. (mg/kg)	RBC (mg/kg)	Number of Samples Exceeding ^a
Inorganics (60 samples collected: 32 upper interval and 28 lower interval, 4 samples duplicated for Appendix IX analysis)							
Magnesium	Upper	32/32	99.8 - 894	356	NA	NA	NA
	Lower	28/28	130 - 1,420	475	NA	NA	NA
Manganese	Upper	32/32	10.2 - 311	58.6	98.1	1,800	0
	Lower	28/28	5.2 - 186	28.0	85.5	NA	1
Mercury	Upper	10/32	0.07 - 0.35	0.17	0.30	23	0
	Lower	3/28	0.05 - 0.23	0.12	**	NA	NA
Nickel	Upper	21/32	0.86 - 20.0	6.4	13.6	1,600	0
	Lower	17/28	0.62 - 6.7	2.8	35.0	NA	0
Potassium	Upper	29/32	128 - 952	342	NA	NA	NA
	Lower	24/28	131 - 965	527	NA	NA	NA
Selenium	Upper	9/32	0.35 - 1.2	0.7	1.2	390	0
	Lower	6/28	0.49 - 1.9	1.0	1.7	NA	1
Sodium	Upper	28/32	59.2 - 433	196	NA	NA	NA
	Lower	28/28	57.5 - 796	198	NA	NA	NA
Thallium	Upper	1/32	0.42	NA	**	6.3	0
	Lower	1/28	0.48	NA	**	NA	NA
Tin	Upper	15/32	0.79 - 28.3	7.5	**	47,000	0
	Lower	8/28	0.57 - 10.1	4.6	**	NA	NA
Vanadium	Upper	32/32	3.90 - 39.9	11.7	29.2	550	0
	Lower	28/28	2.60 - 52.1	15.6	77.3	NA	0
Zinc	Upper	32/32	8.30 - 303	66.2	208	23,000	0
	Lower	28/28	2.40 - 364	34.1	165	NA	1

Notes:

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



LEGEND

- 1st Round Soil Borings
- ▲ 2nd Round Soil Borings
- ◆ 3rd Round Soil Borings
- ▲ BEQ Concentration
- ◆ Exceeds RBC (88ppb)

Note:
BEQ Concentration in ppb
ND - not detected

0 125 feet



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

**FIGURE 10.5.2 - SWMU 42 and AOC 505
Upper Interval BEQ Detections in Soil**

Table 10.5.5
SWMU 42/AOC 505
Groundwater Sampling Summary

Event	Samples Proposed	Samples Collected	Analyses Proposed	Analyses Performed	Deviations
Dec. 1995 (1st round)	4 ^a	4 ^a	VOCs, SVOCs, metals, cyanide, herbicides, PCBs, and pesticides.	VOCs, SVOCs, metals, cyanide, herbicides, PCBs, and pesticides.	None
April 3, 1996 (Interim round)	4 ^a	4 ^a	VOCs ^b	VOCs ^b	None
April 24, 1996 (2nd round)	4 ^a	4 ^a	VOCs and metals ^c	VOCs and metals ^c	None
June 1996 (3rd round)	4 ^a	4 ^a	VOCs and metals ^c	VOCs and metals ^c	None
October 1996 (4th round)	4 ^a	4 ^a	VOCs and metals ^c	VOCs and metals ^c	None

Notes:

- a = Four wells consist of three shallow wells at SWMU 42 and one shallow well at AOC 505.
- b = Interim analyses consisted of VOCs only to confirm chlorinated solvent detections prior to implementation of the Geoprobe investigation.
- c = Second- and third-round parameters were based upon detections in the first-round sampling.

Table 10.5.6
SWMU 42/AOC 505
Organic Compounds Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Frequency of Detection	Range of Detections (µg/L)	Mean of Detections (µg/L)	RBC (µg/L)	Number of Samples Exceeding RBC
Volatile Organic Compounds (4 shallow groundwater samples collected during each event)							
Carbon disulfide	Dec. 95	Shallow	0/4	NA	NA	1,000	0
	03 Apr. 96	Shallow	0/4	NA	NA	1,000	0
	24 Apr. 96	Shallow	0/4	NA	NA	1,000	0
	June 96	Shallow	1/4	1.6	NA	1,000	0
	Oct. 96	Shallow	0/4	NA	NA	1,000	0

Table 10.5.6
SWMU 42/AOC 505
Organic Compounds Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Frequency of Detection	Range of Detections ($\mu\text{g/L}$)	Mean of Detections ($\mu\text{g/L}$)	RBC ($\mu\text{g/L}$)	Number of Samples Exceeding RBC
Volatile Organic Compounds							
(4 shallow groundwater samples collected during each event)							
Chlorobenzene	Dec. 95	Shallow	1/4	1.3	NA	39	0
	03 Apr. 96	Shallow	0/4	NA	NA	39	0
	24 Apr. 96	Shallow	0/4	NA	NA	39	0
	June 96	Shallow	0/4	NA	NA	39	0
	Oct. 96	Shallow	0/4	NA	NA	39	0
Chloromethane	Dec. 95	Shallow	1/4	7.8	NA	1.4	1
	03 Apr. 96	Shallow	0/4	NA	NA	1.4	0
	24 Apr. 96	Shallow	0/4	NA	NA	1.4	0
	June 96	Shallow	0/4	NA	NA	1.4	0
	Oct. 96	Shallow	0/4	NA	NA	1.4	0
1,2-dichloro- benzene	Dec. 95	Shallow	1/4	1.8	NA	64	0
	03 Apr. 96	Shallow	0/4	NA	NA	64	0
	24 Apr. 96	Shallow	0/4	NA	NA	64	0
	June 96	Shallow	0/4	NA	NA	64	0
	Oct. 96	Shallow	0/4	NA	NA	64	0
1,3-dichloro- benzene	Dec. 95	Shallow	1/4	1.8	NA	540	0
	03 Apr. 96	Shallow	0/4	NA	NA	540	0
	24 Apr. 96	Shallow	0/4	NA	NA	540	0
	June 96	Shallow	0/4	NA	NA	540	0
	Oct. 96	Shallow	0/4	NA	NA	540	0

Table 10.5.6
 SWMU 42/AOC 505
 Organic Compounds Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Frequency of Detection	Range of Detections (µg/L)	Mean of Detections (µg/L)	RBC (µg/L)	Number of Samples Exceeding RBC
Volatile Organic Compounds							
(4 shallow groundwater samples collected during each event)							
1,4-dichloro-benzene	Dec. 95	Shallow	1/4	2.0	NA	0.44	1
	03 Apr. 96	Shallow	0/4	NA	NA	0.44	0
	24 Apr. 96	Shallow	0/4	NA	NA	0.44	0
	June 96	Shallow	0/4	NA	NA	0.44	0
	Oct. 96	Shallow	0/4	NA	NA	0.44	0
1,1-dichloro-ethene	Dec. 95	Shallow	1/4	1.0	NA	0.044	1
	03 Apr. 96	Shallow	0/4	NA	NA	0.044	0
	24 Apr. 96	Shallow	0/4	NA	NA	0.044	0
	June 96	Shallow	0/4	NA	NA	0.044	0
	Oct. 96	Shallow	0/4	NA	NA	0.044	0
Ethylbenzene	Dec. 95	Shallow	1/4	1.2	NA	1,300	0
	03 Apr. 96	Shallow	0/4	NA	NA	1,300	0
	24 Apr. 96	Shallow	0/4	NA	NA	1,300	0
	June 96	Shallow	0/4	NA	NA	1,300	0
	Oct. 96	Shallow	0/4	NA	NA	1,300	0
1,1,2,2-tetra-chloroethane	Dec. 95	Shallow	1/4	1.5	NA	0.052	1
	03 Apr. 96	Shallow	0/4	NA	NA	0.052	0
	24 Apr. 96	Shallow	0/4	NA	NA	0.052	0
	June 96	Shallow	0/4	NA	NA	0.052	0
	Oct. 96	Shallow	0/4	NA	NA	0.052	0

Table 10.5.6
SWMU 42/AOC 505
Organic Compounds Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Frequency of Detection	Range of Detections ($\mu\text{g/L}$)	Mean of Detections ($\mu\text{g/L}$)	RBC ($\mu\text{g/L}$)	Number of Samples Exceeding RBC
Volatile Organic Compounds							
(4 shallow groundwater samples collected during each event)							
tetrachloroethene	Dec. 95	Shallow	1/4	5.9	NA	1.1	1
	03 Apr. 96	Shallow	0/4	NA	NA	1.1	0
	24 Apr. 96	Shallow	1/4	1.5	NA	1.1	1
	June 96	Shallow	1/4	1.4	NA	1.1	1
	Oct. 96	Shallow	0/4	NA	NA	1.1	0
trichloroethene	Dec. 95	Shallow	0/4	NA	NA	1.6	0
	03 Apr. 96	Shallow	0/4	NA	NA	1.6	0
	24 Apr. 96	Shallow	1/4	1.4	NA	1.6	0
	June 96	Shallow	1/4	1.6	NA	1.6	0
	Oct. 96	Shallow	0/4	NA	NA	1.6	0
o-xylene	Dec. 95	Shallow	1/4	1.4	NA	12,000	0
	03 Apr. 96	Shallow	0/4	NA	NA	12,000	0
	24 Apr. 96	Shallow	0/4	NA	NA	12,000	0
	June 96	Shallow	0/4	NA	NA	12,000	0
	Oct. 96	Shallow	0/4	NA	NA	12,000	0
Xylene (m + p)	Dec. 95	Shallow	1/4	3.5	NA	12,000	0
	03 Apr. 96	Shallow	0/4	NA	NA	12,000	0
	24 Apr. 96	Shallow	0/4	NA	NA	12,000	0
	June 96	Shallow	0/4	NA	NA	12,000	0
	Oct. 96	Shallow	0/4	NA	NA	12,000	0

Note:
 NA = Not applicable

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 – Site-Specific Evaluations
 Revision: 0

Table 10.5.7
 SWMU 42/AOC 505
 Inorganics Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Freq. of Detection	Range of Detections (µg/L)	Mean of Detections (µg/L)	Reference Conc. (µg/L)	RBC (µg/L)	Number of Samples Exceeding both RC and RBC
Inorganics (4 shallow groundwater samples collected during each event)								
Aluminum	Dec. 95	Shallow	4/4	229 - 2,020	890	3,210	37,000	0
	Apr. 96	Shallow	3/4	1,230 - 27,200	10,100	3,210	37,000	0
	June 96	Shallow	4/4	77 - 6,760	1,880	3,210	37,000	0
	Oct. 96	Shallow	1/4	364	NA	3,210	37,000	0
Arsenic	Dec. 95	Shallow	0/4	NA	NA	7.4	0.045	0
	Apr. 96	Shallow	0/4	NA	NA	7.4	0.045	0
	June 96	Shallow	1/4	9.0	NA	7.4	0.045	1
	Oct. 96	Shallow	2/4	2.9 - 6.4	4.6	7.4	0.045	0
Barium	Dec. 95	Shallow	3/4	14.9 - 53.6	34.7	104	2,600	0
	Apr. 96	Shallow	0/4	NA	NA	104	2,600	0
	June 96	Shallow	4/4	9.5 - 41.7	22.3	104	2,600	0
	Oct. 96	Shallow	4/4	9.6 - 30.9	17.2	104	2,600	0
Cadmium	Dec. 95	Shallow	0/4	NA	NA	**	18	0
	Apr. 96	Shallow	0/4	NA	NA	**	18	0
	June 96	Shallow	0/4	NA	NA	**	18	0
	Oct. 96	Shallow	1/4	0.29	NA	**	18	0
Calcium	Dec. 95	Shallow	4/4	15,700 - 78,800	52,300	NA	NA	NA
	Apr. 96	Shallow	3/4	27,400 - 13,400	89,100	NA	NA	NA
	June 96	Shallow	4/4	10,800 - 117,000	66,800	NA	NA	NA
	Oct. 96	Shallow	4/4	8,630 - 108,000	41,400	NA	NA	NA
Chromium	Dec. 95	Shallow	1/4	4.9	NA	8.7	180	0
	Apr. 96	Shallow	2/4	6.4 - 45.9	26.2	8.7	180	0
	June 96	Shallow	1/4	9.7	NA	8.7	180	0
	Oct. 96	Shallow	0/4	NA	NA	8.7	180	0

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 – Site-Specific Evaluations
 Revision: 0

Table 10.5.7
SWMU 42/AOC 505
Inorganics Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Freq. of Detection	Range of Detections (µg/L)	Mean of Detections (µg/L)	Reference Conc. (µg/L)	RBC (µg/L)	Number of Samples Exceeding both RC and RBC
Inorganics (4 shallow groundwater samples collected during each event)								
Cobalt	Dec. 95	Shallow	1/4	25.0	NA	**	2,200	0
	Apr. 96	Shallow	2/4	12.7 - 20.9	16.8	**	2,200	0
	June 96	Shallow	1/4	14.0	NA	**	2,200	0
	Oct. 96	Shallow	1/4	12.1	NA	**	2,200	0
Copper	Dec. 95	Shallow	2/4	7.5 - 9.9	8.7	15.7	1,500	0
	Apr. 96	Shallow	1/4	12.2	NA	15.7	1,500	0
	June 96	Shallow	2/4	6.7 - 7.1	6.9	15.7	1,500	0
	Oct. 96	Shallow	2/4	2.0 - 5.5	3.7	15.7	1,500	0
Iron	Dec. 95	Shallow	4/4	260 - 25,800	9,800	NA	NA	NA
	Apr. 96	Shallow	4/4	2,570 - 32,300	18,600	NA	NA	NA
	June 96	Shallow	4/4	2,260 - 32,100	12,500	NA	NA	NA
	Oct. 96	Shallow	4/4	192 - 28,000	8,130	NA	NA	NA
Lead	Dec. 95	Shallow	0/4	NA	NA	4.7	15*	0
	Apr. 96	Shallow	2/4	2.1 - 7.6	4.9	4.7	15*	0
	June 96	Shallow	2/4	2.2 - 2.5	2.4	4.7	15*	0
	Oct. 96	Shallow	1/4	1.6	NA	4.7	15*	0
Magnesium	Dec. 95	Shallow	4/4	4,900 - 23,400	11,100	NA	NA	NA
	Apr. 96	Shallow	4/4	3,800 - 43,900	16,100	NA	NA	NA
	June 96	Shallow	4/4	3,370 - 35,200	13,500	NA	NA	NA
	Oct. 96	Shallow	4/4	2,790 - 9,370	6,350	NA	NA	NA
Manganese	Dec. 95	Shallow	4/4	232 - 827	444	577	840	0
	Apr. 96	Shallow	4/4	281 - 692	492	577	840	0
	June 96	Shallow	4/4	287 - 656	451	577	840	0
	Oct. 96	Shallow	4/4	18.6 - 533	273	577	840	0

Final Zone A RCRA Facility Investigation Report
 NAVBASE Charleston
 Section 10 — Site-Specific Evaluations
 Revision: 0

Table 10.5.7
 SWMU 42/AOC 505
 Inorganics Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Freq. of Detection	Range of Detections (µg/L)	Mean of Detections (µg/L)	Reference Conc. (µg/L)	RBC (µg/L)	Number of Samples Exceeding both RC and RBC
Inorganics (4 shallow groundwater samples collected during each event)								
Nickel	Dec. 95	Shallow	0/4	NA	NA	**	730	0
	Apr. 96	Shallow	0/4	NA	NA	**	730	0
	June 96	Shallow	0/4	NA	NA	**	730	0
	Oct. 96	Shallow	1/4	0.9	NA	**	730	0
Potassium	Dec. 95	Shallow	4/4	2,250 - 9,300	6,750	NA	NA	NA
	Apr. 96	Shallow	4/4	3,140 - 11,800	6,550	NA	NA	NA
	June 96	Shallow	4/4	3,950 - 10,800	6,620	NA	NA	NA
	Oct. 96	Shallow	4/4	4,600 - 12,700	8,910	NA	NA	NA
Selenium	Dec. 95	Shallow	0/4	NA	NA	**	180	0
	Apr. 96	Shallow	0/4	NA	NA	**	180	0
	June 96	Shallow	0/4	NA	NA	**	180	0
	Oct. 96	Shallow	1/4	3.1	NA	**	180	0
Silver	Dec. 95	Shallow	0/4	NA	NA	**	180	0
	Apr. 96	Shallow	0/4	NA	NA	**	180	0
	June 96	Shallow	0/4	NA	NA	**	180	0
	Oct. 96	Shallow	1/4	111	NA	**	180	0
Sodium	Dec. 95	Shallow	4/4	9,280 - 109,000	60,900	NA	NA	NA
	Apr. 96	Shallow	0/4	NA	NA	NA	NA	NA
	June 96	Shallow	4/4	11,300 - 108,000	77,300	NA	NA	NA
	Oct. 96	Shallow	3/4	19,900 - 80,300	59,000	NA	NA	NA
Tin	Dec. 95	Shallow	0/4	NA	NA	**	22,000	0
	Apr. 96	Shallow	0/4	NA	NA	**	22,000	0
	June 96	Shallow	0/4	NA	NA	**	22,000	0
	Oct. 96	Shallow	2/4	23.3 - 51.4	37.3	**	22,000	0

Table 10.5.7
SWMU 42/AOC 505
Inorganics Detected in Groundwater

Compound	Sampling Event	Sampling Interval	Freq. of Detection	Range of Detections ($\mu\text{g/L}$)	Mean of Detections ($\mu\text{g/L}$)	Reference Conc. ($\mu\text{g/L}$)	RBC ($\mu\text{g/L}$)	Number of Samples Exceeding both RC and RBC
Inorganics (4 shallow groundwater samples collected during each event)								
Vanadium	Dec. 95	Shallow	0/4	NA	NA	5.4	260	0
	Apr. 96	Shallow	1/4	61.0	NA	5.4	260	0
	June 96	Shallow	1/4	9.0	NA	5.4	260	0
	Oct. 96	Shallow	1/4	1.5	NA	5.4	260	0
Zinc	Dec. 95	Shallow	2/4	66.5 - 99.6	83.1	83.2	11,000	0
	Apr. 96	Shallow	0/4	NA	NA	83.2	11,000	0
	June 96	Shallow	1/4	25.6	NA	83.2	11,000	0
	Oct. 96	Shallow	0/4	NA	Na	83.2	11,000	0

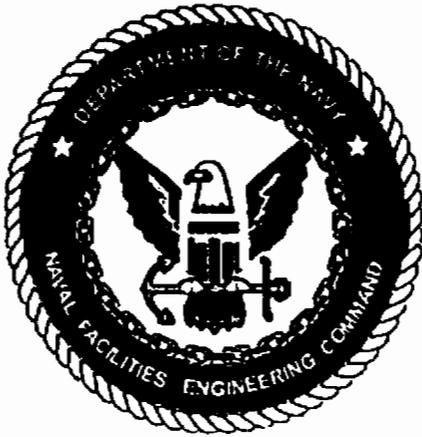
Notes:

- a = Lead does not have an RBC. Therefore, the USEPA Treatment Technique Action Level (TTAL) of 15 $\mu\text{g/L}$ has been substituted for the RBC.
- ** = Number of nondetects prevented determination of UTL.

Volatile Organic Compounds in Groundwater

Thirteen VOCs were detected in groundwater samples collected at SWMU 42/AOC 505; six exceeded their RBCs in one or more samples. The first-round sample from monitoring well NBCA-505-001 contained 3 of these exceedances – 1,4-dichlorobenzene, 1,1-dichloroethene, and 1,1,2,2-tetrachloroethane. These compounds were not detected in any other samples from this monitoring well or any other monitoring wells at this site. Similarly, chloromethane exceeded its RBC in its only site detection, the first-quarter sample from monitoring well NBCA-042-001.

Tetrachloroethene (PCE) and trichloroethene (TCE) were only detected in monitoring well NBCA-042-001. PCE was detected in three samples (first-, second-, and third-quarter) and each



COMPLETION REPORT

INTERIM MEASURE FOR
SWMU 42 FORMER ASPHALT PLANT TANKS
NAVAL BASE CHARLESTON
CHARLESTON, SC



Prepared for:

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



Prepared by:

Supervisor of Shipbuilding, Conversion and Repair,
USN, (SUPSHIP) Portsmouth Va.,
Environmental Detachment Charleston, S.C.
1899 North Hobson Ave.
North Charleston, SC 29405-2100

July 17, 1997



DEPARTMENT OF THE NAVY
SUPERVISOR OF SHIPBUILDING, CONVERSION AND REPAIR, USN
PORTSMOUTH VIRGINIA, DETACHMENT ENVIRONMENTAL CHARLESTON
899 NORTH HOBSON AVENUE, BUILDING 3C
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

IN REPLY REFER TO:

Ser: 784

JUL 24 1997

Mr. G. Randall Thompson, Director
Division of Hazardous and Infectious Waste Management
Bureau of Solid and Hazardous Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia SC 29201

Dear Mr. Thompson:

The enclosed interim measure completion report for Solid Waste Management Unit (SWMU) 42 is submitted to fulfill the requirement of Permit Condition IV.D.6 for Permit Number SCO 170 022 560. If the Department of Health and Environmental Control should have any questions, please contact Reece Batten of Southern Division Naval Facilities Engineering Command (NAVFAC) at (803) 820-5578.

Sincerely,

for E.R. Dearhart
E.R. Dearhart
Director

Encl:

(1) SWMU 42 Completion Report

Copy to:

SCDHEC (Mr. Tapia, Mr. Bergstrand)
USEPA (Mr. Bassett)
CSO Naval Base Charleston (LCDR Rose)
NAVFAC (Mr. Batten)
EA&H (Ms. Maddux)

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Table of Contents.....	ii
List of Figures & Tables.....	iii
List of Appendices.....	iii
Acronyms, Abbreviations and Symbols.....	iv
1. Introduction.....	1-1
1.1 Installation Restoration Program.....	1-1
1.1.1 Naval Base Charleston Installation Restoration Program.....	1-1
1.2 Interim Measures.....	1-1
1.3 Solid Waste Management Unit 42.....	1-1
1.4 Solid Waste Management Unit 42 Interim Measure.....	1-2
2. Interim Measure Execution.....	2-1
2.1 Actions Required by Interim Measure Work Plan.....	2-1
2.2 Observations Noted.....	2-1
2.3 Plan Modifications and Justification.....	2-1
3. Interim Measure Outcome.....	3-1
3.1 Site Conditions Following Completion of Work.....	3-1
4. Sampling.....	4-1
4.1 Sampling Evolutions and Results.....	4-1
4.1.1 Field Sampling.....	4-1
4.1.2 Confirmatory Sampling.....	4-1
4.1.3 Waste Characterization Sampling.....	4-1

TABLE OF CONTENTS (cont'd)

<u>Section</u>	<u>Page</u>
5. Waste Generation	5-1
5.1 Hazardous/Potentially Hazardous Waste	5-1
5.1.1 Hazardous Excavated Soil	5-1
5.2 Non-Hazardous Waste	5-1
5.2.1 Non-Hazardous Excavated Soil	5-1

FIGURES

Figure A-1	SWMU 42 Site Map.....	A-1
Figure B-1	SWMU 42 Confirmatory Sampling Grid Map & Location Data.....	B-1
Figure B-2	SWMU 42 Excavated Soil Stockpile Map	B-4

TABLES

Table B-1	SWMU 42 Confirmatory Sampling Results Summary	B-2
Table B-2	SWMU 42 Waste Characterization Sampling Results Summary	B-5
Appendix A	Site Map	A-1
Appendix B	Sampling Documentation	B-1
Appendix C	Waste Documentation	C-1
Appendix D	Photographs	D-1

ACRONYMS, ABBREVIATIONS and SYMBOLS

AOC	Area of Concern
BTEX	Benzene, Toluene, Ethylbenene, Xylenes
CMS	Corrective Measures Study
COPC	Constituents of Potential Concern
DERP	Defense Environmental Restoration Program
DET	Environmental Detachment Charleston
DON	Department of the Navy
IM	Interim Measure
IR	Installation Restoration
mg/kg (ppm)	milligrams per kilogram (equal to parts per million)
RBC	Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SARA	Superfund Amendments and Reauthorization Act
SCDHEC	South Carolina Department of Health and Environmental Control
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair, USN
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
USN	United States Navy
µg/kg (ppb)	micrograms per kilogram (equal to parts per billion)

1. INTRODUCTION

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

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

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

1.3 SOLID WASTE MANAGEMENT UNIT 42. SWMU 42 is located in Zone "A", north of Noisette Creek. Figure A-1 of Appendix A illustrates the site. This SWMU consists of a former asphalt plant, associated tanks and storage area. The unit operated from 1947 until 1962 and has since been demolished. Since the unit was taken out of service in the late 1960s into the early 1970s, little information was obtain about dimensions, design features, operating practices, or waste disposal methods. The site currently contains Building 1803, a Golf Course

Maintenance Building. The unpaved surrounding area contains rock, asphalt debris and racks used to support asphalt-related above ground storage tanks. The RFI identified Lead as the Constituent of Potential Concern (COPC) at this site.

1.4 SOLID WASTE MANAGEMENT UNIT 42 INTERIM MEASURE. During the interval between the RFI and the completion of the CMS, it was decided by Southern Division Naval Facilities Engineering Command (SOUTHDIV) that an IM would be performed by Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), United States Navy (USN), Portsmouth Va. Environmental Detachment Charleston (DET). The objective of this IM was to remove and dispose of the contaminated lead soil having levels greater than 400 parts per million (ppm) as the controlling guidance for cleanup.

2. INTERIM MEASURE EXECUTION

2.1 ACTIONS REQUIRED BY INTERIM MEASURE WORK PLAN. Removal was performed on an estimated 5.4 cubic yards of lead contaminated soil. This contaminated soil had lead levels greater than 400 ppm. Required action included excavation from the following areas. Excavation locations are shown on Figure A-1.

- Soil boring 505-S-B005 was excavated to an area approximately 6' x 6' and 2 foot in depth.
- Soil boring 042-S-B009 was excavated to an area approximately 6' x 6' and 2 foot in depth.

2.2 OBSERVATIONS NOTED. None.

2.3 PLAN MODIFICATIONS AND JUSTIFICATION. None.

3. INTERIM MEASURE OUTCOME

3.1 SITE CONDITIONS FOLLOWING COMPLETION OF WORK. Following completion of all site work on 21 May 1997, the excavated areas were backfilled with clean soil. All excavated waste was characterized as non-hazardous and transported to a Sub Title "D" land fill. Photos D-1 and D-2 of Appendix D reflect conditions at the site during removal of contaminated soil. Photos D-3 and D-4 reflect conditions at the site after completion of IM.

4. SAMPLING

4.1 SAMPLING EVOLUTIONS AND RESULTS.

4.1.1 Field Sampling. None.

4.1.2 Confirmatory Sampling. Following excavation, confirmatory samples (grab) were taken. These samples were collected at the bottom and sidewalls of each excavated area. These samples were analyzed for Lead. A copy of the analytical results of all confirmatory samples is included in Appendix B. Table B-1 of Appendix B summarizes the results and sample coordinates. Figure B-1 of Appendix B illustrates the sampling locations. There were no detections of Lead above 400 ppm.

4.1.3 Waste Characterization Sampling. One composite sample was collected from each stockpile of excavated soil and submitted for laboratory analysis for waste characterization. A Toxicity Characteristic Leaching Procedure (TCLP) was done on the waste soil and determined to be non-hazardous. A copy of the analytical results of all waste characterization samples is included in Appendix B. Table B-2 of Appendix B summarizes these samples. Figure B-2 of Appendix B illustrates the arrangement of all stockpiled soil excavated from the site with its corresponding sample identification number.

5. WASTE GENERATION

5.1 HAZARDOUS/POTENTIALLY HAZARDOUS WASTE. No hazardous waste was generated at this site.

5.1.1 Hazardous Excavated Soil. No hazardous soil was generated at this site.

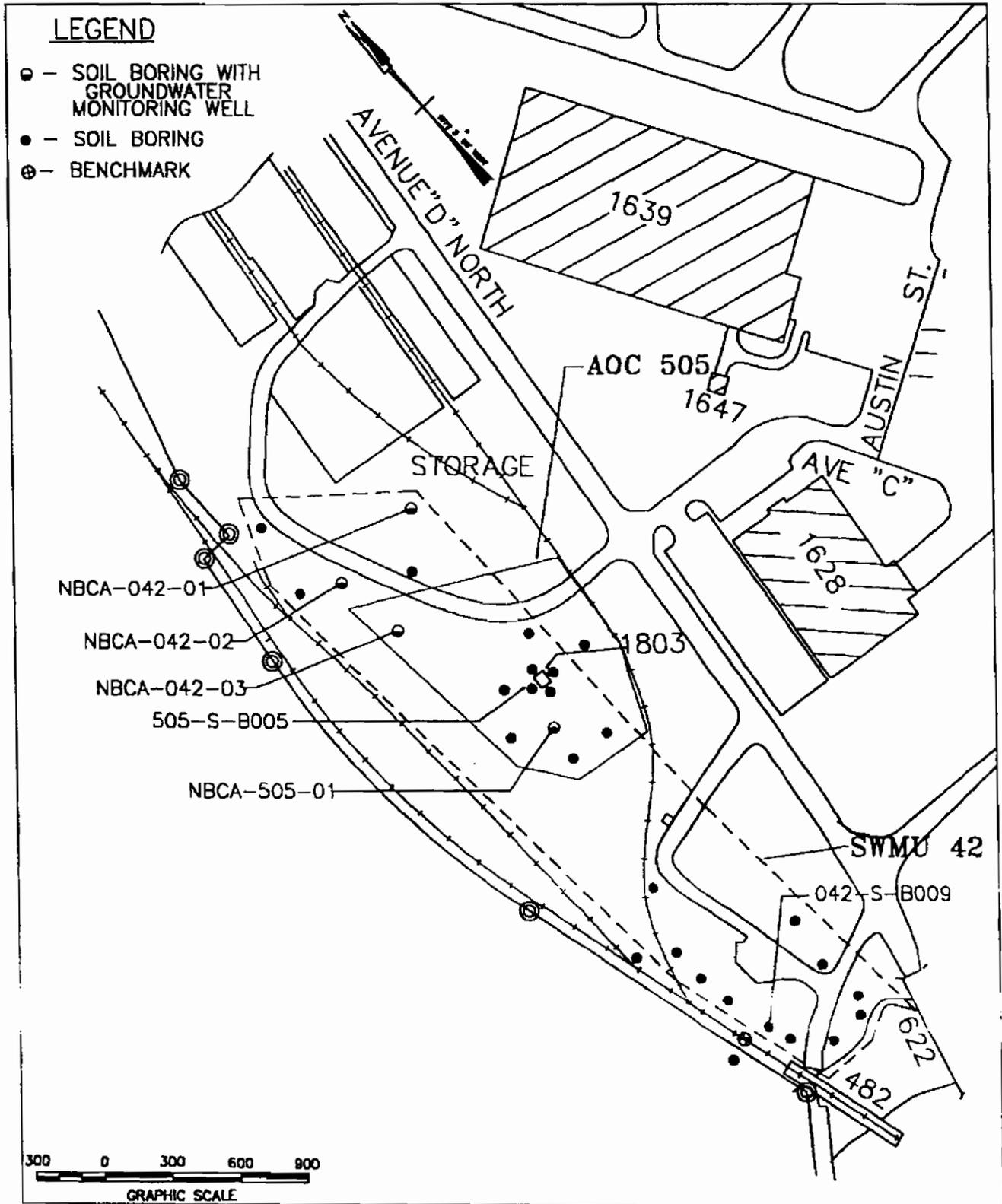
5.2 NON-HAZARDOUS WASTE. Approximately 5.4 cubic yards of non-hazardous waste was generated at this site.

5.2.1 Non-Hazardous Excavated Soil. The excavated non-hazardous soil was transported from SWMU 42 to Chambers Oakridge landfill.

APPENDIX A

SITE MAPS

FIGURE A-1
SWMU 42 SITE MAP



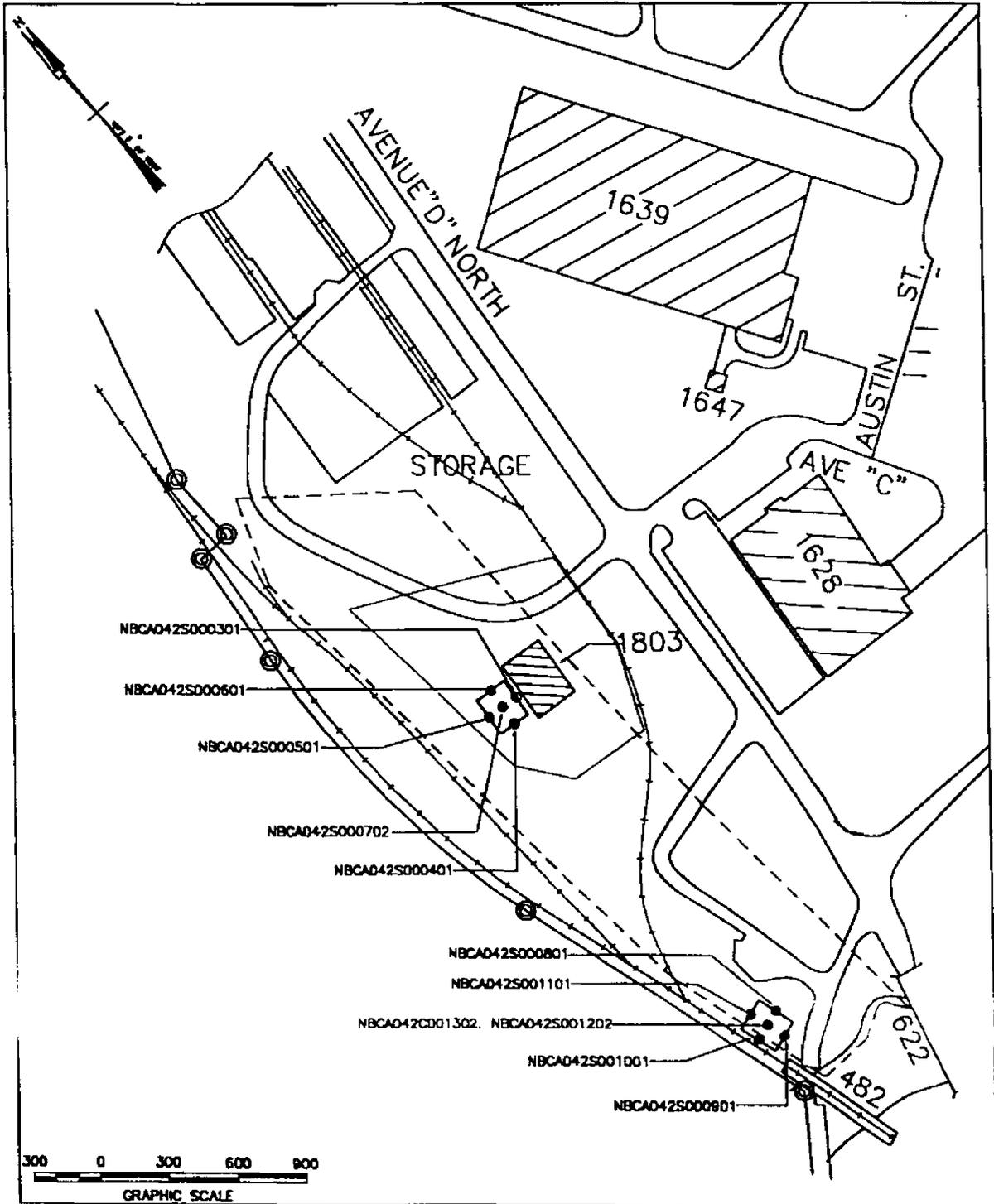
APPENDIX B

SAMPLING

DOCUMENTATION

FIGURE B-1

SWMU 42 CONFIRMATORY SAMPLING GRID MAP



B-1

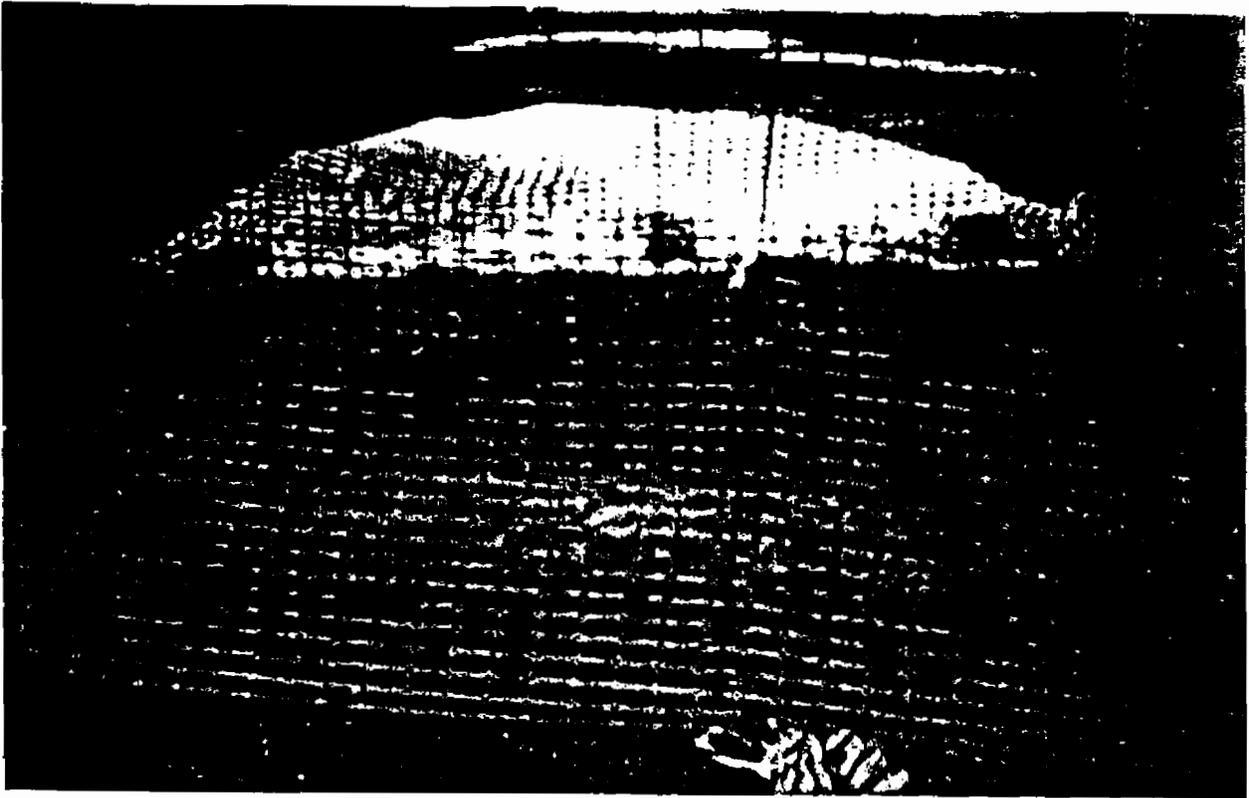


Photo D-1 Excavation viewed from south end of site 1.

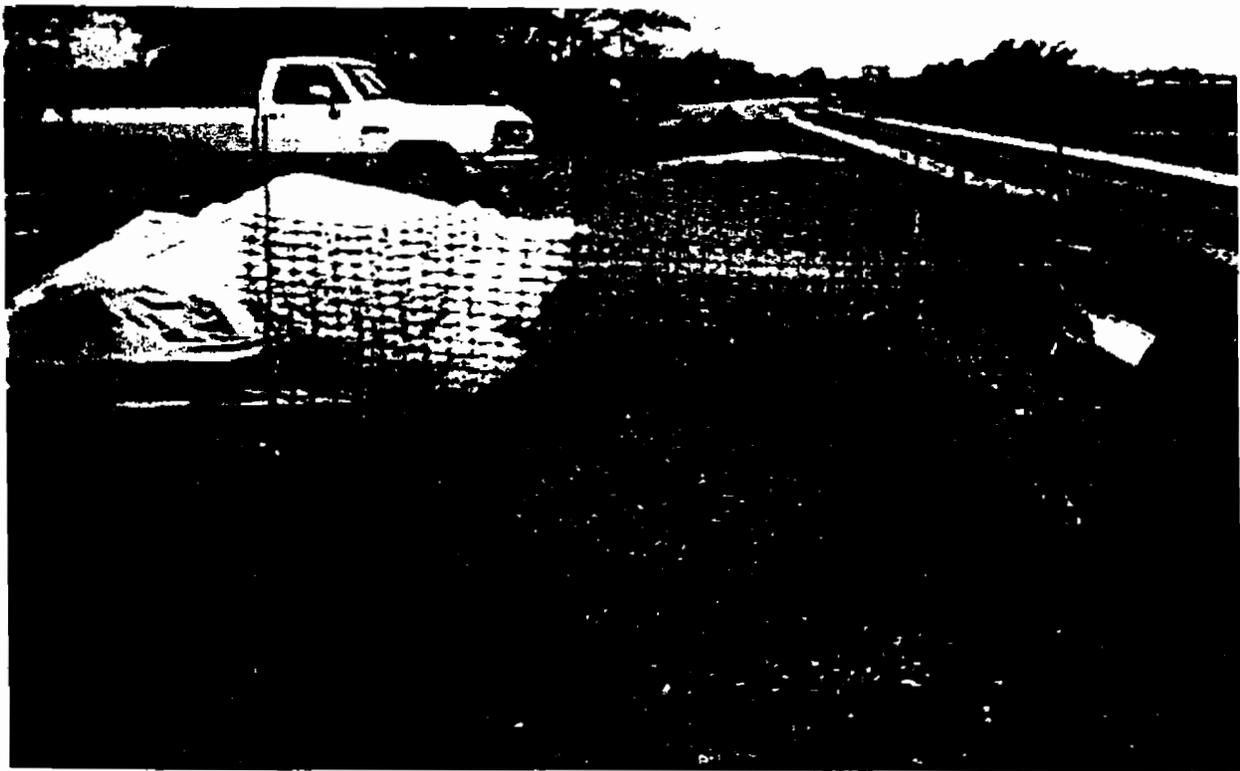


Photo D-2 Excavation viewed from north end of site 2.



Photo D-3 Work plan complete, waste soil and security fence removed , excavation filled in and viewed from south end of site 1.

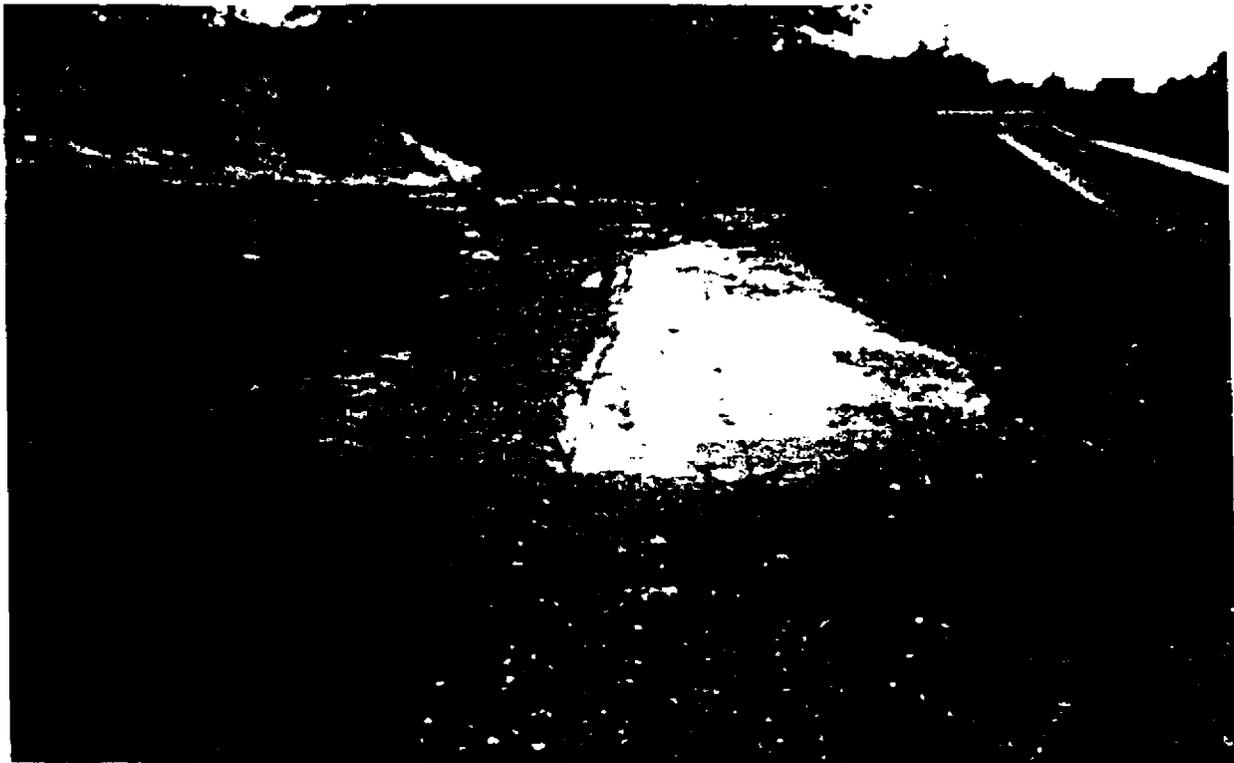


Photo D-4 Work plan complete, waste soil and security fence removed, excavation filled in and viewed from north end of site 2.

Analytical Data Summary

12/19/20 1:18 PM

		A042SB026		A042SB026		A042SB026		A042SB027	
StationID		A042SB026		A042SB026		A042SB026		A042SB027	
SampleID		042SB02601 (0-1ft)		042SB02601 (0-1ft)		042SB02601 (0-1ft)		042SB02701 (0-1ft)	
DateCollected		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
DateAnalyzed		10/25/1998		10/26/1998		10/27/1998		10/25/1998	
SDGNumber		EN008		EN008		EN008		EN008	
Parameter	Units								
Arsenic	mg/Kg	0.9	J					1.4	=
Beryllium	mg/Kg	0.1	J					0.11	J
Lead	mg/Kg								

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB028		A042SB029		A042SB030		A042SB031		
SampleID	042SB02801 (0-1ft)		042SB02901 (0-1ft)		042SB03001 (0-1ft)		042SB03101 (0-1ft)		
DateCollected	10/13/1998 12:00 AM								
DateAnalyzed	10/25/1998		10/25/1998		10/25/1998		10/25/1998		
SDGNumber	EN008		EN008		EN008		EN008		
Parameter	Units								
Arsenic	mg/Kg	1.1	=	3.5	=	3.8	=	5.3	=
Beryllium	mg/Kg	0.08	J	0.17	J	0.12	J	0.25	J
Lead	mg/Kg								

Analytical Data Summary

12/19/2000 1:18 PM

	StationID	A042SB032		A042SB032		A042SB033		A042SB033	
	SampleID	042CB03201 (0-1ft)		042SB03201 (0-1ft)		042SB03301 (0-1ft)		042SB03301 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/25/1998		10/25/1998		10/25/1998		10/26/1998	
	SDGNumber	EN008		EN008		EN008		EN008	
Parameter	Units								
Arsenic	mg/Kg	1.9	=	0.62	J	0.65	J		
Beryllium	mg/Kg	0.35	J	0.14	J	0.14	J		
Lead	mg/Kg								

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB033		A042SB034		A042SB035		A042SB036	
SampleID	042SB03301 (0-1ft)		042SB03401 (0-1ft)		042SB03501 (0-1ft)		042SB03601 (0-1ft)	
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
DateAnalyzed	10/27/1998		10/25/1998		10/25/1998		10/25/1998	
SDGNumber	EN008		EN008		EN008		EN008	
Parameter	Units							
Arsenic	mg/Kg		4.4	=	2.8	=	1.4	=
Beryllium	mg/Kg		0.24	J	0.22	J	0.21	J
Lead	mg/Kg							

Analytical Data Summary

12/19/2006 1:18 PM

	StationID	A042SB037		A042SB037		A042SB037		A042SB038	
	SampleID	042SB03701 (0-1ft)		042SB03701 (0-1ft)		042SB03701 (0-1ft)		042SB03801 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/25/1998		10/26/1998		10/27/1998		11/19/1998	
	SDGNumber	EN008		EN008		EN008		EN009	
Parameter	Units								
Arsenic	mg/Kg	3.3	=					2.9	=
Beryllium	mg/Kg	0.12	J					0.27	J
Lead	mg/Kg								

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB039		A042SB040		A042SB040		A042SB040		
SampleID	042SB03901 (0-1ft)		042SB04001 (0-1ft)		042SB04001 (0-1ft)		042SB04001 (0-1ft)		
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		
DateAnalyzed	11/19/1998		10/26/1998		10/27/1998		11/19/1998		
SDGNumber	EN009		EN009		EN009		EN009		
Parameter	Units								
Arsenic	mg/Kg	1.8	=					4.8	J
Beryllium	mg/Kg	0.25	J					0.57	=
Lead	mg/Kg								

Analytical Data Summary

12/19/2000 1:18 PM

StationID	A042SB041		A042SB042		A042SB043		A042SB044		
SampleID	042SB04101 (0-1ft)		042SB04201 (0-1ft)		042SB04301 (0-1ft)		042SB04401 (0-1ft)		
DateCollected	10/14/1998 12:00 AM		10/14/1998 12:00 AM		10/14/1998 12:00 AM		2/22/1999 12:00 AM		
DateAnalyzed	11/19/1998		11/19/1998		11/19/1998		03/01/1999		
SDGNumber	EN009		EN009		EN009		37516		
Parameter	Units								
Arsenic	mg/Kg	2.4	=	8.6	=	3	=	28	=
Beryllium	mg/Kg	0.16	J	0.2	J	0.17	J		
Lead	mg/Kg								

Analytical Data Summary

12/19/2001 1:18 PM

StationID		A042SB045		A042SB046		A042SB047		A042SB048	
SampleID		042SB04501 (0-1ft)		042SB04601 (0-1ft)		042SB04701 (0-1ft)		042SB04801 (0-1ft)	
DateCollected		2/22/1999 12:00 AM		2/22/1999 12:00 AM		2/22/1999 12:00 AM		2/22/1999 12:00 AM	
DateAnalyzed		03/01/1999		03/01/1999		03/01/1999		03/01/1999	
SDGNumber		37516		37516		37516		37516	
Parameter	Units								
Arsenic	mg/Kg	4.5	=	36.9	=	14.3	=	2.1	=
Beryllium	mg/Kg								
Lead	mg/Kg								

Analytical Data Summary

12/19/2000 1:18 PM

StationID	A042SB049		A042SBC01		A042SBC01		A042SBC01	
SampleID	042SB04901 (0-1ft)		042SBC0101 (0-1ft)		042SBC011A (0-1ft)		042SBC011B (0-1ft)	
DateCollected	2/22/1999 12:00 AM		3/16/1999 12:00 AM		3/16/1999 12:00 AM		3/16/1999 12:00 AM	
DateAnalyzed	03/01/1999		03/24/1999		04/09/1999		04/09/1999	
SDGNumber	37516		37773		37773		37773	
Parameter	Units							
Arsenic	mg/Kg	4.6	=					
Beryllium	mg/Kg							
Lead	mg/Kg			61.5	=			

Analytical Data Summary

12/19/2001 1:18 PM

	StationID	A042SBC02	A042SBC02	A042SBC02	A042SBC03
	SampleID	042SBC0201 (0-1ft)	042SBC021A (0-1ft)	042SBC021B (0-1ft)	042SBC0301 (0-1ft)
	DateCollected	3/16/1999 12:00 AM	3/16/1999 12:00 AM	3/16/1999 12:00 AM	3/16/1999 12:00 AM
	DateAnalyzed	03/24/1999	04/09/1999	04/09/1999	03/24/1999
	SDGNumber	37773	37773	37773	37773
Parameter	Units				
Arsenic	mg/Kg				
Beryllium	mg/Kg				
Lead	mg/Kg	48.7	=		323 =

StationID	A042SBC04
SampleID	042SBC0401 (0-1ft)
DateCollected	3/16/1999 12:00 AM
DateAnalyzed	03/24/1999
SDGNumber	37773

Parameter	Units		
Arsenic	mg/Kg		
Beryllium	mg/Kg		
Lead	mg/Kg	163	=

Analytical Data Summary

12/19/2001 1:18 PM

Parameter	Units	StationID	A042SB026		A042SB027		A042SB028						
		SampleID	DateCollected	DateAnalyzed	SDGNumber	SampleID	DateCollected	DateAnalyzed	SDGNumber				
2,2'-Oxybis(1-chloro)propane	ug/Kg	042SB02601 (0-1ft)	10/13/1998 12:00 AM	11/09/1998	EN008	042SB02701 (0-1ft)	10/13/1998 12:00 AM	10/30/1998	EN008	042SB02801 (0-1ft)	10/13/1998 12:00 AM	10/30/1998	EN008
Phenanthrene	ug/Kg												
Phenol	ug/Kg												
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg												
2-Chlorophenol	ug/Kg												
1,3-Dichlorobenzene	ug/Kg												
1,4-Dichlorobenzene	ug/Kg												
Benzyl alcohol	ug/Kg												
1,2-Dichlorobenzene	ug/Kg												
2-Methylphenol (o-Cresol)	ug/Kg												
N-Nitrosodi-n-propylamine	ug/Kg												
4-Methylphenol (p-Cresol)	ug/Kg												
Hexachloroethane	ug/Kg												
Nitrobenzene	ug/Kg												
Isophorone	ug/Kg												
2-Nitrophenol	ug/Kg												
2,4-Dimethylphenol	ug/Kg												
bis(2-Chloroethoxy) Methane	ug/Kg												
2,4-Dichlorophenol	ug/Kg												
Benzoic acid	ug/Kg												
1,2,4--Trichlorobenzene	ug/Kg												
Naphthalene	ug/Kg												
4-Chloroaniline	ug/Kg												
Hexachlorobutadiene	ug/Kg												
4-Chloro-3-methylphenol	ug/Kg												
2-Methylnaphthalene	ug/Kg												
Hexachlorocyclopentadiene	ug/Kg												
2,4,6-Trichlorophenol	ug/Kg												
2,4,5-Trichlorophenol	ug/Kg												
2-Chloronaphthalene	ug/Kg												
2-Nitroaniline	ug/Kg												

	StationID	A042SB029		A042SB030		A042SB031	
	SampleID	042SB02901 (0-1ft)		042SB03001 (0-1ft)		042SB03101 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/30/1998		10/30/1998		10/30/1998	
	SDGNumber	EN008		EN008		EN008	
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	380	U	380	U	370	U
Phenanthrene	ug/Kg	380	U	380	U	370	U
Phenol	ug/Kg	380	U	380	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380	U	380	U	370	U
2-Chlorophenol	ug/Kg	380	U	380	U	370	U
1,3-Dichlorobenzene	ug/Kg	380	U	380	U	370	U
1,4-Dichlorobenzene	ug/Kg	380	U	380	U	370	U
Benzyl alcohol	ug/Kg	380	U	380	U	370	U
1,2-Dichlorobenzene	ug/Kg	380	U	380	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	380	U	380	U	370	U
N-Nitrosodi-n-propylamine	ug/Kg	380	U	380	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	380	U	380	U	370	U
Hexachloroethane	ug/Kg	380	U	380	U	370	U
Nitrobenzene	ug/Kg	380	U	380	U	370	U
Isophorone	ug/Kg	380	U	380	U	370	U
2-Nitrophenol	ug/Kg	380	U	380	U	370	U
2,4-Dimethylphenol	ug/Kg	380	U	380	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	380	U	380	U	370	U
2,4-Dichlorophenol	ug/Kg	380	U	380	U	370	U
Benzoic acid	ug/Kg	1900	U	1900	U	1900	U
1,2,4--Trichlorobenzene	ug/Kg	380	U	380	U	370	U
Naphthalene	ug/Kg	380	U	380	U	370	U
4-Chloroaniline	ug/Kg	380	U	380	U	370	U
Hexachlorobutadiene	ug/Kg	380	U	380	U	370	U
4-Chloro-3-methylphenol	ug/Kg	380	U	380	U	370	U
2-Methylnaphthalene	ug/Kg	380	U	380	U	370	U
Hexachlorocyclopentadiene	ug/Kg	380	U	380	U	370	U
2,4,6-Trichlorophenol	ug/Kg	380	U	380	U	370	U
2,4,5-Trichlorophenol	ug/Kg	380	U	380	U	370	U
2-Chloronaphthalene	ug/Kg	380	U	380	U	370	U
2-Nitroaniline	ug/Kg	380	U	380	U	370	U

Analytical Data Summary

12/19/2001 1:18 PM

Parameter	Units	A042SB032		A042SB032		A042SB033							
		StationID	SampleID	DateCollected	DateAnalyzed	StationID	SampleID	DateCollected	DateAnalyzed	StationID	SampleID	DateCollected	DateAnalyzed
				042CB03201 (0-1ft)	10/13/1998 12:00 AM	042SB03201 (0-1ft)	10/13/1998 12:00 AM	042SB03301 (0-1ft)	10/13/1998 12:00 AM				
				10/30/1998	10/30/1998	10/30/1998	10/30/1998	10/30/1998	10/30/1998				
				EN008	EN008	EN008	EN008	EN008	EN008				
2,2'-Oxybis(1-chloro)propane	ug/Kg	380	U	380	U	370	U						
Phenanthrene	ug/Kg	380	U	380	U	120	J						
Phenol	ug/Kg	380	U	380	U	370	U						
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380	U	380	U	370	U						
2-Chlorophenol	ug/Kg	380	U	380	U	370	U						
1,3-Dichlorobenzene	ug/Kg	380	U	380	U	370	U						
1,4-Dichlorobenzene	ug/Kg	380	U	380	U	370	U						
Benzyl alcohol	ug/Kg	380	U	380	U	370	U						
1,2-Dichlorobenzene	ug/Kg	380	U	380	U	370	U						
2-Methylphenol (o-Cresol)	ug/Kg	380	U	380	U	370	U						
N-Nitrosodi-n-propylamine	ug/Kg	380	U	380	U	370	U						
4-Methylphenol (p-Cresol)	ug/Kg	380	U	380	U	370	U						
Hexachloroethane	ug/Kg	380	U	380	U	370	U						
Nitrobenzene	ug/Kg	380	U	380	U	370	U						
Isophorone	ug/Kg	380	U	380	U	370	U						
2-Nitrophenol	ug/Kg	380	U	380	U	370	U						
2,4-Dimethylphenol	ug/Kg	380	U	380	U	370	U						
bis(2-Chloroethoxy) Methane	ug/Kg	380	U	380	U	370	U						
2,4-Dichlorophenol	ug/Kg	380	U	380	U	370	U						
Benzoic acid	ug/Kg	1900	U	1900	U	1800	U						
1,2,4--Trichlorobenzene	ug/Kg	380	U	380	U	370	U						
Naphthalene	ug/Kg	380	U	380	U	370	U						
4-Chloroaniline	ug/Kg	380	U	380	U	370	U						
Hexachlorobutadiene	ug/Kg	380	U	380	U	370	U						
4-Chloro-3-methylphenol	ug/Kg	380	U	380	U	370	U						
2-Methylnaphthalene	ug/Kg	380	U	380	U	370	U						
Hexachlorocyclopentadiene	ug/Kg	380	U	380	U	370	U						
2,4,6-Trichlorophenol	ug/Kg	380	U	380	U	370	U						
2,4,5-Trichlorophenol	ug/Kg	380	U	380	U	370	U						
2-Chloronaphthalene	ug/Kg	380	U	380	U	370	U						
2-Nitroaniline	ug/Kg	380	U	380	U	370	U						

	StationID	A042SB034		A042SB035		A042SB036	
	SampleID	042SB03401 (0-1ft)		042SB03501 (0-1ft)		042SB03601 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/30/1998		10/30/1998		11/01/1998	
	SDGNumber	EN008		EN008		EN008	
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	380	U	380	U	400	U
Phenanthrene	ug/Kg	380	U	380	U	400	U
Phenol	ug/Kg	380	U	380	U	400	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380	U	380	U	400	U
2-Chlorophenol	ug/Kg	380	U	380	U	400	U
1,3-Dichlorobenzene	ug/Kg	380	U	380	U	400	U
1,4-Dichlorobenzene	ug/Kg	380	U	380	U	400	U
Benzyl alcohol	ug/Kg	380	U	380	U	400	U
1,2-Dichlorobenzene	ug/Kg	380	U	380	U	400	U
2-Methylphenol (o-Cresol)	ug/Kg	380	U	380	U	400	U
N-Nitrosodi-n-propylamine	ug/Kg	380	U	380	U	400	U
4-Methylphenol (p-Cresol)	ug/Kg	380	U	380	U	400	U
Hexachloroethane	ug/Kg	380	U	380	U	400	U
Nitrobenzene	ug/Kg	380	U	380	U	400	U
Isophorone	ug/Kg	380	U	380	U	400	U
2-Nitrophenol	ug/Kg	380	U	380	U	400	U
2,4-Dimethylphenol	ug/Kg	380	U	380	U	400	U
bis(2-Chloroethoxy) Methane	ug/Kg	380	U	380	U	400	U
2,4-Dichlorophenol	ug/Kg	380	U	380	U	400	U
Benzoic acid	ug/Kg	1900	U	1900	U	2000	U
1,2,4--Trichlorobenzene	ug/Kg	380	U	380	U	400	U
Naphthalene	ug/Kg	380	U	380	U	400	U
4-Chloroaniline	ug/Kg	380	U	380	U	400	U
Hexachlorobutadiene	ug/Kg	380	U	380	U	400	U
4-Chloro-3-methylphenol	ug/Kg	380	U	380	U	400	U
2-Methylnaphthalene	ug/Kg	380	U	380	U	400	U
Hexachlorocyclopentadiene	ug/Kg	380	U	380	U	400	U
2,4,6-Trichlorophenol	ug/Kg	380	U	380	U	400	U
2,4,5-Trichlorophenol	ug/Kg	380	U	380	U	400	U
2-Chloronaphthalene	ug/Kg	380	U	380	U	400	U
2-Nitroaniline	ug/Kg	380	U	380	U	400	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB037		A042SB038		A042SB039		
SampleID	042SB03701 (0-1ft)		042SB03801 (0-1ft)		042SB03901 (0-1ft)		
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		
DateAnalyzed	11/01/1998		11/05/1998		11/05/1998		
SDGNumber	EN008		EN009		EN009		
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	380	U	370	U	370	U
Phenanthrene	ug/Kg	380	U	370	U	370	U
Phenol	ug/Kg	380	U	370	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380	U	370	U	370	U
2-Chlorophenol	ug/Kg	380	U	370	U	370	U
1,3-Dichlorobenzene	ug/Kg	380	U	370	U	370	U
1,4-Dichlorobenzene	ug/Kg	380	U	370	U	370	U
Benzyl alcohol	ug/Kg	380	U	370	U	370	U
1,2-Dichlorobenzene	ug/Kg	380	U	370	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	380	U	370	U	370	U
N-Nitrosodi-n-propylamine	ug/Kg	380	U	370	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	380	U	370	U	370	U
Hexachloroethane	ug/Kg	380	U	370	U	370	U
Nitrobenzene	ug/Kg	380	U	370	U	370	U
Isophorone	ug/Kg	380	U	370	U	370	U
2-Nitrophenol	ug/Kg	380	U	370	U	370	U
2,4-Dimethylphenol	ug/Kg	380	U	370	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	380	U	370	U	370	U
2,4-Dichlorophenol	ug/Kg	380	U	370	U	370	U
Benzoic acid	ug/Kg	1900	U	1900	U	1900	U
1,2,4--Trichlorobenzene	ug/Kg	380	U	370	U	370	U
Naphthalene	ug/Kg	380	U	370	U	370	U
4-Chloroaniline	ug/Kg	380	U	370	U	370	U
Hexachlorobutadiene	ug/Kg	380	U	370	U	370	U
4-Chloro-3-methylphenol	ug/Kg	380	U	370	U	370	U
2-Methylnaphthalene	ug/Kg	380	U	370	U	370	U
Hexachlorocyclopentadiene	ug/Kg	380	U	370	U	370	U
2,4,6-Trichlorophenol	ug/Kg	380	U	370	U	370	U
2,4,5-Trichlorophenol	ug/Kg	380	U	370	U	370	U
2-Chloronaphthalene	ug/Kg	380	U	370	U	370	U
2-Nitroaniline	ug/Kg	380	U	370	U	370	U

Analytical Data Summary

12/19/2000 1:18 PM

	StationID	A042SB040		A042SB040		A042SB041	
	SampleID	042SB04001 (0-1ft)		042SB04001RE (0-1ft)		042SB04101 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/14/1998 12:00 AM	
	DateAnalyzed	11/05/1998		11/12/1998		11/12/1998	
	SDGNumber	EN009		EN009		EN009	
Parameter	Units						
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	370	R	370	U
Phenanthrene	ug/Kg	130	J	1400	R	370	U
Phenol	ug/Kg	370	R	370	R	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U	370	R	370	U
2-Chlorophenol	ug/Kg	370	R	370	R	370	U
1,3-Dichlorobenzene	ug/Kg	370	U	370	R	370	U
1,4-Dichlorobenzene	ug/Kg	370	U	370	R	370	U
Benzyl alcohol	ug/Kg	370	U	370	R	370	U
1,2-Dichlorobenzene	ug/Kg	370	U	370	R	370	U
2-Methylphenol (o-Cresol)	ug/Kg	370	R	370	R	370	U
N-Nitrosodi-n-propylamine	ug/Kg	370	U	370	R	370	R
4-Methylphenol (p-Cresol)	ug/Kg	370	R	370	R	370	U
Hexachloroethane	ug/Kg	370	U	370	R	370	U
Nitrobenzene	ug/Kg	370	U	370	R	370	U
Isophorone	ug/Kg	370	U	370	R	370	U
2-Nitrophenol	ug/Kg	370	R	370	R	370	U
2,4-Dimethylphenol	ug/Kg	370	R	370	R	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U	370	R	370	U
2,4-Dichlorophenol	ug/Kg	370	R	370	R	370	U
Benzoic acid	ug/Kg	1900	R	1900	R	1900	U
1,2,4--Trichlorobenzene	ug/Kg	370	U	370	R	370	U
Naphthalene	ug/Kg	370	U	330	R	370	U
4-Chloroaniline	ug/Kg	370	U	370	R	370	U
Hexachlorobutadiene	ug/Kg	370	U	370	R	370	U
4-Chloro-3-methylphenol	ug/Kg	370	R	370	R	370	U
2-Methylnaphthalene	ug/Kg	370	U	93	R	370	U
Hexachlorocyclopentadiene	ug/Kg	370	U	370	R	370	U
2,4,6-Trichlorophenol	ug/Kg	370	R	370	R	370	U
2,4,5-Trichlorophenol	ug/Kg	370	R	370	R	370	U
2-Chloronaphthalene	ug/Kg	370	U	370	R	370	U
2-Nitroaniline	ug/Kg	370	U	370	R	370	U

Analytical Data Summary

12/19/2001 1:18 PM

	StationID	A042SB042		A042SB043	
	SampleID	042SB04201 (0-1ft)		042SB04301 (0-1ft)	
	DateCollected	10/14/1998 12:00 AM		10/14/1998 12:00 AM	
	DateAnalyzed	11/12/1998		11/12/1998	
	SDGNumber	EN009		EN009	
Parameter	Units				
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	370	U
Phenanthrene	ug/Kg	150	J	370	U
Phenol	ug/Kg	370	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U	370	U
2-Chlorophenol	ug/Kg	370	U	370	U
1,3-Dichlorobenzene	ug/Kg	370	U	370	U
1,4-Dichlorobenzene	ug/Kg	370	U	370	U
Benzyl alcohol	ug/Kg	370	U	370	U
1,2-Dichlorobenzene	ug/Kg	370	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	370	U	370	U
N-Nitrosodi-n-propylamine	ug/Kg	370	R	370	R
4-Methylphenol (p-Cresol)	ug/Kg	370	U	370	U
Hexachloroethane	ug/Kg	370	U	370	U
Nitrobenzene	ug/Kg	370	U	370	U
Isophorone	ug/Kg	370	U	370	U
2-Nitrophenol	ug/Kg	370	U	370	U
2,4-Dimethylphenol	ug/Kg	370	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U	370	U
2,4-Dichlorophenol	ug/Kg	370	U	370	U
Benzoic acid	ug/Kg	1900	U	1900	U
1,2,4--Trichlorobenzene	ug/Kg	370	U	370	U
Naphthalene	ug/Kg	370	U	370	U
4-Chloroaniline	ug/Kg	370	U	370	U
Hexachlorobutadiene	ug/Kg	370	U	370	U
4-Chloro-3-methylphenol	ug/Kg	370	U	370	U
2-Methylnaphthalene	ug/Kg	370	U	370	U
Hexachlorocyclopentadiene	ug/Kg	370	U	370	U
2,4,6-Trichlorophenol	ug/Kg	370	U	370	U
2,4,5-Trichlorophenol	ug/Kg	370	U	370	U
2-Chloronaphthalene	ug/Kg	370	U	370	U
2-Nitroaniline	ug/Kg	370	U	370	U

	StationID	A042SB026		A042SB027		A042SB028	
	SampleID	042SB02601 (0-1ft)		042SB02701 (0-1ft)		042SB02801 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	11/09/1998		10/30/1998		10/30/1998	
	SDGNumber	EN008		EN008		EN008	
Parameter	Units						
3-Nitroaniline	ug/Kg	370	UJ	390	U	400	U
Dimethyl Phthalate	ug/Kg	370	UJ	390	U	400	U
2,6-Dinitrotoluene	ug/Kg	370	UJ	390	U	400	U
Acenaphthylene	ug/Kg	370	UJ	390	U	400	U
Acenaphthene	ug/Kg	370	UJ	390	U	400	U
2,4-Dinitrophenol	ug/Kg	730	UJ	780	U	800	U
Dibenzofuran	ug/Kg	370	UJ	390	U	400	U
2,4-Dinitrotoluene	ug/Kg	370	UJ	390	U	400	U
Diethyl Phthalate	ug/Kg	370	UJ	390	U	400	U
4-Nitrophenol	ug/Kg	730	UJ	780	U	800	U
Fluorene	ug/Kg	370	UJ	390	U	400	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	UJ	390	U	400	U
4,6-Dinitro-2-methylphenol	ug/Kg	730	UJ	780	U	800	U
4-Nitroaniline	ug/Kg	370	UJ	390	U	400	U
N-Nitrosodiphenylamine	ug/Kg	370	UJ	390	U	400	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	UJ	390	U	400	U
Hexachlorobenzene	ug/Kg	370	UJ	390	U	400	U
Pentachlorophenol	ug/Kg	730	UJ	780	U	800	U
Anthracene	ug/Kg	370	UJ	390	U	400	U
Di-n-butyl Phthalate	ug/Kg	370	UJ	390	U	400	U
Flouranthene	ug/Kg	370	UJ	390	U	400	U
Pyrene	ug/Kg	370	UJ	390	U	400	U
Benzyl Butyl Phthalate	ug/Kg	370	UJ	390	U	400	U
Benzo(a)Anthracene	ug/Kg	370	UJ	390	U	400	U
3,3'-Dichlorobenzidine	ug/Kg	370	UJ	390	U	400	U
Chrysene	ug/Kg	370	UJ	390	U	400	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	UJ	390	U	400	U
Di-n-octylphthalate	ug/Kg	370	UJ	390	U	400	U
Benzo(b)Fluoranthene	ug/Kg	370	UJ	390	U	400	U
Benzo(k)Fluoranthene	ug/Kg	370	UJ	390	U	400	U
Benzo(a)Pyrene	ug/Kg	370	UJ	390	U	400	U

Analytical Data Summary

12/19/2001 1:18 PM

	StationID	A042SB029		A042SB030		A042SB031	
	SampleID	042SB02901 (0-1ft)		042SB03001 (0-1ft)		042SB03101 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/30/1998		10/30/1998		10/30/1998	
	SDGNumber	EN008		EN008		EN008	
Parameter	Units						
3-Nitroaniline	ug/Kg	380	U	380	U	370	U
Dimethyl Phthalate	ug/Kg	380	U	380	U	370	U
2,6-Dinitrotoluene	ug/Kg	380	U	380	U	370	U
Acenaphthylene	ug/Kg	380	U	380	U	370	U
Acenaphthene	ug/Kg	380	U	380	U	370	U
2,4-Dinitrophenol	ug/Kg	760	U	760	U	750	U
Dibenzofuran	ug/Kg	380	U	380	U	370	U
2,4-Dinitrotoluene	ug/Kg	380	U	380	U	370	U
Diethyl Phthalate	ug/Kg	380	U	380	U	370	U
4-Nitrophenol	ug/Kg	760	U	760	U	750	U
Fluorene	ug/Kg	380	U	380	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	380	U	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	760	U	760	U	750	U
4-Nitroaniline	ug/Kg	380	U	380	U	370	U
N-Nitrosodiphenylamine	ug/Kg	380	U	380	U	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	380	U	370	U
Hexachlorobenzene	ug/Kg	380	U	380	U	370	U
Pentachlorophenol	ug/Kg	760	U	760	U	750	U
Anthracene	ug/Kg	380	U	380	U	370	U
Di-n-butyl Phthalate	ug/Kg	380	U	380	U	370	U
Flouranthene	ug/Kg	380	U	380	U	370	U
Pyrene	ug/Kg	380	U	380	U	370	U
Benzyl Butyl Phthalate	ug/Kg	380	U	380	U	370	U
Benzo(a)Anthracene	ug/Kg	380	U	380	U	370	U
3,3'-Dichlorobenzidine	ug/Kg	380	U	380	U	370	U
Chrysene	ug/Kg	380	U	380	U	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	380	U	380	U	370	U
Di-n-octylphthalate	ug/Kg	380	U	380	U	370	U
Benzo(b)Fluoranthene	ug/Kg	380	U	380	U	370	U
Benzo(k)Fluoranthene	ug/Kg	380	U	380	U	370	U
Benzo(a)Pyrene	ug/Kg	380	U	380	U	370	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB032		A042SB032		A042SB033		
SampleID	042CB03201 (0-1ft)		042SB03201 (0-1ft)		042SB03301 (0-1ft)		
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		
DateAnalyzed	10/30/1998		10/30/1998		10/30/1998		
SDGNumber	EN008		EN008		EN008		
Parameter	Units						
3-Nitroaniline	ug/Kg	380	U	380	U	370	U
Dimethyl Phthalate	ug/Kg	380	U	380	U	370	U
2,6-Dinitrotoluene	ug/Kg	380	U	380	U	370	U
Acenaphthylene	ug/Kg	380	U	380	U	370	U
Acenaphthene	ug/Kg	380	U	380	U	370	U
2,4-Dinitrophenol	ug/Kg	760	U	760	U	730	U
Dibenzofuran	ug/Kg	380	U	380	U	370	U
2,4-Dinitrotoluene	ug/Kg	380	U	380	U	370	U
Diethyl Phthalate	ug/Kg	380	U	380	U	370	U
4-Nitrophenol	ug/Kg	760	U	760	U	730	U
Fluorene	ug/Kg	380	U	380	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	380	U	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	760	U	760	U	730	U
4-Nitroaniline	ug/Kg	380	U	380	U	370	U
N-Nitrosodiphenylamine	ug/Kg	380	U	380	U	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	380	U	370	U
Hexachlorobenzene	ug/Kg	380	U	380	U	370	U
Pentachlorophenol	ug/Kg	760	U	760	U	730	U
Anthracene	ug/Kg	380	U	380	U	370	U
Di-n-butyl Phthalate	ug/Kg	380	U	380	U	370	U
Flouranthene	ug/Kg	380	U	380	U	200	J
Pyrene	ug/Kg	380	U	380	U	150	J
Benzyl Butyl Phthalate	ug/Kg	380	U	380	U	370	U
Benzo(a)Anthracene	ug/Kg	380	U	380	U	81	J
3,3'-Dichlorobenzidine	ug/Kg	380	U	380	U	370	U
Chrysene	ug/Kg	380	U	380	U	120	J
bis(2-Ethylhexyl) Phthalate	ug/Kg	380	U	380	U	370	U
Di-n-octylphthalate	ug/Kg	380	U	380	U	370	U
Benzo(b)Fluoranthene	ug/Kg	380	U	380	U	92	J
Benzo(k)Fluoranthene	ug/Kg	380	U	380	U	68	J
Benzo(a)Pyrene	ug/Kg	380	U	380	U	70	J

Analytical Data Summary

12/19/2001 1:18 PM

Parameter	Units	A042SB034		A042SB035		A042SB036	
		SampleID	DateCollected	SampleID	DateCollected	SampleID	DateCollected
		042SB03401 (0-1ft)	10/13/1998 12:00 AM	042SB03501 (0-1ft)	10/13/1998 12:00 AM	042SB03601 (0-1ft)	10/13/1998 12:00 AM
		10/30/1998		10/30/1998		11/01/1998	
		EN008		EN008		EN008	
3-Nitroaniline	ug/Kg	380	U	380	U	400	U
Dimethyl Phthalate	ug/Kg	380	U	380	U	400	U
2,6-Dinitrotoluene	ug/Kg	380	U	380	U	400	U
Acenaphthylene	ug/Kg	380	U	380	U	400	U
Acenaphthene	ug/Kg	380	U	380	U	400	U
2,4-Dinitrophenol	ug/Kg	770	U	770	U	800	U
Dibenzofuran	ug/Kg	380	U	380	U	400	U
2,4-Dinitrotoluene	ug/Kg	380	U	380	U	400	U
Diethyl Phthalate	ug/Kg	380	U	380	U	400	U
4-Nitrophenol	ug/Kg	770	U	770	U	800	U
Fluorene	ug/Kg	380	U	380	U	400	U
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	380	U	400	U
4,6-Dinitro-2-methylphenol	ug/Kg	770	U	770	U	800	U
4-Nitroaniline	ug/Kg	380	U	380	U	400	U
N-Nitrosodiphenylamine	ug/Kg	380	U	380	U	400	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	380	U	400	U
Hexachlorobenzene	ug/Kg	380	U	380	U	400	U
Pentachlorophenol	ug/Kg	770	U	770	U	800	U
Anthracene	ug/Kg	380	U	380	U	400	U
Di-n-butyl Phthalate	ug/Kg	380	U	380	U	400	U
Flouranthene	ug/Kg	380	U	380	U	400	U
Pyrene	ug/Kg	380	U	380	U	400	U
Benzyl Butyl Phthalate	ug/Kg	380	U	380	U	400	U
Benzo(a)Anthracene	ug/Kg	380	U	380	U	400	U
3,3'-Dichlorobenzidine	ug/Kg	380	U	380	U	400	U
Chrysene	ug/Kg	380	U	380	U	400	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	110	J	380	U	400	U
Di-n-octylphthalate	ug/Kg	380	U	380	U	400	U
Benzo(b)Fluoranthene	ug/Kg	380	U	380	U	400	U
Benzo(k)Fluoranthene	ug/Kg	380	U	380	U	400	U
Benzo(a)Pyrene	ug/Kg	380	U	380	U	400	U

	StationID	A042SB037		A042SB038		A042SB039	
	SampleID	042SB03701 (0-1ft)		042SB03801 (0-1ft)		042SB03901 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	11/01/1998		11/05/1998		11/05/1998	
	SDGNumber	EN008		EN009		EN009	
Parameter	Units						
3-Nitroaniline	ug/Kg	380	U	370	U	370	U
Dimethyl Phthalate	ug/Kg	380	U	370	U	370	U
2,6-Dinitrotoluene	ug/Kg	380	U	370	U	370	U
Acenaphthylene	ug/Kg	380	U	370	U	370	U
Acenaphthene	ug/Kg	380	U	370	U	370	U
2,4-Dinitrophenol	ug/Kg	760	U	740	U	750	U
Dibenzofuran	ug/Kg	380	U	370	U	370	U
2,4-Dinitrotoluene	ug/Kg	380	U	370	U	370	U
Diethyl Phthalate	ug/Kg	380	U	370	U	370	U
4-Nitrophenol	ug/Kg	760	U	740	U	750	U
Fluorene	ug/Kg	380	U	370	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	370	U	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	760	U	740	U	750	U
4-Nitroaniline	ug/Kg	380	U	370	U	370	U
N-Nitrosodiphenylamine	ug/Kg	380	U	370	U	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	370	U	370	U
Hexachlorobenzene	ug/Kg	380	U	370	U	370	U
Pentachlorophenol	ug/Kg	760	U	740	U	750	U
Anthracene	ug/Kg	380	U	370	U	370	U
Di-n-butyl Phthalate	ug/Kg	380	U	370	U	370	U
Flouranthene	ug/Kg	380	U	370	U	370	U
Pyrene	ug/Kg	380	U	370	U	370	U
Benzyl Butyl Phthalate	ug/Kg	380	U	370	U	370	U
Benzo(a)Anthracene	ug/Kg	380	U	370	U	370	U
3,3'-Dichlorobenzidine	ug/Kg	380	U	370	U	370	U
Chrysene	ug/Kg	380	U	370	U	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	67	J	370	U	370	U
Di-n-octylphthalate	ug/Kg	380	U	370	U	370	U
Benzo(b)Fluoranthene	ug/Kg	380	U	370	U	370	U
Benzo(k)Fluoranthene	ug/Kg	380	U	370	U	370	U
Benzo(a)Pyrene	ug/Kg	380	U	370	U	370	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB040		A042SB040		A042SB041		
SampleID	042SB04001 (0-1ft)		042SB04001RE (0-1ft)		042SB04101 (0-1ft)		
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/14/1998 12:00 AM		
DateAnalyzed	11/05/1998		11/12/1998		11/12/1998		
SDGNumber	EN009		EN009		EN009		
Parameter	Units						
3-Nitroaniline	ug/Kg	370	U	370	R	370	U
Dimethyl Phthalate	ug/Kg	370	U	370	R	370	U
2,6-Dinitrotoluene	ug/Kg	370	U	370	R	370	U
Acenaphthylene	ug/Kg	370	U	370	R	370	U
Acenaphthene	ug/Kg	370	U	320	R	370	U
2,4-Dinitrophenol	ug/Kg	740	R	740	R	740	U
Dibenzofuran	ug/Kg	370	U	190	R	370	U
2,4-Dinitrotoluene	ug/Kg	370	U	370	R	370	U
Diethyl Phthalate	ug/Kg	370	U	370	R	370	U
4-Nitrophenol	ug/Kg	740	R	740	R	740	U
Fluorene	ug/Kg	370	U	300	R	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	370	R	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	740	R	740	R	740	U
4-Nitroaniline	ug/Kg	370	U	370	R	370	U
N-Nitrosodiphenylamine	ug/Kg	370	U	370	R	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	U	370	R	370	U
Hexachlorobenzene	ug/Kg	370	U	370	R	370	U
Pentachlorophenol	ug/Kg	740	R	740	R	740	U
Anthracene	ug/Kg	370	U	380	R	370	U
Di-n-butyl Phthalate	ug/Kg	370	U	370	R	370	U
Flouranthene	ug/Kg	330	J	1500	R	37	J
Pyrene	ug/Kg	230	J	990	R	370	U
Benzyl Butyl Phthalate	ug/Kg	370	U	370	R	370	U
Benzo(a)Anthracene	ug/Kg	150	J	530	R	370	U
3,3'-Dichlorobenzidine	ug/Kg	370	U	370	R	370	U
Chrysene	ug/Kg	150	J	490	R	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U	370	R	240	J
Di-n-octylphthalate	ug/Kg	370	U	370	R	370	U
Benzo(b)Fluoranthene	ug/Kg	130	J	480	R	370	U
Benzo(k)Fluoranthene	ug/Kg	110	J	340	R	370	U
Benzo(a)Pyrene	ug/Kg	120	J	440	R	370	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042SB042	A042SB043
SampleID	042SB04201 (0-1ft)	042SB04301 (0-1ft)
DateCollected	10/14/1998 12:00 AM	10/14/1998 12:00 AM
DateAnalyzed	11/12/1998	11/12/1998
SDGNumber	EN009	EN009

Parameter	Units	A042SB042		A042SB043	
3-Nitroaniline	ug/Kg	370	U	370	U
Dimethyl Phthalate	ug/Kg	370	U	370	U
2,6-Dinitrotoluene	ug/Kg	370	U	370	U
Acenaphthylene	ug/Kg	370	U	370	U
Acenaphthene	ug/Kg	370	U	370	U
2,4-Dinitrophenol	ug/Kg	740	U	750	U
Dibenzofuran	ug/Kg	370	U	370	U
2,4-Dinitrotoluene	ug/Kg	370	U	370	U
Diethyl Phthalate	ug/Kg	370	U	370	U
4-Nitrophenol	ug/Kg	740	U	750	U
Fluorene	ug/Kg	370	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	370	U
4,6-Dinitro-2-methylphenol	ug/Kg	740	U	750	U
4-Nitroaniline	ug/Kg	370	U	370	U
N-Nitrosodiphenylamine	ug/Kg	370	U	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	U	370	U
Hexachlorobenzene	ug/Kg	370	U	370	U
Pentachlorophenol	ug/Kg	740	U	750	U
Anthracene	ug/Kg	370	U	370	U
Di-n-butyl Phthalate	ug/Kg	370	U	370	U
Flouranthene	ug/Kg	510	=	370	U
Pyrene	ug/Kg	580	=	370	U
Benzyl Butyl Phthalate	ug/Kg	370	U	370	U
Benzo(a)Anthracene	ug/Kg	240	J	370	U
3,3'-Dichlorobenzidine	ug/Kg	370	U	370	U
Chrysene	ug/Kg	290	J	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U	370	U
Di-n-octylphthalate	ug/Kg	370	U	370	U
Benzo(b)Fluoranthene	ug/Kg	290	J	370	U
Benzo(k)Fluoranthene	ug/Kg	180	J	370	U
Benzo(a)Pyrene	ug/Kg	250	J	370	U

Analytical Data Summary

12/19/2001 1:18 PM

Parameter	StationID	A042SB026		A042SB027		A042SB028	
	SampleID	042SB02601 (0-1ft)		042SB02701 (0-1ft)		042SB02801 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	11/09/1998		10/30/1998		10/30/1998	
	SDGNumber	EN008		EN008		EN008	
	Units						
Indeno(1,2,3-c,d)pyrene	ug/Kg	370	UJ	390	U	400	U
Dibenz(a,h)anthracene	ug/Kg	370	UJ	390	U	400	U
Benzo(g,h,i)Perylene	ug/Kg	370	UJ	390	U	400	U

Analytical Data Summary

12/19/2000 1:18 PM

StationID	A042SB029		A042SB030		A042SB031		
SampleID	042SB02901 (0-1ft)		042SB03001 (0-1ft)		042SB03101 (0-1ft)		
DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM		
DateAnalyzed	10/30/1998		10/30/1998		10/30/1998		
SDGNumber	EN008		EN008		EN008		
Parameter	Units						
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	380	U	370	U
Dibenz(a,h)anthracene	ug/Kg	380	U	380	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	380	U	380	U	370	U

Analytical Data Summary

12/19/2001 1:18 PM

	StationID	A042SB032		A042SB032		A042SB033	
	SampleID	042CB03201 (0-1ft)		042SB03201 (0-1ft)		042SB03301 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	10/30/1998		10/30/1998		10/30/1998	
	SDGNumber	EN008		EN008		EN008	
Parameter	Units						
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	380	U	370	U
Dibenz(a,h)anthracene	ug/Kg	380	U	380	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	380	U	380	U	370	U

Analytical Data Summary

12/19/2000 1:18 PM

		StationID		A042SB034		A042SB035		A042SB036	
		SampleID		042SB03401 (0-1ft)		042SB03501 (0-1ft)		042SB03601 (0-1ft)	
		DateCollected		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
		DateAnalyzed		10/30/1998		10/30/1998		11/01/1998	
		SDGNumber		EN008		EN008		EN008	
Parameter		Units							
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	380	U	400	U		
Dibenz(a,h)anthracene	ug/Kg	380	U	380	U	400	U		
Benzo(g,h,i)Perylene	ug/Kg	380	U	380	U	400	U		

Analytical Data Summary

12/19/2001 1:18 PM

Parameter	StationID	A042SB037		A042SB038		A042SB039	
	SampleID	042SB03701 (0-1ft)		042SB03801 (0-1ft)		042SB03901 (0-1ft)	
	DateCollected	10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/13/1998 12:00 AM	
	DateAnalyzed	11/01/1998		11/05/1998		11/05/1998	
	SDGNumber	EN008		EN009		EN009	
	Units						
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	370	U	370	U
Dibenz(a,h)anthracene	ug/Kg	380	U	370	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	380	U	370	U	370	U

Analytical Data Summary

12/19/2000 1:18 PM

		A042SB040		A042SB040		A042SB041	
		042SB04001 (0-1ft)		042SB04001RE (0-1ft)		042SB04101 (0-1ft)	
		10/13/1998 12:00 AM		10/13/1998 12:00 AM		10/14/1998 12:00 AM	
		11/05/1998		11/12/1998		11/12/1998	
		EN009		EN009		EN009	
Parameter	Units						
Indeno(1,2,3-c,d)pyrene	ug/Kg	90	J	230	R	370	U
Dibenz(a,h)anthracene	ug/Kg	41	J	130	R	370	U
Benzo(g,h,i)Perylene	ug/Kg	51	J	190	R	370	U

Analytical Data Summary

12/19/2001 1:18 PM

	StationID	A042SB042		A042SB043	
	SampleID	042SB04201 (0-1ft)		042SB04301 (0-1ft)	
	DateCollected	10/14/1998 12:00 AM		10/14/1998 12:00 AM	
	DateAnalyzed	11/12/1998		11/12/1998	
	SDGNumber	EN009		EN009	
Parameter	Units				
Indeno(1,2,3-c,d)pyrene	ug/Kg	170	J	370	U
Dibenz(a,h)anthracene	ug/Kg	370	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	180	J	370	U

	StationID	A042GW001		A042GW001		A042GW002	
	SampleID	042GW00102a		042GW001C1		042GW00202a	
	DateCollected	10/8/1998 12:00 AM		10/15/1998 12:00 AM		10/9/1998 12:00 AM	
	DateAnalyzed			10/26/1998			
	SDGNumber	MNA		EN010		MNA	
Parameter	Units						
Alkalinity, Total (as CaCO3)	mg/L						
Chloride	mg/L			41	=		
Nitrate-Nitrite-N	mg/L	0.1	SU			0.1	SU
Nitrogen, Nitrate (as N)	mg/L						
Nitrogen	mg/L	1	SU			1.1	S=
Phosphorus	mg/L	0.14	S=			0.14	S=
Sulfate (as SO4)	mg/L	60	S=			100	S=
Sulfide	mg/L	1	SU			1	SU
Total Dissolved Solids (Residue, filterable)	mg/L			300	=		
Total Organic Carbon	mg/L	2.3	S=			1	SU

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042GW002		A042GW002		A042GW003	
SampleID	042GW00203a		042GW002C1		042GW003C1	
DateCollected	8/9/1999 12:00 AM		10/15/1998 12:00 AM		10/15/1998 12:00 AM	
DateAnalyzed			10/26/1998		10/26/1998	
SDGNumber	MNA		EN010		EN010	
Parameter	Units					
Alkalinity, Total (as CaCO3)	mg/L	50	S=			
Chloride	mg/L			80	=	15 =
Nitrate-Nitrite-N	mg/L					
Nitrogen, Nitrate (as N)	mg/L	0.1	SU			
Nitrogen	mg/L					
Phosphorus	mg/L					
Sulfate (as SO4)	mg/L	92	S=			
Sulfide	mg/L	1	SU			
Total Dissolved Solids (Residue, filterable)	mg/L			310	=	180 =
Total Organic Carbon	mg/L	15.4	S=			

Analytical Data Summary

12/19/2000 1:18 PM

	StationID	A042GW02D		A505GW001		A505GW001	
	SampleID	042GW02D03		505GW00102		505GW001C1a	
	DateCollected	8/9/1999 12:00 AM		10/9/1998 12:00 AM		10/15/1998 12:00 AM	
	DateAnalyzed					10/26/1998	
	SDGNumber	MNA		MNA		EN010	
Parameter	Units						
Alkalinity, Total (as CaCO3)	mg/L	316	S=				
Chloride	mg/L					10	=
Nitrate-Nitrite-N	mg/L			0.1	SU		
Nitrogen, Nitrate (as N)	mg/L	0.1	SU				
Nitrogen	mg/L			1.7	S=		
Phosphorus	mg/L			0.78	S=		
Sulfate (as SO4)	mg/L	96.4	S=	52	S=		
Sulfide	mg/L	1	SU	1	SU		
Total Dissolved Solids (Residue, filterable)	mg/L					310	=
Total Organic Carbon	mg/L	21.1	S=	1	SU		

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042GW001		A042GW002		A042GW002		A042GW003	
SampleID	042GW001C1		042GW00203a		042GW002C1		042GW003C1	
DateCollected	10/15/98 12:00 AM		8/9/99 12:00 AM		10/15/98 12:00 AM		10/15/98 12:00 AM	
DateAnalyzed	11/04/1998				11/04/1998		11/04/1998	
SDGNumber	EN010		MNA		EN010		EN010	
Parameter	Units							
Aluminum	ug/L	68	U		209	=	457	=
Antimony	ug/L	18	U		18	U	18	U
Arsenic	ug/L	1	U		1	U	1	U
Barium	ug/L	12.8	U		22.7	J	10.6	U
Beryllium	ug/L	0.3	U		0.3	U	0.3	U
Cadmium	ug/L	1.6	U		1.6	U	1.6	U
Calcium	ug/L	20800	=		7240	=	44100	=
Chromium, Total	ug/L	5.8	U		5.8	U	5.8	U
Cobalt	ug/L	4.5	U		8.8	J	4.5	U
Copper	ug/L	2.1	U		2.1	U	2.1	U
Iron	mg/L			35.6	S=			
Iron	ug/L	796	=		7260	=	373	=
Lead	ug/L	1.2	U		1.2	U	1.2	U
Magnesium	ug/L	9760	=		3180	J	6060	=
Manganese	ug/L	318	J		402	J	20.6	J
Mercury	ug/L	0.2	U		0.2	U	0.2	U
Nickel	ug/L	5.7	U		5.7	U	5.7	U
Potassium	ug/L	6330	=		7870	=	6500	=
Selenium	ug/L	5	R		5	R	5	R
Silver	ug/L	4.5	U		4.5	U	4.5	U
Sodium	ug/L	73200	=		79700	=	9420	=
Thallium	ug/L	1.6	U		1.6	U	1.6	U
Tin (Sn)	ug/L	1000	U		1000	U	1000	U
Vanadium	ug/L	3.2	U		3.2	U	3.2	U
Zinc	ug/L	8.6	U		8.7	U	7.9	U

Analytical Data Summary

12/19/20... 1:18 PM

StationID	A042GW02D		A505GW001	
SampleID	042GW02D03		505GW001C1a	
DateCollected	8/9/99 12:00 AM		10/15/98 12:00 AM	
DateAnalyzed			11/04/1998	
SDGNumber	MNA		EN010	
Parameter	Units			
Aluminum	ug/L		68	U
Antimony	ug/L		18	U
Arsenic	ug/L		4	J
Barium	ug/L		5.8	U
Beryllium	ug/L		0.3	U
Cadmium	ug/L		1.6	U
Calcium	ug/L		92500	=
Chromium, Total	ug/L		5.8	J
Cobalt	ug/L		4.5	U
Copper	ug/L		2.1	U
Iron	mg/L	0.6	S=	
Iron	ug/L		23700	=
Lead	ug/L		1.2	U
Magnesium	ug/L		4380	J
Manganese	ug/L		319	J
Mercury	ug/L		0.2	U
Nickel	ug/L		5.7	U
Potassium	ug/L		2970	J
Selenium	ug/L		5	R
Silver	ug/L		4.5	U
Sodium	ug/L		5610	=
Thallium	ug/L		1.6	U
Tin (Sn)	ug/L		1000	U
Vanadium	ug/L		3.2	U
Zinc	ug/L		5.7	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID A505GW001
SampleID 505GW001C1b
DateCollected 4/22/99 12:00 AM
DateAnalyzed 04/28/1999
SDGNumber 38196

Parameter	Units		
PCB-1016 (Arochlor 1016)	ug/L	1	U
PCB-1221 (Arochlor 1221)	ug/L	1	U
PCB-1232 (Arochlor 1232)	ug/L	1	U
PCB-1242 (Arochlor 1242)	ug/L	1	U
PCB-1248 (Arochlor 1248)	ug/L	1	U
PCB-1254 (Arochlor 1254)	ug/L	2	U
PCB-1260 (Arochlor 1260)	ug/L	2	U

StationID	A505GW001
SampleID	505GW001C1b
DateCollected	4/22/1999 12:00 AM
DateAnalyzed	04/28/1999
SDGNumber	38196

Parameter	Units		
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/L	0.04	U
Gamma BHC (Lindane)	ug/L	0.04	U
Beta BHC (Beta Hexachlorocyclohexane)	ug/L	0.04	U
Heptachlor	ug/L	0.04	U
Delta BHC (Delta Hexachlorocyclohexane)	ug/L	0.04	U
Aldrin	ug/L	0.04	U
Heptachlor Epoxide	ug/L	0.04	U
Gamma-chlordane	ug/L	0.04	U
Alpha-chlordane	ug/L	0.04	U
Endosulfan I	ug/L	0.04	U
p,p'-DDE	ug/L	0.08	U
Dieldrin	ug/L	0.08	U
Endrin	ug/L	0.08	U
p,p'-DDD	ug/L	0.08	U
Endosulfan II	ug/L	0.08	U
p,p'-DDT	ug/L	0.08	U
Endrin Aldehyde	ug/L	0.08	U
Endosulfan Sulfate	ug/L	0.08	U
Methoxychlor	ug/L	0.15	J
Endrin Ketone	ug/L	0.08	U
Toxaphene	ug/L	2.5	U

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042GW001		A042GW002		A042GW002	
SampleID	042GW00102a		042GW00202a		042GW00203a	
DateCollected	10/8/98 12:00 AM		10/9/98 12:00 AM		8/9/99 12:00 AM	
DateAnalyzed						
SDGNumber	MNA		MNA		MNA	
Parameter	Units					
Methyl tert-butyl ether	ug/L	5	SU	5	SU	5
Chloromethane	ug/L	5	SU	5	SU	5
Vinyl chloride	ug/L	5	SU	5	SU	5
Bromomethane	ug/L	5	SU	5	SU	5
Chloroethane	ug/L	5	SU	5	SU	5
1,1-Dichloroethene	ug/L	5	SU	5	SU	5
Acetone	ug/L	5	SU	5	SU	5
Carbon Disulfide	ug/L	5	SU	5	SU	5
Methylene Chloride	ug/L	5	SU	5	SU	5
trans-1,2-Dichloroethene	ug/L	5	SU	5	SU	5
1,1-Dichloroethane	ug/L	5	SU	5	SU	5
Vinyl acetate	ug/L	5	SU	5	SU	5
Methyl ethyl ketone (2-Butanone)	ug/L	5	SU	5	SU	5
cis-1,2-Dichloroethylene	ug/L	5	SU	5	SU	4
1,2-Dichloroethene (total)	ug/L					
Chloroform	ug/L	5	SU	5	SU	5
1,1,1-Trichloroethane	ug/L	5	SU	5	SU	5
Carbon Tetrachloride	ug/L	5	SU	5	SU	5
1,2-Dichloroethane	ug/L	5	SU	5	SU	5
Benzene	ug/L	5	SU	5	SU	5
Trichloroethylene (TCE)	ug/L	5	SU	5	SU	5
1,2-Dichloropropane	ug/L	5	SU	5	SU	5
Bromodichloromethane	ug/L	5	SU	5	SU	5
2-Chloroethyl vinyl ether	ug/L	5	SU	5	SU	5
cis-1,3-Dichloropropene	ug/L	5	SU	5	SU	5
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	SU	5	SU	5
Toluene	ug/L	5	SU	5	SU	5
trans-1,3-Dichloropropene	ug/L	5	SU	5	SU	5
1,1,2-Trichloroethane	ug/L	5	SU	5	SU	5
2-Hexanone	ug/L	5	SU	5	SU	5
Tetrachloroethylene (PCE)	ug/L	5	SU	5	SU	5

StationID	A042GW003		A042GW02D		A505GW001		
SampleID	042GW003C1		042GW02D03		505GW00102		
DateCollected	10/15/98 12:00 AM		8/9/99 12:00 AM		10/9/98 12:00 AM		
DateAnalyzed	10/26/1998						
SDGNumber	EN010		MNA		MNA		
Parameter	Units						
Methyl tert-butyl ether	ug/L	1	U	5	SU	5	SU
Chloromethane	ug/L	1	U	5	SU	5	SU
Vinyl chloride	ug/L	1	U	5	SU	5	SU
Bromomethane	ug/L	1	U	5	SU	5	SU
Chloroethane	ug/L	1	U	5	SU	5	SU
1,1-Dichloroethene	ug/L	1	U	5	SU	5	SU
Acetone	ug/L	5	R	5	SU	130	S=
Carbon Disulfide	ug/L	1	U	5	SU	5	SU
Methylene Chloride	ug/L	1	U	5	SU	5	SU
trans-1,2-Dichloroethene	ug/L			2	SJ	5	SU
1,1-Dichloroethane	ug/L	1	U	5	SU	5	SU
Vinyl acetate	ug/L			5	SU	5	SU
Methyl ethyl ketone (2-Butanone)	ug/L	5	R	5	SU	5	SU
cis-1,2-Dichloroethylene	ug/L			88	S=	5	SU
1,2-Dichloroethene (total)	ug/L	1	U				
Chloroform	ug/L	1	U	5	SU	5	SU
1,1,1-Trichloroethane	ug/L	1	U	5	SU	5	SU
Carbon Tetrachloride	ug/L	1	U	5	SU	5	SU
1,2-Dichloroethane	ug/L	1	U	5	SU	5	SU
Benzene	ug/L	1	U	5	SU	5	SU
Trichloroethylene (TCE)	ug/L	1	U	3	SJ	5	SU
1,2-Dichloropropane	ug/L	1	U	5	SU	5	SU
Bromodichloromethane	ug/L	1	U	5	SU	5	SU
2-Chloroethyl vinyl ether	ug/L			5	SU	5	SU
cis-1,3-Dichloropropene	ug/L	1	U	5	SU	5	SU
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	5	U	5	SU	5	SU
Toluene	ug/L	1	U	5	SU	5	SU
trans-1,3-Dichloropropene	ug/L	1	U	5	SU	5	SU
1,1,2-Trichloroethane	ug/L	1	U	5	SU	5	SU
2-Hexanone	ug/L	5	R	5	SU	5	SU
Tetrachloroethylene (PCE)	ug/L	1	U	5	SU	5	SU

Analytical Data Summary

12/19/2001 1:18 PM

StationID	A042GW001		A042GW002		A042GW002		
SampleID	042GW00102a		042GW00202a		042GW00203a		
DateCollected	10/8/98 12:00 AM		10/9/98 12:00 AM		8/9/99 12:00 AM		
DateAnalyzed							
SDGNumber	MNA		MNA		MNA		
Parameter	Units						
Dibromochloromethane	ug/L	5	SU	5	SU	5	SU
Chlorobenzene	ug/L	5	SU	5	SU	5	SU
Ethylbenzene	ug/L	5	SU	5	SU	5	SU
Xylenes, Total	ug/L	5	SU	5	SU	5	SU
Styrene	ug/L	5	SU	5	SU	5	SU
Bromoform	ug/L	5	SU	5	SU	5	SU
1,1,2,2-Tetrachloroethane	ug/L	5	SU	5	SU	5	SU

StationID	A042GW003	A042GW02D	A505GW001
SampleID	042GW003C1	042GW02D03	505GW00102
DateCollected	10/15/98 12:00 AM	8/9/99 12:00 AM	10/9/98 12:00 AM
DateAnalyzed	10/26/1998		
SDGNumber	EN010	MNA	MNA

Parameter	Units						
Dibromochloromethane	ug/L	1	U	5	SU	5	SU
Chlorobenzene	ug/L	1	U	5	SU	5	SU
Ethylbenzene	ug/L	1	U	5	SU	5	SU
Xylenes, Total	ug/L	1	U	5	SU	5	SU
Styrene	ug/L	1	U	5	SU	5	SU
Bromoform	ug/L	1	U	5	SU	5	SU
1,1,2,2-Tetrachloroethane	ug/L	1	U	5	SU	5	SU



HEARTLAND

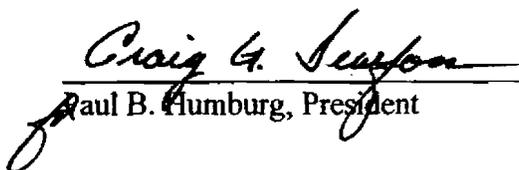
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 37516
Date: April 6, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone A
Date Sampled: February 22, 1999
Number of Samples: 6 Non-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: Arsenic

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

4-6-99
Date

SDG# 37516

Samples and Fractions Reviewed

Sample Identifications Analytical Fraction

ENSAFE ID	MATRIX	AS
042SB04401	SOIL	X
042SB04501	SOIL	X
042SB04601	SOIL	X
042SB04701	SOIL	X
042SB04801	SOIL	X
042SB04901	SOIL	X
Total Billable Samples (Water/Soil)		0 6

AS= Arsenic

DATA ASSESSMENT NARRATIVE

ARSENIC

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 # 37516

A validation was performed on the Arsenic Data from SDG 37516. 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.

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
Data stands as reported without qualification.			



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1
 PROJECT/JOB NO: 2901-00 8-014-00
 COC NO: _____
 PO NO: 7
 REL NO: 37
 LAB NAME: Southwest

800-588-7862
 MEMPHIS, TENNESSEE
 CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
 WYCKSTER, PA; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
 RALEIGH, NC; COLOGNE, GERMANY

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

ANALYSIS REQUIRED					REMARKS
NO. OF CONTAINERS	Arsonic	VOC	SVOC	Dioxin	

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION		NO. OF CONTAINERS	Arsonic	VOC	SVOC	Dioxin	REMARKS
					TEMP.	CHEMICAL						
VB(A) 0425B04401	2-22-99		S	4oz Glass	4°C	None.	1	X				Fax Results 2 weeks
VB(A) 0425B04501			S				1	X				
VB(A) 0425B04601			S				1	X				
VB(A) 0425B04701			S				1	X				
VB(A) 0425B04801			S				1	X				
VB(A) 0425B04901			S				1	X				
VB(A) 002CB00101			S	3-ENCore 1-2oz jar 3-4oz Jar			7	X	X	X		Normal Turn 28 day
VB(A) 002TB00101			W	40mL Voa		HCL	2	X				

[Signature]
 2-22-99

RELINQUISHER: <u>[Signature]</u> DATE: <u>2/22/99</u>	RECEIVER: <u>S. Hodson</u> DATE: <u>2/23/99</u>	RELINQUISHER: _____ DATE: _____	RECEIVER: _____ DATE: _____
PRINTED: <u>Tedd B. Temple</u> TIME: _____	PRINTED: <u>S. Hodson</u> TIME: _____	PRINTED: _____ TIME: _____	PRINTED: _____ TIME: _____
COMPANY: <u>ENSAFE</u> TIME: <u>1730</u>	COMPANY: <u>Swlw</u> TIME: <u>930</u>	COMPANY: _____ TIME: _____	COMPANY: _____ TIME: _____

METHOD OF SHIPMENT: FedEx COMMENTS: 52
 SHIPMENT NO. 808625946594
 SEND RESULTS TO: _____



HEARTLAND

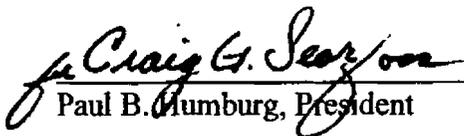
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 37773
Date: April 23, 1999
Client Name: Ensafe
Project/Site Name: Charleston Zone A
Date Sampled: March 16, 1999
Number of Samples: 8 Non-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: TCLP-Metals, SPLP-Metals, Lead

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. Mumburg, President

4-26-99
Date

SDG# 37773

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	T-MET	S-MET	PB			
042SBS0101	SOIL			X			
042SBC0201	SOIL			X			
042SBS0301	SOIL			X			
042SBC0401	SOIL			X			
042SBC011B	SOIL	X					
042SBC021B	SOIL	X					
042SBC011A	SOIL		X				
042SBC021A	SOIL		X				
Total Billable Samples (Water/Soil)		0	2	0	2	0	4

T-MET= TCLP Metals

S-MET= SPLP Metals

PB= Lead

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 # 37773

A validation was performed on the Metals Data from SDG 37773. 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 blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Zinc	17.5 ug/l	all total samples below 87.5 ug/l
Barium	188 ug/l	all tcp samples below 940 ug/l

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 Recovery results

The matrix spike recovery for total water samples for Lead (17%) was below 30%. All positive results are qualified as estimated, "J" and all non-detect results are rejected.

The matrix spike recoveries for total water samples for Arsenic (72%), Selenium (69%) and Thallium (72%) 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 total water samples for Aluminum (158%) and Potassium (133%) were above the upper control limits (>125%). All positive results are qualified as estimated, "J".

Serial Dilution results

The serial dilution results for total water samples for Aluminum was 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 total samples below 87.5 ug/l	Zn.	+	U
all tclp samples below 940 ug/l	Ba.		
all total water samples	Pb.	+	J
		U	UR
all total water samples	As, Se and Tl.	+/U	J/UJ
all total water samples	Al and K.	+	J
all total water samples	Al.	+	J
all "B" results	all analytes	B	J



800-588-7882

MEMPHIS, TENNESSEE

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

CHAIN OF CUSTODY RECORD

Amended 3/19/99 *gd*

PAGE 1 OF 1

PROJECT/JOB NO: 2901-001-08-014-00

COC NO: _____

PO NO: 4

REL NO: 87

LAB NAME: southwest

CLIENT Naval Base Charleston

PROJECT MANAGER Charlie Verroy

LOCATION Zone A

TELE/FAX NO. 843-884-0029/856-0107

SAMPLERS: (SIGNATURE) *[Signature]*

ANALYSIS REQUIRED

NO. OF CONTAINERS

Total Lead

Metals SPVP

Metals TCLP

REMARKS

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION		NO. OF CONTAINERS	Total Lead	Metals SPVP	Metals TCLP	REMARKS
					TEMP.	CHEMICAL					
NBCA 0425BC0101	3-16-99	1350	S	4oz. Glass	4°C	None	1	X	X	X	<i>[Signature]</i> 3/19/99
NBCA 0425BC0201		1405	S	↓	4°C	None	1	X	X		
NBCA 0425BC0301		1420	S	↓	4°C	None	1	X	X		
NBCA 0425BC0401		1445	S	↓	4°C	None	1	X	X		
NBCA 0425BC011A	3-16-99	1350	S	4oz. Glass	4°C	None	1	X			
NBCA 0425BC021A		1405	S	↓	4°C	None	1	X			
NBCA 0425BC011B		1350	S	↓	4°C	None	1		X		
NBCA 0425BC021B		1405	S	↓	4°C	None	1		X		0425BC021B

3-16-99

UNQUOTE: *[Signature]* DATE: 3/16/99 TIME: 1700

RECEIVER: _____

PRINTED: _____

COMPANY: ENSAFE

RELINQUISHER: _____

PRINTED: _____

COMPANY: _____

METHOD OF SHIPMENT: Fed Ex

SHIPMENT NO.: 808625948745

COMMENTS: *[Signature]*

DATE OF COPY



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

CHAIN OF CUSTODY RECORD

PAGE _____ OF _____
 PROJECT/JOB NO: 290 1-08-014-00
 COC NO: _____
 PO NO: 4
 REL NO: 87
 LAB NAME: SOUTHWEST

CLIENT Naval Base Charleston PROJECT MANAGER Charlie Verroy
 LOCATION Zone A TELE/FAX NO. 843-894-2024/956-0107
 SAMPLERS: (SIGNATURE) [Signature]

							ANALYSIS REQUIRED			REMARKS
							NO. OF CONTAINERS	Total Lead	Metals SPAP, TCLP	
FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION					
					TEMP.	CHEMICAL				
NBCC\0425BC0101	3-16-99	1350	S	4oz. Glass	4°C	None	2	X	X	
NBCC\0425BC0201		1405	S		4°C	None	2	X	X	
NBCC\0425BC0301		1420	S		4°C	None	1	X		
NBCC\0425BC0401		1445	S		4°C	None	1	X		
REMOVED										

REMOVED
3-16-99

RELINQUISHER: <u>[Signature]</u>	DATE: <u>3/16/99</u>	RECEIVER: <u>[Signature]</u>	DATE: <u>3/17/99</u>	RELINQUISHER:	DATE:	RECEIVER:
PRINTED: <u>Todd B Temple</u>	TIME: <u>1700</u>	PRINTED: <u>[Signature]</u>	TIME: <u>1800</u>	PRINTED:	TIME:	PRINTED:
COMPANY: <u>ENSAF</u>		COMPANY: <u>HC</u>		COMPANY:		COMPANY:

METHOD OF SHIPMENT: Fed Ex
 SHIPMENT NO. 808625448745
 SEND RESULTS TO: _____
 COMMENTS: DQO III

032

Data Validation Report

EnSafe
Charleston - Zone A
SDG #: EN008



HEARTLAND

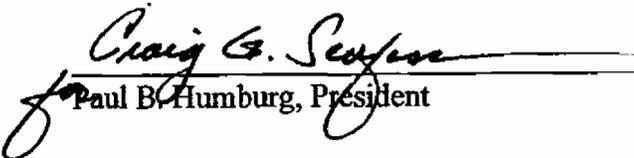
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: EN008
Date: December 10, 1998
Client Name: EnSafe
Project/Site Name: Charleston - Zone A
Date Sampled: October 12-13, 1998
Number of Samples: 18 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Laucks Testing Laboratories, Inc.
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, TCLP Metals, SPLP Metals, Arsenic, and Beryllium

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

12-11-98.
Date

SDG# EN008

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	SVOA		MET		T-MET		S-MET		AS	BE		
039SB04701	SOIL		X		X								
039SB04801	SOIL		X		X								
039SB04901	SOIL		X		X								
039SB05001	SOIL		X		X								
039SB05101	SOIL		X		X		X		X				
042SB02601	SOIL		X				X		X		X	X	
042SB02701	SOIL		X							X		X	
042SB02801	SOIL		X							X		X	
042SB02901	SOIL		X							X		X	
042SB03001	SOIL		X							X		X	
042SB03101	SOIL		X							X		X	
042SB03201	SOIL		X							X		X	
042CB03201	SOIL		X							X		X	
042SB03301	SOIL		X				X		X	X		X	
042SB03401	SOIL		X							X		X	
042SB03501	SOIL		X							X		X	
042SB03601	SOIL		X							X		X	
042SB03701	SOIL		X				X		X	X		X	
Total Billable Samples (Water/Soil)		0	18	0	5	0	4	0	4	0	13	0	13

SVOA= SW846 Semivolatiles

MET= SW846 Metals

T-MET= SW846 TCLP Metals

S-MET= SW846 SPLP Metals

AS= SW846 Metals (Arsenic)

BE= SW846 Metals (Beryllium)

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE METALS AND TCLP 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 # EN008

A validation was performed on the Metals and TCLP Metals Data from SDG EN008. 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 blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Barium	0.1 mg/kg	no impact
Cadmium	0.17 mg/kg	all soil samples below 0.85 mg/kg
Calcium	3.28 mg/kg	no impact
Copper	0.32 mg/kg	no impact
Iron	1.62 mg/kg	no impact
Manganese	0.27 mg/kg	no impact
Silver	0.83 mg/kg	all soil samples below 4.15 mg/kg
Zinc	0.46 mg/kg	all soil samples below 2.3 mg/kg

The USEPA requires that all sample values below five times the preparation, field 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>
Arsenic	-24.0 ug/l	all TCLP samples below 240 ug/l
Lead	-24.0 ug/l	all TCLP samples below 240 ug/l
Selenium	-44.0 ug/l	all TCLP samples below 440 ug/l

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

Matrix Spike results

The Matrix Spike recoveries for soils for Antimony (46%), and Selenium (62%) and for TCLP samples for Cadmium (71%), Chromium (68%), Lead (74%) and Silver (65%) were below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

Serial Dilution results

The Serial dilution results for soils for Aluminum, Calcium, Iron, Manganese and Zinc 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 0.85 mg/kg	Cd.	+	U
all soil samples below 4.15 mg/kg	Ag.		
all soil samples below 2.3 mg/kg	Zn.		
all TCLP samples below 240 ug/l	As.	+/U	J/UJ
all TCLP samples below 240 ug/l	Pb.		
all TCLP samples below 440 ug/l	Se.		
all soil samples	Sb and Se.	+/U	J/UJ
all TCLP samples	Cd, Cr, Pb and Ag.		
all soil samples	Al, Ca, Fe, Mn and Zn.	+	J
all "B" results	all analytes	B	J

DATA ASSESSMENT 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 SW-846 Method 8270C; the National Functional Guidelines for Organic 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.

SDG # EN008

A validation was performed on the Semivolatile Data from SDG EN008. The data was evaluated based on the following parameters:

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

* - All criteria were met for this parameter.

Holding Times

The following sample was re-extracted six (6) days outside the extraction holding time for soil samples because the original extract was lost. All reported positive and non-detect results in the sample are qualified as estimated, J/UJ.

042SB02601

**DATA ASSESSMENT NARRATIVE
SEMIVOLATILE ANALYSIS**

PAGE - 2

Method Blanks

One of the method blanks associated with samples in this SDG exhibited contamination. Several samples required qualification. 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 consideration when applying the 5X or 10X criteria to field samples.

<u>Associated Blank</u>	<u>Compound</u>	<u>Conc.</u>	<u>Action Level</u>
SBLK2	bis(2-ethylhexyl)phthalate	86J $\mu\text{g}/\text{Kg}$	860 $\mu\text{g}/\text{Kg}$

<u>Samples</u>	<u>Compound</u>	<u>Qualification</u>
042SB02601	bis(2-ethylhexyl)phthalate	CRQL

System Performance and Overall Assessment

The data required 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 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>
042SB02601	All compounds	+/-	J/UJ
042SB02601	bis(2-ethylhexyl)phthalate	+B	CRQL

- * 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 Validation Report

EnSafe
Charleston Zone A
SDG #: EN009



HEARTLAND

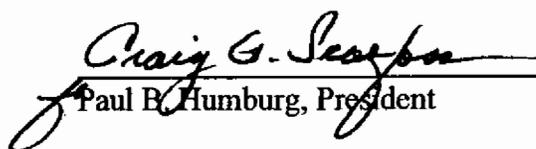
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: EN009
Date: December 16, 1998
Client Name: EnSafe
Project/Site Name: Charleston - Zone A
Date Sampled: October 13-14, 1998
Number of Samples: 3 Aqueous Sample(s) with 0 MS/MSD(s)
16 Non-aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Laucks Testing Laboratories, Inc.
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, TCLP Metals, SPLP Metals, Arsenic, and
Beryllium

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

12-17-98.
Date

SDG# EN009

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	SVOA	MET	T-MET	S-MET	AS	BE
039SB05201	SOIL	X	X				
039SB05301	SOIL	X	X				
039EB05301	WATER	X	X				
039SB05401	SOIL	X	X				
039SB05501	SOIL	X	X				
039SB05601	SOIL	X	X				
039SB05701	SOIL	X	X				
039SB05901	SOIL	X	X				
039SB06001	SOIL	X	X				
039CB06001	SOIL	X	X				
039SB06101	SOIL	X	X				
042SB03801	SOIL	X				X	X
042SB03901	SOIL	X				X	X
042SB04001	SOIL	X				X	X
042SB04101	SOIL	X				X	X
042SB04201	SOIL	X				X	X
042SB04301	SOIL	X				X	X
039SB05701	WATER			X	X		
042SB04001	WATER			X	X		
Total Billable Samples (Water/Soil)		1 16	1 10	2 0	2 0	0 6	0 6

SVOA= SW846 Semivolatiles

MET= SW846 Metals

T-MET= SW846 TCLP Metals

S-MET= SW846 SPLP Metals

AS= SW846 Metals (Arsenic)

BE= SW846 Metals (Beryllium)

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT 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 SW-846 Method 8270; the National Functional Guidelines for Organic Data Validation, 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.

SDG # EN009

A validation was performed on the Semivolatile Data from SDG EN009. The data was evaluated based on the following parameters:

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

* - All criteria were met for this parameter.

Calibration

The initial calibration exhibited compounds with RSDs greater than 15%, but less than 90%.

For the samples listed below, qualify the positive results for benzo(b)fluoranthene as estimated, J, because of a RSD response of 16.0% in the initial calibration.

039-S-B059-01

042-S-B040-01

042-S-B042-01

Data Assessment Narrative
Semivolatiles
Page - 2

Calibrations - continued

The continuing calibrations exhibited compounds with %Ds greater than 20%. Qualifications are as follows.

The continuing calibration on 11/5/98 at 12:57 required qualification for the sample(s) and compound(s) listed below.

042-S-B040-01	benzo(b)fluoranthene (20.9%)	J
---------------	------------------------------	---

The continuing calibration on 11/9/98 at 08:46 required qualification for the sample(s) and compound(s) listed below.

039-S-B055-01	bis(2-ethylhexyl)phthalate (-29.0%)	J
039-S-B056-01		

The continuing calibration on 11/12/98 at 10:22 required qualification for the sample(s) and compound(s) listed below.

039-S-B054-01	N-nitroso-di-n-propylamine (-62.2%)	UJ
---------------	-------------------------------------	----

The continuing calibration on 11/12/98 at 18:10 required qualification for the sample(s) and compound(s) listed below.

039-S-B052-01	N-nitroso-di-n-propylamine (-54.5%)	UJ
039-S-B053-01		
042-S-B041-01		
042-S-B042-01		
042-S-B043-01		

Blanks

All samples results in the electronic data were flagged incorrectly for bis(2-ethylhexyl)-phthalate contamination. A review of the raw data indicated that the laboratory blanks were free of target compound contamination.

Surrogates

Sample 042-S-B040-01 exhibited the acid surrogate tribromophenol-d5 with a 7% recovery. For the acid compounds only, reject (UR) all non detect results (no positive results for acid compounds).

Data Assessment Narrative
Semivolatiles
Page - 3

System Performance and Overall Assessment

The data is reported as is with qualifications and rejections. Sample 042-S-B040-01 is reported in favor of the re-extraction due to holding time deficiencies, similar surrogate recoveries, and poor associated method blank surrogate recoveries.

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 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>
039-S-B059-01 042-S-B040-01 042-S-B042-01	benzo(b)fluoranthene	+	J
042-S-B040-01	benzo(b)fluoranthene	+	J
039-S-B055-01 039-S-B056-01	bis(2-ethyhexyl)phthalate	+	J
039-S-B054-01	N-nitroso-di-n-propylamine	-	UJ
039-S-B052-01 039-S-B053-01 042-S-B041-01 042-S-B042-01 042-S-B043-01	N-nitroso-di-n-propylamine	-	UJ
042-S-B040-01	all acid compounds	-	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 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 # EN009

A validation was performed on the Metals Data from SDG EN009. 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 blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Chromium	0.74 mg/kg	all soil samples below 3.7 mg/kg
Copper	0.24 mg/kg	all soil samples below 1.2 mg/kg
Iron	3.43 mg/kg	no impact
Lead	0.20 mg/kg	no impact
Manganese	0.36 mg/kg	no impact
Sodium	2.65 mg/kg	no impact
Zinc	0.45 mg/kg	no impact

The equipment blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Calcium	1050 ug/l	all soil samples below 1050 mg/kg
Manganese	3.6 ug/l	no impact
Potassium	222 ug/l	all soil samples below 222 mg/kg
Sodium	513 ug/l	all soil samples below 513 mg/kg
Zinc	6.4 ug/l	all soil samples below 6.4 mg/kg

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 recoveries for soils for Antimony (58%) and Selenium (47%) were 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 3.7 mg/kg	Cr.	+	U
all soil samples below 1.2 mg/kg	Cu.		
all soil samples below 1050 mg/kg	Ca.		
all soil samples below 222 mg/kg	K.		
all soil samples below 513 mg/kg	Na.		
all soil samples below 6.4 mg/kg	Zn.		
all soil samples	Sb and Se.	+/U	J/UJ
all "B" results	all analytes	B	J

DATA ASSESSMENT NARRATIVE

TCLP 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 # EN009

A validation was performed on the TCLP Metals Data from SDG EN009. 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.

Matrix Spike Recovery results

The Matrix Spike recoveries for waters for Cadmium (71%), Chromium (68%), Lead (74%) and Silver (65%) were 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 water samples	Cd, Cr, Pb and Ag.	+/U	J/UJ
all "B" results	all analytes	B	J

DATA ASSESSMENT NARRATIVE

SPLP 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 # EN009

A validation was performed on the SPLP Metals Data from SDG EN009. 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 negative bias for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Arsenic	-24.1 ug/l	all water samples below 241 ug/l
Lead	-24.1 ug/l	all water samples below 241 ug/l
Selenium	-43.9 ug/l	all water samples below 439 ug/l

This reviewer qualifies all samples results below ten times the negative bias as estimated, "J" or "UJ".

Matrix Spike Recovery results

The Matrix Spike recovery for waters for Silver (74%) 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 water samples below 241 ug/l	As.	+/U	J/UJ
all water samples below 241 ug/l	Pb.		
all water samples below 439 ug/l	Se.		
all water samples	Ag.	+/U	J/UJ
all "B" results	all analytes	B	J

Data Validation Report

EnSafe
Charleston - Zone A
SDG #: EN010



HEARTLAND

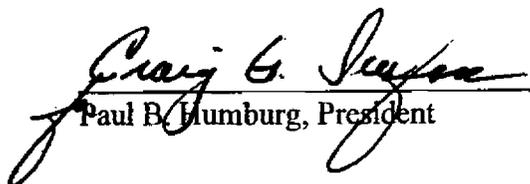
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: EN010
Date: December 30, 1998
Client Name: EnSafe
Project/Site Name: Charleston - Zone A
Date Sampled: October 14-15, 1998
Number of Samples: 21 Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory: Laucks Testing Laboratories, Inc.
~~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: Volatiles, Pesticides/PCBs, Metals, Total Dissolved Solids, Chloride

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

12-31-98.

Date

SDG# EN010

Samples and Fractions Reviewed

Sample Identifications

Analytical Fractions

ENSAFE ID	MATRIX	VOA	P/P	MET	TDS	CHL					
037TWA01C1	WATER	X									
037GWA01C1	WATER	X		X	X	X					
042GW003C1	WATER	X		X	X	X					
002GW002C1	WATER			X	X	X					
002GW003C1	WATER			X	X	X					
002GW004C1	WATER		X	X	X	X					
039GW001C1	WATER			X	X	X					
039GW002C1	WATER			X	X	X					
039GW004C1	WATER			X	X	X					
039GW005C1	WATER			X	X	X					
039GW006C1	WATER			X	X	X					
039HW006C1	WATER			X	X	X					
039GW007C1	WATER			X	X	X					
039GW008C1	WATER			X	X	X					
039GW011C1	WATER			X	X	X					
039GW04DC1	WATER			X	X	X					
039GW04IC1	WATER			X	X	X					
039GW08DC1	WATER			X	X	X					
042GW001C1	WATER			X	X	X					
042GW002C1	WATER			X	X	X					
505GW001C1	WATER			X	X	X					
Total Billable Samples (Water/Soil)		3	0	1	0	20	0	20	0	20	0

VOA= Volatiles
P/P= Pesticides/PCBs
MET= Metals
TDS= Total Dissolved Solids
CHL= Chloride

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT 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 SW-846 Method 8260; the National Functional Guidelines for Organic Data Validation, 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.

SDG # EN010

A validation was performed on the Volatile Data from SDG EN010. The data was evaluated based on the following parameters:

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

* - All criteria were met for this parameter.

Calibrations

The initial calibration contained compounds with RRFs less than 0.05.

The initial calibration on 06/11/98 exhibited acetone, 2-butanone, and 2-hexanone with mean RRFs of 0.012, 0.022, and 0.048 respectively. For the samples listed below, qualify the non detect results for the above compounds as UR.

037GWA01C1

042GW003C1

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 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>
037GWA01C1	acetone	-	UR
042GW003C1	2-butanone		
	2-hexanone		

- * 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

PESTICIDE/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, calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA SW846, Method 8081/8082; the National Functional Guidelines for Organic Data Review, February 1994, and DQO Level III. 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 Qualifications table.

SDG # EN010

A validation was performed on the Pesticide/PCB Data from SDG EN010. The data was evaluated based on the following parameters.

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

* - All criteria were met for this parameter

System Performance and Overall Assessment

The data is reported as is without qualifications or rejections.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = 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 analyte 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 analyte 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.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID

ANALYTE ID

DL

QL

No qualifications are required.

- * 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 AND WET CHEMISTRY

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 # EN010

A validation was performed on the Metals and wet chemistry Data from SDG EN010. 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 blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Barium	1.4 ug/l	no impact
Calcium	33.1 ug/l	no impact
Iron	27.8 ug/l	no impact
Manganese	2.1 ug/l	no impact
Sodium	31.4 ug/l	no impact
Zinc	8.3 ug/l	all water samples below 41.5 ug/l

The calibration blanks exhibited contamination for the following elements.

<u>Elements</u>	<u>Conc.</u>	<u>Samples affected</u>
Antimony	18.3 ug/l	no impact
Barium	3.1 ug/l	all water samples below 15.5 ug/l
Calcium	56.3 ug/l	no impact
Magnesium	52.9 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 Selenium (0%) was below 30%. All positive results are qualified as estimated, "J" and all non-detect results are rejected.

Serial Dilution results

The Serial dilution result for waters for Manganese was 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 water samples below 15.5 ug/l	Ba.	+	U
all water samples below 41.5 ug/l	Zn.		
all water samples	Se.	+	J
		U	R
all water samples	Mn.	+	J
all "B" results	all analytes	B	J

Analytical Data Summary

12/19/2001 11:43 PM

StationID	A042SB054		A042SB055		A042SB056		A042SB057		
SampleID	042SB05401 (0-1ft)		042SB05501 (0-1ft)		042SB05601 (0-1ft)		042SB05701 (0-1ft)		
DateCollected	9/5/2001 12:00 AM		9/5/2001 12:00 AM		9/5/2001 12:00 AM		9/5/2001 12:00 AM		
DateAnalyzed	09/11/2001		09/11/2001		09/11/2001		09/11/2001		
SDGNumber	48525		48525		48525		48525		
Parameter	Units								
Arsenic, TCLP	ug/L								
Barium, TCLP	ug/L								
Cadmium, TCLP	ug/L								
Chromium, TCLP	ug/L								
Lead, TCLP	ug/L								
Mercury, TCLP	ug/L								
Selenium, TCLP	ug/L								
Silver, TCLP	ug/L								
Arsenic	mg/kg	3.9	J	13.1	J	2.81	J	23.9	J

Analytical Data Summary

12/19/2001 1:43 PM

StationID	A042SB058		A042SB059		A042SB060		A042SB061		
SampleID	042SB05801 (0-1ft)		042SB05901 (0-1ft)		042SB06001 (0-1ft)		042SB06101 (0-1ft)		
DateCollected	9/5/2001 12:00 AM								
DateAnalyzed	09/11/2001		09/11/2001		09/11/2001		09/11/2001		
SDGNumber	48525		48525		48525		48525		
Parameter	Units								
Arsenic, TCLP	ug/L								
Barium, TCLP	ug/L								
Cadmium, TCLP	ug/L								
Chromium, TCLP	ug/L								
Lead, TCLP	ug/L								
Mercury, TCLP	ug/L								
Selenium, TCLP	ug/L								
Silver, TCLP	ug/L								
Arsenic	mg/kg	7.53	J	9.27	J	9.86	J	27.4	J

Analytical Data Summary

12/19/2001 1:43 PM

StationID	A042SB068	A042SB068
SampleID	042SB06801 (0-1ft)	042SB06801 (0-1ft)
DateCollected	9/5/2001 12:00 AM	9/5/2001 12:00 AM
DateAnalyzed	09/13/2001	09/24/2001
SDGNumber	48528	48528

Parameter	Units				
Arsenic, TCLP	ug/L	26	U		
Barium, TCLP	ug/L	286	=		
Cadmium, TCLP	ug/L	14.1	J		
Chromium, TCLP	ug/L	5.7	U		
Lead, TCLP	ug/L	892	=		
Mercury, TCLP	ug/L			0.642	U
Selenium, TCLP	ug/L	34.9	U		
Silver, TCLP	ug/L	6.66	U		
Arsenic	mg/kg				

Analytical Data Summary

12/19/2001 1:43 PM

StationID	A042SB063		A042SB064		A042SB065		A042SB066		
SampleID	042SB06301 (0-1ft)		042SB06401 (0-1ft)		042SB06501 (0-1ft)		042SB06601 (0-1ft)		
DateCollected	9/5/01 12:00 AM		9/5/01 12:00 AM		9/5/01 12:00 AM		9/5/01 12:00 AM		
DateAnalyzed	09/14/2001		09/13/2001		09/13/2001		09/13/2001		
SDGNumber	48525		48525		48525		48525		
Parameter	Units								
Phenanthrene	ug/kg	382	U	362	U	368	U	358	U
Naphthalene	ug/kg	382	U	362	U	8.3	J	358	U
Acenaphthylene	ug/kg	382	U	362	U	368	U	358	U
Acenaphthene	ug/kg	382	U	362	U	368	U	358	U
Fluorene	ug/kg	382	U	362	U	368	U	358	U
Anthracene	ug/kg	382	U	362	U	368	U	358	U
Flouranthene	ug/kg	13.6	J	362	U	647	=	358	U
Pyrene	ug/kg	13.4	J	362	U	809	=	358	U
Benzo(a)Anthracene	ug/kg	382	U	362	U	442	=	70.7	J
Chrysene	ug/kg	382	U	362	U	452	=	85.7	J
Benzo(b)Fluoranthene	ug/kg	63.8	J	362	U	484	J	204	J
Benzo(k)Fluoranthene	ug/kg	13.6	J	362	U	474	J	358	U
Benzo(a)Pyrene	ug/kg	10.4	J	362	U	486	J	88.2	J
Indeno(1,2,3-c,d)pyrene	ug/kg	382	U	362	U	306	J	67.2	J
Dibenz(a,h)anthracene	ug/kg	382	U	362	U	129	J	358	U
Benzo(g,h,i)Perylene	ug/kg	382	U	362	U	278	J	358	U

Analytical Data Summary

12/19/2001 3:33 PM

StationID A042SB067
 SampleID 042SB06701 (0-1ft)
 DateCollected 9/5/01 12:00 AM
 DateAnalyzed 09/13/2001
 SDGNumber 48525

Parameter	Units		
Phenanthrene	ug/kg	398	=
Naphthalene	ug/kg	373	U
Acenaphthylene	ug/kg	373	U
Acenaphthene	ug/kg	373	U
Fluorene	ug/kg	373	U
Anthracene	ug/kg	373	U
Flouranthene	ug/kg	751	=
Pyrene	ug/kg	923	=
Benzo(a)Anthracene	ug/kg	432	=
Chrysene	ug/kg	413	=
Benzo(b)Fluoranthene	ug/kg	417	J
Benzo(k)Fluoranthene	ug/kg	378	J
Benzo(a)Pyrene	ug/kg	389	J
Indeno(1,2,3-c,d)pyrene	ug/kg	281	J
Dibenz(a,h)anthracene	ug/kg	133	J
Benzo(g,h,i)Perylene	ug/kg	239	J

Data Validation Summary - Charleston Naval Complex – Zone A, SWMU 42

TO: Jim Edens/CH2M HILL/GNA

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

DATE: November 12, 2001

The purpose of this memorandum is to present the results of the data validation process for the samples collected at Zone A, SWMU 42. The samples were collected between the dates of August 31 and September 5, 2001.

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

The Quality Control areas that were review 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 1994)* 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), SW-846 8270 Semivolatile Organic Compounds (SVOC), SW-846 8081 Organochlorine Pesticides, SW-846 8082 Polychlorinated Biphenyls, SW-846 8151 Herbicides, SW-846 9012 Cyanide, and Metals following SW-846 6010/7000 Series methodology. A single sample was also submitted for the Toxicity Characteristic Leaching Procedure (TCLP) and then analyzing the "leachate" for the RCRA Metals.

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
TN	Tune

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

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Station ID	Sample ID	Lab Sample ID	Matl	Sample Type	SW6010 Arsenic	SW6010 ECRA Metals	SW7470S W7471 Mercury	SW6010 TCLP Metals & Mercury	SW8031 Pesticides	SW8032 PCBs	SW8151 Herbicides	SW8260 VOC	SW8270 SVOC	SW812 Cyanide
Samples Collected 8/31/2001															
48407	A042SB050	042SB05001MS	1200078027	SO	MS			X							
48407	A042SB050	042SB05001SD	1200078030	SO	SD			X							
48407	A042SB050	042SB05001MS	1200078885	SO	MS										X
48407	A042SB050	042SB05001SD	1200078886	SO	SD										X
48407	A042SB050	042SB05001MS	1200079216	SO	MS		X								
48407	A042SB050	042SB05001SD	1200079217	SO	SD		X								
48407	A042SB050	042SB05001	48407001	SO	N		X	X		X	X	X	X	X	X
48407	A042SB051	042SB05101	48407002	SO	N		X	X		X	X	X	X	X	X
48407	A042SB050	042CB05001	48407003	SO	FD		X	X		X	X	X	X	X	X
48407	A042SB052	042SB05201	48407004	SO	N		X	X		X	X	X	X	X	X
48407	A042SB053	042SB05301	48407005	SO	N		X	X		X	X	X	X	X	X
48408	FIELDQC	042EB050L1MS	1200078894	WQ	MS										X
48408	FIELDQC	042EB050L1SD	1200078895	WQ	SD										X
48408	FIELDQC	042EB050L1MS	1200080652	WQ	MS			X							
48408	FIELDQC	042EB050L1SD	1200080653	WQ	SD			X							
48408	FIELDQC	042EB050L1	48408001	WQ	EB		X	X		X	X	X	X	X	X

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Station ID	Sample ID	Lab Sample ID	Matrix	Sample Type	SW4010 Arsenic	SW6010 ECRA Metals	SW7470S W7470 Mercury	SW6010 TCLP Metals & Mercury	SW8081 Pesticides	SW8082 PCBs	SW8151 Herbicides	SW8260 SVOC	SW8270 SVOC	SW9012 Cyanide
Samples Collected 9/5/2001															
48525	A042SB063	042SB06301MS	1200081329	SO	MS										X
48525	A042SB063	042SB06301SD	1200081330	SO	SD										X
48525	A042SB054	042SB05401	48525001	SO	N	X									
48525	A042SB055	042SB05501	48525002	SO	N	X									
48525	A042SB056	042SB05601	48525003	SO	N	X									
48525	A042SB057	042SB05701	48525004	SO	N	X									
48525	A042SB058	042SB05801	48525005	SO	N	X									
48525	A042SB059	042SB05901	48525006	SO	N	X									
48525	A042SB060	042SB06001	48525007	SO	N	X									
48525	A042SB061	042SB06101	48525008	SO	N	X									
48525	A042SB063	042SB06301	48525009	SO	N										X
48525	A042SB064	042SB06401	48525010	SO	N										X
48525	A042SB065	042SB06501	48525011	SO	N										X
48525	A042SB066	042SB06601	48525012	SO	N										X
48525	A042SB067	042SB06701	48525013	SO	N										X
48528	A042SB068	042SB06801MS	1200080390	SO	MS	X									
48528	A042SB068	042SB06801SD	1200080393	SO	SD	X									
48528	A042SB068	042SB06801MS	1200085661	SO	MS	X									
48528	A042SB068	042SB06801SD	1200085662	SO	SD	X									

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Station ID	Sample ID	Lab Sample ID	Matrix	Sample Type	SW6010 Arsenic	SW6010 RCRA Metals	SW7470S W7471 Mercury	SW6010 TCLP Metals & Mercury	SW8061 Pesticides	SW8082 PCBs	SW8151 Herbicides	SW8260 VOC	SW8270 SVOC	SW9012 Cyanide
48528	A042SB068	042SB06801	48528001	SO	N	X									
48531	FIELDQC	042EB054L1	48531001	WQ	EB	X									
48531	FIELDQC	042EB063L1	48531002	WQ	EB									X	

MATRIX CODE
 SO – Soil
 WQ – Water QC Samples

SAMPLE TYPE CODE
 EB - Equipment Blank
 FD - Field Duplicate
 MS - Matrix Spike
 SD - Matrix Spike Duplicate
 N - Native Sample

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 and equipment 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.
- **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.
- **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.
- **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

The QA/QC parameters for the Volatile Organic Compound analyses by method SW-846 8260 for all of the samples were within acceptable control limits, except as noted below.

Blank Contamination

All laboratory and equipment, blank samples were free of contamination, except as listed in Table 2.

TABLE 2

Blank Contamination: VOC

Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Units	Flag Concentration Less than	Associated Sample
48407	VBLK01	VBLK01	LB	Acetone	5.9	ug/Kg	59.0 ug/Kg	48407 - 05
48407	VBLK01	VBLK01	LB	Methylene Chloride	4.0	ug/Kg	40.0 ug/Kg	48407 - 05
48407	VBLK02	VBLK02	LB	Acetone	6.0	ug/Kg	60.0 ug/Kg	48407 - 1-4
48407	VBLK02	VBLK02	LB	Methylene Chloride	0.63	ug/Kg	6.3 ug/Kg	48407 - 1-4
48407	48408-01	042EB050L1	EB	Tetrachloroethene	0.23	ug/L	1.2 ug/L	48407 - 1-5
48407	48408-01	042EB050L1	EB	1,4-Dichlorobenzene	0.32	ug/L	1.6 ug/L	48407 - 1-5
48408	VBLK01	VBLK01	LB	1,4-Dichlorobenzene	0.33	ug/L	1.7 ug/L	48408-1 (EB)
48408	48408-01	042EB050L1	EB	Tetrachloroethene	0.23	ug/L	1.2 ug/L	48408-1 (EB)
48408	48408-01	042EB050L1	EB	1,4-Dichlorobenzene	0.32	ug/L	1.6 ug/L	48408-1 (EB)

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.

Surrogate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted in Table 3.

TABLE 3

Surrogate and LCS/LCSD Recoveries Out of QC Limits: VOCs
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SW	Sample	Parameter	Recovery	Control	QC Sample	Flags
48407	VBLK01	Bromofluorobenzene	114*	59-113	VBLK01	No Flags Applied
48407	#1 / 042SB05001	Bromofluorobenzene	125*	59-113	#1 / 042SB05001	No Flags Applied
48407	#3 / 042CB05001	Bromofluorobenzene	115*	59-113	#3 / 042CB05001	No Flags Applied
48407	VBLK01LCS	2-Chloroethyl vinyl ether	46*	70-130	48407- 1-5	Detects-J, non-detects-UJ
48408	#1 / 042EB050L1	Toluene-d8	78*	88-110	#1 / 042EB050L1	No Flags Applied
		Bromofluorobenzene	74*	86-115		
* - 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: VOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Calibration Date	Analyte	% Relative Standard Deviation (RSD) / % Difference (%D)	Associated Sample
VOA2 – CCAL–09/10, 0723	2-Chloroethyl vinyl ether	53.8% low	48407-5
	Bromoform	23.3% high	
VOA2 – CCAL–09/11, 0637	2-Chloroethyl vinyl ether	23.1% low	48407-1-4
VOA1 – CCAL–09/12, 0855	Vinyl acetate	26.4% high	48408-1 (EB)

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

- When the percent difference (%D) or RRF 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 was high, detected compounds were flagged "J", as estimated. Non-detected compounds were not flagged.

Semivolatile Organic Compounds

The QA/QC parameters for the Semivolatile Organic Compound analyses by method SW-846 8270 for all of the samples were within acceptable control limits, except as noted below.

Blank Contamination

All equipment and method blanks were free of contamination, except as listed in Table 5.

TABLE 5

Blank Contamination: SVOC

Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

EQC	Lab Sample ID	Sample ID	Container	Parameter	Lab Result	Unit	Blank Contamination Reporting Limit	Remarks
48407	SBLK01	SBLK01	LB	Di-n-butylphthalate	5.7	ug/Kg	57.0 ug/Kg	48407-1,2,4,5
48525	48531-01	042EB063L1	EB	Acenaphthylene	0.13	ug/L	215.0 ug/Kg	48525-9-13
				Acenaphthene	0.17	ug/L	281.0 ug/Kg	
				Fluorene	0.18	ug/L	297.0 ug/Kg	
				Phenanthrene	0.22	ug/L	363.0 ug/Kg	
				Anthracene	0.17	ug/L	281.0 ug/Kg	
				Fluoranthene	0.18	ug/L	297.0 ug/Kg	
				Pyrene	0.18	ug/L	297.0 ug/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.

Initial and Continuing Calibration Criteria

All initial calibration criteria and continuing calibration criteria were met except as noted in Table 6.

TABLE 6

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: SVOC

Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Calibrate Date	Analyte	%Relative Standard Deviation (ICAL) / %Difference (CCAL)	Associated Sample
MSD4-ICAL-08/31, 0544	Naphthalene	R ² =0.987	48407-1,2,4,5
MSD5-ICAL-09/12, 1931	2,4-Dinitrophenol	R ² =0.988	48407-3
MSD4-CCAL-09/05, 1050	Bis(2-Chloroisopropyl)ether	22.0% high	48407-2
	Hexachlorocyclopentadiene	23.5% low	
	2,4-Dinitrophenol	23.5% low	
	o-Nitroaniline	21.3% high	
MSD4-CCAL-09/07, 0751	Bis(2-Chloroisopropyl)ether	39.7% high	48407-1,4,5
	2,4-Dinitrophenol	63.3% low	
	4-Nitrophenol	41.2% high	
	2-Methyl-4,6-dinitrophenol	58.6% low	
	o-Nitroaniline	40.9% high	
MSD5-CCAL-09/12, 0228	Benzo(k)fluoranthene	35.4% high	48407-3
MSD5-ICAL-08/12, 1804	4-Nitrophenol	R ² =0.989	48408-1 (EB)
	Benzo(k)fluoranthene	R ² =0.984	
	Benzo(g,h,i)perylene	16.6% high	
MSD5-CCAL-09/06, 1109	Benzo(k)fluoranthene	21.8% high	48408-1 (EB)
	Dibenzo(a,h)anthracene	20.5% high	
	o-Nitroaniline	52.3% high	
	m-Nitroaniline	42.7% high	
	p-Nitroaniline	39.4% high	

Internal Standards

All internal standard (IS) retention times and area responses were within criteria, except as listed in Table 7.

TABLE 7
Internal Standard Area out of Criteria: SVOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Site	Sample	Internal Standard	Retention Time Comparison (min)
48407	#2	Perylene-d12 – 51.2% low	Detects-J, Non-detects-UJ
48525	#11	Perylene-d12 – 53.1% low	Detects-J, Non-detects-UJ
48525	#13	Perylene-d12 – 58.1% low	Detects-J, Non-detects-UJ

Organochlorine Pesticides

The QA/QC parameters for the Organochlorine Pesticides analyses by method SW-846 8081 for all of the samples were within acceptable control limits, except as noted below.

Initial and Continuing Calibration Criteria

All initial and continuing calibration criteria were met except as noted in Table 8. In addition, the second column confirmation percent difference (%D) for some detected parameters, exceeded the 40 %D criteria in selected samples. Those results were flagged "J", as estimated.

TABLE 8
Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Pesticides
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Reference/Analysis Date	Parameter	Deviation (%D)	Sample ID
ECD5A DB-XLB – CCAL-09/13, 1130	4,4'-DDD	19.0% high	48407-1-5
	4,4'-DDT	25.0% low	
	Methoxychlor	16.1% low	
ECD5A DB-17MS – CCAL-09/13, 1130	4,4'-DDD	16.0% high	48407-1-5
	4,4'-DDT	30.5% low	
	Methoxychlor	20.3% low	
ECD5A DB-XLB – CCAL-09/12, 1514	Toxaphene	62.5% high	48408-1 (EB)

TABLE 8

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Pesticides
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Calibration Date	Analyte	%Relative Standard Deviation (%RSD) %Difference (CCAL)	Associated Samples
ECD5A DB-17MS – CCAL-09/12, 1514	Toxaphene	36.5% high	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/12, 1540	Chlordane (tech)	56.0% high	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/12, 2339	4,4'-DDD	17.05 low	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/13, 0402	Endosulfan II	15.0% low	48408-1 (EB)
	4,4'-DDD	34.5% low	

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

- 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 was high, detected compounds were flagged “J”, as estimated. Non-detected compounds were not flagged.

Surrogate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for decachlorobiphenyl in the equipment blank sample, 48408001 / 042EB050L1, were 59 and 53 percent respectively for the two analytical columns. Although these recoveries were slightly below the QC limits of 60 – 150 percent, no flags were applied to the sample.

Polychlorinated Biphenyls

The QA/QC parameters for the Polychlorinated Biphenyls analyses by method SW-846 8082 for all of the samples were within acceptable control limits, except as noted below.

Surrogate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for decachlorobiphenyl in the equipment blank sample, 48408001 / 042EB050L1, were 28 and 28 percent respectively for the two analytical columns. The sample was re-extracted and re-analyzed with similar results. Although these recoveries were slightly below the QC limits of 60 – 150 percent, no flags were applied to the sample.

Organochlorine Herbicides

The QA/QC parameters for the Organochlorine Herbicides analyses by method SW-846 8151 for all of the samples were within acceptable control limits, except as noted below.

Surrogate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for 2,4-Dichlorophenylacetic acid in the equipment blank sample, 48408001 / 042EB050L1, were 99 and 127 percent respectively for the two analytical columns. As the recovery was slightly above the recovery limits of 36-121 percent on only one column, no flags were applied to the sample.

Initial and Continuing Calibration Criteria

All initial and continuing calibration criteria were met except as noted in Table 9.

TABLE 9

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Herbicides
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Location	Analyte	% Relative Standard Deviation (RSD) Difference (%)	Associated Sample(s)
ECD4A DB-608 – CCAL-09/11, 0016	2,4,5-T	28.0% low	48407-1-4
	2,4,5-TP	15.5% low	
ECD4A DB-608 – CCAL-09/11, 0434	2,4,5-T	28.5% low	48407-1-5
	2,4,5-TP	20.5% low	
ECD4A DB-608 – CCAL-09/11, 0544	2,4,5-T	27.5% low	48407-5
	2,4,5-TP	19.0% low	
ECD4A DB-608 – CCAL-09/07, 1010	2,4,5-T	24.5% low	48408-1 (EB)
ECD4A DB-608 – CCAL-09/07, 1254	2,4,5-T	27.0% low	48408-1 (EB)
ECD4A DB-608 – CCAL-09/07, 1602	2,4,5-T	24.5% low	48408-1 (EB)

Inorganic Parameters

Quality Control Review

The following list represents the QA/QC measures that are typically reviewed during the data quality evaluation procedure for inorganic parameters.

- **Holding Times** – The holding times are evaluated to verify that samples were extracted and analyzed within holding times.
- **Blank samples** – Sample preparation, initial calibration blanks/continuing calibration blanks, and equipment 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.
- **Lab Control Sample (LCS)** – This sample is a "controlled matrix", in which target parameters have been added prior to digestion/analysis. The recoveries serve as a monitor of the overall performance of each step during the analysis, including sample preparation.
- **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.
- **Pre/Post Digestion Spike (MS/MSD)** – 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.
- **ICP Interference Check Sample** – This sample verifies the lab's interelement and background correction factors.
- **Initial Calibration Verification** – This parameter ensures that the instrument is capable of producing acceptable quantitative data for the target analyte list to be measured.
- **Continuing Calibration Verification** – This one-point, mid-range parameter establishes that the initial calibration is still valid by checking the performance of the instrument on a continual basis.
- **ICP Serial Dilution** – The serial dilution of samples quantitated by ICP determines whether or not significant physical or chemical interferences exist due to the sample matrix.

Metals Analyses

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

Blanks

The Metals target parameters detected in blank samples are listed in Table 10.

TABLE 10
Blank Contamination: Metals
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Unit	EBQ Concentration Designation	Associated Samples
48407	CCB	CCB	LB	Antimony	8.06	ug/L	20.15 mg/Kg	48407 - All
				Barium	0.368	ug/L	0.092 mg/Kg	
				Chromium	0.930	ug/L	0.233 mg/Kg	
				Iron	9.22	ug/L	2.305 mg/Kg	
				Magnesium	9.24	ug/L	2.31 mg/Kg	
				Potassium	40.5	ug/L	10.125 mg/Kg	
				Silver	0.861	ug/L	0.215 mg/Kg	
				Sodium	26.0	ug/L	6.5 mg/Kg	
				Vanadium	0.685	ug/L	0.171 mg/Kg	
				Zinc	0.608	ug/L	0.152 mg/Kg	
48407	1200079214	1200079214	LB	Barium	0.025	mg/Kg	0.125 mg/Kg	48407 - All
				Iron	0.789	mg/Kg	3.945 mg/Kg	
				Magnesium	0.892	mg/Kg	4.46 mg/Kg	
				Potassium	2.72	mg/Kg	13.6 mg/Kg	
				Sodium	3.02	mg/Kg	15.1 mg/Kg	
48407 / 48408	48408001	042EB050L1	EB	Barium	0.524	ug/L	0.131 mg/Kg	48407 - All
				Calcium	1150	ug/L	287.5 mg/Kg	
				Chromium	1.310	ug/L	0.328 mg/Kg	
				Iron	12.1	ug/L	3.025 mg/Kg	
				Magnesium	161	ug/L	40.25 mg/Kg	
				Manganese	0.824	ug/L	0.206 mg/Kg	
				Potassium	48.4	ug/L	12.1 mg/Kg	
				Sodium	779	ug/L	194.75 mg/Kg	
				Thallium	5.130	ug/L	1.283 mg/Kg	
				Vanadium	1.650	ug/L	0.413 mg/Kg	
Zinc	0.806	ug/L	0.202 mg/Kg					

If a target parameter was reported in a field sample, and the concentration was below the level determined to be due to blank contamination (5 times the concentration in the associated QC blank samples), it was flagged as "U", not detected. Initial and continuing calibration blanks were also evaluated for possible contamination.

Matrix Spike, Matrix Spike Duplicate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All Matrix Spike (MS), Matrix Spike Duplicate (MSD), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) recoveries and Relative Percent Differences (RPDs) were within acceptable quality control limits, except as noted in Table 11.

TABLE 11
MS/MSD, and LCS/LCSD Recoveries Out of QC Limits: Metals
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

48407	#1 / 042SB05001 MS/MSD	Antimony	49.5* / 42.7*	80-120	48407 - All	Detects-J, non-detects- UJ
		Barium	135.5* / 85.7	80-120	48407 - All	Detects-J
		Zinc	131* / 88.4	80-120	48407 - All	Detects-J
		Arsenic	101.2 / 78.8*	80-120	48407 - All	Detects-J, non-detects- UJ
		Manganese	83.5 / 68*	80-120	48407 - All	Detects-J, non-detects- UJ
48407	LCS / 1200079215	Aluminum	122.7*	80-120	48407 - All	Detects-J
48525	48407-1 / 042SB05001 MS/MSD	Arsenic	101.2 / 78.8*	80-120	48525 - All	Detects-J, non-detects- UJ

* - out of control limits

General Chemistry Analyses

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

Blanks

The General Chemistry target parameters detected in blank samples are listed in Table 12.

TABLE 12

Blank Contamination: General Chemistry
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Units	Flat Concentration Level (µg/L)	Associated Samples
48407 / 48408	48408001	042EB050L1	EB	Cyanide	3.89	ug/L	0.9725 mg/Kg	48407 - All

If a target parameter was reported in a field sample, and the concentration was below the level determined to be due to blank contamination (5 times the concentration in the associated QC blank samples), it was flagged as "U", not detected. Initial and continuing calibration blanks were also evaluated for possible contamination.

Matrix Spike, Matrix Spike Duplicate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All Matrix Spike (MS), Matrix Spike Duplicate (MSD), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) recoveries and Relative Percent Differences (RPDs) were within acceptable quality control limits, except as noted below.

- The MS/MSD recoveries for cyanide in SDG 48407 at 125 and 108 percent respectively, were slightly above the recovery limits of 80-120 percent. Cyanide was flagged as not detected due to possible blank contamination, therefore, as the recovery was high, no flags were applied to the data.

Conclusion

A review of the analytical data submitted regarding the investigation of SWMU 42 in Zone A 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 noted 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.

Data Validation Summary - Charleston Naval Complex – Zone A, SWMU 42

TO: Jim Edens/CH2M HILL/GNA

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

DATE: November 12, 2001

The purpose of this memorandum is to present the results of the data validation process for the samples collected at Zone A, SWMU 42. The samples were collected between the dates of August 31 and September 5, 2001.

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

The Quality Control areas that were review 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 1994) 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), SW-846 8270 Semivolatile Organic Compounds (SVOC), SW-846 8081 Organochlorine Pesticides, SW-846 8082 Polychlorinated Biphenyls, SW-846 8151 Herbicides, SW-846 9012 Cyanide, and Metals following SW-846 6010/7000 Series methodology. A single sample was also submitted for the Toxicity Characteristic Leaching Procedure (TCLP) and then analyzing the "leachate" for the RCRA Metals.

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
TN	Tune

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

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SBG	Station ID	Sample ID	Lab Sample ID	Matrix	Sample Type	SW6010 Arsenic	SW6010 RCRA Metals	SW7470S W7471 Mercury	SW6010 TCLP Metals & Mercury	SW8081 Pesticides	SW8082 PCBs	SW8151 Herbicides	SW8260 VOC	SW8270 SVOC	SW9012 Cyanide
Samples Collected 8/31/2001															
48407	A042SB050	042SB05001MS	1200078027	SO	MS			X							
48407	A042SB050	042SB05001SD	1200078030	SO	SD			X							
48407	A042SB050	042SB05001MS	1200078885	SO	MS										X
48407	A042SB050	042SB05001SD	1200078886	SO	SD										X
48407	A042SB050	042SB05001MS	1200079216	SO	MS		X								
48407	A042SB050	042SB05001SD	1200079217	SO	SD		X								
48407	A042SB050	042SB05001	48407001	SO	N		X	X		X	X	X	X	X	X
48407	A042SB051	042SB05101	48407002	SO	N		X	X		X	X	X	X	X	X
48407	A042SB050	042CB05001	48407003	SO	FD		X	X		X	X	X	X	X	X
48407	A042SB052	042SB05201	48407004	SO	N		X	X		X	X	X	X	X	X
48407	A042SB053	042SB05301	48407005	SO	N		X	X		X	X	X	X	X	X
48408	FIELDQC	042EB050L1MS	1200078894	WQ	MS										X
48408	FIELDQC	042EB050L1SD	1200078895	WQ	SD										X
48408	FIELDQC	042EB050L1MS	1200080652	WQ	MS			X							
48408	FIELDQC	042EB050L1SD	1200080653	WQ	SD			X							
48408	FIELDQC	042EB050L1	48408001	WQ	EB		X	X		X	X	X	X	X	X

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Station ID	Sample ID	Lab Sample ID	Matrix	Sample Type	SW6010 Arsenic	SW5010 RCRA Metals	SW7470S W7471 Mercury	SW6010 TCLP Metals & Mercury	SW8081 Pesticides	SW8082 PCBs	SW8151 Herbicides	SW8260 VOC	SW8270 SVOC	SW8012 Cyanide
Samples Collected 9/5/2001															
8525	A042SB063	042SB06301MS	1200081329	SO	MS										X
8525	A042SB063	042SB06301SD	1200081330	SO	SD										X
8525	A042SB054	042SB05401	48525001	SO	N	X									
8525	A042SB055	042SB05501	48525002	SO	N	X									
8525	A042SB056	042SB05601	48525003	SO	N	X									
8525	A042SB057	042SB05701	48525004	SO	N	X									
8525	A042SB058	042SB05801	48525005	SO	N	X									
8525	A042SB059	042SB05901	48525006	SO	N	X									
8525	A042SB060	042SB06001	48525007	SO	N	X									
8525	A042SB061	042SB06101	48525008	SO	N	X									
8525	A042SB063	042SB06301	48525009	SO	N										X
8525	A042SB064	042SB06401	48525010	SO	N										X
8525	A042SB065	042SB06501	48525011	SO	N										X
8525	A042SB066	042SB06601	48525012	SO	N										X
8525	A042SB067	042SB06701	48525013	SO	N										X
8528	A042SB068	042SB06801MS	1200080390	SO	MS	X									
8528	A042SB068	042SB06801SD	1200080393	SO	SD	X									
8528	A042SB068	042SB06801MS	1200085661	SO	MS	X									
8528	A042SB068	042SB06801SD	1200085662	SO	SD	X									

TABLE 1
 Chemical Analytical Methods – Field and Quality Control Samples
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Station ID	Sample ID	Lab Sample ID	Matrix	Sample Type	SW6010 Arsenic	SW6010 RCRA Metals	SW7470S W7471 Mercury	SW8010 TCLP Metals & Mercury	SW8081 Pesticides	SW8082 PCBs	SW8151 Herbicides	SW8260 VOC	SW8270 SVOC	SW9012 Cyanide
48528	A042SB068	042SB06801	48528001	SO	N	X									
48531	FIELDQC	042EB054L1	48531001	WQ	EB	X									
48531	FIELDQC	042EB063L1	48531002	WQ	EB									X	

MATRIX CODE

SO – Soil

WQ – Water QC Samples

SAMPLE TYPE CODE

EB - Equipment Blank

FD - Field Duplicate

MS - Matrix Spike

SD - Matrix Spike Duplicate

N - Native Sample

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 and equipment 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.
- **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.
- **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.
- **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.
- **Confirmation** – If GCMS methodology is not initially used for analysis, SW-846 method 8000 requires confirmation when the composition of samples is not well characterized.

Therefore, even when the identification has been confirmed on a dissimilar column or detector, the agreement of the quantitative results on both columns is evaluated. For Pesticide and PCB analyses covered in this report, confirmation was performed using a dissimilar analytical column. The laboratory analyzed samples with a gas chromatograph (GC) utilizing simultaneous primary and confirmation data acquisition. Per SW-86 method 8000, 40% RPD criteria was used as the acceptance limit.

Volatile Organic Compounds

The QA/QC parameters for the Volatile Organic Compound analyses by method SW-846 8260 for all of the samples were within acceptable control limits, except as noted below.

Blank Contamination

All laboratory and equipment, blank samples were free of contamination, except as listed in Table 2.

TABLE 2
Blank Contamination: VOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDC	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Units	Flag (concentration less than)	Associated Sample
48407	VBLK01	VBLK01	LB	Acetone	5.9	ug/Kg	59.0 ug/Kg	48407 - 05
48407	VBLK01	VBLK01	LB	Methylene Chloride	4.0	ug/Kg	40.0 ug/Kg	48407 - 05
48407	VBLK02	VBLK02	LB	Acetone	6.0	ug/Kg	60.0 ug/Kg	48407 - 1-4
48407	VBLK02	VBLK02	LB	Methylene Chloride	0.63	ug/Kg	6.3 ug/Kg	48407 - 1-4
48407	48408-01	042EB050L1	EB	Tetrachloroethene	0.23	ug/L	1.2 ug/L	48407 - 1-5
48407	48408-01	042EB050L1	EB	1,4-Dichlorobenzene	0.32	ug/L	1.6 ug/L	48407 - 1-5
48408	VBLK01	VBLK01	LB	1,4-Dichlorobenzene	0.33	ug/L	1.7 ug/L	48408-1 (EB)
48408	48408-01	042EB050L1	EB	Tetrachloroethene	0.23	ug/L	1.2 ug/L	48408-1 (EB)
48408	48408-01	042EB050L1	EB	1,4-Dichlorobenzene	0.32	ug/L	1.6 ug/L	48408-1 (EB)

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.

Surrogate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted in Table 3.

TABLE 3

Surrogate and LCS/LCSD Recoveries Out of QC Limits: VOCs
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SPC	Sample	Compound	Recovery	QC Limit	Sample	QC
48407	VBLK01	Bromofluorobenzene	114*	59-113	VBLK01	No Flags Applied
48407	#1 / 042SB05001	Bromofluorobenzene	125*	59-113	#1 / 042SB05001	No Flags Applied
48407	#3 / 042CB05001	Bromofluorobenzene	115*	59-113	#3 / 042CB05001	No Flags Applied
48407	VBLK01LCS	2-Chloroethyl vinyl ether	46*	70-130	48407- 1-5	Detects-J, non-detects-UJ
48408	#1 / 042EB050L1	Toluene-d8	78*	88-110	#1 / 042EB050L1	No Flags Applied
		Bromofluorobenzene	74*	86-115		
* - 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: VOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Continuing Calibration Data	Analyte	%Relative Standard Deviation (%RSD) or Difference (%D)	Associated Sample
VOA2 – CCAL–09/10, 0723	2-Chloroethyl vinyl ether	53.8% low	48407-5
	Bromoform	23.3% high	
VOA2 – CCAL–09/11, 0637	2-Chloroethyl vinyl ether	23.1% low	48407-1-4
VOA1 – CCAL-09/12, 0855	Vinyl acetate	26.4% high	48408-1 (EB)

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

- When the percent difference (%D) or RRF 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 was high, detected compounds were flagged "J", as estimated. Non-detected compounds were not flagged.

Semivolatile Organic Compounds

The QA/QC parameters for the Semivolatile Organic Compound analyses by method SW-846 8270 for all of the samples were within acceptable control limits, except as noted below.

Blank Contamination

All equipment and method blanks were free of contamination, except as listed in Table 5.

TABLE 5

Blank Contamination: SVOC

Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SP	Lab Sample	Sample ID	Sample Type	Parameter	Lab Result	Unit	Reporting Limit	QC Status
48407	SBLK01	SBLK01	LB	Di-n-butylphthalate	5.7	ug/Kg	57.0 ug/Kg	48407-1,2,4,5
48525	48531-01	042EB063L1	EB	Acenaphthylene	0.13	ug/L	215.0 ug/Kg	48525-9-13
				Acenaphthene	0.17	ug/L	281.0 ug/Kg	
				Fluorene	0.18	ug/L	297.0 ug/Kg	
				Phenanthrene	0.22	ug/L	363.0 ug/Kg	
				Anthracene	0.17	ug/L	281.0 ug/Kg	
				Fluoranthene	0.18	ug/L	297.0 ug/Kg	
				Pyrene	0.18	ug/L	297.0 ug/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.

Initial and Continuing Calibration Criteria

All initial calibration criteria and continuing calibration criteria were met except as noted in Table 6.

TABLE 6

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: SVOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Calibration Date	Analyte	Relative Standard Deviation (ICAL) % Difference (CCAL)	Associated Sample
MSD4-ICAL-08/31, 0544	Naphthalene	R ² =0.987	48407-1,2,4,5
MSD5-ICAL-09/12, 1931	2,4-Dinitrophenol	R ² =0.988	48407-3
MSD4-CCAL-09/05, 1050	Bis(2-Chloroisopropyl)ether	22.0% high	48407-2
	Hexachlorocyclopentadiene	23.5% low	
	2,4-Dinitrophenol	23.5% low	
	o-Nitroaniline	21.3% high	
MSD4-CCAL-09/07, 0751	Bis(2-Chloroisopropyl)ether	39.7% high	48407-1,4,5
	2,4-Dinitrophenol	63.3% low	
	4-Nitrophenol	41.2% high	
	2-Methyl-4,6-dinitrophenol	58.6% low	
	o-Nitroaniline	40.9% high	
MSD5-CCAL-09/12, 0228	Benzo(k)fluoranthene	35.4% high	48407-3
MSD5-ICAL-08/12, 1804	4-Nitrophenol	R ² =0.989	48408-1 (EB)
	Benzo(k)fluoranthene	R ² =0.984	
	Benzo(g,h,i)perylene	16.6% high	
MSD5-CCAL-09/06, 1109	Benzo(k)fluoranthene	21.8% high	48408-1 (EB)
	Dibenzo(a,h)anthracene	20.5% high	
	o-Nitroaniline	52.3% high	
	m-Nitroaniline	42.7% high	
	p-Nitroaniline	39.4% high	

Internal Standards

All internal standard (IS) retention times and area responses were within criteria, except as listed in Table 7.

TABLE 7
Internal Standard Area out of Criteria: SVOC
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Sample ID	Sample	Internal Standard	Flags applied to compound as noted within criteria
48407	#2	Perylene-d12 – 51.2% low	Detects-J, Non-detects-UJ
48525	#11	Perylene-d12 – 53.1% low	Detects-J, Non-detects-UJ
48525	#13	Perylene-d12 – 58.1% low	Detects-J, Non-detects-UJ

Organochlorine Pesticides

The QA/QC parameters for the Organochlorine Pesticides analyses by method SW-846 8081 for all of the samples were within acceptable control limits, except as noted below.

Initial and Continuing Calibration Criteria

All initial and continuing calibration criteria were met except as noted in Table 8. In addition, the second column confirmation percent difference (%D) for some detected parameters, exceeded the 40 %D criteria in selected samples. Those results were flagged "J", as estimated.

TABLE 8
Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Pesticides
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Sample ID	Compound	%D	Flags
ECD5A DB-XLB – CCAL-09/13, 1130	4,4'-DDD	19.0% high	48407-1-5
	4,4'-DDT	25.0% low	
	Methoxychlor	16.1% low	
ECD5A DB-17MS – CCAL-09/13, 1130	4,4'-DDD	16.0% high	48407-1-5
	4,4'-DDT	30.5% low	
	Methoxychlor	20.3% low	
ECD5A DB-XLB – CCAL-09/12, 1514	Toxaphene	62.5% high	48408-1 (EB)

TABLE 8

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Pesticides
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument Calibration Date	Analyte	% Relative Standard Deviation (RSD) / % Difference (CAL)	Associated Sample
ECD5A DB-17MS – CCAL-09/12, 1514	Toxaphene	36.5% high	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/12, 1540	Chlordane (tech)	56.0% high	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/12, 2339	4,4'-DDD	17.05 low	48408-1 (EB)
ECD5A DB-XLB – CCAL-09/13, 0402	Endosulfan II	15.0% low	48408-1 (EB)
	4,4'-DDD	34.5% low	

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

- 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 was high, detected compounds were flagged "J", as estimated. Non-detected compounds were not flagged.

Surrogate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for decachlorobiphenyl in the equipment blank sample, 48408001 / 042EB050L1, were 59 and 53 percent respectively for the two analytical columns. Although these recoveries were slightly below the QC limits of 60 – 150 percent, no flags were applied to the sample.

Polychlorinated Biphenyls

The QA/QC parameters for the Polychlorinated Biphenyls analyses by method SW-846 8082 for all of the samples were within acceptable control limits, except as noted below.

Surrogate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for decachlorobiphenyl in the equipment blank sample, 48408001 / 042EB050L1, were 28 and 28 percent respectively for the two analytical columns. The sample was re-extracted and re-analyzed with similar results. Although these recoveries were slightly below the QC limits of 60 – 150 percent, no flags were applied to the sample.

Organochlorine Herbicides

The QA/QC parameters for the Organochlorine Herbicides analyses by method SW-846 8151 for all of the samples were within acceptable control limits, except as noted below.

Surrogate Recoveries

All surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control spike (LCS), and laboratory control spike duplicate (LCSD) recoveries were within acceptable quality control limits, except as noted below.

- The surrogate recoveries for 2,4-Dichlorophenylacetic acid in the equipment blank sample, 48408001 / 042EB050L1, were 99 and 127 percent respectively for the two analytical columns. As the recovery was slightly above the recovery limits of 36-121 percent on only one column, no flags were applied to the sample.

Initial and Continuing Calibration Criteria

All initial and continuing calibration criteria were met except as noted in Table 9.

TABLE 9

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: Herbicides
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

Instrument/Calibration Date	Analyte	Relative Standard Deviation (%ALY Difference) (CGAL)	Associated Sample
ECD4A DB-608 – CCAL- 09/11, 0016	2,4,5-T	28.0% low	48407-1-4
	2,4,5-TP	15.5% low	
ECD4A DB-608 – CCAL- 09/11, 0434	2,4,5-T	28.5% low	48407-1-5
	2,4,5-TP	20.5% low	
ECD4A DB-608 – CCAL- 09/11, 0544	2,4,5-T	27.5% low	48407-5
	2,4,5-TP	19.0% low	
ECD4A DB-608 – CCAL- 09/07, 1010	2,4,5-T	24.5% low	48408-1 (EB)
ECD4A DB-608 – CCAL- 09/07, 1254	2,4,5-T	27.0% low	48408-1 (EB)
ECD4A DB-608 – CCAL- 09/07, 1602	2,4,5-T	24.5% low	48408-1 (EB)

Inorganic Parameters

Quality Control Review

The following list represents the QA/QC measures that are typically reviewed during the data quality evaluation procedure for inorganic parameters.

- **Holding Times** – The holding times are evaluated to verify that samples were extracted and analyzed within holding times.
- **Blank samples** – Sample preparation, initial calibration blanks/continuing calibration blanks, and equipment 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.
- **Lab Control Sample (LCS)** – This sample is a "controlled matrix", in which target parameters have been added prior to digestion/analysis. The recoveries serve as a monitor of the overall performance of each step during the analysis, including sample preparation.
- **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.
- **Pre/Post Digestion Spike (MS/MSD)** – 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.
- **ICP Interference Check Sample** – This sample verifies the lab's interelement and background correction factors.
- **Initial Calibration Verification** – This parameter ensures that the instrument is capable of producing acceptable quantitative data for the target analyte list to be measured.
- **Continuing Calibration Verification** – This one-point, mid-range parameter establishes that the initial calibration is still valid by checking the performance of the instrument on a continual basis.
- **ICP Serial Dilution** – The serial dilution of samples quantitated by ICP determines whether or not significant physical or chemical interferences exist due to the sample matrix.

Metals Analyses

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

Blanks

The Metals target parameters detected in blank samples are listed in Table 10.

TABLE 10
Blank Contamination: Metals
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Units	Flag Concentrations Less than	Associated Sample
48407	CCB	CCB	LB	Antimony	8.06	ug/L	20.15 mg/Kg	48407 - All
				Barium	0.368	ug/L	0.092 mg/Kg	
				Chromium	0.930	ug/L	0.233 mg/Kg	
				Iron	9.22	ug/L	2.305 mg/Kg	
				Magnesium	9.24	ug/L	2.31 mg/Kg	
				Potassium	40.5	ug/L	10.125 mg/Kg	
				Silver	0.861	ug/L	0.215 mg/Kg	
				Sodium	26.0	ug/L	6.5 mg/Kg	
				Vanadium	0.685	ug/L	0.171 mg/Kg	
				Zinc	0.608	ug/L	0.152 mg/Kg	
48407	1200079214	1200079214	LB	Barium	0.025	mg/Kg	0.125 mg/Kg	48407 - All
				Iron	0.789	mg/Kg	3.945 mg/Kg	
				Magnesium	0.892	mg/Kg	4.46 mg/Kg	
				Potassium	2.72	mg/Kg	13.6 mg/Kg	
				Sodium	3.02	mg/Kg	15.1 mg/Kg	
48407 / 48408	48408001	042EB050L1	EB	Barium	0.524	ug/L	0.131 mg/Kg	48407 - All
				Calcium	1150	ug/L	287.5 mg/Kg	
				Chromium	1.310	ug/L	0.328 mg/Kg	
				Iron	12.1	ug/L	3.025 mg/Kg	
				Magnesium	161	ug/L	40.25 mg/Kg	
				Manganese	0.824	ug/L	0.206 mg/Kg	
				Potassium	48.4	ug/L	12.1 mg/Kg	
				Sodium	779	ug/L	194.75 mg/Kg	
				Thallium	5.130	ug/L	1.283 mg/Kg	
				Vanadium	1.650	ug/L	0.413 mg/Kg	
Zinc	0.806	ug/L	0.202 mg/Kg					

If a target parameter was reported in a field sample, and the concentration was below the level determined to be due to blank contamination (5 times the concentration in the associated QC blank samples), it was flagged as "U", not detected. Initial and continuing calibration blanks were also evaluated for possible contamination.

Matrix Spike, Matrix Spike Duplicate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All Matrix Spike (MS), Matrix Spike Duplicate (MSD), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) recoveries and Relative Percent Differences (RPDs) were within acceptable quality control limits, except as noted in Table 11.

TABLE 11
 MS/MSD, and LCS/LCSD Recoveries Out of QC Limits: Metals
 Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

ID	Sample	Parameter	Recovery	Control Limit	Sample	Notes
48407	#1 / 042SB05001 MS/MSD	Antimony	49.5* / 42.7*	80-120	48407 - All	Detects-J, non-detects-UJ
		Barium	135.5* / 85.7	80-120	48407 - All	Detects-J
		Zinc	131* / 88.4	80-120	48407 - All	Detects-J
		Arsenic	101.2 / 78.8*	80-120	48407 - All	Detects-J, non-detects-UJ
		Manganese	83.5 / 68*	80-120	48407 - All	Detects-J, non-detects-UJ
48407	LCS / 1200079215	Aluminum	122.7*	80-120	48407 - All	Detects-J
48525	48407-1 / 042SB05001 MS/MSD	Arsenic	101.2 / 78.8*	80-120	48525 - All	Detects-J, non-detects-UJ

* - out of control limits

General Chemistry Analyses

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

Blanks

The General Chemistry target parameters detected in blank samples are listed in Table 12.

TABLE 12

Blank Contamination: General Chemistry
Charleston Naval Complex, Zone A, SWMU 42, Charleston, SC

SDG	Lab Sample ID	Sample ID	Sample Type	Parameter	Lab Result	Unit	Control Limit	Associated Sample
48407 / 48408	48408001	042EB050L1	EB	Cyanide	3.89	ug/L	0.9725 mg/Kg	48407 - All

If a target parameter was reported in a field sample, and the concentration was below the level determined to be due to blank contamination (5 times the concentration in the associated QC blank samples), it was flagged as "U", not detected. Initial and continuing calibration blanks were also evaluated for possible contamination.

Matrix Spike, Matrix Spike Duplicate, Laboratory Control Spike, and Laboratory Control spike Duplicate Recoveries

All Matrix Spike (MS), Matrix Spike Duplicate (MSD), Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) recoveries and Relative Percent Differences (RPDs) were within acceptable quality control limits, except as noted below.

- The MS/MSD recoveries for cyanide in SDG 48407 at 125 and 108 percent respectively, were slightly above the recovery limits of 80-120 percent. Cyanide was flagged as not detected due to possible blank contamination, therefore, as the recovery was high, no flags were applied to the data.

Conclusion

A review of the analytical data submitted regarding the investigation of SWMU 42 in Zone A 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 noted 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.

Analytical Data Summary

11/29/2001 11:18 PM

StationID	ZPIT8B001		ZPIT8B001		ZPIT8B002		ZPIT8B002	
SampleID	ZPIT8B001 (0-1ft)		ZPIT8B001 (0-1ft)		ZPIT8B002 (3-5ft)		ZPIT8B002 (3-5ft)	
DateCollected	5/24/01 12:00 AM		5/24/01 12:00 AM		5/24/01 12:00 AM		5/24/01 12:00 AM	
DateAnalyzed	05/28/2001		05/29/2001		05/28/2001		05/29/2001	
SDGNumber	S113258		S113258		S113258		S113258	
Parameter	Units							
Arsenic	mg/Kg		0.94	U			0.95	J
Barium	mg/Kg		5.8	=			3.4	=
Cadmium	mg/Kg		0.47	U			0.51	U
Lead	mg/Kg		2.7	=			2.1	=
Mercury	mg/Kg	0.17	=		0.0051	U		
Selenium	mg/Kg		0.94	U			1	U
Silver	mg/Kg		0.94	U			1	U
Chromium, Total	mg/Kg		5.3	=			2.4	=

Analytical Data Summary

11/29/2001 1:18 PM

		StationID		ZPIT8B001		ZPIT8B002	
		SampleID		ZPIT8B001 (0-1ft)		ZPIT8B002 (3-5ft)	
		DateCollected		5/24/01 12:00 AM		5/24/01 12:00 AM	
		DateAnalyzed		06/04/2001		06/04/2001	
		SDGNumber		S113258A		S113258A	
Parameter	Units						
PCB-1016 (Arochlor 1016)	ug/Kg	34	U	34	U		
PCB-1221 (Arochlor 1221)	ug/Kg	34	U	34	U		
PCB-1232 (Arochlor 1232)	ug/Kg	34	U	34	U		
PCB-1242 (Arochlor 1242)	ug/Kg	34	U	34	U		
PCB-1248 (Arochlor 1248)	ug/Kg	34	U	34	U		
PCB-1254 (Arochlor 1254)	ug/Kg	69	U	68	U		
PCB-1260 (Arochlor 1260)	ug/Kg	69	U	68	U		

Analytical Summary

11/29/2001 8 PM

StationID	ZPIT8B001		ZPIT8B002		
SampleID	ZPIT8B001 (0-1ft)		ZPIT8B002 (3-5ft)		
DateCollected	5/24/01 12:00 AM		5/24/01 12:00 AM		
DateAnalyzed	06/04/2001		08/04/2001		
SDGNumber	S113258A		S113258A		
Parameter	Units				
Alpha BHC (Alpha Hexachlorocyclohexane)	ug/Kg	1.3	U	1.3	U
Alpha-chlordane	ug/Kg	1.3	U	1.3	U
Beta BHC (Beta Hexachlorocyclohexane)	ug/Kg	1.3	U	1.3	U
Chlordane	ug/Kg	13	U	13	U
Delta BHC (Delta Hexachlorocyclohexane)	ug/Kg	1.3	U	1.3	U
Dieldrin	ug/Kg	2.6	U	2.6	U
Endosulfan I	ug/Kg	1.3	U	1.3	U
Endosulfan II	ug/Kg	2.6	U	2.6	U
Endosulfan Sulfate	ug/Kg	2.6	U	2.6	U
Endrin Aldehyde	ug/Kg	2.6	U	2.6	U
Endrin Ketone	ug/Kg	2.6	U	2.6	U
Endrin	ug/Kg	2.6	U	2.6	U
Gamma BHC (Lindane)	ug/Kg	1.3	U	1.3	U
Gamma-chlordane	ug/Kg	1.3	U	1.3	U
Heptachlor Epoxide	ug/Kg	1.3	U	1.3	U
Methoxychlor	ug/Kg	13	U	13	U
p,p'-DDD	ug/Kg	2.6	U	2.6	U
p,p'-DDE	ug/Kg	2.6	U	2.6	U
p,p'-DDT	ug/Kg	2.6	U	2.6	U
Toxaphene	ug/Kg	86	U	85	U
Heptachlor	ug/Kg	1.3	U	1.3	U
Aldrin	ug/Kg	1.3	U	1.3	U

Analytical Data Summary

11/29/2001 1:18 PM

	StationID	ZPIT8B001		ZPIT8B002	
	SampleID	ZPIT8B001 (0-1ft)		ZPIT8B002 (3-5ft)	
	DateCollected	5/24/01 12:00 AM		5/24/01 12:00 AM	
	DateAnalyzed	05/30/2001		05/30/2001	
	SDGNumber	S113258A		S113258A	
Parameter	Units				
1,2,4-trichlorobenzene	ug/Kg	340	U	340	U
2,4,5-Trichlorophenol	ug/Kg	340	U	340	U
2,4,6-Trichlorophenol	ug/Kg	340	U	340	U
2,4-Dichlorophenol	ug/Kg	340	U	340	U
2,4-Dimethylphenol	ug/Kg	340	U	340	U
2,4-Dinitrophenol	ug/Kg	1800	U	1700	U
2,4-Dinitrotoluene	ug/Kg	340	U	340	U
2,6-Dinitrotoluene	ug/Kg	340	U	340	U
2-Chloronaphthalene	ug/Kg	340	U	340	U
2-Methylnaphthalene	ug/Kg	340	U	340	U
2-Methylphenol (o-Cresol)	ug/Kg	340	U	340	U
2-Nitrophenol	ug/Kg	340	U	340	U
3,3'-Dichlorobenzidine	ug/Kg	680	U	670	U
3,4-Methylphenol (mp-Cresol)	ug/Kg	340	U	340	U
3-Nitroaniline	ug/Kg	1800	U	1700	U
4,6-Dinitro-2-methylphenol	ug/Kg	1800	U	1700	U
4-Bromophenyl Phenyl Ether	ug/Kg	340	U	340	U
4-Chloro-3-methylphenol	ug/Kg	340	U	340	U
4-Chloroaniline	ug/Kg	680	U	670	U
4-Chlorophenyl Phenyl Ether	ug/Kg	340	U	340	U
4-Nitroaniline	ug/Kg	1800	U	1700	U
4-Nitrophenol	ug/Kg	1800	U	1700	U
Benzoic acid	ug/Kg	1800	U	1700	U
Benzyl Butyl Phthalate	ug/Kg	340	U	340	U
bis(2-Chloroethoxy) Methane	ug/Kg	340	U	340	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	340	U	340	U
Bis(2-Chloroisopropyl)Ether	ug/Kg	340	U	340	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	340	U	340	U
Carbazole	ug/Kg	340	U	340	U
Di-n-butyl Phthalate	ug/Kg	340	U	340	U
Di-n-octylphthalate	ug/Kg	340	U	340	U

Parameter	Units	StationID	ZPIT8B001	ZPIT8B002
		SampleID	ZPIT8B001 (0-1ft)	ZPIT8B002 (3-5ft)
		DateCollected	5/24/01 12:00 AM	5/24/01 12:00 AM
		DateAnalyzed	05/30/2001	05/30/2001
		SDGNumber	S113258A	S113258A
Dibenzofuran	ug/Kg		340 U	340 U
Diethyl Phthalate	ug/Kg		340 U	340 U
Dimethyl Phthalate	ug/Kg		340 U	340 U
Hexachlorobenzene	ug/Kg		340 U	340 U
Hexachlorobutadiene	ug/Kg		340 U	340 U
Hexachlorocyclopentadiene	ug/Kg		340 U	340 U
Hexachloroethane	ug/Kg		340 U	340 U
Isophorone	ug/Kg		340 U	340 U
N-Nitrosodi-n-propylamine	ug/Kg		340 U	340 U
N-Nitrosodiphenylamine	ug/Kg		340 U	340 U
Nitrobenzene	ug/Kg		340 U	340 U
Pentachlorophenol	ug/Kg		1800 U	1700 U
Phenol	ug/Kg		340 U	340 U
1,2-Dichlorobenzene	ug/Kg		340 U	340 U
1,3-Dichlorobenzene	ug/Kg		340 U	340 U
Naphthalene	ug/Kg		340 U	340 U
Acenaphthylene	ug/Kg		340 U	340 U
2-Chlorophenol	ug/Kg		340 U	340 U
Acenaphthene	ug/Kg		340 U	340 U
Fluorene	ug/Kg		340 U	340 U
Phenanthrene	ug/Kg		340 U	340 U
Anthracene	ug/Kg		340 U	340 U
Benzyl alcohol	ug/Kg		340 U	340 U
Flouranthene	ug/Kg		340 U	340 U
Pyrene	ug/Kg		340 U	340 U
Benzo(a)Anthracene	ug/Kg		340 U	340 U
Chrysene	ug/Kg		340 U	340 U
Benzo(b)Fluoranthene	ug/Kg		340 U	340 U
Benzo(k)Fluoranthene	ug/Kg		340 U	340 U
Benzo(a)Pyrene	ug/Kg		340 U	340 U
Indeno(1,2,3-c,d)pyrene	ug/Kg		340 U	340 U

Analytical Data Summary

11/29/2001 1:18 PM

Parameter	StationID	ZPIT8B001		ZPIT8B002	
	SampleID	ZPIT8B001 (0-1ft)		ZPIT8B002 (3-5ft)	
	DateCollected	5/24/01 12:00 AM		5/24/01 12:00 AM	
	DateAnalyzed	05/30/2001		05/30/2001	
	SDGNumber	S113258A		S113258A	
	Units				
Dibenz(a,h)anthracene	ug/Kg	340	U	340	U
Benzo(g,h,i)Perylene	ug/Kg	340	U	340	U
2-Nitroaniline	ug/Kg	1800	U	1700	U

Analytical Summary

11/29/2001 1:18 PM

		StationID	ZPIT8B001	ZPIT8B002
		SampleID	ZPIT8B001 (0-1ft)	ZPIT8B002 (3-5ft)
		DateCollected	5/24/01 12:00 AM	5/24/01 12:00 AM
		DateAnalyzed	05/30/2001	05/30/2001
		SDGNumber	S113258A	S113258A
Parameter	Units			
1,4-Dichlorobenzene	ug/Kg	340	U	340 U



TRUCK # 21
Load # 1
SWMU 42
Date 10/30

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: [Signature]

******* TO BE COMPLETED BY TRANSPORTER *******

Transporter of Waste: BUTLER WARE **Truck #** 21
Date: 10-30-01 **Driver Signature:** Vion Craven

******* TO BE COMPLETED BY OAKRIDGE LANDFILL *******

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 964863 **Tonnage:** 19.05
Received by: [Signature] **Date:** 10/30/01



TRUCK #19
2nd Load
SWMU 42
0650

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 Contact: JED HEAMES

Generator Signature: *[Signature]*

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE Truck # 19
Date: 10-30-01 Driver Signature: *[Signature]*

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 864666 Tonnage: 22.27
Received by: *[Signature]* Date: 10/30/01



3rd Load
SWMU 42
10-30-01
D705

DL
2968203

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES
Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 15
Date: 10-30-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 264972 **Tonnage:** 21.52
Received by: [Signature] **Date:** 10/30/01



TRUCK # 12
LOAD # 4
SWMU 42
0730

OAKRIDGE LANDFILL
2153 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: BRID

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 12

Date: 10-30-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 864978 **Tonnage:** 21.93

Received by: [Signature] **Date:** 10/30/01



TRUCK # 21 SC
LOAD # 5 2968005
SWMU 42
0850

OAKRIDGE LANDFILL
2153 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 Contact: JED HEAMES
Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE Truck # 21
Date: 10-30-01 Driver Signature: Vion CRAVAN

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 915003 Tonnage: 20.12
Received by: [Signature] Date: 10/30/01



10-30-01
SWMU 42
LWD # 6
0905

3

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 19
Date: 10/30/01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 965014 **Tonnage:** 23.07
Received by: [Signature] **Date:** 10/30/01



LOAD # 7
10-30-01
0925

BC

OAKRIDGE LANDFILL
2183 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 Contact: JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE Truck # 15

Date: 10-30-01 Driver Signature: [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 465015 Tonnage: 22.44
Received by: Uncarter Date: 10/30/01



LAND # 8
10-30-01
0950
SWMU 42

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2407 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES
Generator Signature:

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 12
Date: 10-30-01 **Driver Signature:**

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 965028 **Tonnage:** 23.39
Received by: **Date:** 10/30/01



LOAD # 9
SWMU 42
10-30-01
01110
3C
2968203

OAKRIDGE LANDFILL
2183 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: SD

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 21
Date: 10-30-01 **Driver Signature:** Vion Crauen

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 01050510 **Tonnage:** 22.39
Received by: NC **Date:** 10/30/01



LOAD #10
10-30-01
1130
SWMU 42

32

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 19
Date: 10-30-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 925059 **Tonnage:** 23.54
Received by: [Signature] **Date:** 10/30/01



LOAD # 11
10-30-01
1205
SWMU 42
BRC

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 Contact: JED HEAMES
Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE Truck # 15
Date: 10-30-01 Driver Signature: [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 916507 Tonnage: 23.99
Received by: [Signature] Date: 10/20/01



LOAD #12
10-30-01
1215
Sumu 42
BC

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: *[Signature]*

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 12

Date: 10-30-01 **Driver Signature:** *[Signature]*

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 0165076 **Tonnage:** 2398
Received by: ncaster **Date:** 10/30/01



LOAD #13
SWMU 42
10-30-01
1330
BC

OAKRIDGE LANDFILL
2183 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 19
Date: 10-30-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 565093 **Tonnage:** 22.86
Received by: [Signature] **Date:** 10/30/01



TRUCK # 21
LOAD # 14
SWMU 42
10-30-01
1340 =

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 21

Date: 10-30-01 **Driver Signature:** Vion Crauen

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 9205206 **Tonnage:** 20.52
Received by: [Signature] **Date:** 10/30/01



10-30-01
LWD # 15
1440

SL

OAKRIDGE LANDFILL
2183 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3175

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES
Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 12
Date: 10-30-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 965117 **Tonnage:** 2584
Received by: [Signature] **Date:** 10/30/01



TRUCK #15
LOAD #16
SWMU 42
10-30-01
1455
BC

OAKRIDGE LANDFILL
2123 Highway 76, Dorchester, SC 29437
Tel 843-963-1407 Fax 843-963-3375

SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 Contact: JED HEAMES

Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE Truck # 15
Date: 10-30-01 Driver Signature: [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 0105118 Tonnage: 210.47
Received by: W Carter Date: 10/30/01



Load # 17-
Summa 42
10-31-01
0650
BC

OAKRIDGE LANDFILL
2133 Highway 78, Dorchester, SC 29437
Tel 843-563-2607 Fax 843-563-3375

**SPECIAL WASTE MANIFEST
APPROVAL # 0110017
EXPIRATION 10/17/2002**

Generator: CHARLESTON NAVAL COMPLEX
Account Number: 490-439
Location / Address: 1849 AVE F N CHARLESTON SC (10)
Tele Number: 843-740-2780 **Contact:** JED HEAMES
Generator Signature: [Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLER WARE **Truck #** 19
Date: 10-31-01 **Driver Signature:** [Signature]

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130
Description of Waste: SOL / CONTAMINATED SOIL (SWMU 42)
Ticket Number: 965753 **Tonnage:** 25.85
Received by: [Signature] **Date:** 10/31/01

**Responses to SCDHEC Comments on the
Interim Measure Work Plan, Revision 1
SWMU 42/AOC 505, Zone A
Dated August 17, 2001**

Jamelle H. Ellis Comments

General Comment

1. Section 3.6.1, Waste Management, p. 3-5

Lines 2-7 indicate the waste streams involved in this work plan and the applicable waste management and disposal regulations. This section should include that the stockpiles will be managed in accordance with USEPA Management of Remediation Waste Guidance. Please include this reference along with the applicable analytical data and disposal information in the SWMU 42/AOC 505 Interim Measure Completion Report. Note that no revisions to this document are necessary.

CH2M-Jones Response:

The excavation delineation samples and waste characterization sample were collected prior to initiation of excavation activities. The soil removed from the site was neither hazardous by definition or characteristic. As such, the "Management of Remediation Waste Under RCRA Guidance" (EPA, 1998) is not applicable.

Specific Comments

1. Section 2.1.1, p. 2-1, SWMU 42

Lines 12-13 indicate "the site currently contains a concrete rack used to support asphalt-related aboveground storage tanks (ASTs): Appendix C (Detachment Completion Report prepared on July 17, 1997), Section 1.3, *Solid Waste Management Unit 42*, indicates also "this SWMU (42) consists of...associated tanks and storage area." The Department initially determined this verbiage to suggest there are currently tanks stored at this location. Based on discussions with Paul Favara (8/9/01), the Department understands that there are currently no ASTs or storage containers maintained on the existing concrete rack. Please note that although no changes to this document are necessary, the current status of tanks located within this SWMU should be clarified in the IM Completion Report.

CH2M-Jones Response:

There are no tanks located at SWMU 42. This information is clarified in Section 1.1 of the IM Completion Report.

2. Section 2.1.3, p. 2-4, Arsenic

Lines 6-7 reference a "J" qualifier. In order for the Department to accurately interpret data, the text in figure documents should clearly define the projected qualifiers ("=", "U", "J", and "UJ"). Please note that no changes to this document are necessary.

CH2M-Jones Response:

Comment Noted.

3. Section 2.2.1, p. 2-7, Soil COCs and Remedial Objectives

Lines 7-10 reference Table 2-5, which "presents the full data set for arsenic in surface soil...sorted from the highest to the lowest values." No Table 2-5 exists in the IM Work Plan. There is a Table 2-4 that includes the values for subsurface soil, which is sorted from highest to the lowest value. Based on discussions with Paul Favara (8/9/01), Table 2-5 was unintentionally omitted from the report. The Department was provided a working copy of Table 2-5 in order to review this work plan appropriately. The Department recommends that Table 2-5 be included in the IM Completion Report titled "Table 2-5. Grid and Railroad Track Data, Arsenic, Zone A" and addressed as such in the text. This would avoid possible confusion of railroad/background samples with the actual surface soil samples. Note that no changes to this document are necessary. Please ensure these changes are reflected in the IM Completion Report.

CH2M-Jones Response:

The requested table is attached to these comment responses.

4. Section 2.2.1, p. 2-7, Soil COCs and Remedial Objectives

Lines 17-20 reference Table 2-5 as characterizing BEQ concentrations. No Table 2-5 exists in the IM Work Plan. This may be a reference to Table 2-3 which includes "BEQ Results from Surface Soil Samples Collected at SWMU 42/AOC 505." The Department assumes this is a misprint and reviewed the document accordingly. Although no changes to this document are necessary, Table 2-5 should be included and references to table numbers should be corrected. Please ensure these changes are reflected in the IM Completion Report.

CH2M-Jones Response:

Although a reference to BEQ data was made, the text was not intended to guide the reader into reviewing BEQ data. The text was focused on developing a media cleanup standard (MCS) for arsenic. The BEQ data for the referenced samples are not relevant, as the BEQ MCS had already been defined (see Line 5, p. 2-7 of the IM Work Plan). In retrospect, the reference to BEQ data in lines 17-20 should not have been made. CH2M-Jones regrets any confusion caused by the subject paragraph.

5. Section 3.1.2, p. 3-3, BEQ Removal

Lines 7-10 reference backfilled soil to be used as clean fill once the area of concern is excavated. There are no indications in the IM Work Plan of controls in place to ensure that the soils being used to backfill are not above permissible levels for arsenic and BEQs. Please provide analytical data on and a characterization of backfill and source in the IM Completion Report.

CH2M-Jones Response

The results of the backfill will be provided in the IM Completion Report.

TABLE 2-5**Grid and Railroad Lines Arsenic Data***IM Work Plan, SWMU 42/OC 505, Zone A, Charleston Naval Complex (Revision 1)*

Sample	Result (mg/kg)	Qualifier	Date Collected	RR Line or Grid Sample
GDLSB02001	41.1	=	03/22/2001	RR
GDASB00601	30.1	=	10/09/1995	Grid
GDASB0A601	15.3	J	04/30/1997	Grid
GDASB00701	8.2	=	10/09/1995	Grid
GDASB0B601	7.2	J	04/30/1997	Grid
GDASB00101	6.6	=	10/05/1995	Grid
GDASB0C601	6.4	J	04/30/1997	Grid
GDASB00501	5.2	=	10/09/1995	Grid
GDASB00901	4.5	=	10/09/1995	Grid
GDASB00301a	4.0	=	10/05/1995	Grid
GDASB01201	4.0	=	10/09/1995	Grid
GDASB00801	3.9	=	10/09/1995	Grid
GDASB01101	3.8	=	10/09/1995	Grid
GDASB01301	3.8	=	10/09/1995	Grid
GDASB01001	3.6	=	10/09/1995	Grid
GDASB01401	3.2	=	10/11/1995	Grid
GDLSB02101	2.04	=	03/22/2001	RR
GDASB00201	1.7	J	10/05/1995	Grid

= Indicates that the analyte was detected, the reported value is equal to the sample concentration.

J Indicates that the analyte was detected, the reported value is an estimated concentration.

mg/kg Milligrams per kilogram

**Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001**

SCDHEC General Comments:

1. The Department provided the Navy a reply to the Response to Comments on 29 January 1999 for the Zone A RFI Report. Those comments were made relying on data to be collected during the Zone A CMS workplan and state, in part, "*Because SWMU 39 and SWMU42/505 is being addressed in the CMS, further efforts to evaluate soil and monitoring well data in the RFI will not be pursued.*" The Department also provided comments on the Draft Zone A CMS workplan on 13 July 1998 and replied to the Response to Comments on 15 March 1999. This new CMS data was intended to refine the nature and extent of contamination at this and other Zone A AOCs and SWMUs. That CMS Workplan has reportedly been implemented, however it is not clear if the results have ever been submitted to the Department or included in this document. Not having those results or resolution of the Department's CMS comments makes the conclusion of this IM that "*the site can be used for unrestricted land use following the completion of the IM*" highly questionable. New or unsubmitted data used to develop this workplan should be provided to the Department as soon as possible.

CH2M-Jones Revision 0 Response:

Comment noted. The focus of the Revision 0 IM Work Plan was to present all relevant RFI data and recommend remediation only where soil or groundwater requires treatment or removal. This process led to the recommendation that only arsenic and BEQs in soils, at levels in excess of MCSs, be removed. This conclusion was the basis of the statement "the site can be used for unrestricted land use following the completion of the IM." It is recognized that SCDHEC has not been provided with the data collected to support the CMS.

In order to streamline the implementation of the IM Work Plan, the Revision IM Work Plan will focus mainly on the arsenic and BEQ issues in soil. Although other relevant RFI data will be included in the IM Work Plan, that data will provide perspective on the decision to remove only arsenic and BEQ contaminated soils to a level that would comply with MCS's. The Department's concerns outlined in this comment will all be addressed in the Revision 0 CMS Report; the new field data collected to support the CMS will also be clearly presented. This report will be submitted after the IM is completed at SWMU 42/AOC 505. As arsenic and BEQ data was not a focus of the supplemental sampling effort to support the CMS, and the data are not remarkable (all non-detect in groundwater monitoring wells), their inclusion IM Work Plan does not change the recommendations for soil removal.

Updated CH2M-Jones Response:

After evaluating the results of IM, addressing closeout issues, and considering the CMS data collected by ENSAFE, the submission of a CMS Report is not necessary. Rather, the CMS WP/IMCR will be used as the basis for recommending unrestricted landuse at SWMU 42/AOC 505. The basis of this recommendation is:

Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001

1. *Arsenic and BEQ soils, in excess of the cleanup objective, have been removed from the site;*
 2. *No other COCs remain at the site;*
 3. *Closeout issues have been addressed as part of the IMCR; and*
 4. *The soils at the site do not represent a source of groundwater contamination. Furthermore, any groundwater contamination present at the site is considered due to an upgradient source. The basis of this conclusion was presented in a memorandum to SCDHEC on November 2, 2001 and is attached to these comment responses.*
2. The Department recently received new information which may improve our understanding of SWMU 42 and AOC 505 and in turn may impact the current interpretation of data. Primarily, the concern is that the groundwater sample locations at SWMU 42/505 were not adequate to assess the actual SWMU location. This concern is based upon the following points:
- ***The 6 June 1995 RFA states in part “Since the unit (SWMU 42) was taken out of service in the early 1960s, little information was obtained about the dimensions, design features, operating practices, or waste disposal methods.” And “Primary materials associated with this unit are waste asphalt products, solvents, and degreasers.” RFI workplan SWMU boundaries and soil and groundwater sample locations were based on limited information provided in the RFA.***

CH2M-Jones Revision 0 Response:

Comment noted.

- ***The Department replied to the Response to Comments on 29 January 1999 for the Zone A RFI Report. Those comments were made relying on data to be collected during the Zone A CMS workplan and state, in part, “Because SWMU 39 and SWMU42/505 is being addressed in the CMS, further efforts to evaluate soil and monitoring well data in the RFI will not be pursued.”***

CH2M-Jones Revision 0 Response:

Comment noted.

Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001

- **It is not clear if the Ensafe CMS workplan has been implemented, nor is it clear that the results of that CMS workplan have ever been submitted to the Department or included in this document.**

CH2M-Jones Revision 0 Response:

The CMS Work Plan has been implemented. The results of this field effort will be reported in the CMS report, which will be submitted after the IM field work is completed. This data has not been previously submitted to the Department.

Updated CH2M-Jones Response:

A CMS Report will not be submitted. Please see response to Comment No. 1 for rationale.

- **The Department recently received maps of the Charleston Naval Base dated January 1962 and June 1947. These maps indicate that the SWMU 42 Asphalt Plant may be in a location different from the site that is depicted in the RFA or RFI. This information, when coupled with site groundwater elevation contour maps, indicates that the shallow RFI monitoring wells may be up gradient or side gradient of the site they were intended to assess. Copies of the relevant maps with the current monitoring wells drawn in and Figures of groundwater elevations are provided with these comments.**

CH2M-Jones Revision 0 Response:

Comment noted. This information will be evaluated in the CMS phase of work.

Updated CH2M-Jones Response:

A CMS phase is not recommended for SWMU 42/AOC 505. Please see response to Comment No. 1 for rationale.

- **The Naval Detachment provided a set of air photos taken before 1980. These air photos indicate that AOC 505 may encompass a much larger area than previously thought. The air photos also indicate that items other than railroad ties and ballast may have been stored in this area. The Navy needs to evaluate and discuss the adequacy of sample locations and the type of analysis**

**Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001**

performed in light of this information. A copy of one of the air photos of 42/505 has been provided with these comments.

CH2M-Jones Revision 0 Response:

Additional soil sampling will be conducted prior to submission of the Revision 0 CMS to address this comment. The need for additional groundwater sample locations will be evaluated after the IM field work is completed.

Updated CH2M-Jones Response:

Additional soil sampling was conducted in September 2001. The results of this effort indicate that the newly collected samples at the referenced area is not a suspected source of groundwater contamination and does not represent a threat to human health. This information is detailed in the CMSWP/IMCR, Sec. 4.0 and 5.0.

- **Lithologic cross sections of Zone A provided in the Ensafe CMS portray the area of 42/505 as primarily a sandy aquifer. The Section reportedly has five feet of surface Fill (a variable mixture of clays, silt, sand, gravel and ROC), nine feet of Qc; Quaternary Clayey Sand and Silty Sand (Aquifer) and an estimated thirty or more feet of Qs; Quaternary Sand (Aquifer). Chlorinated solvents, being denser than groundwater, have the ability to migrate downwards through the sandy aquifer. All wells in the 42/505 area are shallow and could miss a rapidly sinking contaminant. A copy of the relevant cross section has been provided with these comments.**

CH2M-Jones Revision 0 Response:

As part of the CMS field work, a deep well was installed next to 042GW002. This well was sampled for VOCs. None were detected. This information will be presented in the CMS report.

Updated CH2M-Jones Response:

The above response was incorrect. 1,2-dichloroethene was detected in the referenced deep well. See the attached November 2, 2001 memorandum to SCDHEC for further information regarding this well data.

Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001

- **The shallow monitoring wells 042001 and 505001 reported low ppb detections of chlorinated solvents in excess of RBCs and/or MCLs. It is not clear whether these shallow groundwater detections are the edge of a larger and deeper downgradient contaminant plume. Copies of the Groundwater Elevation Contours from the Ensafe CMS Workplan are provided with these comments.**

CH2M-Jones Revision 0 Response:
Please see responses to Comment No. 1 and 2.

MONITORING WELL 042001

ORGANICS in Groundwater	12-95	4-96	6-96	10-96	RBC	MCL
Chloromethane	7.8	ND	ND	ND	<i>2.10</i>	<i>NL</i>
Trichloroethene	ND	1.4	1.6	ND	<i>1.6</i>	<i>5.0</i>
Tetrachloroethene	5.9	1.5	1.4	ND	<i>1.10</i>	<i>5.0</i>

MONITORING WELL 505001

ORGANICS in Groundwater	12-95	4-96	6-96	10-96	RBC	MCL
Chlorobenzene	1.3	ND	ND	ND	<i>3.90</i>	<i>100</i>
1,1-Dichloroethene	1.00	ND	ND	ND	<i>0.04</i>	<i>7.0</i>
Ethylbenzene	1.2	ND	ND	ND	<i>130.0</i>	<i>700</i>
1,1,2,2-Tetrachloroethane	1.5	ND	ND	ND	<i>0.05</i>	<i>NL</i>
M+P Xylene	3.5	ND	ND	NS	<i>NA</i>	<i>NL</i>
O Xylene	1.4	ND	ND	NS	<i>140</i>	<i>10,000</i>
1,3 Dichlorobenzene	1.8	ND	ND	NS	<i>54</i>	<i>600</i>
1,2 Dichlorobenzene	1.8	ND	ND	NS	<i>27</i>	
1,4 Dichlorobenzene	2.0	ND	ND	NS	<i>0.44</i>	<i>75</i>

2. **The Department's concern is that RFI sample locations were not adequate to assess the SWMU and AOC in question. Additional groundwater assessment, including monitoring wells appear to be necessary to complete the assessment of groundwater at this site. Please note, the Department is not suggesting that groundwater corrective action is warranted at this time. However, the Department cannot concur with**

Comments on the
RCRA IM Work Plan
Paul M. Bergstrand
3 April 2001

eliminating groundwater as a medium of concern based on the documentation at hand. The Department will be available to review and discuss this information with the Navy.

CH2M-Jones Revision 0 Response:

For the purpose of the Revision 1 IM WP, adequate data is available to support the decision to remove arsenic and BEQ contaminated soils, as well as determining the amount of soils that should be removed. The issue of additional groundwater assessment will be evaluated in the CMS phase of work, after the IM has been completed.

Updated CH2M-Jones Response:

A CMS report is not recommended for SWMU 42/AOC 505. The documentation provided in the CMSWP/IMCR, closeout issue section, comment responses, and relevant attachments is expected to be sufficient to support a NFA recommendation with unrestricted landuse.

Post RFI Groundwater Data Collected at SWMU 42/AOC 505

PREPARED FOR: Paul Bergstrand (SCDHEC)
PREPARED BY: Paul Favara (CH2M HILL)
DATE: November 2, 2001

Introduction

During our weekly Monday phone call on October 22, 2001, you requested post-RFI groundwater data collected at SWMU 42. This technical memorandum was prepared to respond to your request for information.

RFI Data

ENSAFE installed four monitor wells at SWMU 42/AOC 505 for the RFI. These wells were sampled in December 1995, April 1996, June 1996, and October 1996. The RFI reported one monitor well with an exceedance of an MCL. PCE was reported at a concentration of 5.9 µg/L at A042GW001 in December 1995. The successive sampling events (April 3, 1996 through October 8, 1996) reported levels of PCE at concentrations of either less than the MCL or below detection limits. With the exception of this one MCL exceedance, all other monitor wells were reported to have VOCs at concentrations most frequently below detection limits or, if detected, below MCLs for all sampling events.

Figure 1 shows the location of monitoring wells at SWMU 42/AOC 505. Also denoted on the figure is all reported detection's ("J" and "=" flags) of PCE or a PCE degradation product. The data are summarized in Table 1.

CMS Data

As part of the CMS field investigation, ENSAFE collected another round of data at all the RFI monitor wells. Additionally, a deep monitoring well was installed next to 42GW002 (42GW02D was screened from a depth of 36.0 to 45.8 ft-bgs). The log for this well is attached to this memorandum.

All data for VOCs were reported as less than MCLs for the RFI monitor wells (October 1998). However, cis-1,2-dichloroethene was reported at monitor well 42GW02D at a concentration of 88 µg/L; this level exceeds the MCL of 70 µg/L (August 1999). Only one sampling event was conducted at the deep well.

Figure 1 shows the location of monitoring wells at SWMU 42/AOC 505. Also denoted on the figure is all reported detection's ("J" and "=" flags) of PCE or a PCE degradation product. The data are summarized in Table 1.

Post-RFI Data

On July 13, 2001, CH2M HILL collected a round of water level data for Zone A. These data were used to construct potentiometric surface maps for the zone. Figures 2 and 3 show the potentiometric surface of groundwater for shallow and deep groundwater, respectively.

Conclusions

The Final RFI concluded VOC soil concentrations in SWMU 42 do not threaten groundwater. Six groundwater sampling events in SWMU 42 show that a source of groundwater contamination is not present at the site. The groundwater contours reported in Figure 2 shows that shallow groundwater at the northern portion of SWMU 42 enters SWMU 42 from the north and east. Figure 3 shows that deep groundwater enters SWMU 42 primarily from the north. The VOCs detected in groundwater are likely from SWMU 39, which is located upgradient of SWMU 42.

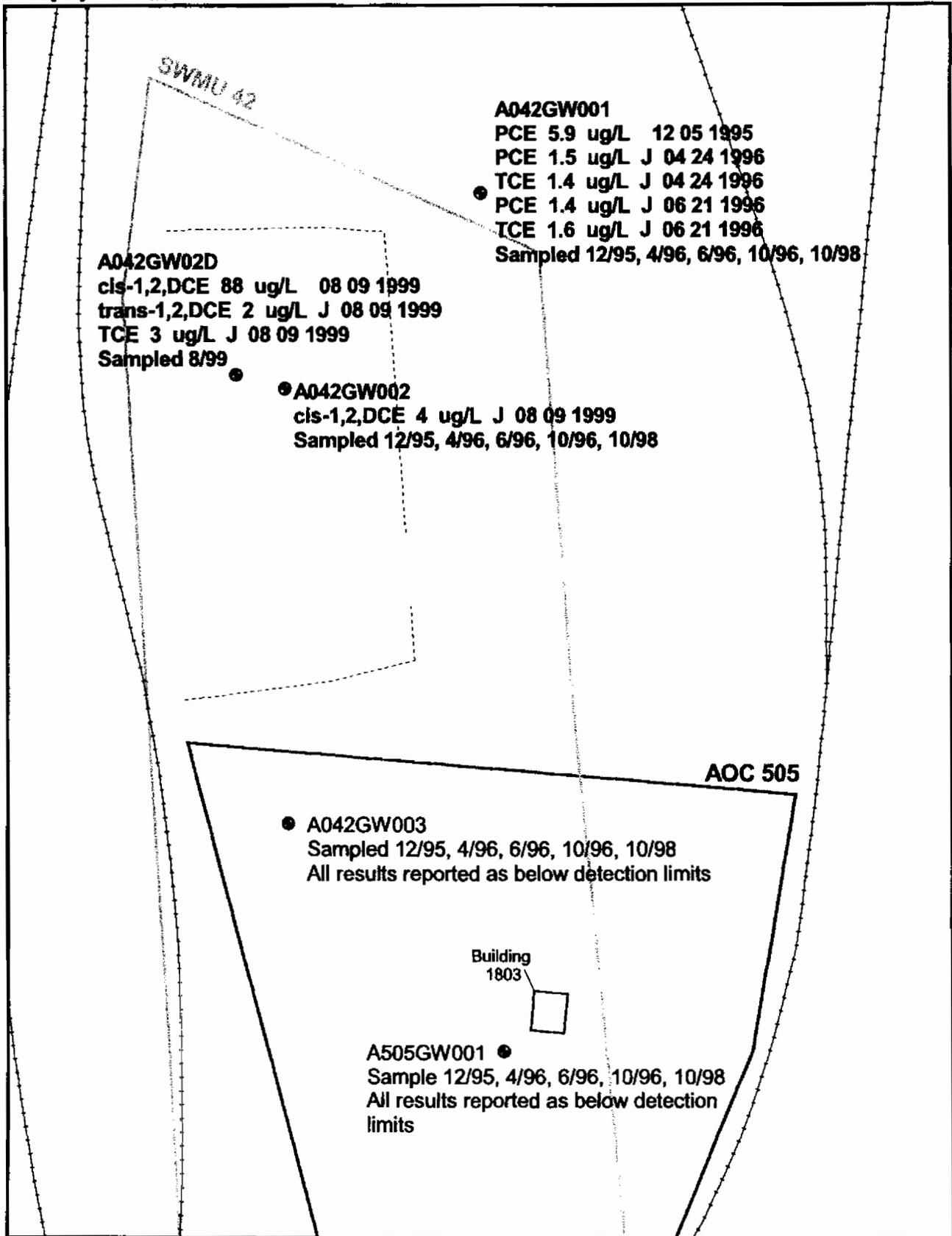
The fact that only cis-1,2-dichloroethene (a degradation product of PCE and TCE) was detected at the deep well and that the concentrations for cis-1,2-dichloroethene in shallower wells was much lower supports the position that the VOCs reported at SWMU 42 are from an upgradient source. With this information, CH2M HILL recommends no further action for groundwater in the context of SWMU 42/AOC 505.

The elevated level of cis-1,2-dichloroethene will be addressed as part of the SWMU 39 project.

Table 1. PCE and PCE Degradation Products in Groundwater Samples Collected from SWMU 42/AOC 505

A042GW001	05-Dec-95	5 U		5 U	5.9 =	5.9 U	5 U
A042GW001	03-Apr-96			5 U	5 U	5 U	10 U
A042GW001	24-Apr-96	5 U		5 U	1.5 J	1.4 J	5 U
A042GW001	21-Jun-96	5 U		5 U	1.4 J	1.6 J	5 U
A042GW001	09-Oct-96	5 U		5 U	5 U	5 U	5 U
A042GW001	08-Oct-98	5 U	5 U		5 U	5 U	5 U
A042GW002	05-Dec-95	5 U		5 U	5 U	5 U	5 U
A042GW002	03-Apr-96			5 U	5 U	5 U	10 U
A042GW002	24-Apr-96	5 U		5 U	5 U	5 U	5 U
A042GW002	21-Jun-96	5 U		5 U	5 U	5 U	5 U
A042GW002	09-Oct-96	5 U		5 U	5 U	5 U	5 U
A042GW002	09-Oct-98	5 U	5 U		5 U	5 U	5 U
A042GW002	09-Aug-99	4 J	5 U		5 U	5 U	5 U
A042GW003	04-Dec-95	5 U		5 U	5 U	5 U	5 U
A042GW003	03-Apr-96			5 U	5 U	5 U	10 U
A042GW003	24-Apr-96	5 U		5 U	5 U	5 U	5 U
A042GW003	21-Jun-96	5 U		5 U	5 U	5 U	5 U
A042GW003	09-Oct-96	5 U		5 U	5 U	5 U	5 U
A042GW003	15-Oct-98			1 U	1 U	1 U	1 U
A042GW02D	09-Aug-99	88 =	2 J		5 U	3 J	5 U
A505GW001	05-Dec-95	5 U		5 U	5 U	5 U	5 U
A505GW001	03-Apr-96			5 U	5 U	5 U	10 U
A505GW001	24-Apr-96	5 U		5 U	5 U	5 U	5 U
A505GW001	26-Jun-96	5 U		5 U	5 U	5 U	5 U
A505GW001	10-Oct-96	5 U		5 U	5 U	5 U	5 U
A505GW001	09-Oct-98	5 U	5 U		5 U	5 U	5 U

NOTE: Original figure created in color



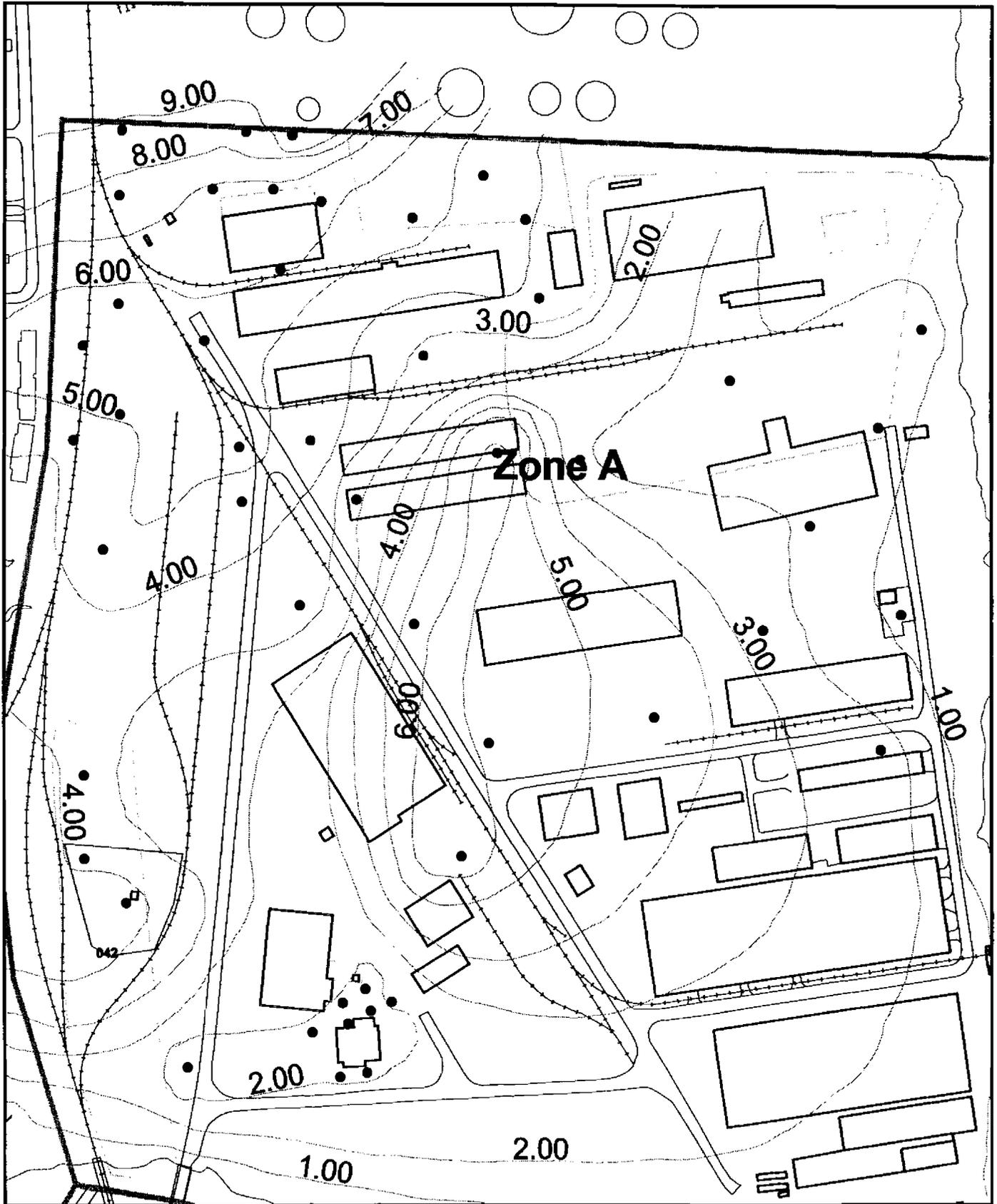
- Groundwater Wells
- ▲ Fence
- ≡ Railroads
- ≡ Roads
- AOC Boundary
- SWMU Boundary
- Buildings

Building
1803

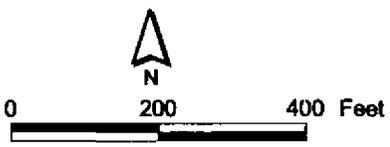


Figure 1
VOC Detections in Groundwater
SWMU 42, Zone A
Charleston Naval Complex

CH2MHILL



- Shallow Well
- - - Shallow Groundwater Contour
- AOC Boundary
- ▭ SWMU Boundary
- ▭ Zone Boundary



1 inch = 339.217 feet

Figure 2
 Shallow Groundwater Contours
 Zone A
 Charleston Naval Complex

CH2MHILL

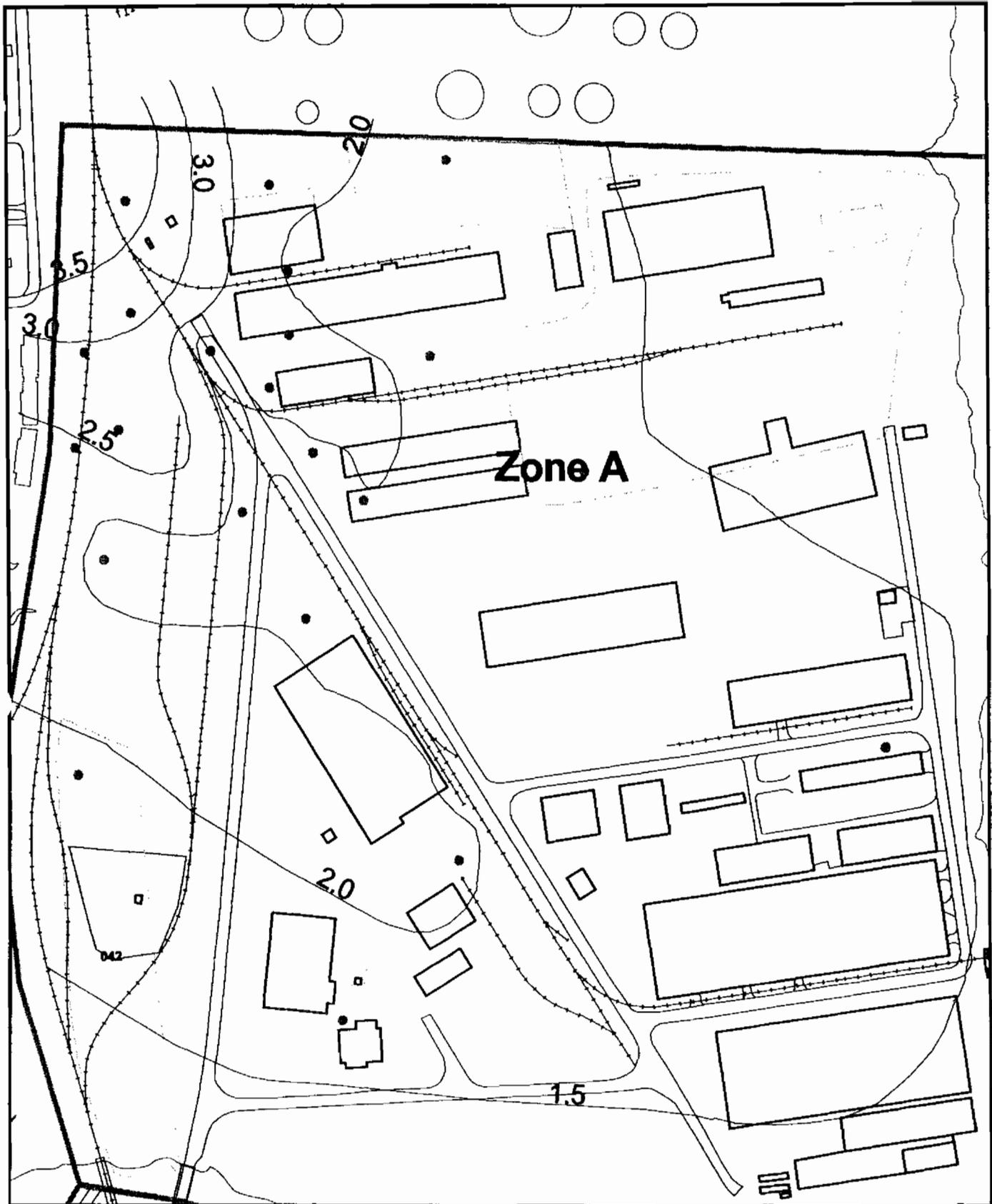
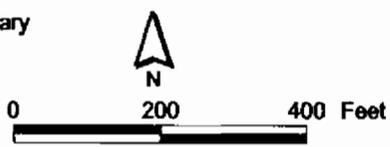


Figure 3
 Deep Groundwater Contours
 Zone A
 Charleston Naval Complex

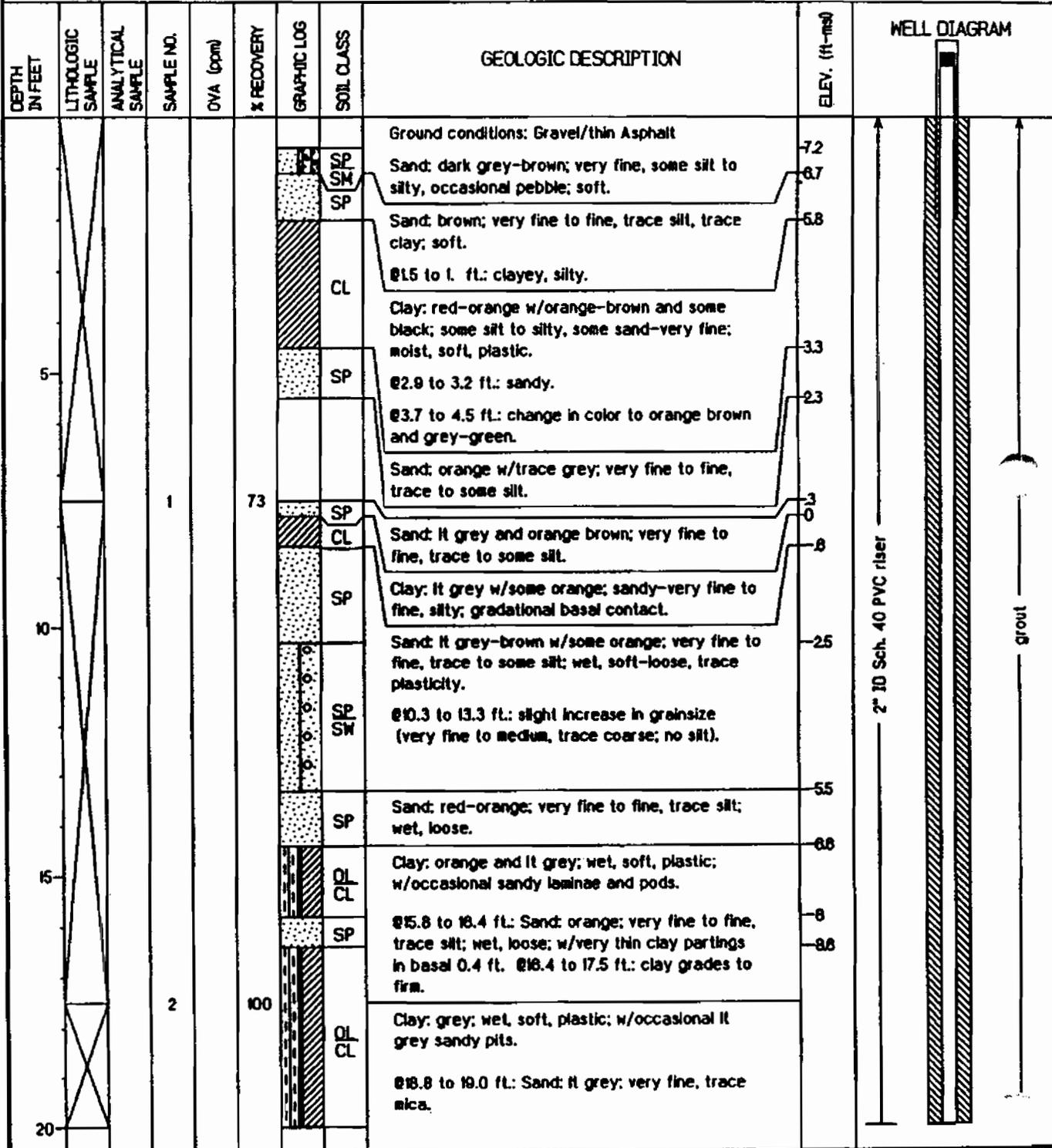
- Deep Well
- ~ Deep Groundwater Contour
- ~ Shoreline
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary



1 inch = 339.217 feet

CH2MHILL

Project: ZONE A - Naval Base Charleston	Coordinates: 2315050.78 E, 380578.54 N
Location: Charleston, SC	Surface Elevation: 7.8 feet msl
Started at 1645 on 7-20-99	TOC Elevation: 10.43 feet msl
Completed at 1800 on 7-20-99	Depth to Groundwater: 8.71 feet TOC Measured: 8/2/99
Drilling Method: Rotasonic (8.5" OD casing, 3.8" ID coring bit)	Groundwater Elevation: 1.72 feet msl
Drilling Company: AEI (SC Cert # 889)	Total Depth: 46.0 feet
Geologist: P. Bayley	Well Screen: 36.0 to 45.8 feet

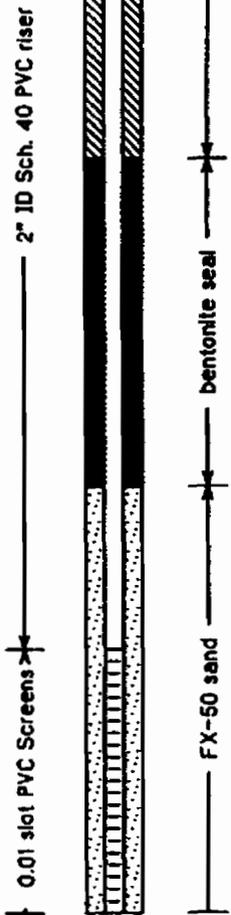


ENSAFE

Monitoring Well NBCA04202D

Project: <i>ZONE A - Naval Base Charleston</i>	Coordinates: <i>236060.78 E, 380576.54 N</i>
Location: <i>Charleston, SC</i>	Surface Elevation: <i>7.8 feet msl</i>
Started at <i>1845 on 7-20-99</i>	TOC Elevation: <i>10.43 feet msl</i>
Completed at <i>1800 on 7-20-99</i>	Depth to Groundwater: <i>8.71 feet TOC</i> Measured: <i>8/2/99</i>
Drilling Method: <i>Rotasonic (6.5" OD casing, 3.8" ID coring bit)</i>	Groundwater Elevation: <i>1.72 feet msl</i>
Drilling Company: <i>AET (SC Cert # 888)</i>	Total Depth: <i>46.0 feet</i>
Geologist: <i>P. Bayley</i>	Well Screen: <i>38.0 to 45.8 feet</i>

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
20.8							PP	@20.8 to 21.0 ft.: occasional sand laminae; very fine, trace mica.		
23.0								@23.0 to 25.0 ft.: stiff; w/ olive green spots.	52	
25.0			3		100			@25.0 to 27.5 ft.: color change to dark grey brown; stiff, w/ occasional very thin lt grey sandy partings every 0.1 ft - decreasing in frequency w/ depth.		
28.1							OP	Clay: dark olive-grey; moist, stiff, plastic.		
28.1								@28.1 to 28.3, 30.2 to 30.3, and 31.0 to 31.1 ft.: very thin lt grey sand partings.		
35.1								@35.1 to 37.0 ft.: thin lt grey sand partings and occasional laminae every 0.1 to 0.3 ft.		
38.3			4		100			@38.3, 38.4 and 40.0 ft.: very thin lt grey sand partings.		
40.0										



Project: ZONE A - Naval Base Charleston	Coordinates: 2315050.78 E, 380576.54 N
Location: Charleston, SC	Surface Elevation: 7.8 feet msl
Started at 1645 on 7-20-99	TOC Elevation: 10.43 feet msl
Completed at 1800 on 7-20-99	Depth to Groundwater: 8.71 feet TOC Measured: 8/2/99
Drilling Method: Rotasonic (6.5" OD casing, 3.8" ID coring bit)	Groundwater Elevation: 1.72 feet msl
Drilling Company: AET (SC Cert # 889)	Total Depth: 46.0 feet
Geologist: P. Bayley	Well Screen: 36.0 to 45.8 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
						OH	OH		32.5	
						SP SW	SP SW	<p>Sand: dark grey to black; very fine to coarse, w/fine to coarse shell fragments (white and phosphatic); wet, loose; some small bivalves and a small whelk shell.</p> <p>@ 41.1 to 45.0 ft.: Shells and fine to coarse grey sand.</p>	33.3	
45			5		100	SW	SW		37.2	
						CL	CL	<p>Silt: yellow olive-brown; clayey; moist, stiff, plastic. (Ashley Fm)</p> <p>@ 45.0 to 45.3 ft.: dark grey sandy pods; burrow infills.</p>	39.7	
50										
55										
80										

Comments Prepared by Susan Peterson (February 28, 2002)

General Comments

SCDHEC Comment 1:

1. The Department has issued comments regarding the need for additional groundwater assessment of VOCs (Zone A RFI report, the CMS WP for Zone A, and most recently for the 2001 IM WP at SWMU 42/AOC 505). The Department's inclusion of a groundwater comment (on an IM WP whose focus was the excavation of arsenic contaminated soil) was meant to serve as a reminder that the subsequent CMS WP/IM Completion Report should address this issue. CH2M-Jones initial response was to address the groundwater assessment in the CMS phase of work, after the IM had been completed. CH2M-Jones later altered their position, stating that they did not believe a CMS for groundwater was warranted.

CH2M-Jones Response 1:

CH2M-Jones originally indicated that new data EnSafe generated from implementation of their CMS Work Plan would be presented in the CMS report. Instead, these data were presented in the IMCR/CMSWP for SWMU 42/AOC 505. The data presentation in the IMCR/CMS WP for SWMU 42/AOC 505 are functionally equivalent to that which would have been presented in the CMS report.

SCDHEC Comment 2:

2. There are a number of reasons why the Department believes that additional groundwater assessment is warranted at SWMU 42/AOC 505. These include:
 - 2a. Possible VOC plume. 88 µg/L of cis-1,2-DCE was present in well A042GW02D. This well is the only deep monitoring well at this site and has only been sampled once. There is not sufficient evidence to refute the possibility that this result may be part of a VOC plume.

CH2M-Jones Response 2a:

CH2M-Jones agrees that the cis-1,2-DCE could be part of a plume. Two additional rounds of data have been reported since the IMCR/CMS WP for SWMU 42/AOC 505 was submitted. These data, along with the original 1999 data, are presented below. Table 1 presents all of the data available for PCE, TCE, cis-1,2-DCE, and VC:

TABLE 1
Detected Concentrations of cis-1,2-DCE, PCE, TCE, and VC in Monitoring Well A042GW02D
Responses to SCDHEC Comments on the CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A

Parameter	Station ID	Sample ID	Date Collected	Concentration ($\mu\text{g/L}$)	Qualifier
cis-1,2-DCE	A042GW02D	042GW02D03	08/09/99	88	S=
	A042GW02D	042GW02DL5	10/30/01	3	J
	A042GW02D	042GW02DM1	02/14/02	162	=
PCE	A042GW02D	042GW02D03	08/09/99	5	SU
	A042GW02D	042GW02DL5	10/30/01	5	U
	A042GW02D	042GW02DM1	02/14/02	10	U
TCE	A042GW02D	042GW02D03	08/09/99	3	SJ
	A042GW02D	042GW02DL5	10/30/01	5	U
	A042GW02D	042GW02DM1	02/14/02	1.2	J
VC	A042GW02D	042GW02D03	08/09/99	5	SU
	A042GW02D	042GW02DL5	10/30/01	10	U
	A042GW02D	042GW02DM1	02/14/02	4.8	J

All values are presented in units of micrograms per liter ($\mu\text{g/L}$).

- = Indicates that the compound was detected, the reported value is equal to the sample concentration.
- J Indicates that the compound was detected, the reported concentration is estimated.
- S Indicates the sample results are considered to be "screening" quality.
- U Indicates that the compound was not detected, the reported concentration is the detection limit.

CH2M-Jones Response 2a (Continued):

Given the information available for the site, we have concluded that the occurrence of cis-1,2-DCE is likely related to an upgradient source of SWMU 42 (e.g., possibly SMWU 39), as presented in the IMCR/CMS WP (Revision 0). To better address this issue, CH2M-Jones prepared and implemented a groundwater investigation at SWMU 39 to better define the nature and extent of CVOC contamination. The work performed is described in the Sampling and Analysis Plan, SWMU 39, Zone A (March 2002). Part of this effort was focused in and near SWMU 42. Those results that pertain to SWMU 42 are presented in the new Appendix K, attached to this Revision 1 submittal. Results from this effort conclude that cis-1,2-DCE is related to an upgradient source, and SWMU 42 is not the source of CVOC groundwater contamination.

2b. Likely connection to site operations. Upon review of aerial photographs, it appears that a portion of SWMU 42/AOC 505 was used as a general waste storage area. Cis-1,2-DCE is a degradation product of PCE, a substance frequently used, thus stored at military installations.

CH2M-Jones Response 2b:

The suggestion that SWMU 42 was used for waste storage, on the basis of aerial photos that have not been part of the previous record for the project, appears to be a highly speculative statement. Extensive soil sampling was conducted over a six-year period at SWMU 42 to identify contaminated soil and groundwater. No source area of PCE or TCE was found at SWMU 42. At this point in the RCRA process, decisions should be made based on actual site data, rather than on speculation based on inconclusive interpretations of old aerial photographs.

2c. Discussion of possible source. The Department disagrees with CH2M-Jones's conclusion that the VOCs reported at SWMU 42 are from SWMU 39. Reiteration of a prior Departmental comment is as follows: "given that monitoring well 42-GW001 is separated from SWMU 39 contamination by a groundwater trough, the vertical gradient in this Zone is positive, and low positive TCE detections in four of four upgradient grid soil samples were not included in the RFI evaluation, makes considering the SWMU 39 VOC plume as the source difficult."

CH2M-Jones Response 2c:

The so-called "groundwater trough" is an artifact of a contouring approach used in a previous groundwater interpretation. These data (from July 13, 2001) were re-evaluated and contoured. Figure 3 in Appendix L of the CMS WP/IM CR for SWMU 42/AOC 505 (Revision 1) presents this interpretation. This figure shows that groundwater coming from the SWMU 39 area can be connected to the SWMU 42 area. Furthermore, it is not precise to state that vertical gradient in the zone is "positive."

SCDHEC Comment 2c (Continued):

Table 10.4.29 in Section 10.4 of the Zone A RFI Report, Revision 0 (EnSafe, August 7, 1998) presents results of vertical hydraulic gradient measurements for specific well pairs, with the lowest downward vertical gradient of 0.0039 feet per foot measured at well pair A039GW13I-A039GW13D, and the highest downward gradient of 0.1952 ft/ft at well pair A039GW013-A039GW13I. Only 3 of the 13 well pairs measured showed upward vertical gradients, but these wells all lie in the northwest corner of Zone A, where the Ashley Formation abruptly rises in elevation, creating increased hydraulic head pressure at these three locations. This is corroborated by the low CVOC concentrations typically observed in these wells. These data indicate that for the most part, shallow and intermediate groundwater in Zone A is discharging to the "deep" zone of the shallow aquifer system, allowing downward migration of the dissolved CVOC plume as it also moves downgradient.

CH2M-Jones Response 2c (Continued):

TCE was only detected in A042GW001 a total of two times (1.4 µg/L and 1.6 µg/L) during six groundwater sampling events. Both detections were flagged with the J-qualifier. Not knowing specifically which four soil samples the commentor is referring to, a query of the database was conducted. Table 2 presents all detections of TCE in surface and subsurface soil in Zone A, with the exception of soil samples collected in SWMU 39:

TABLE 2
Detected Concentrations of TCE in Surface and Subsurface Soil
Responses to SCDHEC Comments on the CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A

Parameter	Site ID	Station ID	Sample ID	Date Collected	Concentration (µg/kg)	Qualifier
TCE	505	A505SB005	505SB00501	10/07/95	5.4	J
	043	A043SB001	043SB00102	10/07/95	14	J
	505	A505SB003	505SB00301	10/07/95	1.9	J
	505	A505SB006	505SB00601	10/07/95	3	J
	505	A505SB002	505SB00201	10/07/95	1.7	J
	043	A043SB005	043SB00502	10/09/95	2.9	J
	GDA	AGDASB013	GDASB01301	10/09/95	1.9	J
	GDA	AGDASB010	GDASB01001	10/09/95	2.4	J
	GDA	AGDASB006	GDASB00601	10/09/95	2.2	J
	GDA	AGDASB009	GDASB00901	10/09/95	1.2	J
	GDA	AGDASB008	GDASB00801	10/09/95	1.9	J
	GDA	AGDASB007	GDASB00701	10/09/95	1.4	J
	GDA	AGDASB005	GDASB00501	10/09/95	3.1	J
	GDA	AGDASB005	GDASB00502	10/09/95	2.4	J

All values are presented in micrograms per kilogram (µg/kg).

J Indicates that the compound was detected, the reported concentration is estimated.

CH2M-Jones Response 2c (Continued):

The RFI data were evaluated in the Zone A RFI Report, Revision 0, which concluded that TCE was not a COC. Additionally, it was not necessary or appropriate to evaluate grid samples, or samples collected at SWMU 43 (i.e., the other TCE detections), as part of the RFI for this site SWMU 42/AOC 505.

The results presented in Appendix K provide a better definition of the extent of CVOC contamination in groundwater in and near SWMU 42.

2d. Evaluation of deep groundwater. The detection of VOCs lower than their respective MCLs in shallow groundwater wells does not preclude the possibility that VOCs would be detected in deeper groundwater. Given the nature of VOCs in soil, especially sandy soil, it is likely that analysis of deeper groundwater would show VOC concentrations. The results of deep well A042GW02D substantiate that.

CH2M-Jones Response 2d:

The speculation that the presence of sandy soil makes it likely that deep groundwater would show VOCs is not supported by any site data. Furthermore, it is not precise to characterize the soils in Zone A as "sandy." The soil in the SWMU 42 area consists of fill, sand, marsh clay, dewatered marsh clay, and clay (see Appendix I). Also, inspection of the boring log for A042GW02D (see Appendix I) shows that there exist several units that would not be preferential flow paths for fluid flow in the subsurface, between the surface and screened elevations of the well. A source of VOCs was not identified for SWMU 42 (i.e., no COC s were identified for VOCs in soil). The highest reported chlorinated VOC concentration in shallow groundwater was 5.9 µg/L. Given these facts, it is unclear how the commentor can conclude that deeper concentrations would show VOC concentrations in the absence of a source area in shallow groundwater or soil. For these and other reasons we suspect the cis-1,2-DCE is likely from an upgradient source. The new Appendix L, attached to this submittal, supports this conclusion.

SCDHEC Comment 3:

3. The Department concurs that CH2M-Jones has met their objective of the 2001 Soil Removal IM WP. Arsenic-contaminated soil has been excavated to an extent that would allow for unrestricted land use.

CH2M-Jones Response 3:

Comment Noted.

SCDHEC Comment 4:

4. The Department would like an opportunity to discuss concerns relating to groundwater contamination and discuss the measures necessary to resolve them.

CH2M-Jones Response 4:

Comment Noted.

The Division of Hydrogeology does not concur with the recommendation of a No Further Action (NFA). A recommendation for an NFA may be granted dependant upon resolving the groundwater contamination extent and considering the following comments:

SCDHEC Comment 1:

1. Section 2.2 Groundwater Results: Concentrations referenced through the document are either Background Reference Concentrations (BRCs) or Risk Based Concentrations (RBCs). Maximum Concentration Limit (MCLs) should be reported relative to those indicated in the text. Please include MCL parameters in relevance with the reported criteria.

CH2M-Jones Response 1:

In Section 2.2, we are merely summarizing the process used in the original RFI report to identify COCs. This process was based on RBC exceedances, not MCLs. In Section 5.0, we provide comparison to MCLs for those parameters that have MCLs. We have included a reference to MCLs in Sec. 2.2.

SCDHEC Comment 2:

2. Section 4.3 Summary of Additional Investigations - Groundwater: Reference to Figure 4.2, deep groundwater was only investigated in A42GW02D at one sampling event (August 1999). Figures 2 and 3 in Appendix I attached to the technical memorandum (November 2, 2001) indicate that monitoring well A042GW02D is a side-gradient well. Detections of chlorinated solvents (note: Cis-1, 2- Dichloroethene 88 ug/L, above MCL) in the deep zone warrant additional assessment of deep groundwater.

CH2M-Jones Response 2:

An additional investigation was completed, and the results are presented in Appendix K.

SCDHEC Comment 3:

3. Section 4.3 and Table 4.2: Acetone was reported to be exceeding the reference criteria in one sample in the deep groundwater. Shallow Monitoring well 505GW001 showed 130 ug/L in the last sampling event 10/09/1998. The results do not show whether this is field or a laboratory blank. The suggestion that those findings are laboratory contamination is not strongly assessed. The Navy should address this information for both the shallow and the deep zones.

CH2M-Jones Response 3:

The subject well was re-sampled, and the results are presented in Appendix K. Table 4-2 has been appropriately updated. Acetone was not detected.

SCDHEC Comment 4:

4. Appendix I Technical Memorandum Conclusions: The statement that "lower concentration levels of chlorinated solvents in the shallow groundwater compared to those in the deep zone is an indication that the source of contamination at 42/505 is likely from SWMU 39" is not supported by figures supplied. PCE analysis results

indicate concentrations above the MCL of 5 ug/L in monitoring well A042GW001 (12/05/1995 – 06/21/1996). Degradation of PCE leads to DCE and other degradation products. In the light of that, the finding of DCE on this site is not necessarily linked to neighboring SWMU 39. In fact, the potentiometric figures attached to the technical memorandum do not support the assumption that groundwater flow from SWMU 39 would impact SWMU 42. Further assessment is warranted in regard to these constituents in shallow and deep groundwater.

CH2M-Jones Response 4:

PCE exceeded the MCL just one time at A042GW001, not four times as the commentor is inferring above. Please see response to comment No. 2a and 2c (Susan Peterson), and Appendix K.

SCDHEC Comment 5:

5. Appendix C Analytical Data Summary:

- a. The laboratory hold time of 14 days for groundwater samples was exceeded for most of the organic parameters. Please revise and include delivery dates and analysis. If not in compliance with the hold times be advised that the Department will reject those results.

CH2M-Jones Response 5a:

Please provide specific details of samples which you consider to be analyzed after holding times. Our review of the data validation narrative concluded that only one individual sample, for SVOA, exceeded holding times due to the need to re-analyze the sample. This sample was discussed in the Data Validation summary presented in the report. The commentor may be confusing the holding time needed to extract the sample with a holding time needed to analyze the extract, for some SVOC samples.

- b. Explanation of notations in the summary "S", "SU" is not indicated. Please provide explanation as necessary.

CH2M-Jones Response 5b:

The "S" in front of a laboratory qualifier indicates the sample results are considered to be "screening" quality.

- c. Chain of custody not included for the groundwater deep well.

CH2M-Jones Response 5c:

Despite our best efforts, a COC for the requested well could not be located.

	StationID	A039GP038	A039GP038	A039GP039	
	SampleID	039GP03827	039GP03847	039GP03927	
	DateCollected	3/27/2001	3/27/2001	3/27/2001	
	DateExtracted	4/2/2001	4/2/2001	4/2/2001	
	DateAnalyzed	4/2/2001	4/2/2001	4/2/2001	
	SDGNumber	39980	39980	39980	
Parameter	Units				
Chloromethane	ug/l				
Vinyl chloride	ug/l	1	U	1	U
Bromomethane	ug/l				
Chloroethane	ug/l				
1,1-Dichloroethene	ug/l	1	U	1	U
Acetone	ug/l				
Carbon Disulfide	ug/l				
Methylene Chloride	ug/L				
trans-1,2-Dichloroethene	ug/L	1	U	1	U
1,1-Dichloroethane	ug/l	1	U	1	U
Vinyl acetate	ug/L				
Methyl ethyl ketone (2-Butanone)	ug/l				
cis-1,2-Dichloroethylene	ug/l	0.92	J	1	U
1,2-Dichloroethene (total)	ug/l				
Chloroform	ug/l				
1,1,1-Trichloroethane	ug/l	1	U	1	U
Carbon Tetrachloride	ug/l				
1,2-Dichloroethane	ug/l				
Benzene	ug/l				
Trichloroethylene (TCE)	ug/l	0.25	J	1	U
1,2-Dichloropropane	ug/l				
Bromodichloromethane	ug/L				
2-Chloroethyl vinyl ether	ug/l				
cis-1,3-Dichloropropene	ug/l				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L				
Toluene	ug/L				
trans-1,3-Dichloropropene	ug/l				
1,1,2-Trichloroethane	ug/L				
2-Hexanone	ug/l				
Tetrachloroethylene (PCE)	ug/l	1	U	1	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP039	A039GP040	A039GP040
SampleID	039GP03947	039GP04027	039GP04047
DateCollected	3/27/2001	3/28/2001	3/28/2001
DateExtracted	4/3/2001	4/3/2001	4/3/2001
DateAnalyzed	4/3/2001	4/3/2001	4/3/2001
SDGNumber	39980	39980	39980

Parameter	Units						
Chloromethane	ug/l						
Vinyl chloride	ug/l	7.2	=	2.4	=	1	U
Bromomethane	ug/l						
Chloroethane	ug/l						
1,1-Dichloroethene	ug/l	1	U	1	U	1	U
Acetone	ug/l						
Carbon Disulfide	ug/l						
Methylene Chloride	ug/L						
trans-1,2-Dichloroethene	ug/L	1	U	1	U	1	U
1,1-Dichloroethane	ug/l	0.22	J	0.72	J	1	U
Vinyl acetate	ug/L						
Methyl ethyl ketone (2-Butanone)	ug/l						
cis-1,2-Dichloroethylene	ug/l	24.9	=	10.4	=	1	U
1,2-Dichloroethene (total)	ug/l						
Chloroform	ug/l						
1,1,1-Trichloroethane	ug/l	1	U	1	U	1	U
Carbon Tetrachloride	ug/l						
1,2-Dichloroethane	ug/l						
Benzene	ug/l						
Trichloroethylene (TCE)	ug/l	1	U	0.96	J	1	U
1,2-Dichloropropane	ug/l						
Bromodichloromethane	ug/L						
2-Chloroethyl vinyl ether	ug/l						
cis-1,3-Dichloropropene	ug/l						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L						
Toluene	ug/L						
trans-1,3-Dichloropropene	ug/l						
1,1,2-Trichloroethane	ug/L						
2-Hexanone	ug/l						
Tetrachloroethylene (PCE)	ug/l	1	U	0.44	J	1	U

StationID	A039GP041	A039GP041	A039GP042		
SampleID	039GP04127	039GP04147	039GP04227		
DateCollected	3/28/2001	3/28/2001	3/28/2001		
DateExtracted	4/3/2001	4/3/2001	4/3/2001		
DateAnalyzed	4/3/2001	4/3/2001	4/3/2001		
SDGNumber	39980	39980	39980		
Parameter	Units				
Chloromethane	ug/l				
Vinyl chloride	ug/l	3.3	=	1	U
Bromomethane	ug/l				
Chloroethane	ug/l				
1,1-Dichloroethene	ug/l	1	U	1	U
Acetone	ug/l				
Carbon Disulfide	ug/l				
Methylene Chloride	ug/L				
trans-1,2-Dichloroethene	ug/L	1	U	1	U
1,1-Dichloroethane	ug/l	1.3	=	1	U
Vinyl acetate	ug/L				
Methyl ethyl ketone (2-Butanone)	ug/l				
cis-1,2-Dichloroethylene	ug/l	27.7	=	1	U
1,2-Dichloroethene (total)	ug/l				
Chloroform	ug/l				
1,1,1-Trichloroethane	ug/l	1	U	1	U
Carbon Tetrachloride	ug/l				
1,2-Dichloroethane	ug/l				
Benzene	ug/l				
Trichloroethylene (TCE)	ug/l	1	=	1	U
1,2-Dichloropropane	ug/l				
Bromodichloromethane	ug/L				
2-Chloroethyl vinyl ether	ug/l				
cis-1,3-Dichloropropene	ug/l				
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L				
Toluene	ug/L				
trans-1,3-Dichloropropene	ug/l				
1,1,2-Trichloroethane	ug/L				
2-Hexanone	ug/l				
Tetrachloroethylene (PCE)	ug/l	1	U	1	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP042		A039GP043		A039GP043	
	SampleID	039GP04247		039GP04327		039GP04347	
	DateCollected	3/28/2001		3/29/2001		3/29/2001	
	DateExtracted	4/3/2001		4/3/2001		4/3/2001	
	DateAnalyzed	4/3/2001		4/3/2001		4/3/2001	
	SDGNumber	39980		39980		39980	
Parameter	Units						
Chloromethane	ug/l						
Vinyl chloride	ug/l	1	U	1	U	1	U
Bromomethane	ug/l						
Chloroethane	ug/l						
1,1-Dichloroethene	ug/l	1	U	1	U	1	U
Acetone	ug/l						
Carbon Disulfide	ug/l						
Methylene Chloride	ug/L						
trans-1,2-Dichloroethene	ug/L	1	U	1	U	1	U
1,1-Dichloroethane	ug/l	1	U	1	U	1	U
Vinyl acetate	ug/L						
Methyl ethyl ketone (2-Butanone)	ug/l						
cis-1,2-Dichloroethylene	ug/l	1	U	1	U	1	U
1,2-Dichloroethene (total)	ug/l						
Chloroform	ug/l						
1,1,1-Trichloroethane	ug/l	1	U	1	U	1	U
Carbon Tetrachloride	ug/l						
1,2-Dichloroethane	ug/l						
Benzene	ug/l						
Trichloroethylene (TCE)	ug/l	1	U	1	U	1	U
1,2-Dichloropropane	ug/l						
Bromodichloromethane	ug/L						
2-Chloroethyl vinyl ether	ug/l						
cis-1,3-Dichloropropene	ug/l						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L						
Toluene	ug/L						
trans-1,3-Dichloropropene	ug/l						
1,1,2-Trichloroethane	ug/L						
2-Hexanone	ug/l						
Tetrachloroethylene (PCE)	ug/l	1	U	1	U	1	U

Analytic Data Summary

08/28/2001 9:03 AM

	StationID	A039GP044		A039GP044		A039GP045	
	SampleID	039GP04427		039GP04447		039GP04547	
	DateCollected	3/29/2001		3/29/2001		3/29/2001	
	DateExtracted	4/3/2001		4/3/2001		4/3/2001	
	DateAnalyzed	4/3/2001		4/3/2001		4/3/2001	
	SDGNumber	39980		39980		39980	
Parameter	Units						
Chloromethane	ug/l						
Vinyl chloride	ug/l	9.1	=	1	U	1	U
Bromomethane	ug/l						
Chloroethane	ug/l						
1,1-Dichloroethene	ug/l	1	U	1	U	1	U
Acetone	ug/l						
Carbon Disulfide	ug/l						
Methylene Chloride	ug/L						
trans-1,2-Dichloroethene	ug/L	1	U	1	U	1	U
1,1-Dichloroethane	ug/l	0.5	J	1	U	1	U
Vinyl acetate	ug/L						
Methyl ethyl ketone (2-Butanone)	ug/l						
cis-1,2-Dichloroethylene	ug/l	30.5	=	1	U	1	U
1,2-Dichloroethene (total)	ug/l						
Chloroform	ug/l						
1,1,1-Trichloroethane	ug/l	1	U	1	U	1	U
Carbon Tetrachloride	ug/l						
1,2-Dichloroethane	ug/l						
Benzene	ug/l						
Trichloroethylene (TCE)	ug/l	1	=	1	U	1	U
1,2-Dichloropropane	ug/l						
Bromodichloromethane	ug/L						
2-Chloroethyl vinyl ether	ug/l						
cis-1,3-Dichloropropene	ug/l						
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L						
Toluene	ug/L						
trans-1,3-Dichloropropene	ug/l						
1,1,2-Trichloroethane	ug/L						
2-Hexanone	ug/l						
Tetrachloroethylene (PCE)	ug/l	1	U	1	U	1	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP046		A039GP047		A039GP048		
SampleID	039GP04647		039GP04747		039GP04834		
DateCollected	3/29/2001		3/29/2001		4/1/2002		
DateExtracted	4/3/2001		4/3/2001		4/10/2002		
DateAnalyzed	4/3/2001		4/3/2001		4/10/2002		
SDGNumber	39980		39980		CNC92		
Parameter	Units						
Chloromethane	ug/l				10	UJ	
Vinyl chloride	ug/l	1	U	3.3	=	10	U
Bromomethane	ug/l					10	U
Chloroethane	ug/l					10	U
1,1-Dichloroethene	ug/l	1	U	1	U	5	U
Acetone	ug/l					10	U
Carbon Disulfide	ug/l					5	U
Methylene Chloride	ug/L					5	U
trans-1,2-Dichloroethene	ug/L	1	U	1	U	5	U
1,1-Dichloroethane	ug/l	1	U	1	U	5	U
Vinyl acetate	ug/L					10	U
Methyl ethyl ketone (2-Butanone)	ug/l					10	U
cis-1,2-Dichloroethylene	ug/l	1	U	12.3	=	5	U
1,2-Dichloroethene (total)	ug/l					5	U
Chloroform	ug/l					5	U
1,1,1-Trichloroethane	ug/l	1	U	1	U	5	U
Carbon Tetrachloride	ug/l					5	U
1,2-Dichloroethane	ug/l					5	U
Benzene	ug/l					5	U
Trichloroethylene (TCE)	ug/l	1	U	1	U	0.48	J
1,2-Dichloropropane	ug/l					5	U
Bromodichloromethane	ug/L					5	U
2-Chloroethyl vinyl ether	ug/l					10	UJ
cis-1,3-Dichloropropene	ug/l					5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L					10	UJ
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					10	UJ
Tetrachloroethylene (PCE)	ug/l	1	U	1	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP048		A039GP049		A039GP049		
SampleID	039GP04852		039GP04932		039GP04957		
DateCollected	4/1/2002		4/2/2002		4/2/2002		
DateExtracted	4/15/2002		4/10/2002		4/10/2002		
DateAnalyzed	4/15/2002		4/10/2002		4/10/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Chloromethane	ug/l	10	U	20	UJ	10	UJ
Vinyl chloride	ug/l	10	U	8.4	J	10	U
Bromomethane	ug/l	10	U	20	U	10	U
Chloroethane	ug/l	10	U	20	U	10	U
1,1-Dichloroethene	ug/l	5	U	1.6	J	5	U
Acetone	ug/l	10	U	20	U	10	U
Carbon Disulfide	ug/l	5	U	10	U	5	U
Methylene Chloride	ug/L	5	U	10	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	11	=	5	U
1,1-Dichloroethane	ug/l	5	U	10	U	5	U
Vinyl acetate	ug/L	10	U	20	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	260	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	280	=	5	U
Chloroform	ug/l	5	U	10	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	10	U	5	U
Carbon Tetrachloride	ug/l	5	U	10	U	5	U
1,2-Dichloroethane	ug/l	5	U	1.3	J	5	U
Benzene	ug/l	5	U	10	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	92	=	0.4	J
1,2-Dichloropropane	ug/l	5	U	10	U	5	U
Bromodichloromethane	ug/L	5	U	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	20	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	20	UJ	10	UJ
Toluene	ug/L	5	U	10	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	10	U	5	U
2-Hexanone	ug/l	10	UJ	20	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP050		A039GP050		A039GP050		
SampleID	039GP05032		039GP05032DL		039GP05056		
DateCollected	4/2/2002		4/2/2002		4/2/2002		
DateExtracted	4/10/2002		4/16/2002		4/10/2002		
DateAnalyzed	4/10/2002		4/16/2002		4/10/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Chloromethane	ug/l	10	UJ	20	R	10	UJ
Vinyl chloride	ug/l	3.4	J	2.2	R	10	U
Bromomethane	ug/l	10	U	20	R	10	U
Chloroethane	ug/l	10	U	20	R	10	U
1,1-Dichloroethene	ug/l	2.9	J	10	R	5	U
Acetone	ug/l	10	U	20	R	10	U
Carbon Disulfide	ug/l	5	U	10	R	5	U
Methylene Chloride	ug/L	5	U	10	R	5	U
trans-1,2-Dichloroethene	ug/L	6.1	=	5.2	R	5	U
1,1-Dichloroethane	ug/l	5	U	10	R	5	U
Vinyl acetate	ug/L	10	U	20	R	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	20	R	10	U
cis-1,2-Dichloroethylene	ug/l	210	R	190	=	5	U
1,2-Dichloroethene (total)	ug/l	220	=	210	R	5	U
Chloroform	ug/l	5	U	10	R	5	U
1,1,1-Trichloroethane	ug/l	5	U	10	R	5	U
Carbon Tetrachloride	ug/l	5	U	10	R	5	U
1,2-Dichloroethane	ug/l	5	U	10	R	5	U
Benzene	ug/l	0.52	J	10	R	5	U
Trichloroethylene (TCE)	ug/l	110	=	83	R	5	U
1,2-Dichloropropane	ug/l	5	U	10	R	5	U
Bromodichloromethane	ug/L	5	U	10	R	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	20	R	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	10	R	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	UJ	20	R	10	UJ
Toluene	ug/L	5	U	10	R	5	U
trans-1,3-Dichloropropene	ug/l	5	U	10	R	5	U
1,1,2-Trichloroethane	ug/L	5	U	10	R	5	U
2-Hexanone	ug/l	10	UJ	20	R	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	10	R	5	U

StationID	A039GP051		A039GP051		A039GP051		
SampleID	039GP05110		039GP05132		039GP05156		
DateCollected	4/3/2002		4/3/2002		4/3/2002		
DateExtracted	4/10/2002		4/16/2002		4/10/2002		
DateAnalyzed	4/10/2002		4/16/2002		4/10/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	0.84	J	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	21	=	10	U	14	=
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	UJ	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	UJ	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	2.4	J	1.4	J
1,2-Dichloroethene (total)	ug/l	5	U	2.6	J	1.4	J
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	0.33	J
Trichloroethylene (TCE)	ug/l	5	U	1.4	J	0.3	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	UJ	10	U	10	UJ
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP052		A039GP052		A039GP053		
SampleID	039GP05232		039GP05256		039GP05332		
DateCollected	4/3/2002		4/3/2002		4/3/2002		
DateExtracted	4/16/2002		4/10/2002		4/16/2002		
DateAnalyzed	4/16/2002		4/10/2002		4/16/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	U	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	U	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	U	10	UJ
cis-1,2-Dichloroethylene	ug/l	11	=	5	U	5	U
1,2-Dichloroethene (total)	ug/l	12	=	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	10	=	5	U	0.98	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	UJ	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP053		A039GP054		A039GP054		
SampleID	039GP05356		039GP05410		039GP05427		
DateCollected	4/3/2002		4/16/2002		4/16/2002		
DateExtracted	4/10/2002		4/23/2002		4/24/2002		
DateAnalyzed	4/10/2002		4/23/2002		4/24/2002		
SDGNumber	CNC92		CNC96		CNC96		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	U	10	UJ
Vinyl chloride	ug/l	10	U	1.5	J	33	=
Bromomethane	ug/l	10	U	10	U	10	UJ
Chloroethane	ug/l	10	U	10	U	10	UJ
1,1-Dichloroethene	ug/l	5	U	5	U	7.2	J
Acetone	ug/l	15	=	10	U	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	0.71	J	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	0.91	J	8.9	=
1,1-Dichloroethane	ug/l	5	U	5	U	9.3	=
Vinyl acetate	ug/L	10	U	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	5	U	49	=	370	R
1,2-Dichloroethene (total)	ug/l	5	U	54	=	410	R
Chloroform	ug/l	2.2	J	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	1.5	J
Trichloroethylene (TCE)	ug/l	5	U	14	=	110	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	UJ	10	U	10	U
Toluene	ug/L	5	U	5	U	0.59	J
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP054		A039GP054		A039GP055		
SampleID	039GP05427DL		039GP05446		039GP05510		
DateCollected	4/16/2002		4/16/2002		4/16/2002		
DateExtracted	4/23/2002		4/23/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/23/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Chloromethane	ug/l	20	R	10	U	10	U
Vinyl chloride	ug/l	27	R	5.8	J	10	U
Bromomethane	ug/l	20	R	10	U	10	U
Chloroethane	ug/l	20	R	10	U	10	U
1,1-Dichloroethene	ug/l	5.8	R	4.2	J	5	U
Acetone	ug/l	20	R	10	U	10	U
Carbon Disulfide	ug/l	10	R	5	U	5	U
Methylene Chloride	ug/L	10	R	5	U	5	U
trans-1,2-Dichloroethene	ug/L	8.7	R	3.2	J	5	U
1,1-Dichloroethane	ug/l	10	R	5	U	5	U
Vinyl acetate	ug/L	20	R	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	20	R	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	340	=	200	=	5	U
1,2-Dichloroethene (total)	ug/l	380	=	220	=	5	U
Chloroform	ug/l	10	R	5	U	5	U
1,1,1-Trichloroethane	ug/l	10	R	5	U	5	U
Carbon Tetrachloride	ug/l	10	R	5	U	5	U
1,2-Dichloroethane	ug/l	10	R	5	U	5	U
Benzene	ug/l	10	R	5	U	5	U
Trichloroethylene (TCE)	ug/l	100	R	100	=	5	U
1,2-Dichloropropane	ug/l	10	R	5	U	5	U
Bromodichloromethane	ug/L	10	R	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	20	R	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	10	R	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	20	R	10	U	10	U
Toluene	ug/L	10	R	5	U	5	U
trans-1,3-Dichloropropene	ug/l	10	R	5	U	5	U
1,1,2-Trichloroethane	ug/L	10	R	5	U	5	U
2-Hexanone	ug/l	20	R	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	10	R	5	U	5	U

StationID	A039GP055		A039GP055		A039GP056		
SampleID	039GP05527		039GP05546		039GP05610		
DateCollected	4/16/2002		4/16/2002		4/17/2002		
DateExtracted	4/23/2002		4/26/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/26/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	13	=	1	J
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	1.6	J	5	U
Acetone	ug/l	10	U	10	UJ	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	1.1	J	5	U
1,1-Dichloroethane	ug/l	5	U	3.3	J	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	1	J	89	=	5.1	=
1,2-Dichloroethene (total)	ug/l	1.1	J	99	=	5.6	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	0.63	J	5	U
Trichloroethylene (TCE)	ug/l	5.1	=	16	=	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	UJ	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP056		A039GP056		A039GP057		
SampleID	039GP05627		039GP05646		039GP05710		
DateCollected	4/17/2002		4/17/2002		4/17/2002		
DateExtracted	4/23/2002		4/23/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/23/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	U	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP057		A039GP057		A039GP058		
SampleID	039GP05727		039GP05746		039GP05810		
DateCollected	4/17/2002		4/17/2002		4/17/2002		
DateExtracted	4/23/2002		4/23/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/23/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	U	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	1.4	J	1.2	J	5	U
1,2-Dichloroethene (total)	ug/l	1.6	J	1.3	J	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	2.6	J	4.8	J	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	1.6	J	5.4	=	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP058		A039GP058		A039GP059	
	SampleID	039GP05827		039GP05846		039GP05910	
	DateCollected	4/17/2002		4/17/2002		4/18/2002	
	DateExtracted	4/24/2002		4/23/2002		4/24/2002	
	DateAnalyzed	4/24/2002		4/23/2002		4/24/2002	
	SDGNumber	CNC96		CNC96		CNC96	
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	U	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	12	=	13	=	10	U
Carbon Disulfide	ug/l	5	U	1.7	J	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	UJ	10	UJ
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	0.42	J	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP059		A039GP059		A039GP060		
SampleID	039GP05927		039GP05946		039GP06010		
DateCollected	4/18/2002		4/18/2002		4/19/2002		
DateExtracted	4/24/2002		4/24/2002		5/2/2002		
DateAnalyzed	4/24/2002		4/24/2002		5/2/2002		
SDGNumber	CNC96		CNC96		CNC100		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	U
Vinyl chloride	ug/l	10	U	2.9	J	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	23	=	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	1.7	J	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	UJ	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	52	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	57	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	0.45	J	5	U
Trichloroethylene (TCE)	ug/l	2.6	J	2	J	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	UJ	10	U
Tetrachloroethylene (PCE)	ug/l	3.2	J	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP060		A039GP060		A039GP061		
SampleID	039GP06027		039GP06040		039GP06110		
DateCollected	4/19/2002		4/19/2002		4/19/2002		
DateExtracted	5/2/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/2/2002		5/1/2002		5/1/2002		
SDGNumber	CNC100		CNC98		CNC98		
Parameter	Units						
Chloromethane	ug/l	10	U	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	3.4	J	10	UJ
Bromomethane	ug/l	10	U	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	0.49	J	5	U
1,1-Dichloroethane	ug/l	5	U	1.4	J	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	49	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	49	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	3.4	J	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

	StationID	A039GP061		A039GP061		A039GP062	
	SampleID	039GP06127		039GP06140		039GP06210	
	DateCollected	4/19/2002		4/19/2002		4/19/2002	
	DateExtracted	5/1/2002		5/1/2002		5/1/2002	
	DateAnalyzed	5/1/2002		5/1/2002		5/1/2002	
	SDGNumber	CNC98		CNC98		CNC98	
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	UJ	10	UJ	10	UJ
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP062		A039GP062		A039GP063	
	SampleID	039GP06227		039GP06240		039GP06310	
	DateCollected	4/19/2002		4/19/2002		4/22/2002	
	DateExtracted	5/1/2002		5/2/2002		5/1/2002	
	DateAnalyzed	5/1/2002		5/2/2002		5/1/2002	
	SDGNumber	CNC98		CNC98		CNC98	
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	U	10	UJ
Vinyl chloride	ug/l	10	UJ	10	U	10	UJ
Bromomethane	ug/l	10	UJ	10	U	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	UJ	10	U	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	1.6	J	2.4	J
1,2-Dichloroethene (total)	ug/l	5	U	1.6	J	2.4	J
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	UJ	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP063		A039GP063		A039GP064		
SampleID	039GP06327		039GP06340		039GP06410		
DateCollected	4/22/2002		4/22/2002		4/23/2002		
DateExtracted	5/1/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/1/2002		5/1/2002		5/1/2002		
SDGNumber	CNC98		CNC98		CNC98		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	UJ	36	J	30	J
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	2.1	J	1.8	J
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	4.6	J	4.7	J
1,1-Dichloroethane	ug/l	5	U	4.7	J	3.3	J
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	150	=	160	=
1,2-Dichloroethene (total)	ug/l	5	U	160	=	160	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	0.82	J	0.53	J
Trichloroethylene (TCE)	ug/l	1.3	J	15	=	5.2	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	2.7	J	3.2	J	3.5	J

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP064		A039GP064		A039GP065	
	SampleID	039GP06427		039GP06446		039GP06510	
	DateCollected	4/23/2002		4/23/2002		4/23/2002	
	DateExtracted	5/1/2002		5/1/2002		5/1/2002	
	DateAnalyzed	5/1/2002		5/1/2002		5/1/2002	
	SDGNumber	CNC98		CNC98		CNC98	
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	UJ	1.1	J	10	UJ
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	2.3	J	5	U
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	2.4	J	5	U
1,1-Dichloroethane	ug/l	5	U	1	J	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	110	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	120	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	0.75	J	5	U
Trichloroethylene (TCE)	ug/l	5	U	130	=	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP065		A039GP065		A039GP066		
SampleID	039GP06527		039GP06546		039GP06620		
DateCollected	4/23/2002		4/23/2002		4/23/2002		
DateExtracted	5/1/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/1/2002		5/1/2002		5/1/2002		
SDGNumber	CNC98		CNC98		CNC98		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	UJ	10	UJ	10	UJ
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP066		A039GP066		A039GP067		
SampleID	039GP06627		039GP06648		039GP06710		
DateCollected	4/23/2002		4/23/2002		4/24/2002		
DateExtracted	4/30/2002		4/30/2002		4/30/2002		
DateAnalyzed	4/30/2002		4/30/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	UJ
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5.3	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5.3	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	0.9	J	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

		StationID	A039GP067		A039GP067
		SampleID	039GP06727		039GP06746
		DateCollected	4/24/2002		4/24/2002
		DateExtracted	4/30/2002		4/30/2002
		DateAnalyzed	4/30/2002		4/30/2002
		SDGNumber	CNC99		CNC99
Parameter	Units				
Chloromethane	ug/l	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U
Bromomethane	ug/l	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U
Acetone	ug/l	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U
Chloroform	ug/l	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U
Benzene	ug/l	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U
Toluene	ug/L	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U
2-Hexanone	ug/l	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP038	A039GP038	A039GP039
SampleID	039GP03827	039GP03847	039GP03927
DateCollected	3/27/2001	3/27/2001	3/27/2001
DateExtracted	4/2/2001	4/2/2001	4/2/2001
DateAnalyzed	4/2/2001	4/2/2001	4/2/2001
SDGNumber	39980	39980	39980

Parameter	Units				
Dibromochloromethane	ug/l				
Chlorobenzene	ug/l				
Ethylbenzene	ug/l				
m+p Xylene	ug/l				
o-Xylene	ug/l				
Xylenes, Total	ug/l				
Styrene	ug/l				
Bromoform	ug/l				
1,1,2,2-Tetrachloroethane	ug/l				
1,3-Dichlorobenzene	ug/l				
1,4-Dichlorobenzene	ug/l				
1,2-Dichlorobenzene	ug/l				
1,2,4-Trichlorobenzene	ug/l				
1,2,3-Trichlorobenzene	ug/l				

StationID	A039GP039	A039GP040	A039GP040			
SampleID	039GP03947	039GP04027	039GP04047			
DateCollected	3/27/2001	3/28/2001	3/28/2001			
DateExtracted	4/3/2001	4/3/2001	4/3/2001			
DateAnalyzed	4/3/2001	4/3/2001	4/3/2001			
SDGNumber	39980	39980	39980			
Parameter	Units					
Dibromochloromethane	ug/l					
Chlorobenzene	ug/l					
Ethylbenzene	ug/l					
m+p Xylene	ug/l					
o-Xylene	ug/l					
Xylenes, Total	ug/l					
Styrene	ug/l					
Bromoform	ug/l					
1,1,2,2-Tetrachloroethane	ug/l					
1,3-Dichlorobenzene	ug/l					
1,4-Dichlorobenzene	ug/l					
1,2-Dichlorobenzene	ug/l					
1,2,4-Trichlorobenzene	ug/l					
1,2,3-Trichlorobenzene	ug/l					

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP041	A039GP041	A039GP042
SampleID	039GP04127	039GP04147	039GP04227
DateCollected	3/28/2001	3/28/2001	3/28/2001
DateExtracted	4/3/2001	4/3/2001	4/3/2001
DateAnalyzed	4/3/2001	4/3/2001	4/3/2001
SDGNumber	39980	39980	39980

Parameter	Units					
Dibromochloromethane	ug/l					
Chlorobenzene	ug/l					
Ethylbenzene	ug/l					
m+p Xylene	ug/l					
o-Xylene	ug/l					
Xylenes, Total	ug/l					
Styrene	ug/l					
Bromoform	ug/l					
1,1,2,2-Tetrachloroethane	ug/l					
1,3-Dichlorobenzene	ug/l					
1,4-Dichlorobenzene	ug/l					
1,2-Dichlorobenzene	ug/l					
1,2,4-Trichlorobenzene	ug/l					
1,2,3-Trichlorobenzene	ug/l					

	StationID	A039GP042	A039GP043	A039GP043
	SampleID	039GP04247	039GP04327	039GP04347
	DateCollected	3/28/2001	3/29/2001	3/29/2001
	DateExtracted	4/3/2001	4/3/2001	4/3/2001
	DateAnalyzed	4/3/2001	4/3/2001	4/3/2001
	SDGNumber	39980	39980	39980
Parameter	Units			
Dibromochloromethane	ug/l			
Chlorobenzene	ug/l			
Ethylbenzene	ug/l			
m+p Xylene	ug/l			
o-Xylene	ug/l			
Xylenes, Total	ug/l			
Styrene	ug/l			
Bromoform	ug/l			
1,1,2,2-Tetrachloroethane	ug/l			
1,3-Dichlorobenzene	ug/l			
1,4-Dichlorobenzene	ug/l			
1,2-Dichlorobenzene	ug/l			
1,2,4-Trichlorobenzene	ug/l			
1,2,3-Trichlorobenzene	ug/l			

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP044	A039GP044	A039GP045
SampleID	039GP04427	039GP04447	039GP04547
DateCollected	3/29/2001	3/29/2001	3/29/2001
DateExtracted	4/3/2001	4/3/2001	4/3/2001
DateAnalyzed	4/3/2001	4/3/2001	4/3/2001
SDGNumber	39980	39980	39980

Parameter	Units					
Dibromochloromethane	ug/l					
Chlorobenzene	ug/l					
Ethylbenzene	ug/l					
m+p Xylene	ug/l					
o-Xylene	ug/l					
Xylenes, Total	ug/l					
Styrene	ug/l					
Bromoform	ug/l					
1,1,2,2-Tetrachloroethane	ug/l					
1,3-Dichlorobenzene	ug/l					
1,4-Dichlorobenzene	ug/l					
1,2-Dichlorobenzene	ug/l					
1,2,4-Trichlorobenzene	ug/l					
1,2,3-Trichlorobenzene	ug/l					

StationID	A039GP046	A039GP047	A039GP048
SampleID	039GP04647	039GP04747	039GP04834
DateCollected	3/29/2001	3/29/2001	4/1/2002
DateExtracted	4/3/2001	4/3/2001	4/10/2002
DateAnalyzed	4/3/2001	4/3/2001	4/10/2002
SDGNumber	39980	39980	CNC92

Parameter	Units					
Dibromochloromethane	ug/l					5 U
Chlorobenzene	ug/l					5 U
Ethylbenzene	ug/l					5 U
m+p Xylene	ug/l					5 U
o-Xylene	ug/l					5 U
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
1,3-Dichlorobenzene	ug/l					5 U
1,4-Dichlorobenzene	ug/l					5 U
1,2-Dichlorobenzene	ug/l					5 U
1,2,4-Trichlorobenzene	ug/l					5 U
1,2,3-Trichlorobenzene	ug/l					5 U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP048		A039GP049		A039GP049	
	SampleID	039GP04852		039GP04932		039GP04957	
	DateCollected	4/1/2002		4/2/2002		4/2/2002	
	DateExtracted	4/15/2002		4/10/2002		4/10/2002	
	DateAnalyzed	4/15/2002		4/10/2002		4/10/2002	
	SDGNumber	CNC92		CNC92		CNC92	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	10	U	5	U
Chlorobenzene	ug/l	5	U	10	U	5	U
Ethylbenzene	ug/l	5	U	10	U	5	U
m+p Xylene	ug/l	5	U	10	U	5	U
o-Xylene	ug/l	5	U	10	U	5	U
Xylenes, Total	ug/l	5	U	10	U	5	U
Styrene	ug/l	5	U	10	U	5	U
Bromoform	ug/l	5	U	10	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	10	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	10	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP050		A039GP050		A039GP050		
SampleID	039GP05032		039GP05032DL		039GP05056		
DateCollected	4/2/2002		4/2/2002		4/2/2002		
DateExtracted	4/10/2002		4/16/2002		4/10/2002		
DateAnalyzed	4/10/2002		4/16/2002		4/10/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	10	R	5	U
Chlorobenzene	ug/l	5	U	10	R	5	U
Ethylbenzene	ug/l	5	U	10	R	5	U
m+p Xylene	ug/l	5	U	10	R	5	U
o-Xylene	ug/l	5	U	10	R	5	U
Xylenes, Total	ug/l	5	U	10	R	5	U
Styrene	ug/l	5	U	10	R	5	U
Bromoform	ug/l	5	U	10	R	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	10	R	5	U
1,3-Dichlorobenzene	ug/l	5	U	10	R	5	U
1,4-Dichlorobenzene	ug/l	5	U	10	R	5	U
1,2-Dichlorobenzene	ug/l	5	U	10	R	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	10	R	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	10	R	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP051		A039GP051		A039GP051		
SampleID	039GP05110		039GP05132		039GP05156		
DateCollected	4/3/2002		4/3/2002		4/3/2002		
DateExtracted	4/10/2002		4/16/2002		4/10/2002		
DateAnalyzed	4/10/2002		4/16/2002		4/10/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP052		A039GP052		A039GP053		
SampleID	039GP05232		039GP05256		039GP05332		
DateCollected	4/3/2002		4/3/2002		4/3/2002		
DateExtracted	4/16/2002		4/10/2002		4/16/2002		
DateAnalyzed	4/16/2002		4/10/2002		4/16/2002		
SDGNumber	CNC92		CNC92		CNC92		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP053		A039GP054		A039GP054		
SampleID	039GP05356		039GP05410		039GP05427		
DateCollected	4/3/2002		4/16/2002		4/16/2002		
DateExtracted	4/10/2002		4/23/2002		4/24/2002		
DateAnalyzed	4/10/2002		4/23/2002		4/24/2002		
SDGNumber	CNC92		CNC96		CNC96		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	UJ
1,2,3-Trichlorobenzene	ug/l	5	U	1.6	J	5	U

		StationID	A039GP054	A039GP054	A039GP055		
		SampleID	039GP05427DL	039GP05446	039GP05510		
		DateCollected	4/16/2002	4/16/2002	4/16/2002		
		DateExtracted	4/23/2002	4/23/2002	4/23/2002		
		DateAnalyzed	4/23/2002	4/23/2002	4/23/2002		
		SDGNumber	CNC96	CNC96	CNC96		
Parameter	Units						
Dibromochloromethane	ug/l	10	R	5	U	5	U
Chlorobenzene	ug/l	10	R	5	U	5	U
Ethylbenzene	ug/l	10	R	5	U	5	U
m+p Xylene	ug/l	10	R	5	U	5	U
o-Xylene	ug/l	10	R	5	U	5	U
Xylenes, Total	ug/l	10	R	5	U	5	U
Styrene	ug/l	10	R	5	U	5	U
Bromoform	ug/l	10	R	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	10	R	5	U	5	U
1,3-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,4-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,2-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	10	R	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	3.2	R	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP055		A039GP055		A039GP056		
SampleID	039GP05527		039GP05546		039GP05610		
DateCollected	4/16/2002		4/16/2002		4/17/2002		
DateExtracted	4/23/2002		4/26/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/26/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP056		A039GP056		A039GP057		
SampleID	039GP05627		039GP05646		039GP05710		
DateCollected	4/17/2002		4/17/2002		4/17/2002		
DateExtracted	4/23/2002		4/23/2002		4/23/2002		
DateAnalyzed	4/23/2002		4/23/2002		4/23/2002		
SDGNumber	CNC96		CNC96		CNC96		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP057	A039GP057	A039GP058
SampleID	039GP05727	039GP05746	039GP05810
DateCollected	4/17/2002	4/17/2002	4/17/2002
DateExtracted	4/23/2002	4/23/2002	4/23/2002
DateAnalyzed	4/23/2002	4/23/2002	4/23/2002
SDGNumber	CNC96	CNC96	CNC96

Parameter	Units	A039GP057		A039GP057		A039GP058	
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

		StationID		A039GP058		A039GP058		A039GP059	
		SampleID		039GP05827		039GP05846		039GP05910	
		DateCollected		4/17/2002		4/17/2002		4/18/2002	
		DateExtracted		4/24/2002		4/23/2002		4/24/2002	
		DateAnalyzed		4/24/2002		4/23/2002		4/24/2002	
		SDGNumber		CNC96		CNC96		CNC96	
Parameter	Units								
Dibromochloromethane	ug/l	5	U	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	UJ	5	U	5	U	5	UJ
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP059		A039GP059		A039GP060		
SampleID	039GP05927		039GP05946		039GP06010		
DateCollected	4/18/2002		4/18/2002		4/19/2002		
DateExtracted	4/24/2002		4/24/2002		5/2/2002		
DateAnalyzed	4/24/2002		4/24/2002		5/2/2002		
SDGNumber	CNC96		CNC96		CNC100		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	UJ	5	UJ	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP060		A039GP060		A039GP061		
SampleID	039GP06027		039GP06040		039GP06110		
DateCollected	4/19/2002		4/19/2002		4/19/2002		
DateExtracted	5/2/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/2/2002		5/1/2002		5/1/2002		
SDGNumber	CNC100		CNC98		CNC98		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP061		A039GP061		A039GP062	
	SampleID	039GP06127		039GP06140		039GP06210	
	DateCollected	4/19/2002		4/19/2002		4/19/2002	
	DateExtracted	5/1/2002		5/1/2002		5/1/2002	
	DateAnalyzed	5/1/2002		5/1/2002		5/1/2002	
	SDGNumber	CNC98		CNC98		CNC98	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP062		A039GP062		A039GP063		
SampleID	039GP06227		039GP06240		039GP06310		
DateCollected	4/19/2002		4/19/2002		4/22/2002		
DateExtracted	5/1/2002		5/2/2002		5/1/2002		
DateAnalyzed	5/1/2002		5/2/2002		5/1/2002		
SDGNumber	CNC98		CNC98		CNC98		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP063		A039GP063		A039GP064		
SampleID	039GP06327		039GP06340		039GP06410		
DateCollected	4/22/2002		4/22/2002		4/23/2002		
DateExtracted	5/1/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/1/2002		5/1/2002		5/1/2002		
SDGNumber	CNC98		CNC98		CNC98		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP064		A039GP064		A039GP065		
SampleID	039GP06427		039GP06446		039GP06510		
DateCollected	4/23/2002		4/23/2002		4/23/2002		
DateExtracted	5/1/2002		5/1/2002		5/1/2002		
DateAnalyzed	5/1/2002		5/1/2002		5/1/2002		
SDGNumber	CNC98		CNC98		CNC98		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP065		A039GP065		A039GP066	
	SampleID	039GP06527		039GP06546		039GP06620	
	DateCollected	4/23/2002		4/23/2002		4/23/2002	
	DateExtracted	5/1/2002		5/1/2002		5/1/2002	
	DateAnalyzed	5/1/2002		5/1/2002		5/1/2002	
	SDGNumber	CNC98		CNC98		CNC98	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP066		A039GP066		A039GP067		
SampleID	039GP06627		039GP06648		039GP06710		
DateCollected	4/23/2002		4/23/2002		4/24/2002		
DateExtracted	4/30/2002		4/30/2002		4/30/2002		
DateAnalyzed	4/30/2002		4/30/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

		StationID		A039GP067		A039GP067	
		SampleID		039GP06727		039GP06746	
		DateCollected		4/24/2002		4/24/2002	
		DateExtracted		4/30/2002		4/30/2002	
		DateAnalyzed		4/30/2002		4/30/2002	
		SDGNumber		CNC99		CNC99	
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	5	U	5	U		
o-Xylene	ug/l	5	U	5	U		
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		
1,3-Dichlorobenzene	ug/l	5	U	5	U		
1,4-Dichlorobenzene	ug/l	5	U	5	U		
1,2-Dichlorobenzene	ug/l	5	U	5	U		
1,2,4-Trichlorobenzene	ug/l	5	U	5	U		
1,2,3-Trichlorobenzene	ug/l	5	U	5	U		

StationID		A039GP068		A039GP068		A039GP068	
SampleID		039GP06810		039GP06827		039GP06846	
DateCollected		4/24/2002		4/24/2002		4/24/2002	
DateExtracted		4/30/2002		4/30/2002		4/30/2002	
DateAnalyzed		4/30/2002		4/30/2002		4/30/2002	
SDGNumber		CNC99		CNC99		CNC99	
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP069		A039GP069		A039GP069		
SampleID	039GP06910		039GP06927		039GP06946		
DateCollected	4/24/2002		4/24/2002		4/25/2002		
DateExtracted	4/30/2002		4/30/2002		4/30/2002		
DateAnalyzed	4/30/2002		4/30/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	5	U	5	U
1,2-Dichloroethene (total)	ug/l	5	U	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5	U	1	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP070		A039GP070		A039GP070		
SampleID	039GP07010		039GP07027		039GP07046		
DateCollected	4/25/2002		4/25/2002		4/25/2002		
DateExtracted	5/2/2002		5/2/2002		4/30/2002		
DateAnalyzed	5/2/2002		5/2/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	UJ
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	U	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	9.7	=	11	=
1,2-Dichloroethene (total)	ug/l	5	U	9.7	=	11	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	7.4	=	9.3	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	18	=	24	=

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP071		A039GP071		A039GP071	
SampleID	039GP07110		039GP07127		039GP07146	
DateCollected	4/25/2002		4/25/2002		4/25/2002	
DateExtracted	5/2/2002		5/2/2002		4/30/2002	
DateAnalyzed	5/2/2002		5/2/2002		4/30/2002	
SDGNumber	CNC99		CNC99		CNC99	
Parameter	Units					
Chloromethane	ug/l	10	U	10	U	50 UJ
Vinyl chloride	ug/l	10	U	10	U	36 J
Bromomethane	ug/l	10	U	10	U	50 UJ
Chloroethane	ug/l	10	U	10	U	50 U
1,1-Dichloroethene	ug/l	5	U	5	U	17 J
Acetone	ug/l	10	U	10	U	50 UJ
Carbon Disulfide	ug/l	5	U	5	U	25 U
Methylene Chloride	ug/L	5	U	5	U	25 U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	13 J
1,1-Dichloroethane	ug/l	5	U	5	U	15 J
Vinyl acetate	ug/L	10	U	10	U	50 U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	50 U
cis-1,2-Dichloroethylene	ug/l	5	U	22	=	860 =
1,2-Dichloroethene (total)	ug/l	5	U	22	=	870 =
Chloroform	ug/l	5	U	5	U	25 U
1,1,1-Trichloroethane	ug/l	5	U	5	U	25 U
Carbon Tetrachloride	ug/l	5	U	5	U	25 U
1,2-Dichloroethane	ug/l	5	U	5	U	25 U
Benzene	ug/l	5	U	5	U	3.8 J
Trichloroethylene (TCE)	ug/l	5	U	7	=	340 =
1,2-Dichloropropane	ug/l	5	U	5	U	25 U
Bromodichloromethane	ug/L	5	U	5	U	25 U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	50 UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	25 U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	50 U
Toluene	ug/L	5	U	5	U	25 U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	25 U
1,1,2-Trichloroethane	ug/L	5	U	5	U	25 U
2-Hexanone	ug/l	10	U	10	U	50 U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	9 J

Analytic Data Summary

08/28/2002 9:03 AM

StationID	A039GP072		A039GP072		A039GP072		
SampleID	039GP07210		039GP07227		039GP07246		
DateCollected	4/26/2002		4/26/2002		4/26/2002		
DateExtracted	5/8/2002		5/8/2002		5/8/2002		
DateAnalyzed	5/8/2002		5/8/2002		5/8/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	10	U	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	UJ	10	UJ	10	UJ
1,1-Dichloroethene	ug/l	5	U	0.7	J	1.8	J
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	0.68	J
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	1.7	J	32	=
1,2-Dichloroethene (total)	ug/l	5	U	1.7	J	32	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	0.34	J
Trichloroethylene (TCE)	ug/l	5	U	5	=	170	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	16	=

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP073	A039GP073	A039GP073
SampleID	039GP07310	039GP07327	039GP07348
DateCollected	4/26/2002	4/26/2002	4/26/2002
DateExtracted	5/7/2002	5/7/2002	5/7/2002
DateAnalyzed	5/7/2002	5/7/2002	5/7/2002
SDGNumber	CNC104	CNC104	CNC104

Parameter	Units	A039GP073		A039GP073		A039GP073	
Chloromethane	ug/l	10	U	10	U	20	U
Vinyl chloride	ug/l	10	U	1.8	J	22	=
Bromomethane	ug/l	10	U	10	U	20	U
Chloroethane	ug/l	10	UJ	10	UJ	20	UJ
1,1-Dichloroethene	ug/l	5	U	0.88	J	8	J
Acetone	ug/l	10	UJ	10	UJ	36	J
Carbon Disulfide	ug/l	5	U	5	U	10	U
Methylene Chloride	ug/L	5	U	5	U	10	U
trans-1,2-Dichloroethene	ug/L	5	U	0.82	J	5.1	J
1,1-Dichloroethane	ug/l	5	U	0.81	J	5.8	J
Vinyl acetate	ug/L	10	U	10	U	20	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	20	U
cis-1,2-Dichloroethylene	ug/l	5	U	27	=	300	=
1,2-Dichloroethene (total)	ug/l	5	U	28	=	300	=
Chloroform	ug/l	5	U	5	U	10	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	10	U
Carbon Tetrachloride	ug/l	5	U	5	U	10	U
1,2-Dichloroethane	ug/l	5	U	5	U	10	U
Benzene	ug/l	5	U	5	U	0.97	J
Trichloroethylene (TCE)	ug/l	5	U	7	=	74	=
1,2-Dichloropropane	ug/l	5	U	5	U	10	U
Bromodichloromethane	ug/L	5	U	5	U	10	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	20	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	10	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	20	U
Toluene	ug/L	5	U	0.53	J	10	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	10	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	10	U
2-Hexanone	ug/l	10	UJ	10	UJ	9.3	J
Tetrachloroethylene (PCE)	ug/l	5	U	10	=	22	=

Analytic Data Summary

08/28/2002 9:03 AM

StationID	A039GP074		A039GP074		A039GP074		
SampleID	039GP07410		039GP07427		039GP07448		
DateCollected	4/29/2002		4/29/2002		4/29/2002		
DateExtracted	5/8/2002		5/7/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/7/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	20	U
Vinyl chloride	ug/l	10	U	10	U	53	=
Bromomethane	ug/l	10	U	10	U	20	U
Chloroethane	ug/l	10	UJ	10	UJ	20	UJ
1,1-Dichloroethene	ug/l	5	U	5	U	21	=
Acetone	ug/l	10	UJ	10	J	20	UJ
Carbon Disulfide	ug/l	5	U	5	U	10	U
Methylene Chloride	ug/L	5	U	5	U	10	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	13	=
1,1-Dichloroethane	ug/l	5	U	5	U	9.4	J
Vinyl acetate	ug/L	10	U	10	U	20	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	20	U
cis-1,2-Dichloroethylene	ug/l	5	U	0.9	J	850	R
1,2-Dichloroethene (total)	ug/l	5	U	0.9	J	860	R
Chloroform	ug/l	5	U	5	U	10	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	10	U
Carbon Tetrachloride	ug/l	5	U	5	U	10	U
1,2-Dichloroethane	ug/l	5	U	5	U	10	U
Benzene	ug/l	5	U	5	U	1.2	J
Trichloroethylene (TCE)	ug/l	5	U	5	U	280	=
1,2-Dichloropropane	ug/l	5	U	5	U	10	U
Bromodichloromethane	ug/L	5	U	5	U	10	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	20	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	10	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	20	U
Toluene	ug/L	5	U	5	U	10	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	10	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	10	U
2-Hexanone	ug/l	10	U	10	UJ	20	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	10	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP074		A039GP075		A039GP075		
SampleID	039GP07448DL		039GP07510		039GP07527		
DateCollected	4/29/2002		4/29/2002		4/29/2002		
DateExtracted	5/9/2002		5/7/2002		5/7/2002		
DateAnalyzed	5/9/2002		5/7/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Chloromethane	ug/l	200	R	20	U	10	U
Vinyl chloride	ug/l	60	R	310	=	1	J
Bromomethane	ug/l	200	R	20	U	10	U
Chloroethane	ug/l	200	R	20	UJ	10	UJ
1,1-Dichloroethene	ug/l	20	R	3.2	J	5	U
Acetone	ug/l	200	R	20	UJ	10	UJ
Carbon Disulfide	ug/l	100	R	10	U	5	U
Methylene Chloride	ug/L	100	R	10	U	5	U
trans-1,2-Dichloroethene	ug/L	18	R	36	=	5	U
1,1-Dichloroethane	ug/l	11	R	7.8	J	5	U
Vinyl acetate	ug/L	200	R	20	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	200	R	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	820	=	380	=	2.5	J
1,2-Dichloroethene (total)	ug/l	840	=	420	=	2.5	J
Chloroform	ug/l	100	R	10	U	5	U
1,1,1-Trichloroethane	ug/l	100	R	10	U	5	U
Carbon Tetrachloride	ug/l	100	R	10	U	5	U
1,2-Dichloroethane	ug/l	100	R	10	U	5	U
Benzene	ug/l	100	R	5.7	J	5	U
Trichloroethylene (TCE)	ug/l	240	R	0.81	J	5	U
1,2-Dichloropropane	ug/l	100	R	10	U	5	U
Bromodichloromethane	ug/L	100	R	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	200	R	20	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	100	R	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	200	R	20	U	10	U
Toluene	ug/L	100	R	10	U	5	U
trans-1,3-Dichloropropene	ug/l	100	R	10	U	5	U
1,1,2-Trichloroethane	ug/L	100	R	10	U	5	U
2-Hexanone	ug/l	200	R	20	UJ	10	UJ
Tetrachloroethylene (PCE)	ug/l	100	R	10	U	5	U

StationID	A039GP075		A039GP076		A039GP076		
SampleID	039GP07548		039GP07610		039GP07627		
DateCollected	4/30/2002		4/30/2002		4/30/2002		
DateExtracted	5/8/2002		5/9/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/9/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Chloromethane	ug/l	10	U	20	U	10	U
Vinyl chloride	ug/l	10	U	60	J	1.2	J
Bromomethane	ug/l	10	U	20	U	10	U
Chloroethane	ug/l	10	UJ	20	UJ	10	UJ
1,1-Dichloroethene	ug/l	5	U	7.3	J	5	U
Acetone	ug/l	10	UJ	20	UJ	30	J
Carbon Disulfide	ug/l	5	U	10	U	5	U
Methylene Chloride	ug/L	5	U	10	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	6	J	0.46	J
1,1-Dichloroethane	ug/l	5	U	10	=	0.71	J
Vinyl acetate	ug/L	10	U	20	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	290	=	24	=
1,2-Dichloroethene (total)	ug/l	5	U	300	=	25	=
Chloroform	ug/l	5	U	10	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	10	U	5	U
Carbon Tetrachloride	ug/l	5	U	10	U	5	U
1,2-Dichloroethane	ug/l	5	U	10	U	5	U
Benzene	ug/l	5	U	0.99	J	5	U
Trichloroethylene (TCE)	ug/l	5	U	56	=	1.4	J
1,2-Dichloropropane	ug/l	5	U	10	U	5	U
Bromodichloromethane	ug/L	5	U	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	20	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	20	U	10	U
Toluene	ug/L	5	U	10	U	1.8	J
trans-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	10	U	5	U
2-Hexanone	ug/l	10	U	20	U	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP076		A039GP077		A039GP077	
	SampleID	039GP07648		039GP07710		039GP07727	
	DateCollected	4/30/2002		4/30/2002		4/30/2002	
	DateExtracted	5/8/2002		5/8/2002		5/7/2002	
	DateAnalyzed	5/8/2002		5/8/2002		5/7/2002	
	SDGNumber	CNC104		CNC104		CNC105	
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	15	=	8.9	J
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	UJ	10	UJ	10	UJ
1,1-Dichloroethene	ug/l	5	U	0.91	J	5	U
Acetone	ug/l	10	UJ	10	UJ	18	J
Carbon Disulfide	ug/l	2.3	J	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	1.9	J	5	U
1,1-Dichloroethane	ug/l	5	U	1.5	J	3.3	J
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	0.73	J	48	=	120	=
1,2-Dichloroethene (total)	ug/l	0.73	J	50	=	120	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	0.32	J
Trichloroethylene (TCE)	ug/l	5	U	6.7	=	4.3	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	0.92	J	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	27	=	1.8	J

	StationID	A039GP077		A039GP078		A039GP078	
	SampleID	039GP07748		039GP07810		039GP07827	
	DateCollected	4/30/2002		4/30/2002		4/30/2002	
	DateExtracted	5/8/2002		5/10/2002		5/9/2002	
	DateAnalyzed	5/8/2002		5/10/2002		5/9/2002	
	SDGNumber	CNC105		CNC105		CNC105	
Parameter	Units						
Chloromethane	ug/l	200	U	10	U	10	U
Vinyl chloride	ug/l	200	U	7.6	J	10	U
Bromomethane	ug/l	200	U	10	U	10	U
Chloroethane	ug/l	200	UJ	10	UJ	10	UJ
1,1-Dichloroethene	ug/l	100	U	5	U	5	U
Acetone	ug/l	200	UJ	10	UJ	27	J
Carbon Disulfide	ug/l	100	U	5	U	5	U
Methylene Chloride	ug/L	100	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	100	U	0.5	J	5	U
1,1-Dichloroethane	ug/l	100	U	5	U	5	U
Vinyl acetate	ug/L	200	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	200	U	10	U	34	=
cis-1,2-Dichloroethylene	ug/l	100	U	19	=	5	U
1,2-Dichloroethene (total)	ug/l	100	U	20	=	5	U
Chloroform	ug/l	100	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	100	U	5	U	5	U
Carbon Tetrachloride	ug/l	100	U	5	U	5	U
1,2-Dichloroethane	ug/l	100	U	5	U	5	U
Benzene	ug/l	100	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	100	U	1.7	J	5	U
1,2-Dichloropropane	ug/l	100	U	5	U	5	U
Bromodichloromethane	ug/L	100	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	200	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	100	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	200	U	10	U	10	U
Toluene	ug/L	100	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	100	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	100	U	5	U	5	U
2-Hexanone	ug/l	200	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	100	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP078		A039GP079		A039GP079		
SampleID	039GP07848		039GP07910		039GP07927		
DateCollected	4/30/2002		4/30/2002		4/30/2002		
DateExtracted	5/8/2002		5/8/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/8/2002		5/7/2002		
SDGNumber	CNC105		CNC105		CNC105		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	10	U	14	=	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	UJ	10	UJ	10	UJ
1,1-Dichloroethene	ug/l	5	U	0.98	J	5	U
Acetone	ug/l	10	U	10	UJ	18	J
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	2.1	J	5	U
1,1-Dichloroethane	ug/l	5	U	1	J	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	34	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	36	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	5	U
Trichloroethylene (TCE)	ug/l	5	U	5.4	=	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	UJ
Tetrachloroethylene (PCE)	ug/l	5	U	59	=	5	U

	StationID	A039GP079		A039GP080		A039GP080	
	SampleID	039GP07948		039GP08010		039GP08010DL	
	DateCollected	4/30/2002		4/30/2002		4/30/2002	
	DateExtracted	5/7/2002		5/8/2002		5/10/2002	
	DateAnalyzed	5/7/2002		5/8/2002		5/10/2002	
	SDGNumber	CNC105		CNC105		CNC105	
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	100	R
Vinyl chloride	ug/l	10	U	67	=	120	R
Bromomethane	ug/l	10	U	10	U	100	R
Chloroethane	ug/l	10	UJ	10	UJ	100	R
1,1-Dichloroethene	ug/l	5	U	9.6	=	11	R
Acetone	ug/l	10	UJ	10	UJ	100	R
Carbon Disulfide	ug/l	5	U	5	U	50	R
Methylene Chloride	ug/L	5	U	5	U	19	R
trans-1,2-Dichloroethene	ug/L	5	U	24	=	50	R
1,1-Dichloroethane	ug/l	5	U	8.8	=	20	R
Vinyl acetate	ug/L	10	U	10	U	100	R
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	100	R
cis-1,2-Dichloroethylene	ug/l	5	U	630	R	470	=
1,2-Dichloroethene (total)	ug/l	5	U	650	R	470	=
Chloroform	ug/l	5	U	5	U	50	R
1,1,1-Trichloroethane	ug/l	5	U	5	U	50	R
Carbon Tetrachloride	ug/l	5	U	5	U	50	R
1,2-Dichloroethane	ug/l	5	U	5	U	50	R
Benzene	ug/l	5	U	1.2	J	50	R
Trichloroethylene (TCE)	ug/l	5	U	190	=	66	R
1,2-Dichloropropane	ug/l	5	U	5	U	50	R
Bromodichloromethane	ug/L	5	U	5	U	50	R
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	100	R
cis-1,3-Dichloropropene	ug/l	5	U	5	U	50	R
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	100	R
Toluene	ug/L	5	U	5	U	50	R
trans-1,3-Dichloropropene	ug/l	5	U	5	U	50	R
1,1,2-Trichloroethane	ug/L	5	U	5	U	50	R
2-Hexanone	ug/l	10	UJ	10	U	100	R
Tetrachloroethylene (PCE)	ug/l	5	U	2.3	J	50	R

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP080		A039GP080		A039GP081		
SampleID	039GP08027		039GP08048		039GP08110		
DateCollected	4/30/2002		4/30/2002		5/1/2002		
DateExtracted	5/8/2002		5/8/2002		5/13/2002		
DateAnalyzed	5/8/2002		5/8/2002		5/13/2002		
SDGNumber	CNC105		CNC105		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	UJ
Vinyl chloride	ug/l	10	U	1.9	J	33	=
Bromomethane	ug/l	10	U	10	U	10	UJ
Chloroethane	ug/l	10	UJ	10	UJ	10	U
1,1-Dichloroethene	ug/l	0.79	J	5	U	4.3	J
Acetone	ug/l	10	UJ	10	UJ	10	U
Carbon Disulfide	ug/l	5	U	5	U	5	UJ
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	0.58	J	8.3	=
1,1-Dichloroethane	ug/l	5	U	5	U	8.3	=
Vinyl acetate	ug/L	10	U	10	U	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	9.9	=	28	=	320	R
1,2-Dichloroethene (total)	ug/l	9.9	=	29	=	330	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	5	U	1.1	J
Trichloroethylene (TCE)	ug/l	14	=	6.4	=	51	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

		StationID		A039GP081		A039GP081		A039GP081	
		SampleID		039GP08110DL		039GP08127		039GP08148	
		DateCollected		5/1/2002		5/1/2002		5/1/2002	
		DateExtracted		5/14/2002		5/13/2002		5/13/2002	
		DateAnalyzed		5/14/2002		5/13/2002		5/13/2002	
		SDGNumber		CNC106		CNC106		CNC106	
Parameter	Units								
Chloromethane	ug/l	20	R	10	UJ	10	UJ		
Vinyl chloride	ug/l	42	R	10	U	10	U		
Bromomethane	ug/l	20	R	10	UJ	10	UJ		
Chloroethane	ug/l	20	R	10	U	10	U		
1,1-Dichloroethene	ug/l	5.8	R	5	U	5	U		
Acetone	ug/l	20	R	16	=	10	U		
Carbon Disulfide	ug/l	10	R	5	UJ	5	UJ		
Methylene Chloride	ug/L	10	R	5	U	5	U		
trans-1,2-Dichloroethene	ug/L	8.7	R	5	U	1	J		
1,1-Dichloroethane	ug/l	8.7	R	5	U	5	U		
Vinyl acetate	ug/L	20	R	10	UJ	10	UJ		
Methyl ethyl ketone (2-Butanone)	ug/l	20	R	10	U	10	U		
cis-1,2-Dichloroethylene	ug/l	310	=	0.69	J	68	=		
1,2-Dichloroethene (total)	ug/l	320	R	0.69	J	69	=		
Chloroform	ug/l	10	R	5	U	5	U		
1,1,1-Trichloroethane	ug/l	10	R	5	U	5	U		
Carbon Tetrachloride	ug/l	10	R	5	U	5	U		
1,2-Dichloroethane	ug/l	10	R	5	U	0.57	J		
Benzene	ug/l	1.2	R	5	U	0.74	J		
Trichloroethylene (TCE)	ug/l	51	R	5	U	14	=		
1,2-Dichloropropane	ug/l	10	R	5	U	5	U		
Bromodichloromethane	ug/L	10	R	5	U	5	U		
2-Chloroethyl vinyl ether	ug/l	20	R	10	U	10	U		
cis-1,3-Dichloropropene	ug/l	10	R	5	U	5	U		
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	20	R	10	U	10	U		
Toluene	ug/L	10	R	5	U	5	U		
trans-1,3-Dichloropropene	ug/l	10	R	5	U	5	U		
1,1,2-Trichloroethane	ug/L	10	R	5	U	5	U		
2-Hexanone	ug/l	20	R	10	U	10	U		
Tetrachloroethylene (PCE)	ug/l	10	R	5	U	5	U		

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP082		A039GP082		A039GP082	
	SampleID	039GP08210		039GP08227		039GP08248	
	DateCollected	5/1/2002		5/1/2002		5/1/2002	
	DateExtracted	5/9/2002		5/9/2002		5/9/2002	
	DateAnalyzed	5/9/2002		5/9/2002		5/9/2002	
	SDGNumber	CNC105		CNC105		CNC105	
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	1.2	J	2.8	J	64	J
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	UJ	10	UJ	10	UJ
1,1-Dichloroethene	ug/l	5	U	1.1	J	10	=
Acetone	ug/l	10	UJ	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	1.5	J	5	U
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	0.75	J	1.8	J	23	J
1,1-Dichloroethane	ug/l	5	U	0.74	J	14	=
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	29	=	40	=	850	R
1,2-Dichloroethene (total)	ug/l	29	=	42	=	880	R
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	5	U	0.34	J	4.8	J
Trichloroethylene (TCE)	ug/l	5.4	=	27	=	3	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP082		A039GP083		A039GP083		
SampleID	039GP08248DL		039GP08310		039GP08327		
DateCollected	5/1/2002		5/1/2002		5/1/2002		
DateExtracted	5/10/2002		5/10/2002		5/9/2002		
DateAnalyzed	5/10/2002		5/10/2002		5/9/2002		
SDGNumber	CNC105		CNC105		CNC105		
Parameter	Units						
Chloromethane	ug/l	100	R	20	U	10	U
Vinyl chloride	ug/l	65	R	43	=	1.8	J
Bromomethane	ug/l	100	R	20	U	10	U
Chloroethane	ug/l	100	R	20	UJ	10	UJ
1,1-Dichloroethene	ug/l	13	R	4.7	J	5	U
Acetone	ug/l	100	R	20	UJ	10	UJ
Carbon Disulfide	ug/l	50	R	10	U	5	U
Methylene Chloride	ug/L	16	R	10	U	5	U
trans-1,2-Dichloroethene	ug/L	24	R	4.6	J	5	U
1,1-Dichloroethane	ug/l	15	R	8.9	J	5	U
Vinyl acetate	ug/L	100	R	20	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	100	R	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	760	=	280	=	31	=
1,2-Dichloroethene (total)	ug/l	780	=	280	=	31	=
Chloroform	ug/l	50	R	10	U	5	U
1,1,1-Trichloroethane	ug/l	50	R	10	U	5	U
Carbon Tetrachloride	ug/l	50	R	10	U	5	U
1,2-Dichloroethane	ug/l	50	R	10	U	5	U
Benzene	ug/l	5.1	R	0.76	J	5	U
Trichloroethylene (TCE)	ug/l	3	R	22	=	0.69	J
1,2-Dichloropropane	ug/l	50	R	10	U	5	U
Bromodichloromethane	ug/L	50	R	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	100	R	20	UJ	10	UJ
cis-1,3-Dichloropropene	ug/l	50	R	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	100	R	20	U	10	U
Toluene	ug/L	50	R	10	U	5	U
trans-1,3-Dichloropropene	ug/l	50	R	10	U	5	U
1,1,2-Trichloroethane	ug/L	50	R	10	U	5	U
2-Hexanone	ug/l	100	R	20	U	10	U
Tetrachloroethylene (PCE)	ug/l	50	R	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP083		A039GP084		A039GP084		
SampleID	039GP08348		039GP08410		039GP08410DL		
DateCollected	5/1/2002		5/1/2002		5/1/2002		
DateExtracted	5/10/2002		5/13/2002		5/14/2002		
DateAnalyzed	5/10/2002		5/13/2002		5/14/2002		
SDGNumber	CNC105		CNC106		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	U	10	UJ	20	R
Vinyl chloride	ug/l	10	U	19	=	16	R
Bromomethane	ug/l	10	UJ	10	UJ	20	R
Chloroethane	ug/l	10	UJ	10	U	20	R
1,1-Dichloroethene	ug/l	5	U	3.6	J	3	R
Acetone	ug/l	10	UJ	10	U	20	R
Carbon Disulfide	ug/l	5	U	5	UJ	10	R
Methylene Chloride	ug/L	5	U	5	U	10	R
trans-1,2-Dichloroethene	ug/L	5	U	6.7	=	5.2	R
1,1-Dichloroethane	ug/l	5	U	6.2	=	6.1	R
Vinyl acetate	ug/L	10	U	10	UJ	20	R
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	20	R
cis-1,2-Dichloroethylene	ug/l	5	U	240	R	230	=
1,2-Dichloroethene (total)	ug/l	5	U	240	=	230	R
Chloroform	ug/l	5	U	5	U	10	R
1,1,1-Trichloroethane	ug/l	5	U	5	U	10	R
Carbon Tetrachloride	ug/l	5	U	5	U	10	R
1,2-Dichloroethane	ug/l	5	U	5	U	10	R
Benzene	ug/l	5	U	0.64	J	0.7	R
Trichloroethylene (TCE)	ug/l	5	U	44	=	41	R
1,2-Dichloropropane	ug/l	5	U	5	U	10	R
Bromodichloromethane	ug/L	5	U	5	U	10	R
2-Chloroethyl vinyl ether	ug/l	10	R	10	U	20	R
cis-1,3-Dichloropropene	ug/l	5	U	5	U	10	R
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	20	R
Toluene	ug/L	5	U	5	U	10	R
trans-1,3-Dichloropropene	ug/l	5	U	5	U	10	R
1,1,2-Trichloroethane	ug/L	5	U	5	U	10	R
2-Hexanone	ug/l	10	U	10	U	20	R
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	10	R

StationID	A039GP084		A039GP084		A039GP085		
SampleID	039GP08427		039GP08448		039GP08510		
DateCollected	5/1/2002		5/1/2002		5/1/2002		
DateExtracted	5/13/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/13/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	3.8	J
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	UJ	10	U
1,1-Dichloroethene	ug/l	5	U	0.89	J	1.2	J
Acetone	ug/l	10	U	10	U	10	U
Carbon Disulfide	ug/l	5	UJ	5	UJ	5	UJ
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	0.74	J	0.47	J	2	J
1,1-Dichloroethane	ug/l	5	U	5	U	1.4	J
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	UJ	10	U
cis-1,2-Dichloroethylene	ug/l	53	=	8.1	=	83	=
1,2-Dichloroethene (total)	ug/l	54	=	8.6	=	85	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	0.87	J	5	U
Benzene	ug/l	0.32	J	0.44	J	0.65	J
Trichloroethylene (TCE)	ug/l	19	=	9.5	=	26	=
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	UJ	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	UJ	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP085		A039GP085		A039GP086		
SampleID	039GP08527		039GP08548		039GP08610		
DateCollected	5/2/2002		5/2/2002		5/1/2002		
DateExtracted	5/13/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/13/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	10	U	10	U	7.4	J
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	20	=	10	U
Carbon Disulfide	ug/l	5	UJ	5	UJ	5	UJ
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	U	5	U	0.85	J
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	12	=	29	=
1,2-Dichloroethene (total)	ug/l	5	U	12	=	30	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	1.1	J	5	U
Benzene	ug/l	5	U	0.31	J	5	U
Trichloroethylene (TCE)	ug/l	5	U	14	=	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	0.62	J	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

StationID	A039GP086		A039GP086		A039GP087		
SampleID	039GP08627		039GP08648		039GP08710		
DateCollected	5/1/2002		5/1/2002		5/2/2002		
DateExtracted	5/13/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/13/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	UJ	10	UJ	10	UJ
Vinyl chloride	ug/l	65	=	10	U	1.1	J
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	2.7	J	5	U	5	U
Acetone	ug/l	13	=	10	U	10	U
Carbon Disulfide	ug/l	5	UJ	5	UJ	5	UJ
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	6.8	=	5	U	5	U
1,1-Dichloroethane	ug/l	3	J	5	U	0.66	J
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	190	=	5	U	26	=
1,2-Dichloroethene (total)	ug/l	200	=	5	U	26	=
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	2.6	J	5	U	5	U
Trichloroethylene (TCE)	ug/l	4.5	J	5	U	3.7	J
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP087		A039GP087		A039GP088		
SampleID	039GP08727		039GP08748		039GP08810		
DateCollected	5/2/2002		5/2/2002		5/2/2002		
DateExtracted	5/14/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/14/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Chloromethane	ug/l	10	U	10	UJ	10	UJ
Vinyl chloride	ug/l	3.6	J	10	U	10	U
Bromomethane	ug/l	10	UJ	10	UJ	10	UJ
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	2.1	J	5	U	5	U
Acetone	ug/l	10	UJ	10	U	10	U
Carbon Disulfide	ug/l	5	UJ	5	UJ	5	UJ
Methylene Chloride	ug/L	5	U	5	U	5	U
trans-1,2-Dichloroethene	ug/L	5	=	5	U	5	U
1,1-Dichloroethane	ug/l	1.3	J	5	U	5	U
Vinyl acetate	ug/L	10	UJ	10	UJ	10	UJ
Methyl ethyl ketone (2-Butanone)	ug/l	10	UJ	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	120	=	5	U	5	U
1,2-Dichloroethene (total)	ug/l	120	=	5	U	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	0.62	J	5	U	5	U
Trichloroethylene (TCE)	ug/l	89	=	5	U	5	U
1,2-Dichloropropane	ug/l	5	U	5	U	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	UJ	10	U	10	U
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	UJ	10	U	10	U
Toluene	ug/L	5	U	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	UJ	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

	StationID	A039GP088		A039GP088		A039GP090	
	SampleID	039GP08827		039GP08848		039GP09032	
	DateCollected	5/2/2002		5/2/2002		5/28/2002	
	DateExtracted	5/13/2002		5/13/2002		6/4/2002	
	DateAnalyzed	5/13/2002		5/13/2002		6/4/2002	
	SDGNumber	CNC106		CNC106		61173	
Parameter	Units						
Chloromethane	ug/l	10	UJ	20	UJ	10	U
Vinyl chloride	ug/l	10	U	1.9	J	10	U
Bromomethane	ug/l	10	UJ	20	UJ	10	U
Chloroethane	ug/l	10	U	20	U	10	U
1,1-Dichloroethene	ug/l	5	U	2.2	J	5	U
Acetone	ug/l	10	U	20	U	10	U
Carbon Disulfide	ug/l	5	UJ	10	UJ	5	U
Methylene Chloride	ug/L	5	U	10	U	5	UJ
trans-1,2-Dichloroethene	ug/L	5	U	3.4	J	5	U
1,1-Dichloroethane	ug/l	5	U	1.3	J	5	U
Vinyl acetate	ug/L	10	UJ	20	UJ	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	220	=	5	U
1,2-Dichloroethene (total)	ug/l	5	U	220	=	5	U
Chloroform	ug/l	5	U	10	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	10	U	5	U
Carbon Tetrachloride	ug/l	5	U	10	U	5	U
1,2-Dichloroethane	ug/l	5	U	10	U	5	U
Benzene	ug/l	5	U	0.8	J	5	U
Trichloroethylene (TCE)	ug/l	5	U	10	U	1.4	J
1,2-Dichloropropane	ug/l	5	U	10	U	5	U
Bromodichloromethane	ug/L	5	U	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	10	U	20	U	5	UJ
cis-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	20	U	10	U
Toluene	ug/L	5	U	10	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	10	U	5	U
2-Hexanone	ug/l	10	U	20	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP090		A039GP091		A039GP091		
SampleID	039GP09046		039GP09132		039GP09146		
DateCollected	5/29/2002		5/29/2002		5/29/2002		
DateExtracted	6/4/2002		6/4/2002		6/4/2002		
DateAnalyzed	6/4/2002		6/4/2002		6/4/2002		
SDGNumber	61173		61173		61173		
Parameter	Units						
Chloromethane	ug/l	10	U	20	U	10	U
Vinyl chloride	ug/l	10	U	6	J	10	U
Bromomethane	ug/l	10	U	20	U	10	U
Chloroethane	ug/l	10	U	20	U	10	U
1,1-Dichloroethene	ug/l	5	U	1	J	5	U
Acetone	ug/l	16	U	20	U	10	U
Carbon Disulfide	ug/l	5	U	10	U	5	U
Methylene Chloride	ug/L	5	UJ	10	UJ	5	UJ
trans-1,2-Dichloroethene	ug/L	5	U	14.8	=	0.63	J
1,1-Dichloroethane	ug/l	5	U	10	U	5	U
Vinyl acetate	ug/L	10	U	20	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	20	U	10	U
cis-1,2-Dichloroethylene	ug/l	5	U	165	=	9.3	=
1,2-Dichloroethene (total)	ug/l	5	U	180	=	9.9	=
Chloroform	ug/l	5	U	10	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	10	U	5	U
Carbon Tetrachloride	ug/l	5	U	10	U	5	U
1,2-Dichloroethane	ug/l	5	U	10	U	5	U
Benzene	ug/l	5	U	2.3	J	5	U
Trichloroethylene (TCE)	ug/l	2.2	J	3.2	J	2.2	J
1,2-Dichloropropane	ug/l	5	U	10	U	5	U
Bromodichloromethane	ug/L	5	U	10	U	5	U
2-Chloroethyl vinyl ether	ug/l	5	UJ	10	UJ	5	UJ
cis-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	20	U	10	U
Toluene	ug/L	5	U	3.9	J	5	U
trans-1,3-Dichloropropene	ug/l	5	U	10	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	10	U	5	U
2-Hexanone	ug/l	10	U	20	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	10	U	5	U

	StationID	A039GP092		A039GP092		A039GP093	
	SampleID	039GP09232		039GP09242		039GP09332	
	DateCollected	5/29/2002		5/29/2002		5/29/2002	
	DateExtracted	6/4/2002		6/4/2002		6/4/2002	
	DateAnalyzed	6/4/2002		6/4/2002		6/4/2002	
	SDGNumber	61173		61173		61173	
Parameter	Units						
Chloromethane	ug/l	10	U	10	U	10	U
Vinyl chloride	ug/l	8.7	J	2.7	J	10	U
Bromomethane	ug/l	10	U	10	U	10	U
Chloroethane	ug/l	10	U	10	U	10	U
1,1-Dichloroethene	ug/l	5	U	5	U	5	U
Acetone	ug/l	10	U	10	UJ	10	UJ
Carbon Disulfide	ug/l	5	U	5	U	5	U
Methylene Chloride	ug/L	5	UJ	5	UJ	5	UJ
trans-1,2-Dichloroethene	ug/L	1.5	J	0.59	J	5	U
1,1-Dichloroethane	ug/l	5	U	5	U	5	U
Vinyl acetate	ug/L	10	U	10	U	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U	10	U	10	U
cis-1,2-Dichloroethylene	ug/l	3.3	J	5.3	=	5	U
1,2-Dichloroethene (total)	ug/l	4.8	J	5.9	=	5	U
Chloroform	ug/l	5	U	5	U	5	U
1,1,1-Trichloroethane	ug/l	5	U	5	U	5	U
Carbon Tetrachloride	ug/l	5	U	5	U	5	U
1,2-Dichloroethane	ug/l	5	U	5	U	5	U
Benzene	ug/l	6.5	=	2.9	J	5	U
Trichloroethylene (TCE)	ug/l	0.68	J	1.2	J	5	U
1,2-Dichloropropane	ug/l	0.51	J	0.45	J	5	U
Bromodichloromethane	ug/L	5	U	5	U	5	U
2-Chloroethyl vinyl ether	ug/l	5	UJ	5	UJ	5	UJ
cis-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U	10	U	10	U
Toluene	ug/L	0.43	J	5	U	5	U
trans-1,3-Dichloropropene	ug/l	5	U	5	U	5	U
1,1,2-Trichloroethane	ug/L	5	U	5	U	5	U
2-Hexanone	ug/l	10	U	10	U	10	U
Tetrachloroethylene (PCE)	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID A039GP093
 SampleID 039GP09342
 DateCollected 5/29/2002
 DateExtracted 6/4/2002
 DateAnalyzed 6/4/2002
 SDGNumber 61173

Parameter	Units		
Chloromethane	ug/l	10	U
Vinyl chloride	ug/l	10	U
Bromomethane	ug/l	10	U
Chloroethane	ug/l	10	U
1,1-Dichloroethene	ug/l	5	U
Acetone	ug/l	10	UJ
Carbon Disulfide	ug/l	5	U
Methylene Chloride	ug/L	5	UJ
trans-1,2-Dichloroethene	ug/L	5	U
1,1-Dichloroethane	ug/l	5	U
Vinyl acetate	ug/L	10	U
Methyl ethyl ketone (2-Butanone)	ug/l	10	U
cis-1,2-Dichloroethylene	ug/l	5	U
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	0.72	J
1,2-Dichloropropane	ug/l	5	U
Bromodichloromethane	ug/L	5	U
2-Chloroethyl vinyl ether	ug/l	5	UJ
cis-1,3-Dichloropropene	ug/l	5	U
Methyl isobutyl ketone (4-Methyl-2-pentanone)	ug/L	10	U
Toluene	ug/L	0.46	J
trans-1,3-Dichloropropene	ug/l	5	U
1,1,2-Trichloroethane	ug/L	5	U
2-Hexanone	ug/l	10	U
Tetrachloroethylene (PCE)	ug/l	5	U

StationID	A039GP068		A039GP068		A039GP068		
SampleID	039GP06810		039GP06827		039GP06846		
DateCollected	4/24/2002		4/24/2002		4/24/2002		
DateExtracted	4/30/2002		4/30/2002		4/30/2002		
DateAnalyzed	4/30/2002		4/30/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP069		A039GP069		A039GP069		
SampleID	039GP06910		039GP06927		039GP06946		
DateCollected	4/24/2002		4/24/2002		4/25/2002		
DateExtracted	4/30/2002		4/30/2002		4/30/2002		
DateAnalyzed	4/30/2002		4/30/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP070		A039GP070		A039GP070		
SampleID	039GP07010		039GP07027		039GP07046		
DateCollected	4/25/2002		4/25/2002		4/25/2002		
DateExtracted	5/2/2002		5/2/2002		4/30/2002		
DateAnalyzed	5/2/2002		5/2/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP071		A039GP071		A039GP071		
SampleID	039GP07110		039GP07127		039GP07146		
DateCollected	4/25/2002		4/25/2002		4/25/2002		
DateExtracted	5/2/2002		5/2/2002		4/30/2002		
DateAnalyzed	5/2/2002		5/2/2002		4/30/2002		
SDGNumber	CNC99		CNC99		CNC99		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	25	U
Chlorobenzene	ug/l	5	U	5	U	25	U
Ethylbenzene	ug/l	5	U	5	U	25	U
m+p Xylene	ug/l	5	U	5	U	25	U
o-Xylene	ug/l	5	U	5	U	25	U
Xylenes, Total	ug/l	5	U	5	U	25	U
Styrene	ug/l	5	U	5	U	25	U
Bromoform	ug/l	5	U	5	U	25	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	25	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	25	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	25	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	25	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	25	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	25	U

	StationID	A039GP072		A039GP072		A039GP072	
	SampleID	039GP07210		039GP07227		039GP07246	
	DateCollected	4/26/2002		4/26/2002		4/26/2002	
	DateExtracted	5/8/2002		5/8/2002		5/8/2002	
	DateAnalyzed	5/8/2002		5/8/2002		5/8/2002	
	SDGNumber	CNC104		CNC104		CNC104	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP073		A039GP073		A039GP073		
SampleID	039GP07310		039GP07327		039GP07348		
DateCollected	4/26/2002		4/26/2002		4/26/2002		
DateExtracted	5/7/2002		5/7/2002		5/7/2002		
DateAnalyzed	5/7/2002		5/7/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	10	U
Chlorobenzene	ug/l	5	U	5	U	10	U
Ethylbenzene	ug/l	5	U	5	U	10	U
m+p Xylene	ug/l	5	U	5	U	10	U
o-Xylene	ug/l	5	U	5	U	10	U
Xylenes, Total	ug/l	5	U	5	U	10	U
Styrene	ug/l	5	U	5	U	10	U
Bromoform	ug/l	5	U	5	U	10	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	10	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	10	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	10	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP074		A039GP074		A039GP074		
SampleID	039GP07410		039GP07427		039GP07448		
DateCollected	4/29/2002		4/29/2002		4/29/2002		
DateExtracted	5/8/2002		5/7/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/7/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC104		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	10	U
Chlorobenzene	ug/l	5	U	5	U	10	U
Ethylbenzene	ug/l	5	U	5	U	10	U
m+p Xylene	ug/l	5	U	5	U	10	U
o-Xylene	ug/l	5	U	5	U	10	U
Xylenes, Total	ug/l	5	U	5	U	10	U
Styrene	ug/l	5	U	5	U	10	U
Bromoform	ug/l	5	U	5	U	10	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	10	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	10	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	10	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	10	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP074		A039GP075		A039GP075	
	SampleID	039GP07448DL		039GP07510		039GP07527	
	DateCollected	4/29/2002		4/29/2002		4/29/2002	
	DateExtracted	5/9/2002		5/7/2002		5/7/2002	
	DateAnalyzed	5/9/2002		5/7/2002		5/7/2002	
	SDGNumber	CNC104		CNC104		CNC104	
Parameter	Units						
Dibromochloromethane	ug/l	100	R	10	U	5	U
Chlorobenzene	ug/l	100	R	10	U	5	U
Ethylbenzene	ug/l	100	R	10	U	5	U
m+p Xylene	ug/l	100	R	10	U	5	U
o-Xylene	ug/l	100	R	10	U	5	U
Xylenes, Total	ug/l	100	R	10	U	5	U
Styrene	ug/l	100	R	10	U	5	U
Bromoform	ug/l	100	R	10	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	100	R	10	U	5	U
1,3-Dichlorobenzene	ug/l	100	R	10	U	5	U
1,4-Dichlorobenzene	ug/l	100	R	10	U	5	U
1,2-Dichlorobenzene	ug/l	100	R	10	U	5	U
1,2,4-Trichlorobenzene	ug/l	100	R	10	U	5	U
1,2,3-Trichlorobenzene	ug/l	100	R	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP075		A039GP076		A039GP076	
	SampleID	039GP07548		039GP07610		039GP07627	
	DateCollected	4/30/2002		4/30/2002		4/30/2002	
	DateExtracted	5/8/2002		5/9/2002		5/7/2002	
	DateAnalyzed	5/8/2002		5/9/2002		5/7/2002	
	SDGNumber	CNC104		CNC104		CNC104	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	10	U	5	U
Chlorobenzene	ug/l	5	U	10	U	5	U
Ethylbenzene	ug/l	5	U	10	U	5	U
m+p Xylene	ug/l	5	U	10	U	5	U
o-Xylene	ug/l	5	U	10	U	5	U
Xylenes, Total	ug/l	5	U	10	U	5	U
Styrene	ug/l	5	U	10	U	5	U
Bromoform	ug/l	5	U	10	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	10	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	10	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP076		A039GP077		A039GP077		
SampleID	039GP07648		039GP07710		039GP07727		
DateCollected	4/30/2002		4/30/2002		4/30/2002		
DateExtracted	5/8/2002		5/8/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/8/2002		5/7/2002		
SDGNumber	CNC104		CNC104		CNC105		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

		StationID	A039GP077	A039GP078	A039GP078
		SampleID	039GP07748	039GP07810	039GP07827
		DateCollected	4/30/2002	4/30/2002	4/30/2002
		DateExtracted	5/8/2002	5/10/2002	5/9/2002
		DateAnalyzed	5/8/2002	5/10/2002	5/9/2002
		SDGNumber	CNC105	CNC105	CNC105
Parameter	Units				
Dibromochloromethane	ug/l	100	U	5	U
Chlorobenzene	ug/l	100	U	5	U
Ethylbenzene	ug/l	100	U	5	U
m+p Xylene	ug/l	100	U	5	U
o-Xylene	ug/l	100	U	5	U
Xylenes, Total	ug/l	100	U	5	U
Styrene	ug/l	100	U	5	U
Bromoform	ug/l	100	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	100	U	5	U
1,3-Dichlorobenzene	ug/l	100	U	5	U
1,4-Dichlorobenzene	ug/l	100	U	5	U
1,2-Dichlorobenzene	ug/l	100	U	5	U
1,2,4-Trichlorobenzene	ug/l	100	U	5	U
1,2,3-Trichlorobenzene	ug/l	100	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP078		A039GP079		A039GP079		
SampleID	039GP07848		039GP07910		039GP07927		
DateCollected	4/30/2002		4/30/2002		4/30/2002		
DateExtracted	5/8/2002		5/8/2002		5/7/2002		
DateAnalyzed	5/8/2002		5/8/2002		5/7/2002		
SDGNumber	CNC105		CNC105		CNC105		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

	StationID	A039GP079		A039GP080		A039GP080	
	SampleID	039GP07948		039GP08010		039GP08010DL	
	DateCollected	4/30/2002		4/30/2002		4/30/2002	
	DateExtracted	5/7/2002		5/8/2002		5/10/2002	
	DateAnalyzed	5/7/2002		5/8/2002		5/10/2002	
	SDGNumber	CNC105		CNC105		CNC105	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	50	R
Chlorobenzene	ug/l	5	U	5	U	50	R
Ethylbenzene	ug/l	5	U	5	U	50	R
m+p Xylene	ug/l	5	U	5	U	50	R
o-Xylene	ug/l	5	U	5	U	50	R
Xylenes, Total	ug/l	5	U	5	U	50	R
Styrene	ug/l	5	U	5	U	50	R
Bromoform	ug/l	5	U	5	U	50	R
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	50	R
1,3-Dichlorobenzene	ug/l	5	U	5	U	50	R
1,4-Dichlorobenzene	ug/l	5	U	5	U	50	R
1,2-Dichlorobenzene	ug/l	5	U	5	U	50	R
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	50	R
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	50	R

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP080		A039GP080		A039GP081	
	SampleID	039GP08027		039GP08048		039GP08110	
	DateCollected	4/30/2002		4/30/2002		5/1/2002	
	DateExtracted	5/8/2002		5/8/2002		5/13/2002	
	DateAnalyzed	5/8/2002		5/8/2002		5/13/2002	
	SDGNumber	CNC105		CNC105		CNC106	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

StationID	A039GP081		A039GP081		A039GP081		
SampleID	039GP08110DL		039GP08127		039GP08148		
DateCollected	5/1/2002		5/1/2002		5/1/2002		
DateExtracted	5/14/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/14/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Dibromochloromethane	ug/l	10	R	5	U	5	U
Chlorobenzene	ug/l	10	R	5	U	5	U
Ethylbenzene	ug/l	10	R	5	U	5	U
m+p Xylene	ug/l	10	R	5	U	5	U
o-Xylene	ug/l	10	R	5	U	5	U
Xylenes, Total	ug/l	10	R	5	U	5	U
Styrene	ug/l	10	R	5	U	5	U
Bromoform	ug/l	10	R	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	10	R	5	U	5	U
1,3-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,4-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,2-Dichlorobenzene	ug/l	10	R	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	10	R	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	10	R	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP082		A039GP082		A039GP082		
SampleID	039GP08210		039GP08227		039GP08248		
DateCollected	5/1/2002		5/1/2002		5/1/2002		
DateExtracted	5/9/2002		5/9/2002		5/9/2002		
DateAnalyzed	5/9/2002		5/9/2002		5/9/2002		
SDGNumber	CNC105		CNC105		CNC105		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

		StationID	A039GP082		A039GP083		A039GP083		
		SampleID	039GP08248DL		039GP08310		039GP08327		
		DateCollected	5/1/2002		5/1/2002		5/1/2002		
		DateExtracted	5/10/2002		5/10/2002		5/9/2002		
		DateAnalyzed	5/10/2002		5/10/2002		5/9/2002		
		SDGNumber	CNC105		CNC105		CNC105		
Parameter	Units								
Dibromochloromethane	ug/l	50	R	10	U	5	U		
Chlorobenzene	ug/l	50	R	10	U	5	U		
Ethylbenzene	ug/l	50	R	10	U	5	U		
m+p Xylene	ug/l	50	R	10	U	5	U		
o-Xylene	ug/l	50	R	10	U	5	U		
Xylenes, Total	ug/l	50	R	10	U	5	U		
Styrene	ug/l	50	R	10	U	5	U		
Bromoform	ug/l	50	R	10	U	5	U		
1,1,2,2-Tetrachloroethane	ug/l	50	R	10	U	5	U		
1,3-Dichlorobenzene	ug/l	50	R	10	U	5	U		
1,4-Dichlorobenzene	ug/l	50	R	10	U	5	U		
1,2-Dichlorobenzene	ug/l	50	R	10	U	5	U		
1,2,4-Trichlorobenzene	ug/l	50	R	10	U	5	U		
1,2,3-Trichlorobenzene	ug/l	50	R	10	U	5	U		

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP083		A039GP084		A039GP084	
SampleID	039GP08348		039GP08410		039GP08410DL	
DateCollected	5/1/2002		5/1/2002		5/1/2002	
DateExtracted	5/10/2002		5/13/2002		5/14/2002	
DateAnalyzed	5/10/2002		5/13/2002		5/14/2002	
SDGNumber	CNC105		CNC106		CNC106	
Parameter	Units					
Dibromochloromethane	ug/l	5	U	5	U	10 R
Chlorobenzene	ug/l	5	U	5	U	10 R
Ethylbenzene	ug/l	5	U	5	U	10 R
m+p Xylene	ug/l	5	U	5	U	10 R
o-Xylene	ug/l	5	U	5	U	10 R
Xylenes, Total	ug/l	5	U	5	U	10 R
Styrene	ug/l	5	U	5	U	10 R
Bromoform	ug/l	5	U	5	UJ	10 R
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	10 R
1,3-Dichlorobenzene	ug/l	5	U	5	U	10 R
1,4-Dichlorobenzene	ug/l	5	U	5	U	10 R
1,2-Dichlorobenzene	ug/l	5	U	5	U	10 R
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	10 R
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	10 R

	StationID	A039GP084		A039GP084		A039GP085	
	SampleID	039GP08427		039GP08448		039GP08510	
	DateCollected	5/1/2002		5/1/2002		5/1/2002	
	DateExtracted	5/13/2002		5/13/2002		5/13/2002	
	DateAnalyzed	5/13/2002		5/13/2002		5/13/2002	
	SDGNumber	CNC106		CNC106		CNC106	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	UJ	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	UJ	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

	StationID	A039GP085		A039GP085		A039GP086	
	SampleID	039GP08527		039GP08548		039GP08610	
	DateCollected	5/2/2002		5/2/2002		5/1/2002	
	DateExtracted	5/13/2002		5/13/2002		5/13/2002	
	DateAnalyzed	5/13/2002		5/13/2002		5/13/2002	
	SDGNumber	CNC106		CNC106		CNC106	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	UJ	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP086		A039GP086		A039GP087		
SampleID	039GP08627		039GP08648		039GP08710		
DateCollected	5/1/2002		5/1/2002		5/2/2002		
DateExtracted	5/13/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/13/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	UJ	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP087		A039GP087		A039GP088		
SampleID	039GP08727		039GP08748		039GP08810		
DateCollected	5/2/2002		5/2/2002		5/2/2002		
DateExtracted	5/14/2002		5/13/2002		5/13/2002		
DateAnalyzed	5/14/2002		5/13/2002		5/13/2002		
SDGNumber	CNC106		CNC106		CNC106		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	5	U	5	U	5	U
Xylenes, Total	ug/l	5	U	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	UJ	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	UJ	5	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	5	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	5	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	5	U	5	U

	StationID	A039GP088		A039GP088		A039GP090	
	SampleID	039GP08827		039GP08848		039GP09032	
	DateCollected	5/2/2002		5/2/2002		5/28/2002	
	DateExtracted	5/13/2002		5/13/2002		6/4/2002	
	DateAnalyzed	5/13/2002		5/13/2002		6/4/2002	
	SDGNumber	CNC106		CNC106		61173	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	10	U	5	U
Chlorobenzene	ug/l	5	U	10	U	5	U
Ethylbenzene	ug/l	5	U	10	U	5	U
m+p Xylene	ug/l	5	U	10	U	5	U
o-Xylene	ug/l	5	U	10	U	5	U
Xylenes, Total	ug/l	5	U	10	U	5	U
Styrene	ug/l	5	U	10	U	5	U
Bromoform	ug/l	5	UJ	10	UJ	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	10	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	10	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	10	U	5	U

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP090		A039GP091		A039GP091		
SampleID	039GP09046		039GP09132		039GP09146		
DateCollected	5/29/2002		5/29/2002		5/29/2002		
DateExtracted	6/4/2002		6/4/2002		6/4/2002		
DateAnalyzed	6/4/2002		6/4/2002		6/4/2002		
SDGNumber	61173		61173		61173		
Parameter	Units						
Dibromochloromethane	ug/l	5	U	10	U	5	U
Chlorobenzene	ug/l	5	U	10	U	5	U
Ethylbenzene	ug/l	5	U	0.93	J	5	U
m+p Xylene	ug/l	5	U	1.7	J	5	U
o-Xylene	ug/l	5	U	1.8	J	5	U
Xylenes, Total	ug/l	5	U	3.4	J	5	U
Styrene	ug/l	5	U	10	U	5	U
Bromoform	ug/l	5	U	10	U	5	U
1,1,2,2-Tetrachloroethane	ug/l	5	U	10	U	5	U
1,3-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,4-Dichlorobenzene	ug/l	5	U	0.54	J	5	U
1,2-Dichlorobenzene	ug/l	5	U	10	U	5	U
1,2,4-Trichlorobenzene	ug/l	5	U	10	U	5	U
1,2,3-Trichlorobenzene	ug/l	5	U	10	U	5	U

	StationID	A039GP092		A039GP092		A039GP093	
	SampleID	039GP09232		039GP09242		039GP09332	
	DateCollected	5/29/2002		5/29/2002		5/29/2002	
	DateExtracted	6/4/2002		6/4/2002		6/4/2002	
	DateAnalyzed	6/4/2002		6/4/2002		6/4/2002	
	SDGNumber	61173		61173		61173	
Parameter	Units						
Dibromochloromethane	ug/l	5	U	5	U	5	U
Chlorobenzene	ug/l	5	U	5	U	5	U
Ethylbenzene	ug/l	5	U	5	U	5	U
m+p Xylene	ug/l	5	U	5	U	5	U
o-Xylene	ug/l	0.51	J	5	U	5	U
Xylenes, Total	ug/l	0.51	J	5	U	5	U
Styrene	ug/l	5	U	5	U	5	U
Bromoform	ug/l	5	U	5	UJ	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	U	5	UJ	5	UJ
1,3-Dichlorobenzene	ug/l	5	U	5	UJ	5	UJ
1,4-Dichlorobenzene	ug/l	0.32	J	5	UJ	5	UJ
1,2-Dichlorobenzene	ug/l	5	U	5	UJ	5	UJ
1,2,4-Trichlorobenzene	ug/l	5	U	5	UJ	5	UJ
1,2,3-Trichlorobenzene	ug/l	5	U	5	UJ	5	UJ

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A039GP093
SampleID	039GP09342
DateCollected	5/29/2002
DateExtracted	6/4/2002
DateAnalyzed	6/4/2002
SDGNumber	61173

Parameter	Units		
Dibromochloromethane	ug/l	5	U
Chlorobenzene	ug/l	5	U
Ethylbenzene	ug/l	5	U
m+p Xylene	ug/l	5	U
o-Xylene	ug/l	5	U
Xylenes, Total	ug/l	5	U
Styrene	ug/l	5	U
Bromoform	ug/l	5	UJ
1,1,2,2-Tetrachloroethane	ug/l	5	UJ
1,3-Dichlorobenzene	ug/l	5	UJ
1,4-Dichlorobenzene	ug/l	5	UJ
1,2-Dichlorobenzene	ug/l	5	UJ
1,2,4-Trichlorobenzene	ug/l	5	UJ
1,2,3-Trichlorobenzene	ug/l	5	UJ

Analytical Data Summary

08/28/2002 9:03 AM

StationID	A505GW001	
SampleID	505GW001M1	
DateCollected	04/04/2002	
DateExtracted	04/11/2002	
DateAnalyzed	04/11/2002	
SDGNumber	58564	
Parameter	Units	
Acetone	ug/L	10 U

Data Validation Summary - Charleston Naval Complex - Zone A, SWMU 39

TO: William Elliott/CH2M HILL/GNA

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

DATE: August 21, 2002

The purpose of this memorandum is to present the results of the data validation process for the samples collected in Zone A, SWMU 39. The samples were collected between the dates of March 27, 2001 and May 29, 2002.

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

The Quality Control areas that were review 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 1994) 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).

Samples were submitted to Severn Trent Services, STL Savannah Laboratories, Inc., in Savannah, Georgia, for the following analyses: SW-846 8260 Volatile Organic Compounds (VOC).

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
TN	Tune

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

39980	A039GP038	039GP03827	39980001	WG	N		03/27/01	X
39980	A039GP038	039GP03847	39980002	WG	N		03/27/01	X
39980	A039GP039	039GP03927	39980003	WG	N		03/27/01	X
39980	A039GP039	039CP03927	39980004	WG	N		03/27/01	X
39980	A039GP039	039GP03947	39980005	WG	N		03/27/01	X
39980	A039GP040	039GP04027	39980006	WG	N		03/28/01	X
39980	A039GP040	039GP04047	39980007	WG	N		03/28/01	X
39980	A039GP041	039GP04127	39980008	WG	N		03/28/01	X
39980	A039GP041	039GP04147	39980009	WG	N		03/28/01	X
39980	A039GP042	039GP04227	39980010	WG	N		03/28/01	X
39980	A039GP042	039GP04247	39980011	WG	N		03/28/01	X
39980	A039GP043	039GP04327	39980012	WG	N		03/29/01	X
39980	A039GP043	039GP04327MS	1000178397	WG	MS		03/29/01	X
J80	A039GP043	039GP04327SD	1000178398	WG	SD		03/29/01	X
39980	A039GP043	039GP04347	39980013	WG	N		03/29/01	X
39980	A039GP044	039GP04427	39980014	WG	N		03/29/01	X
39980	A039GP044	039GP04447	39980015	WG	N		03/29/01	X
39980	A039GP045	039GP04547	39980016	WG	N		03/29/01	X
39980	A039GP046	039GP04647	39980017	WG	N		03/29/01	X
39980	A039GP047	039GP04747	39980018	WG	N		03/29/01	X
39980	A039GP047	039CP04747	39980019	WG	N		03/29/01	X
39980	FIELDQC	039EP038L1	39980020	WQ	EB		03/27/01	X
39980	LABQC	VBLK139980	1000178395	WQ	LB			X
39980	LABQC	VBLK139980LCS	1000178396	WQ	BS			X
39980	LABQC	VBLK239980	1000178994	WQ	LB			X
39980	LABQC	VBLK239980LCS	1000178995	WQ	BS			X
61173	A039GP090	039GP09032	61173001	WG	N		05/28/02	X
61173	A039GP090	039GP09046	61173002	WG	N		05/29/02	X
61173	A039GP091	039GP09132	61173003	WG	N		05/29/02	X

61173	A039GP091	039GP09146	61173004	WG	N		05/29/02	X
61173	A039GP092	039GP09232	61173005	WG	N		05/29/02	X
61173	A039GP092	039GP09242	61173006	WG	N		05/29/02	X
61173	A039GP093	039GP09332	61173007	WG	N		05/29/02	X
61173	A039GP093	039HP09342	61173008	WG	FD		05/29/02	X
61173	A039GP093	039GP09342	61173009	WG	N		05/29/02	X
61173	FIELDQC	039EP090M5	61173010	WQ	EB		05/29/02	X
61173	LABQC	1200227622	1200227622	WQ	LB			X
61173	LABQC	1200227625	1200227625	WQ	BS			X
61173	LABQC	1200228225	1200228225	WQ	LB			X
61173	LABQC	1200228226	1200228226	WQ	BS			X
61173	LABQC	1200228898	1200228898	WQ	LB			X
61173	LABQC	1200228899	1200228899	WQ	BS			X
CNC92	A039GP048	039GP04834	S242328*1	WG	N		04/01/02	X
CNC92	A039GP051	039GP05156	S242328*10	WG	N		04/03/02	X
CNC92	A039GP052	039GP05232	S242328*11	WG	N		04/03/02	X
CNC92	FIELDQC	039TP048M3	S242328*13	WG	TB		04/01/02	X
CNC92	A039GP052	039GP05256	S242328*16	WG	N		04/03/02	X
CNC92	A039GP053	039GP05332	S242328*17	WG	N		04/03/02	X
CNC92	A039GP053	039GP05356	S242328*18	WG	N		04/03/02	X
CNC92	A039GP048	039GP04852	S242328*2	WG	N		04/01/02	X
CNC92	A039GP049	039GP04932	S242328*3	WG	N		04/02/02	X
CNC92	FIELDQC	039HP04957	S242328*4	WG	FD		04/02/02	X
CNC92	A039GP049	039GP04957	S242328*5	WG	N		04/02/02	X
CNC92	A039GP050	039GP05032	S242328*6	WG	N		04/02/02	X
CNC92	A039GP050	039GP05032DL	S242328*6*DL	WG	LR	DL	04/02/02	X
CNC92	A039GP050	039GP05056	S242328*7	WG	N		04/02/02	X
CNC92	A039GP051	039GP05110	S242328*8	WG	N		04/03/02	X
CNC92	A039GP051	039GP05132	S242328*9	WG	N		04/03/02	X
CNC92	FIELDQC	039EP048M3	S242328*12	WQ	EB		04/01/02	X
CNC92	FIELDQC	039EP049M3	S242328*14	WQ	EB		04/02/02	X

CNC92	FIELDQC	039EP050M3	S242328*15	WQ	EB		04/03/02	X
CNC92	LABQC	4232819LB	S242328*19	WQ	LB			X
CNC92	LABQC	4232820BS	S242328*20	WQ	BS			X
CNC92	LABQC	4232826LB	S242328*26	WQ	LB			X
CNC92	LABQC	4232827BS	S242328*27	WQ	BS			X
CNC92	LABQC	4232829LB	S242328*29	WQ	LB			X
CNC92	LABQC	4232830BS	S242328*30	WQ	BS			X
CNC96	A039GP054	039GP05410	S242715*1	WG	N		04/16/02	X
CNC96	A039GP057	039GP05710	S242715*10	WG	N		04/17/02	X
CNC96	A039GP057	039HP05710	S242715*11	WG	N		04/17/02	X
CNC96	A039GP057	039GP05727	S242715*12	WG	N		04/17/02	X
CNC96	A039GP057	039GP05746	S242715*13	WG	N		04/17/02	X
CNC96	A039GP058	039GP05810	S242715*14	WG	N		04/17/02	X
CNC96	A039GP058	039GP05827	S242715*15	WG	N		04/17/02	X
CNC96	A039GP058	039GP05846	S242715*16	WG	N		04/17/02	X
.C96	A039GP059	039GP05910	S242715*17	WG	N		04/18/02	X
CNC96	A039GP059	039GP05927	S242715*18	WG	N		04/18/02	X
CNC96	A039GP059	039GP05946	S242715*19	WG	N		04/18/02	X
CNC96	A039GP054	039GP05427	S242715*2	WG	N		04/16/02	X
CNC96	A039GP054	039GP05427DL	S242715*2*DL	WG	LR	DL	04/16/02	X
CNC96	A039GP054	039GP05446	S242715*3	WG	N		04/16/02	X
CNC96	A039GP055	039GP05510	S242715*4	WG	N		04/16/02	X
CNC96	A039GP055	039GP05527	S242715*5	WG	N		04/16/02	X
CNC96	A039GP055	039GP05546	S242715*6	WG	N		04/16/02	X
CNC96	A039GP056	039GP05610	S242715*7	WG	N		04/17/02	X
CNC96	A039GP056	039GP05627	S242715*8	WG	N		04/17/02	X
CNC96	A039GP056	039GP05646	S242715*9	WG	N		04/17/02	X
CNC96	FIELDQC	039EP054M4	S242715*20	WQ	EB		04/18/02	X
CNC96	FIELDQC	039TP054M4	S242715*21	WQ	TB		04/16/02	X
CNC96	LABQC	4271522LB	S242715*22	WQ	LB			X
CNC96	LABQC	4271523BS	S242715*23	WQ	BS			X

CNC96	LABQC	4271529LB	S242715*29	WQ	LB			X
CNC96	LABQC	4271530BS	S242715*30	WQ	BS			X
CNC96	LABQC	4271532LB	S242715*32	WQ	LB			X
CNC96	LABQC	4271533BS	S242715*33	WQ	BS			X
CNC98	A039GP060	039GP06040	S242881*1	WG	N		04/19/02	X
CNC98	A039GP063	039GP06327	S242881*10	WG	N		04/22/02	X
CNC98	A039GP063	039GP06340	S242881*11	WG	N		04/22/02	X
CNC98	A039GP064	039GP06410	S242881*12	WG	N		04/23/02	X
CNC98	A039GP064	039GP06427	S242881*13	WG	N		04/23/02	X
CNC98	A039GP064	039GP06446	S242881*14	WG	N		04/23/02	X
CNC98	A039GP064	039HP06446	S242881*15	WG	N		04/23/02	X
CNC98	A039GP065	039GP06510	S242881*16	WG	N		04/23/02	X
CNC98	A039GP065	039GP06527	S242881*17	WG	N		04/23/02	X
CNC98	A039GP065	039GP06546	S242881*18	WG	N		04/23/02	X
CNC98	A039GP066	039GP06620	S242881*19	WG	N		04/23/02	X
CNC98	A039GP061	039HP06110	S242881*2	WG	N		04/19/02	X
CNC98	A039GP061	039GP06110	S242881*3	WG	N		04/19/02	X
CNC98	A039GP061	039GP06127	S242881*4	WG	N		04/19/02	X
CNC98	A039GP061	039GP06140	S242881*5	WG	N		04/19/02	X
CNC98	A039GP062	039GP06210	S242881*6	WG	N		04/19/02	X
CNC98	A039GP062	039GP06210MS	S242881*27	WG	MS		04/19/02	X
CNC98	A039GP062	039GP06210SD	S242881*29	WG	SD		04/19/02	X
CNC98	A039GP062	039GP06227	S242881*7	WG	N		04/19/02	X
CNC98	A039GP062	039GP06240	S242881*8	WG	N		04/19/02	X
CNC98	A039GP063	039GP06310	S242881*9	WG	N		04/22/02	X
CNC98	LABQC	4288120LB	S242881*20	WQ	LB			X
CNC98	LABQC	4288121BS	S242881*21	WQ	BS			X
CNC98	LABQC	4288134LB	S242881*34	WQ	LB			X
CNC98	LABQC	4288135BS	S242881*35	WQ	BS			X
CNC99	A039GP066	039GP06627	S242881A*1	WG	N		04/23/02	X
CNC99	A039GP069	039GP06910	S242881A*10	WG	N		04/24/02	X

CNC99	A039GP069	039GP06927	S242881A*11	WG	N		04/24/02	X
CNC99	A039GP069	039GP06946	S242881A*12	WG	N		04/25/02	X
CNC99	A039GP070	039GP07010	S242881A*13	WG	N		04/25/02	X
CNC99	A039GP070	039GP07027	S242881A*14	WG	N		04/25/02	X
CNC99	A039GP070	039GP07046	S242881A*15	WG	N		04/25/02	X
CNC99	A039GP071	039GP07110	S242881A*16	WG	N		04/25/02	X
CNC99	A039GP071	039HP07127	S242881A*17	WG	N		04/25/02	X
CNC99	A039GP071	039GP07127	S242881A*18	WG	N		04/25/02	X
CNC99	A039GP071	039GP07146	S242881A*19	WG	N		04/25/02	X
CNC99	A039GP066	039GP06648	S242881A*2	WG	N		04/23/02	X
CNC99	A039GP067	039GP06710	S242881A*3	WG	N		04/24/02	X
CNC99	A039GP067	039GP06727	S242881A*4	WG	N		04/24/02	X
CNC99	A039GP067	039HP06746	S242881A*5	WG	N		04/24/02	X
CNC99	A039GP067	039GP06746	S242881A*6	WG	N		04/24/02	X
CNC99	A039GP068	039GP06810	S242881A*7	WG	N		04/24/02	X
CNC99	A039GP068	039GP06827	S242881A*8	WG	N		04/24/02	X
CNC99	A039GP068	039GP06846	S242881A*9	WG	N		04/24/02	X
CNC99	LABQC	42881A20LB	S242881A*20	WQ	LB			X
CNC99	LABQC	42881A21BS	S242881A*21	WQ	BS			X
CNC99	LABQC	42881A30LB	S242881A*30	WQ	LB			X
CNC99	LABQC	42881A31BS	S242881A*31	WQ	BS			X
CNC100	A039GP060	039GP06010	S242881B*1	WG	N		04/19/02	X
CNC100	A039GP060	039GP06027	S242881B*2	WG	N		04/19/02	X
CNC100	FIELDQC	039TP055M4	S242881B*6	WG	TB		04/19/02	X
CNC100	FIELDQC	039EP055M4	S242881B*3	WQ	EB		04/19/02	X
CNC100	FIELDQC	039EP056M4	S242881B*4	WQ	EB		04/22/02	X
CNC100	FIELDQC	039EP057M4	S242881B*5	WQ	EB		04/23/02	X
CNC100	FIELDQC	039EP058M4	S242881B*7	WQ	EB		04/24/02	X
CNC100	FIELDQC	039EP059M4	S242881B*8	WQ	EB		04/25/02	X
CNC100	LABQC	42881B9LB	S242881B*9	WQ	LB			X
CNC100	LABQC	42881B10BS	S242881B*10	WQ	BS			X

CNC104	A039GP072	039GP07210	S243096*1	WG	N		04/26/02	X
CNC104	A039GP074	039HP07448	S243096*10	WG	N		04/29/02	X
CNC104	A039GP075	039GP07510	S243096*11	WG	N		04/29/02	X
CNC104	A039GP075	039GP07527	S243096*12	WG	N		04/29/02	X
CNC104	A039GP075	039GP07548	S243096*13	WG	N		04/30/02	X
CNC104	A039GP076	039GP07610	S243096*14	WG	N		04/30/02	X
CNC104	A039GP076	039GP07627	S243096*15	WG	N		04/30/02	X
CNC104	A039GP076	039GP07648	S243096*16	WG	N		04/30/02	X
CNC104	A039GP077	039GP07710	S243096*17	WG	N		04/30/02	X
CNC104	FIELDQC	039TP056M4	S243096*18	WG	TB		05/02/02	X
CNC104	A039GP072	039GP07227	S243096*2	WG	N		04/26/02	X
CNC104	A039GP072	039GP07246	S243096*3	WG	N		04/26/02	X
CNC104	A039GP073	039GP07310	S243096*4	WG	N		04/26/02	X
CNC104	A039GP073	039GP07327	S243096*5	WG	N		04/26/02	X
CNC104	A039GP073	039GP07327MS	S243096*28	WG	MS		04/26/02	X
CNC104	A039GP073	039GP07327SD	S243096*30	WG	SD		04/26/02	X
CNC104	A039GP073	039GP07348	S243096*6	WG	N		04/26/02	X
CNC104	A039GP074	039GP07410	S243096*7	WG	N		04/29/02	X
CNC104	A039GP074	039GP07427	S243096*8	WG	N		04/29/02	X
CNC104	A039GP074	039GP07448	S243096*9	WG	N		04/29/02	X
CNC104	A039GP074	039GP07448DL	S243096*9*DL	WG	LR	DL	04/29/02	X
CNC104	FIELDQC	039EP060M4	S243096*19	WQ	EB		04/26/02	X
CNC104	FIELDQC	039EP061M4	S243096*20	WQ	EB		04/29/02	X
CNC104	LABQC	4309621LB	S243096*21	WQ	LB			X
CNC104	LABQC	4309622BS	S243096*22	WQ	BS			X
CNC104	LABQC	4309635LB	S243096*35	WQ	LB			X
CNC104	LABQC	4309636BS	S243096*36	WQ	BS			X
CNC104	LABQC	4309638LB	S243096*38	WQ	LB			X
CNC104	LABQC	4309639BS	S243096*39	WQ	BS			X
CNC105	A039GP078	039HP07827	S243096A*1	WG	N		04/30/02	X
CNC105	A039GP082	039HP08210	S243096A*10	WG	N		05/01/02	X

CNC105	A039GP082	039GP08227	S243096A*11	WG	N		05/01/02	X
CNC105	A039GP082	039GP08248	S243096A*12	WG	N		05/01/02	X
CNC105	A039GP082	039GP08248DL	S243096A*12*DL	WG	LR	DL	05/01/02	X
CNC105	A039GP083	039GP08310	S243096A*13	WG	N		05/01/02	X
CNC105	A039GP083	039GP08327	S243096A*14	WG	N		05/01/02	X
CNC105	A039GP083	039GP08348	S243096A*15	WG	N		05/01/02	X
CNC105	A039GP083	039GP08348MS	S243096A*28	WG	MS		05/01/02	X
CNC105	A039GP083	039GP08348SD	S243096A*30	WG	SD		05/01/02	X
CNC105	A039GP077	039GP07727	S243096A*17	WG	N		04/30/02	X
CNC105	A039GP077	039GP07748	S243096A*18	WG	N		04/30/02	X
CNC105	A039GP078	039GP07810	S243096A*19	WG	N		04/30/02	X
CNC105	A039GP078	039GP07848	S243096A*2	WG	N		04/30/02	X
CNC105	A039GP078	039GP07827	S243096A*20	WG	N		04/30/02	X
CNC105	A039GP079	039GP07910	S243096A*3	WG	N		04/30/02	X
CNC105	A039GP079	039GP07927	S243096A*4	WG	N		04/30/02	X
C105	A039GP079	039GP07948	S243096A*5	WG	N		04/30/02	X
CNC105	A039GP080	039GP08010	S243096A*6	WG	N		04/30/02	X
CNC105	A039GP080	039GP08010DL	S243096A*6*DL	WG	LR	DL	04/30/02	X
CNC105	A039GP080	039GP08027	S243096A*7	WG	N		04/30/02	X
CNC105	A039GP080	039GP08048	S243096A*8	WG	N		04/30/02	X
CNC105	A039GP082	039GP08210	S243096A*9	WG	N		05/01/02	X
CNC105	FIELDQC	039EP062M4	S243096A*16	WG	EB		04/30/02	X
CNC105	LABQC	43096A21LB	S243096A*21	WG	LB			X
CNC105	LABQC	43096A22BS	S243096A*22	WG	BS			X
CNC105	LABQC	43096A35LB	S243096A*35	WG	LB			X
CNC105	LABQC	43096A36BS	S243096A*36	WG	BS			X
CNC105	LABQC	43096A38LB	S243096A*38	WG	LB			X
CNC105	LABQC	43096A39BS	S243096A*39	WG	BS			X
CNC105	LABQC	43096A41LB	S243096A*41	WG	LB			X
CNC105	LABQC	43096A42BS	S243096A*42	WG	BS			X
CNC106	A039GP084	039GP08427	S243096B*1	WG	N		05/01/02	X

CNC106	A039GP087	039GP08710	S243096B*10	WG	N		05/02/02	X
CNC106	A039GP087	039GP08727	S243096B*11	WG	N		05/02/02	X
CNC106	A039GP087	039GP08748	S243096B*12	WG	N		05/02/02	X
CNC106	A039GP088	039GP08810	S243096B*13	WG	N		05/02/02	X
CNC106	A039GP088	039GP08827	S243096B*14	WG	N		05/02/02	X
CNC106	A039GP088	039GP08848	S243096B*15	WG	N		05/02/02	X
CNC106	A039GP081	039GP08110	S243096B*18	WG	N		05/01/02	X
CNC106	A039GP081	039GP08110DL	S243096B*18*DL	WG	LR	DL	05/01/02	X
CNC106	A039GP081	039GP08127	S243096B*19	WG	N		05/01/02	X
CNC106	A039GP084	039GP08448	S243096B*2	WG	N		05/01/02	X
CNC106	A039GP081	039GP08148	S243096B*20	WG	N		05/01/02	X
CNC106	A039GP084	039GP08410	S243096B*21	WG	N		05/01/02	X
CNC106	A039GP084	039GP08410DL	S243096B*21*DL	WG	LR	DL	05/01/02	X
CNC106	A039GP085	039GP08510	S243096B*3	WG	N		05/01/02	X
CNC106	A039GP085	039GP08527	S243096B*4	WG	N		05/02/02	X
CNC106	A039GP085	039GP08548	S243096B*5	WG	N		05/02/02	X
CNC106	A039GP085	039HP08548	S243096B*6	WG	N		05/02/02	X
CNC106	A039GP086	039GP08610	S243096B*7	WG	N		05/01/02	X
CNC106	A039GP086	039GP08627	S243096B*8	WG	N		05/01/02	X
CNC106	A039GP086	039GP08648	S243096B*9	WG	N		05/01/02	X
CNC106	FIELDQC	039EP063M4	S243096B*16	WQ	EB		05/01/02	X
CNC106	FIELDQC	039EP064M4	S243096B*17	WQ	EB		05/02/02	X
CNC106	LABQC	43096B22LB	S243096B*22	WQ	LB			X
CNC106	LABQC	43096B23BS	S243096B*23	WQ	BS			X
CNC106	LABQC	43096B29LB	S243096B*29	WQ	LB			X
CNC106	LABQC	43096B30BS	S243096B*30	WQ	BS			X

MATRIX CODE

WG – Groundwater

WQ – Water QC Samples

SAMPLE TYPE CODE

BS - Blank Spike

EB - Equipment Blank

TB – Trip Blank

FD - Field Duplicate

N - Native Sample

LB - Laboratory Blank

LR – Laboratory Replicate

DL – Dilution

MS - Matrix Spike

SD - Matrix Spike duplicate

ANALYSIS CODE

VOC - Volatile 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, 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
Equipment Blank Contamination: VOCs
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

61173	039EP090M5	61173010	EB	Acetone	10.0	µg/L	100.0 µg/L
CNC92	1A0416MB	1A0416MB	LB	1,2,4-Trichlorobenzene	0.75	µg/L	3.8 µg/L
CNC98	039EP055M4	S242881B*3	EB	Acetone	12.0	µg/L	120.0 µg/L
CNC98	039EP056M4	S242881B*4	EB	Acetone	11.0	µg/L	110.0 µg/L
CNC98	039EP057M4	S242881B*5	EB	Acetone	12.0	µg/L	120.0 µg/L
CNC100	039EP055M4	S242881B*3	EB	Acetone	12.0	µg/L	120.0 µg/L
CNC100	039EP056M4	S242881B*4	EB	Acetone	11.0	µg/L	110.0 µg/L
CNC100	039EP057M4	S242881B*5	EB	Acetone	12.0	µg/L	120.0 µg/L
CNC104	039EPM061M4	S243096*20	EB	Methylene Chloride	0.62	µg/L	6.2 µg/L
CNC105	100510MB	100510MB	LB	Methylene Chloride	0.58	µg/L	5.8 µg/L
CNC105	039EP062M4	S243096A*16	EB	Methylene Chloride	1.6	µg/L	16.0 µg/L
CNC106	1A0513MB	1A0513MB	LB	1,2,4-Trichlorobenzene	1.1	µg/L	5.5 µg/L
CNC106	1A0513MB	1A0513MB	LB	1,2,3-Trichlorobenzene	1.3	µg/L	6.5 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

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 3 below.

TABLE 3
Surrogate, MS/MSD and LCS Recoveries Out of QC Limits: VOCs
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

CNC92	1A0410MBLCS	Chloromethane	58*	70-130			S242328*1, 3-8, 10, 16, 18	Detects-J, non-detects- UJ
		2-Butanone	150*					Detects only - J
		2-Chloroethyl vinyl ether	200*					
		4-Methyl-2-pentanone	150*					
		2-Hexanone	160*					
		1,1,2,2-Tetrachloroethane	136*					
CNC92	2A0415MBLCS	1,2,4-Trichlorobenzene	66*	70-130			S242328*2, 12, 13	Detects-J, non-detects- UJ
CNC92	1A0416MBLCS	Chloromethane	60*	70-130			S242328*9, 11, 14, 15, 17, 6*DL	Detects-J, non-detects- UJ
CNC96	S242715*2 MS/MSD	Bromomethane			34*	33	S242715*2	Detects-J, non-detects- UJ
		1,1-Dichloroethene			15*	14		
CNC96	1A0423MBLCS	Vinyl acetate	67*	70-130			S242715*1, 2*DL, 3-5, 7- 14, 16	Detects-J, non-detects- UJ
CNC96	1A0424MBLCS	Chloromethane	66*	70-130			S242715*2, 15, 17-21	Detects-J, non-detects- UJ
CNC98	S242881*6 MS/MSD	Chloromethane	60* / 60*	70-130			S242881*6	Detects-J, non-detects- UJ
		Bromomethane	44* / 48*					
		Vinyl acetate	69* / 68*					
		2-Chloroethyl vinyl ether	22* / 22*					
CNC98	1B0501MBLCS	Chloromethane	68*	70-130			S242881*1- 7, 9-19	Detects-J, non-detects- UJ
		Vinyl chloride	68*					
CNC99	S242881A*3 MS/MSD	1,1-Dichloroethene			15*	14	S242881A*3	Detects-J, non-detects- UJ
		2-Chloroethyl vinyl ether	23* / 23*	70-130				

TABLE 3
 Surrogate, MS/MSD and LCS Recoveries Out of QC Limits: VOCs
 Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

CNC104	S243096*5 MS/MSD	Bromomethane	156* / 168*	70-130			S243096*5	Detects only - J		
		Chloroethane	164* / 172*							
		2-Chloroethyl vinyl ether	140* / 142*							
CNC104	100507MBLCS	Bromomethane	152*	70-130			S243096*4-6, 8, 9, 11, 12, 15, 19, 20	Detects only - J		
		Chloroethane	160*							
CNC104	100508MBLCS	Bromomethane	172*	70-130			S243096*1-3, 7, 13, 16-18	Detects only - J		
		Chloroethane	168*							
		2-Chloroethyl vinyl ether	140*							
CNC104	100509MBLCS	Chloromethane	166*	70-130			S243096*10, 14, 9*DL	Detects only - J		
		Vinyl chloride	162*							
		Bromomethane	140*							
		Chloroethane	156*							
		Carbon disulfide	142*							
		Methylene chloride	132*							
		Vinyl acetate	160*							
CNC105	S243096A*15 MS/MSD	2-Chloroethyl vinyl ether	0* / 0*	70-130			S243096A*15	Detects-J, non-detects-R		
		Bromomethane						48*	20	Detects-J, non-detects-UJ
		Chloroethane						28*	20	
CNC105	100507MBLCS	Bromomethane	152*	70-130			S243096A*1, 4, 5, 17	Detects only - J		
		Chloroethane	160*							
CNC105	100508MBLCS	Bromomethane	172*	70-130			S243096A*2, 3, 6-8, 18	Detects only - J		
		Chloroethane	168*							
		2-Chloroethyl vinyl ether	140*							
CNC105	100509MBLCS	Chloroethane	166*	70-130			S243096A*9-12, 14, 20	Detects only - J		
		Vinyl chloride	162*							
		Bromomethane	140*							
		Chloroethane	156*							
		Carbon disulfide	142*							

TABLE 3

Surrogate, MS/MSD and LCS Recoveries Out of QC Limits: VOCs
 Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

CNC105	100509MBLCS	Methylene chloride	132*	70-130			S243096A*9 -12, 14, 20	Detects only - J	
		Vinyl acetate	160*						
CNC106	S243096B*2 MS/MSD	Vinyl acetate	47* / 66/	70-130	34*	22	S243096B*2	Detects-J, non-detects- UJ	
		Bromomethane			51*	33			
		Chloroethane			37*	34			
		1,1-Dichloroethene			21*	14			
		2-Butanone			54*	31			
		4-Methyl-2-pentanone			49*	42			
		2-Hexanone			58*	36			
		Bromoform			35*	31			
		1,1,2,2-Tetrachloroethane			38*	22			
		1,2,4-Trichlorobenzene	148* / 144*		70-130				
1,2,3-Trichlorobenzene	134* / 142*	70-130							
CNC106	1A0513MBLCS	Chloromethane	68*	70-130			S243096B*1 -10, 12-21	Detects-J, non-detects- UJ	
		Bromomethane	64*						
		Vinyl acetate	48*						
		1,2,4-Trichlorobenzene	154*						Detects only - J
		1,2,3-Trichlorobenzene	151*						
CNC106	1A0514MBLCS	Bromomethane	68*	70-130			S243096B*1 1,18*DL,21* DL	Detects-J, non-detects- UJ	
		Vinyl acetate	65*						
		1,2,4-Trichlorobenzene	144*						Detects only - J
		1,2,3-Trichlorobenzen	138*						

* - 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: VOC
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

VOA1-CCAL-06/03/02, 0850	Bromomethane	28.8% high	61173010
	Chloroethane	27.7% high	
	2-Chloroethyl vinyl ether	RRF=0.048	
VOA1-CCAL-06/04/02, 0853	Bromomethane	26.2% high	61173001-61173005
	Chloroethane	26.3% high	
	Methylene chloride	20.1% low	
	2-Chloroethyl vinyl ether	20.5% low RRF=0.043	
VOA1-CCAL-06/04/02, 2031	Acetone	24.0% low' RRF=0.040	61173006-61173009
	Methylene chloride	28.4% low	
	2-Chloroethyl vinyl ether	22.5% low RRF=0.042	
	Bromoform	22.0% low	
	1,1,2,2-Tetrachloroethane	21.6% low	
	1,3-Dichlorobenzene	21.2% low	
	1,4-Dichlorobenzene	24.8% low	
	1,2-Dichlorobenzene	22.2% low	
	1,2,4-Trichlorobenzene	24.7% low	
	1,2,3-Trichlorobenzene	20.5% low	
MSA5973-ICAL-02/28/02, 1829	2-Chloroethyl vinyl ether	$R^2 = 0.986$	S242328*1, 3-8, 10, 16, 18
	4-Methyl-2-pentanone	$R^2 = 0.987$	
	2-Hexanone	$R^2 = 0.987$	
MSA5972-CCAL-04/15/02, 1655	1,2,4-Trichlorobenzene	22.1% low	S242328*2, 12, 13

TABLE 4

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: VOC
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

MSA5973-ICAL-04/14/02, 2011	2-Butanone	R ² =0.987	S242328*2, 9, 11-15, 17, 6*DL; S242715*1-21, 2*DL
	2-Chloroethyl vinyl ether	%RSD=23.9	
	2-Hexanone	R ² =0.988	
MSA5973-CCAL-04/10/02, 1047	Chloromethane	26.6% low	S242328*1, 3-8, 10, 16, 18
	m,p-Xylene	23.7% high	
	1,1,2,2-Tetrachloroethane	21.2% high	
	1,3-Dichlorobenzene	24.1% high	
	1,4-Dichlorobenzene	26.3% high	
	Xylene (total)	22.4% high	
MSA5973-CCAL-04/16/02, 1027	Vinyl acetate	23.2% low	S242328*9, 11, 14, 15, 17, 6*DL
MSA5973-CCAL-04/24/02, 1034	Chloromethane	37.5% low	S242715*2, 15, 17-21
	Vinyl acetate	29.8% low	
	1,2,4-Trichlorobenzene	22.0% low	
MSA5973-CCAL-04/26/02, 1144	Bromomethane	24.0% high	S242715*6
	Acetone	22.8% low	
	Vinyl acetate	25.1% low	
	2-Butanone	21.1% low	
	2-Chloroethyl vinyl ether	28.6% low	
	4-Methyl-2-Pentanone	20.1% low	
	2-Hexanone	22.2% low	
MSB5973-CCAL-05/01/02, 1025	Chloromethane	22.0% low	S242881*1-7, 9-19
	Bromomethane	23.8% low	
	Acetone	21.3% low	
MSB5973-CCAL-05/02/02, 0825	Chloroethane	23.3% high	S242881*8; S242881A*13, 14, 16-18; S242281B*1-8
	2-Chloroethyl vinyl ether	26.8% low	
MSB5973-CCAL-04/30/02, 1033	Chloromethane	20.3% low	S242881A*1-12, 15, 19
	Bromomethane	46.1% low	

TABLE 4

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: VOC
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

MSB5973-CCAL-04/30/02, 1033	Chloroethane	24.6% high	S242881A*1-12, 15, 19
	Acetone	21.1% low	
	Methylene chloride	20.6% high	
	2-Chloroethyl vinyl ether	25.7% low	
MSO5973-ICAL-04/22/02, 1352	Chloroethane	R ² =0.987	S243096*1-20;
	2-Chloroethyl vinyl ether	%RSD=52.7	S243096A*1-20
MSO5973-CCAL-05/07/02, 0938	Bromomethane	40.6% high	S243096*4-6, 8, 9, 11, 12, 15, 19, 20; S243096A*1, 4, 5, 17
	Chloroethane	56.3% high	
	Acetone	24.1% low RRF=0.034	
	2-Chloroethyl vinyl ether	33.4% high	
	2-Hexanone	20.9% low	
MSO5973-CCAL-05/08/02, 0937	Bromomethane	43.1% high	S243096*1-3, 7, 13, 16-18; S243096A*2, 3, 6-8, 18
	Chloroethane	56.5% high	
	Acetone	RRF=0.037	
	Carbon disulfide	20.8% high	
	Methylene chloride	20.4% high	
	2-Chloroethyl vinyl ether	38.5% high	
MSO5973-CCAL-05/09/02, 0900	Chloroethane	28.5% high	S243096*10, 14, 9*DL; S243096A*9-12, 14, 20
	Carbon disulfide	23.9% high	
	Methylene chloride	25.6% high	
	trans-1,2-Dichloroethene	20.7% high	
	Acetone	RRF=0.043	
	2-Chloroethyl vinyl ether	89.7% low RRF=0.007	
MSO5973-CCAL-05/10/02, 0920	Chloroethane	25.8% high	S243096A*13, 15, 16, 19, 6*DL, 12*DL
	Acetone	28.3% low	
		RRF=0.033	

TABLE 4

Exceptions to Initial Calibration Criteria and Continuing Calibration Criteria: VOC
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

MSA5973-ICAL-04/30/02, 1211	Carbon disulfide	%RSD=15.1	S243096B*1-21
	Bromoform	R ² =0.989	
MSA5973-CCAL-05/13/02, 1107	Vinyl acetate	26.1% low	S243096B*1-10, 12-21
	trans-1,3-Dichloropropene	27.2% high	
	1,4-Dichlorobenzene	22.2% high	
	1,2,4-Trichlorobenzene	53.7% high	
	1,2,3-Trichlorobenzene	46.4% high	
MSA5973-CCAL-05/14/02, 1032	Chloroethane	28.4% high	S243096B*11, 18*DL, 21*DL
	Acetone	32.5% low	
	Vinyl acetate	50.8% low	
	2-Butanone	49.0% low	
	2-Chloroethyl vinyl ether	60.9% low	
	4-Methyl-2-pentanone	41.4% low	
	2-Hexanone	42.4% low	
	1,1,1,2-Tetrachloroethane	24.5% low	
	1,2,4-Trichlorobenzene	32.4% high	
	1,2,3-Trichlorobenzene	20.8% 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 (R²) 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 5 below. No flags are applied due to Field Duplicate precision.

TABLE 5
Field Duplicate RPDs Out of QC Limits: VOCs
Charleston Naval Complex, Zone A, SWMU 39, Charleston, SC

CNC105	039GP07827 / 039HP07827	Acetone	27 µg /L	18 µg /L	40*	20
		2-Butanone	34 µg /L	0 µg /L	200*	20
* - out of control limits						

Rejected Data

The majority of rejected data were associated with re-runs and dilutions (you can only have a single valid result per parameter per sample). However, there was one result qualified as "R", rejected, due to associated QC parameters out of criteria, as listed below.

- In SDG CNC105, 2-Chloroethyl vinyl ether was rejected in sample 039GP08348 due to low matrix spike recoveries. This parameter was not detected in the sample.

Conclusion

A review of the analytical data submitted regarding the investigation of Zone A, SWMU 39 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 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

ID	Sample ID	Location	Matrix	Method	Parameter	Concentration	Qualifier	Limit	Unit	Reason		
61173	039GP09032	61173001	WG	VOA	SW8260B	ACETONE	9.1	J	10	U	ug/L	BL
61173	039GP09032	61173001	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09032	61173001	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09046	61173002	WG	VOA	SW8260B	ACETONE	16	=	16	U	ug/L	BL
61173	039GP09046	61173002	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09046	61173002	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09132	61173003	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/L	CC
61173	039GP09132	61173003	WG	VOA	SW8260B	METHYLENE CHLORIDE	10	U	10	UJ	ug/L	CC
61173	039GP09146	61173004	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09146	61173004	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09232	61173005	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09232	61173005	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	ACETONE	5.4	J	10	UJ	ug/L	BL,CC
61173	039GP09242	61173006	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	5	U	5	UJ	ug/L	CC
61173	039GP09242	61173006	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/L	CC
61173	039GP09332	61173007	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/L	CC

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 19 - Data Validation

61173	039GP09342	61173009	WG	VOA	SW8260B	ACETONE	9.3	J	10	UJ	ug/L	BL,CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039GP09342	61173009	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	ACETONE	13.8	=	13.8	UJ	ug/L	BL,CC
61173	039HP09342	61173008	WG	VOA	SW8260B	METHYLENE CHLORIDE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	5	U	5	UJ	ug/L	CC
61173	039HP09342	61173008	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	5	U	5	UJ	ug/L	CC
CNC92	039GP04834	S242328*1	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP04834	S242328*1	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP04834	S242328*1	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP04834	S242328*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP04852	S242328*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP04852	S242328*2	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP04852	S242328*2	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC92	039GP04852	S242328*2	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	5	U	5	UJ	ug/l	CC, BS
CNC92	039GP04932	S242328*3	WG	VOA	SW8260B	2-HEXANONE	20	U	20	UJ	ug/l	IC
CNC92	039GP04932	S242328*3	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	20	U	20	UJ	ug/l	IC
CNC92	039GP04932	S242328*3	WG	VOA	SW8260B	CHLOROMETHANE	20	U	20	UJ	ug/l	CC, BS
CNC92	039GP04932	S242328*3	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

Well ID	Sample ID	Location	Depth	Filter	Method	Parameter	Result	Qualifier	Result	Unit	Notes	
CNC92	039GP04957	S242328*5	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP04957	S242328*5	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP04957	S242328*5	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP04957	S242328*5	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05032	S242328*6	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05032	S242328*6	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05032	S242328*6	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	210	E	210	R	ug/l	LR
CNC92	039GP05032	S242328*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05032	S242328*6	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	2-HEXANONE	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	STYRENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	BROMOFORM	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	o-Xylene	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	83	D	83	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CHLOROFORM	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	Vinyl acetate	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	VINYL CHLORIDE	2.2	DJ	2.2	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	XYLENES, TOTAL	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	m+p Xylene	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	ETHYLBENZENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	ACETONE	20	U	20	R	ug/l	DL

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SW19 - Data Validation

CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	BROMOMETHANE	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	BENZENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	TOLUENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CARBON DISULFIDE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,3-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,4-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	10	U	10	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	20	U	20	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	5.2	DJ	5.2	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	1,2-Dichloroethene (total)	210	D	210	R	ug/l	DL
CNC92	039GP05032DL	S242328*6*DL	WG	VOA	SW8260B	CHLOROMETHANE	20	U	20	R	ug/l	DL
CNC92	039GP05056	S242328*7	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05056	S242328*7	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05056	S242328*7	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05056	S242328*7	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05110	S242328*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05110	S242328*8	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05110	S242328*8	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05110	S242328*8	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05132	S242328*9	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05132	S242328*9	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC92	039GP05132	S242328*9	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05132	S242328*9	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC92	039GP05132	S242328*9	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC92	039GP05156	S242328*10	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05156	S242328*10	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05156	S242328*10	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05156	S242328*10	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05232	S242328*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05232	S242328*11	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC92	039GP05232	S242328*11	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05232	S242328*11	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05232	S242328*11	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC92	039GP05256	S242328*16	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05256	S242328*16	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05256	S242328*16	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05256	S242328*16	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05332	S242328*17	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05332	S242328*17	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05332	S242328*17	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC92	039GP05332	S242328*17	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039GP05332	S242328*17	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC92	039GP05356	S242328*18	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC92	039GP05356	S242328*18	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039GP05356	S242328*18	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039GP05356	S242328*18	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039HP04957	S242328*4	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	IC
CNC92	039HP04957	S242328*4	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC92	039HP04957	S242328*4	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC92	039HP04957	S242328*4	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC96	039GP05410	S242715*1	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05410	S242715*1	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05410	S242715*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05410	S242715*1	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC

Attachment 1 - Characterized Qualifiers and Results
 Zone A, SW 19 - Data Validation

CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	1,1-DICHLOROETHENE	7.2	=	7.2	J	ug/l	MD
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	5	U	5	UJ	ug/l	CC
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	370	E	370	R	ug/l	LR
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	CC
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	MD
CNC96	039GP05427	S242715*2	WG	VOA	SW8260B	1,2-Dichloroethene (total)	410	E	410	R	ug/l	LR
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	BROMOFORM	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	2-HEXANONE	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	STYRENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	3.2	DJ	3.2	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	100	D	100	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CHLOROFORM	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	Vinyl acetate	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	VINYL CHLORIDE	27	D	27	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	XYLENES, TOTAL	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	ETHYLBENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	o-Xylene	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	m+p Xylene	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	ACETONE	20	U	20	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	BROMOMETHANE	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	BENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	TOLUENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CARBON DISULFIDE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CHLOROBENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CHLOROMETHANE	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	5.8	DJ	5.8	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	8.7	DJ	8.7	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,4-DICHLOROENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,3-DICHLOROENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,2-DICHLOROENZENE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	10	U	10	R	ug/l	DL
CNC96	039GP05427DL	S242715*2*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC96	039GP05446	S242715*3	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05446	S242715*3	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05446	S242715*3	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05446	S242715*3	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05510	S242715*4	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05510	S242715*4	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05510	S242715*4	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05510	S242715*4	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05527	S242715*5	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05527	S242715*5	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05527	S242715*5	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05527	S242715*5	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SW19 - Data Validation

CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC, CC
CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC, CC
CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	CC
CNC96	039GP05546	S242715*6	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039GP05610	S242715*7	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05610	S242715*7	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05610	S242715*7	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05610	S242715*7	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05627	S242715*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05627	S242715*8	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05627	S242715*8	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05627	S242715*8	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05646	S242715*9	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05646	S242715*9	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05646	S242715*9	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05646	S242715*9	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05710	S242715*10	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05710	S242715*10	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05710	S242715*10	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05710	S242715*10	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05727	S242715*12	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05727	S242715*12	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05727	S242715*12	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05727	S242715*12	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05746	S242715*13	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05746	S242715*13	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05746	S242715*13	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05746	S242715*13	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05810	S242715*14	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05810	S242715*14	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC96	039GP05810	S242715*14	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05810	S242715*14	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	5	U	5	UJ	ug/l	CC
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05827	S242715*15	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC96	039GP05846	S242715*16	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05846	S242715*16	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05846	S242715*16	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05846	S242715*16	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	5	U	5	UJ	ug/l	CC
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05910	S242715*17	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	5	U	5	UJ	ug/l	CC
CNC96	039GP05927	S242715*18	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	1,2,4-TRICHLOROENZENE	5	U	5	UJ	ug/l	CC
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC, BS
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039GP05946	S242715*19	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC
CNC96	039HP05710	S242715*11	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	IC
CNC96	039HP05710	S242715*11	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	IC

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SW 19 - Data Validation

CNC96	039HP05710	S242715*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC96	039HP05710	S242715*11	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	BS
CNC98	039GP06040	S242881*1	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06040	S242881*1	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06040	S242881*1	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06040	S242881*1	WG	VOA	SW8260B	VINYL CHLORIDE	3.4	J	3.4	J	ug/l	BS
CNC98	039GP06110	S242881*3	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06110	S242881*3	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06110	S242881*3	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06110	S242881*3	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06127	S242881*4	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06127	S242881*4	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06127	S242881*4	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06127	S242881*4	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06140	S242881*5	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06140	S242881*5	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06140	S242881*5	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06140	S242881*5	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	MS
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS,MS
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC,BS,MS
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06210	S242881*6	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	MS
CNC98	039GP06227	S242881*7	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06227	S242881*7	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06227	S242881*7	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06227	S242881*7	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06240	S242881*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC98	039GP06310	S242881*9	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06310	S242881*9	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06310	S242881*9	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC

Attachment 1 - Changed Qualifiers and Results
 Zone A, SWMU 39 - Data Validation

CNC98	039GP06310	S242881*9	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06327	S242881*10	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06327	S242881*10	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06327	S242881*10	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06327	S242881*10	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06340	S242881*11	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06340	S242881*11	WG	VOA	SW8260B	VINYL CHLORIDE	36	=	36	J	ug/l	BS
CNC98	039GP06340	S242881*11	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06340	S242881*11	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06410	S242881*12	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06410	S242881*12	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06410	S242881*12	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06410	S242881*12	WG	VOA	SW8260B	VINYL CHLORIDE	30	=	30	J	ug/l	BS
CNC98	039GP06427	S242881*13	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06427	S242881*13	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06427	S242881*13	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06427	S242881*13	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06446	S242881*14	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06446	S242881*14	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06446	S242881*14	WG	VOA	SW8260B	VINYL CHLORIDE	1.1	J	1.1	J	ug/l	BS
CNC98	039GP06446	S242881*14	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06510	S242881*16	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06510	S242881*16	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06510	S242881*16	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06510	S242881*16	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06527	S242881*17	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06527	S242881*17	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039GP06527	S242881*17	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06527	S242881*17	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06546	S242881*18	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06546	S242881*18	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06546	S242881*18	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 19 - Data Validation

												Reasons
CNC98	039GP06546	S242881*18	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06620	S242881*19	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039GP06620	S242881*19	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039GP06620	S242881*19	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039GP06620	S242881*19	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039HP06110	S242881*2	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC98	039HP06110	S242881*2	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039HP06110	S242881*2	WG	VOA	SW8260B	VINYL CHLORIDE	10	U	10	UJ	ug/l	BS
CNC98	039HP06110	S242881*2	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039HP06446	S242881*15	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC98	039HP06446	S242881*15	WG	VOA	SW8260B	VINYL CHLORIDE	1	J	1	J	ug/l	BS
CNC98	039HP06446	S242881*15	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC,BS
CNC98	039HP06446	S242881*15	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039GP06627	S242881A*1	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039GP06627	S242881A*1	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06627	S242881A*1	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06627	S242881A*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039GP06648	S242881A*2	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06648	S242881A*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039GP06648	S242881A*2	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039GP06648	S242881A*2	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06710	S242881A*3	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06710	S242881A*3	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039GP06710	S242881A*3	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06710	S242881A*3	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC, MS
CNC99	039GP06710	S242881A*3	WG	VOA	SW8260B	1,1-DICHLOROETHENE	5	U	5	UJ	ug/l	MD
CNC99	039GP06727	S242881A*4	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06727	S242881A*4	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06727	S242881A*4	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039GP06727	S242881A*4	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039GP06746	S242881A*6	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039GP06746	S242881A*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

Agency	Site ID	Well ID	Depth	Parameter	Method	Result	Qualifier	Unit	Reason
CNC99	039GP06746	S242881A*6	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06746	S242881A*6	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06810	S242881A*7	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06810	S242881A*7	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06810	S242881A*7	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06810	S242881A*7	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06827	S242881A*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06827	S242881A*8	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06827	S242881A*8	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06827	S242881A*8	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06846	S242881A*9	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06846	S242881A*9	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06846	S242881A*9	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06846	S242881A*9	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06910	S242881A*10	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06910	S242881A*10	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06910	S242881A*10	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06910	S242881A*10	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06927	S242881A*11	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP06927	S242881A*11	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06927	S242881A*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06927	S242881A*11	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06946	S242881A*12	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06946	S242881A*12	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP06946	S242881A*12	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP06946	S242881A*12	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC
CNC99	039GP07010	S242881A*13	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP07027	S242881A*14	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP07046	S242881A*15	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP07046	S242881A*15	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10 UJ ug/l CC
CNC99	039GP07046	S242881A*15	WG	VOA	SW8260B	BROMOMETHANE	10	U	10 UJ ug/l CC
CNC99	039GP07046	S242881A*15	WG	VOA	SW8260B	ACETONE	10	U	10 UJ ug/l CC

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SW 19 - Data Validation

CNC99	039GP07110	S242881A*16	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039GP07127	S242881A*18	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039GP07146	S242881A*19	WG	VOA	SW8260B	BROMOMETHANE	50	U	50	UJ	ug/l	CC
CNC99	039GP07146	S242881A*19	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	50	U	50	UJ	ug/l	CC
CNC99	039GP07146	S242881A*19	WG	VOA	SW8260B	ACETONE	50	U	50	UJ	ug/l	CC
CNC99	039GP07146	S242881A*19	WG	VOA	SW8260B	CHLOROMETHANE	50	U	50	UJ	ug/l	CC
CNC99	039HP06746	S242881A*5	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC99	039HP06746	S242881A*5	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039HP06746	S242881A*5	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	CC
CNC99	039HP06746	S242881A*5	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC99	039HP07127	S242881A*17	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC100	039GP06010	S242881B*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC100	039GP06027	S242881B*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC104	039GP07210	S243096*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07210	S243096*1	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07210	S243096*1	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07227	S243096*2	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07227	S243096*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07227	S243096*2	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07246	S243096*3	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07246	S243096*3	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07246	S243096*3	WG	VOA	SW8260B	METHYLENE CHLORIDE	0.37	J	5	U	ug/l	BL
CNC104	039GP07246	S243096*3	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07310	S243096*4	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07310	S243096*4	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07310	S243096*4	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07310	S243096*4	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07327	S243096*5	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07327	S243096*5	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07327	S243096*5	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07327	S243096*5	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07348	S243096*6	WG	VOA	SW8260B	ACETONE	36	=	36	J	ug/l	CC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC104	039GP07348	S243096*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC
CNC104	039GP07348	S243096*6	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	UJ	ug/l	IC
CNC104	039GP07348	S243096*6	WG	VOA	SW8260B	2-HEXANONE	9.3	J	9.3	J	ug/l	CC
CNC104	039GP07410	S243096*7	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07410	S243096*7	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07410	S243096*7	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07427	S243096*8	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07427	S243096*8	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07427	S243096*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07427	S243096*8	WG	VOA	SW8260B	ACETONE	10	=	10	J	ug/l	CC
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	ACETONE	20	U	20	UJ	ug/l	CC
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	UJ	ug/l	IC
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	2-HEXANONE	20	U	20	UJ	ug/l	CC
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	1,2-Dichloroethene (total)	860	E	860	R	ug/l	LR
CNC104	039GP07448	S243096*9	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	850	E	850	R	ug/l	LR
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	2-HEXANONE	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	STYRENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	BROMOFORM	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	XYLENES, TOTAL	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	VINYL CHLORIDE	60	DJ	60	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	240	D	240	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CHLOROFORM	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	Vinyl acetate	200	U	200	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
 Zone A, SWM 19 - Data Validation

CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	o-Xylene	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	m+p Xylene	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CHLOROMETHANE	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	ETHYLBENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	TOLUENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	ACETONE	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	BENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CARBON DISULFIDE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CHLOROENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CHLOROETHANE	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	BROMOMETHANE	200	U	200	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	11	DJ	11	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	20	DJ	20	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	18	DJ	18	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	100	U	100	R	ug/l	DL
CNC104	039GP07448DL	S243096*9*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	100	U	100	R	ug/l	DL
CNC104	039GP07510	S243096*11	WG	VOA	SW8260B	ACETONE	20	U	20	UJ	ug/l	CC
CNC104	039GP07510	S243096*11	WG	VOA	SW8260B	2-HEXANONE	20	U	20	UJ	ug/l	CC
CNC104	039GP07510	S243096*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC
CNC104	039GP07510	S243096*11	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	UJ	ug/l	IC
CNC104	039GP07527	S243096*12	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07527	S243096*12	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC104	039GP07527	S243096*12	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07527	S243096*12	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07548	S243096*13	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07548	S243096*13	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07548	S243096*13	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07548	S243096*13	WG	VOA	SW8260B	METHYLENE CHLORIDE	0.51	J	5	U	ug/l	BL
CNC104	039GP07610	S243096*14	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	UJ	ug/l	IC
CNC104	039GP07610	S243096*14	WG	VOA	SW8260B	ACETONE	20	U	20	UJ	ug/l	CC
CNC104	039GP07610	S243096*14	WG	VOA	SW8260B	VINYL CHLORIDE	60	=	60	J	ug/l	BS
CNC104	039GP07610	S243096*14	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	6	J	6	J	ug/l	CC
CNC104	039GP07610	S243096*14	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC,CC
CNC104	039GP07627	S243096*15	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07627	S243096*15	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07627	S243096*15	WG	VOA	SW8260B	ACETONE	30	=	30	J	ug/l	CC
CNC104	039GP07627	S243096*15	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07648	S243096*16	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07648	S243096*16	WG	VOA	SW8260B	CARBON DISULFIDE	2.3	J	2.3	J	ug/l	CC
CNC104	039GP07648	S243096*16	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039GP07648	S243096*16	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07710	S243096*17	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC104	039GP07710	S243096*17	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC104	039GP07710	S243096*17	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC104	039HP07448	S243096*10	WG	VOA	SW8260B	VINYL CHLORIDE	58	J	58	J	ug/l	BS
CNC104	039HP07448	S243096*10	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	12	J	12	J	ug/l	CC
CNC104	039HP07448	S243096*10	WG	VOA	SW8260B	CHLOROETHANE	100	U	100	UJ	ug/l	IC
CNC104	039HP07448	S243096*10	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	100	U	100	UJ	ug/l	IC, CC
CNC104	039HP07448	S243096*10	WG	VOA	SW8260B	ACETONE	100	U	100	UJ	ug/l	CC
CNC105	039GP07727	S243096A*17	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07727	S243096A*17	WG	VOA	SW8260B	ACETONE	18	=	18	J	ug/l	CC
CNC105	039GP07727	S243096A*17	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07727	S243096A*17	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC105	039GP07748	S243096A*18	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	200	U	200	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 19 - Data Validation

CNC105	039GP07748	S243096A*18	WG	VOA	SW8260B	CHLOROETHANE	200	U	200	UJ	ug/l	IC
CNC105	039GP07748	S243096A*18	WG	VOA	SW8260B	METHYLENE CHLORIDE	10	J	100	U	ug/l	BL
CNC105	039GP07748	S243096A*18	WG	VOA	SW8260B	ACETONE	200	U	200	UJ	ug/l	CC
CNC105	039GP07810	S243096A*19	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07810	S243096A*19	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP07810	S243096A*19	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07810	S243096A*19	WG	VOA	SW8260B	METHYLENE CHLORIDE	1.4	BJ	5	U	ug/l	BL
CNC105	039GP07827	S243096A*20	WG	VOA	SW8260B	ACETONE	27	=	27	J	ug/l	CC
CNC105	039GP07827	S243096A*20	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039GP07827	S243096A*20	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07848	S243096A*2	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07848	S243096A*2	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07910	S243096A*3	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07910	S243096A*3	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07910	S243096A*3	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP07927	S243096A*4	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC105	039GP07927	S243096A*4	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07927	S243096A*4	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07927	S243096A*4	WG	VOA	SW8260B	ACETONE	18	=	18	J	ug/l	CC
CNC105	039GP07948	S243096A*5	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP07948	S243096A*5	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP07948	S243096A*5	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP07948	S243096A*5	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08010	S243096A*6	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08010	S243096A*6	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	630	E	630	R	ug/l	LR
CNC105	039GP08010	S243096A*6	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08010	S243096A*6	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP08010	S243096A*6	WG	VOA	SW8260B	1,2-Dichloroethene (total)	650	E	650	R	ug/l	LR
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	STYRENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	50	U	50	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

Reasons												
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	66	D	66	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CHLOROFORM	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	Vinyl acetate	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	VINYL CHLORIDE	120	D	120	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	BROMOFORM	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	19	DBJ	19	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	XYLENES, TOTAL	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	ETHYLBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	2-HEXANONE	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	11	DJ	11	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	o-Xylene	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	m+p Xylene	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	ACETONE	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	BENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CARBON DISULFIDE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	TOLUENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CHLOROETHANE	100	U	100	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CHLOROMETHANE	100	U	100	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 89 - Data Validation

CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	20	DJ	20	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08010DL	S243096A*6*DL	WG	VOA	SW8260B	BROMOMETHANE	100	U	100	R	ug/l	DL
CNC105	039GP08027	S243096A*7	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08027	S243096A*7	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08027	S243096A*7	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP08048	S243096A*8	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039GP08048	S243096A*8	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08048	S243096A*8	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08210	S243096A*9	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08210	S243096A*9	WG	VOA	SW8260B	VINYL CHLORIDE	1.2	J	1.2	J	ug/l	BS
CNC105	039GP08210	S243096A*9	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	0.75	J	0.75	J	ug/l	CC
CNC105	039GP08210	S243096A*9	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08210	S243096A*9	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	CARBON DISULFIDE	1.5	J	1.5	J	ug/l	CC, BS
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	1.8	J	1.8	J	ug/l	CC
CNC105	039GP08227	S243096A*11	WG	VOA	SW8260B	VINYL CHLORIDE	2.8	J	2.8	J	ug/l	BS
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	VINYL CHLORIDE	64	=	64	J	ug/l	BS
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	1,2-Dichloroethene (total)	880	E	880	R	ug/l	LR
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	23	=	23	J	ug/l	CC
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08248	S243096A*12	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	850	E	850	R	ug/l	LR
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CARBON DISULFIDE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	50	U	50	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	ACETONE	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	BROMOMETHANE	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	BENZENE	5.1	DJ	5.1	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	TOLUENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	3	DJ	3	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	16	DBJ	16	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	STYRENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	BROMOFORM	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	m+p Xylene	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CHLOROFORM	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	Vinyl acetate	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	VINYL CHLORIDE	65	DJ	65	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	XYLENES, TOTAL	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	o-Xylene	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	15	DJ	15	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	2-HEXANONE	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CHLOROETHANE	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CHLOROMETHANE	100	U	100	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	50	U	50	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 19 - Data Validation

CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	ETHYLBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	50	U	50	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	24	DJ	24	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	13	DJ	13	R	ug/l	DL
CNC105	039GP08248DL	S243096A*12*DL	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	50	U	50	R	ug/l	DL
CNC105	039GP08310	S243096A*13	WG	VOA	SW8260B	ACETONE	20	U	20	UJ	ug/l	CC
CNC105	039GP08310	S243096A*13	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	UJ	ug/l	IC
CNC105	039GP08310	S243096A*13	WG	VOA	SW8260B	METHYLENE CHLORIDE	3.4	BJ	10	U	ug/l	BL
CNC105	039GP08310	S243096A*13	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	UJ	ug/l	IC
CNC105	039GP08327	S243096A*14	WG	VOA	SW8260B	VINYL CHLORIDE	1.8	J	1.8	J	ug/l	BS
CNC105	039GP08327	S243096A*14	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08327	S243096A*14	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039GP08327	S243096A*14	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039GP08348	S243096A*15	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC, MD
CNC105	039GP08348	S243096A*15	WG	VOA	SW8260B	METHYLENE CHLORIDE	0.67	BJ	5	U	ug/l	BL
CNC105	039GP08348	S243096A*15	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	R	ug/l	MS
CNC105	039GP08348	S243096A*15	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC105	039GP08348	S243096A*15	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	MD
CNC105	039HP07827	S243096A*1	WG	VOA	SW8260B	ACETONE	18	=	18	J	ug/l	CC
CNC105	039HP07827	S243096A*1	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC105	039HP07827	S243096A*1	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039HP07827	S243096A*1	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC
CNC105	039HP08210	S243096A*10	WG	VOA	SW8260B	VINYL CHLORIDE	2.4	J	2.4	J	ug/l	BS
CNC105	039HP08210	S243096A*10	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	0.6	J	0.6	J	ug/l	CC
CNC105	039HP08210	S243096A*10	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	IC
CNC105	039HP08210	S243096A*10	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	IC, CC
CNC105	039HP08210	S243096A*10	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

ID	Sample ID	Location	Matrix	Method	Parameter	Concentration	Qualifier	Limit	Qualifier	Unit	Reason
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B cis-1,2-DICHLOROETHYLENE	320	E	320	R	ug/l	LR
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08110	S243096B*18	WG	VOA	SW8260B CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 2-Chloroethyl vinyl ether	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B ACETONE	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B BROMODICHLOROMETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,2-DICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B BROMOMETHANE	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B BENZENE	1.2	DJ	1.2	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B TOLUENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B CARBON DISULFIDE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B CHLOROFORM	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B TETRACHLOROETHYLENE(PCE)	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B STYRENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B BROMOFORM	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,1,1-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,1,2-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,2,3-Trichlorobenzene	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B METHYLENE CHLORIDE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B TRICHLOROETHYLENE (TCE)	51	D	51	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 4-METHYL-2-PENTANONE (MIBK)	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B Vinyl acetate	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B VINYL CHLORIDE	42	D	42	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B XYLENES, TOTAL	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B m+p Xylene	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B o-Xylene	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,1-DICHLOROETHANE	8.7	DJ	8.7	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B 1,2,4-TRICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B trans-1,2-DICHLOROETHENE	8.7	DJ	8.7	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B CHLOROETHANE	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B CHLOROMETHANE	20	U	20	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
 Zone A, SW 8260B - Data Validation

Well ID	Sample ID	Depth	Filter	Method	Parameter	Result	Qualifier	Result	Qualifier	Unit	Reasons	
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	CHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,3-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	5.8	DJ	5.8	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,2-Dichloroethene (total)	320	D	320	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	ETHYLBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	2-HEXANONE	20	U	20	R	ug/l	DL
CNC106	039GP08110DL	S243096B*18*DL	WG	VOA	SW8260B	1,4-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08127	S243096B*19	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08127	S243096B*19	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08127	S243096B*19	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08127	S243096B*19	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08127	S243096B*19	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08148	S243096B*20	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08148	S243096B*20	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08148	S243096B*20	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08148	S243096B*20	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08148	S243096B*20	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	cis-1,2-DICHLOROETHYLENE	240	E	240	R	ug/l	LR
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08410	S243096B*21	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	o-Xylene	10	U	10	R	ug/l	DL

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

Sample ID	Location	Depth	Matrix	Method	Parameter	Result	Qualifier	Result	Qualifier	Unit	Limit	
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	STYRENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2-DICHLOROPROPANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	ETHYLBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	2-HEXANONE	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	2-BUTANONE (MEK)	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	METHYLENE CHLORIDE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	TETRACHLOROETHYLENE(PCE)	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	BROMOFORM	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,1,1-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,1,2-TRICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2,3-Trichlorobenzene	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2,4-TRICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CHLOROFORM	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	trans-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	VINYL CHLORIDE	16	DJ	16	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	Vinyl acetate	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	m+p Xylene	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	TRICHLOROETHYLENE (TCE)	41	D	41	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CHLOROMETHANE	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	XYLENES, TOTAL	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	ACETONE	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	BROMODICHLOROMETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	BROMOMETHANE	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	BENZENE	0.7	DJ	0.7	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	TOLUENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CARBON DISULFIDE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	cis-1,3-DICHLOROPROPENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CHLOROETHANE	20	U	20	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CARBON TETRACHLORIDE	10	U	10	R	ug/l	DL

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SW 89 - Data Validation

Sample ID	Well ID	Depth	Filter	Method	Location	Compound	Result	Qualifier	DL	Unit	Reason	
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	DIBROMOCHLOROMETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,1-DICHLOROETHANE	6.1	DJ	6.1	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2-DICHLOROETHANE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2-DICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,3-DICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,4-DICHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,1-DICHLOROETHENE	3	DJ	3	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	trans-1,2-DICHLOROETHENE	5.2	DJ	5.2	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	1,2-Dichloroethene (total)	230	D	230	R	ug/l	DL
CNC106	039GP08410DL	S243096B*21*DL	WG	VOA	SW8260B	CHLOROBENZENE	10	U	10	R	ug/l	DL
CNC106	039GP08427	S243096B*1	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08427	S243096B*1	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08427	S243096B*1	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08427	S243096B*1	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08427	S243096B*1	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS, MS, MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC, MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/l	MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	1,1-DICHLOROETHENE	0.89	J	0.89	J	ug/l	MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	CHLOROETHANE	10	U	10	UJ	ug/l	MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS, MD
CNC106	039GP08448	S243096B*2	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	MD
CNC106	039GP08510	S243096B*3	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08510	S243096B*3	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08510	S243096B*3	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08510	S243096B*3	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08510	S243096B*3	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08527	S243096B*4	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC

Attachment 1 - Changed Qualifiers and Results
Zone A, SWMU 39 - Data Validation

ID	Sample ID	Location	Depth	Parameter	Method	Result	Unit	Qualifier	Result	Unit	Qualifier	
CNC106	039GP08527	S243096B*4	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08527	S243096B*4	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08527	S243096B*4	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08527	S243096B*4	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08548	S243096B*5	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08548	S243096B*5	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08548	S243096B*5	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08548	S243096B*5	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08548	S243096B*5	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08610	S243096B*7	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08610	S243096B*7	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08610	S243096B*7	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08610	S243096B*7	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08610	S243096B*7	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08627	S243096B*8	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08627	S243096B*8	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08627	S243096B*8	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08627	S243096B*8	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08627	S243096B*8	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08648	S243096B*9	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08648	S243096B*9	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08648	S243096B*9	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08648	S243096B*9	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08648	S243096B*9	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08710	S243096B*10	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08710	S243096B*10	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08710	S243096B*10	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08710	S243096B*10	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08710	S243096B*10	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	2-HEXANONE	10	U	10	UJ	ug/l	CC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	ACETONE	10	U	10	UJ	ug/l	CC

Attachment 1 - Chemical Qualifiers and Results
 Zone A, SWI 89 - Data Validation

CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	2-Chloroethyl vinyl ether	10	U	10	UJ	ug/l	CC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	1,1,2,2-TETRACHLOROETHANE	5	U	5	UJ	ug/l	CC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	2-BUTANONE (MEK)	10	U	10	UJ	ug/l	CC
CNC106	039GP08727	S243096B*11	WG	VOA	SW8260B	4-METHYL-2-PENTANONE (MIBK)	10	U	10	UJ	ug/l	CC
CNC106	039GP08748	S243096B*12	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08748	S243096B*12	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08748	S243096B*12	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08748	S243096B*12	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08748	S243096B*12	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08810	S243096B*13	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08810	S243096B*13	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08810	S243096B*13	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08810	S243096B*13	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08810	S243096B*13	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08827	S243096B*14	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC
CNC106	039GP08827	S243096B*14	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08827	S243096B*14	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039GP08827	S243096B*14	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039GP08827	S243096B*14	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039GP08848	S243096B*15	WG	VOA	SW8260B	BROMOFORM	10	U	10	UJ	ug/l	IC
CNC106	039GP08848	S243096B*15	WG	VOA	SW8260B	Vinyl acetate	20	U	20	UJ	ug/l	CC, BS
CNC106	039GP08848	S243096B*15	WG	VOA	SW8260B	CHLOROMETHANE	20	U	20	UJ	ug/l	BS
CNC106	039GP08848	S243096B*15	WG	VOA	SW8260B	CARBON DISULFIDE	10	U	10	UJ	ug/l	IC
CNC106	039GP08848	S243096B*15	WG	VOA	SW8260B	BROMOMETHANE	20	U	20	UJ	ug/l	BS
CNC106	039HP08548	S243096B*6	WG	VOA	SW8260B	BROMOMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039HP08548	S243096B*6	WG	VOA	SW8260B	CARBON DISULFIDE	5	U	5	UJ	ug/l	IC
CNC106	039HP08548	S243096B*6	WG	VOA	SW8260B	CHLOROMETHANE	10	U	10	UJ	ug/l	BS
CNC106	039HP08548	S243096B*6	WG	VOA	SW8260B	Vinyl acetate	10	U	10	UJ	ug/l	CC, BS
CNC106	039HP08548	S243096B*6	WG	VOA	SW8260B	BROMOFORM	5	U	5	UJ	ug/l	IC

Supplemental Information to Support the Conclusion that SWMU 42 is not the Source of CVOC Groundwater Contamination at A042GW02D

PREPARED FOR: CNC BCT
PREPARED BY: Paul Favara, Bill Elliott
DATE: August 27, 2002

The *CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A, Revision 0* (CH2M-Jones, December 2001) concluded that levels of cis-1,2-dichloroethene (cis-1,2-DCE) detected in A042GW02D were likely from an upgradient source of groundwater contamination, and were not the result of past activities at SWMU 42/AOC 505. SCDHEC's comments on the referenced report requested additional information to support this conclusion.

To address this comment, CH2M-Jones prepared the *Sampling and Analysis Plan, SWMU 39, Zone A* (CH2M-Jones, March 2002), which outlined an approach to delineating the SWMU 39 groundwater plume. This execution of this work plan is largely completed; completed work to date addressed groundwater in and near SWMU 42/AOC 505. This memorandum summarizes the additional data related to this issue. The data developed as a result of execution of this work plan, along with past data developed for Zone A, support our conclusion that deep groundwater contamination at SWMU 42 is not the result of past activities at this SWMU.

CH2M-Jones' basis for this conclusion is the following:

1. Chlorinated volatile organic compound (CVOC) contamination is present in groundwater at SWMU 39, as well as downgradient of SWMU 39.
2. The SWMU 39 CVOC contaminated groundwater has a direct pathway of migration to SWMU 42.
3. Evaluation of the cis-1,2-DCE groundwater data in Zone A supports a connection between SWMU 42 and SWMU 39.
4. A source of groundwater contamination (surface soil, subsurface soil, shallow and intermediate groundwater) was not identified at SWMU 42, and only significant concentrations of DCE were identified at SWMU 42.

CH2M Jones is proposing to address the VOC groundwater contamination at SWMU 42 as part of the SWMU 39 groundwater plume, and to complete the closure of SWMU 42 (this site is recommended for No Further Action [NFA] status).

The following sections address the above rationale in greater detail.

1. CVOC contamination is present in groundwater at SWMU 39, as well as downgradient of SWMU 39.

SWMU 39 area groundwater was previously investigated by EnSafe during the Zone A RFI, completed in 1998 (EnSafe, August 7, 1998). A Monitored Natural Attenuation (MNA) study, which also assessed SWMU 39 area groundwater, was completed in 1999. The results of the MNA study were reported in a CMS Technical Memorandum (EnSafe, December 22, 1999). The results of the RFI and the MNA study revealed a fairly widespread but diffuse occurrence of CVOCs in the shallow, intermediate, and deep zones of the unconfined shallow (water table) aquifer in the SWMU 39 area.

In groundwater at SWMU 39, the CVOCs tetrachloroethene (PCE), TCE, cis-1,2-DCE, 1,1-dichloroethene(1,1-DCE) and vinyl chloride (VC) were retained as COCs because they were widely detected in groundwater at concentrations exceeding criteria (Zone A Final RFI). Elevated concentrations of the "parent" VOCs, PCE and TCE, in the groundwater near SWMU 39 suggest this area was likely the point of entry for solvents. Also, the shallow groundwater in this area had VOCs present, which further suggests that the SWMU 39 area is the likely original source area of groundwater contamination.

By contrast, in the SWMU 42 area, significant concentrations of PCE and TCE were not detected and no VOCs were detected in the shallowest portion of the aquifer. Both of these factors suggest that SWMU 42 was not an area where VOCs were originally released to the environment.

2. The CVOC-contaminated groundwater has a direct pathway of migration to SWMU 42.

The Zone A hydrogeology consists of a series of Quaternary interbedded sands and clays, varying in thickness from approximately 21 to 56 feet in the Zone A area. The sands and clays contain an unconfined (water table) aquifer system that overlies the Tertiary Ashley Formation.

The Ashley Formation is comprised of silts and clays and acts as an aquiclude for the water table aquifer. Monitoring wells are installed in shallow (10 to 15 feet below land surface [ft bls]), intermediate (15 to 30 ft bls), and deep (30 to 50 ft bls) sandy zones of groundwater flow in the water table aquifer. The three zones are vertically interconnected, and converge into one hydrogeologic unit south of Building 1607.

This hydrogeologic model is presented in a series of geologic cross sections prepared by EnSafe for a SWMU 39 MNA Study (EnSafe, 1999), using subsurface geologic information obtained from monitoring well and DPT boring installation logs. Figure 3.1A (see attached *Geologic Cross Sections and Structural Contours of the Investigated Zone A Subsurface Hydrogeologic Units* from the EnSafe, 1999 Zone A – SWMU 39 Technical Memorandum) contains a key for units mapped, and the lines of cross section (north-south and east-west) showing which wells were utilized. Figures 3.1B and 3.1C show the interpreted geologic cross sections, including sections A-A', B-B', and C-C', which run north-south in Zone A.

Section line A-A' terminates at well A042GW02D to the south, which is the deep zone well in SWMU 42 where cis-1,2-DCE has been detected. This section show that the depth to the

Ashley formation increases moving to the south, and that several wells are actually screened in the overlying intermediate depth unit called a "marsh clay." This unit is relatively permeable, with interbedded sands at many locations. The north-south section lines B-B', C-C' and D-D' on the same Figure show that the Ashley Formation is overlain in almost all locations by the sand unit colored yellow and designated Qs3, which comprises almost the entire shallow aquifer system thickness, except in the northwestern corner of Zone A.

Typical Zone A groundwater elevation contours for the shallow, intermediate, and deep aquifer zones are presented in Figures 1, 2, and 3, and are based upon measurements made by CH2M-Jones in July 2001. The Zone A shallow groundwater flow direction has been consistently determined to be in a generally south-southeast direction, approximately parallel to Avenue B North.

The potentiometric data also indicate that a separate groundwater flow component exists to the southwest along the CNC boundary, toward the SWMU 42 area and an offsite wetland area associated with Noisette Creek. This south-southwestern flow trend is most obvious in the Shallow Zone groundwater contour map, where the horizontal gradient decreases over the approximately 1,000-foot distance between SWMU 39 and SWMU 42 from approximately 7 feet mean sea level (msl) to 4 feet msl (a 3-foot decrease). This trend is less pronounced but is also evident in the Deep Zone groundwater contour map where a decreasing horizontal gradient of approximately 1.5 feet is observed along the western boundary.

Water level data indicate that the predominant groundwater flow direction in Zone A is to the south-southeast, and the shallow, intermediate and deep zones of the shallow aquifer system are interconnected hydraulically. The comparison of vertical hydraulic gradients at shallow-intermediate-deep well cluster locations indicate that most vertical hydraulic gradients are downward and small in magnitude.

These data indicate that for the most part, shallow and intermediate groundwater in Zone A is discharging to the "deep" zone of the shallow aquifer system, allowing downward migration of the dissolved CVOC plume as it moves laterally downgradient.

The above information presented on hydrogeology indicates a hydraulic connection of deep groundwater at SWMU 42 to areas of confirmed CVOC groundwater contamination associated with SWMU 39 groundwater. Most of the data for paired wells indicate a downward influence of groundwater. Also, the cross-section figures show areas of preferential flow in cross section A-A', and the potentiometric maps show groundwater flow from the SWMU 39 groundwater plume into SWMU 42.

3. Evaluation of the cis-1,2-DCE groundwater data in Zone A supports a connection between SWMU 42 and SWMU 39.

The most commonly occurring constituents in Zone A groundwater include PCE, TCE, cis/trans-1,2-DCE, and VC. CVOC concentrations have been observed to be somewhat variable and, in some cases, to have decreased during subsequent groundwater monitoring events. This trend was confirmed during the groundwater monitoring event conducted by CH2M-Jones in July 2000 for the facility-wide *Groundwater Monitoring Plan* (CH2M-Jones,

February 2001). SWMU 39 is discussed in Section 3.7 of that document; also refer to Figures 3-20 through 3-26, and Chart 3.4 for plumes and data trends for well cluster 13.

During the RFI, maximum Zone A groundwater CVOC concentrations observed were in the 100 to 300 microgram per liter ($\mu\text{g}/\text{L}$)-range in monitoring well clusters A039GW012 and A039GW013. Well cluster A039GW012 is located directly south of Building 1604 (SWMU 39); well cluster A039GW013 is located approximately 400 feet to the south, on the south side of Building 1607 along Avenue B north (see Figure 4).

Monitoring wells and DPT borings recently installed in Zone A by CH2M-Jones as part of the SWMU 39 Corrective Measures Study (CMS) indicate that groundwater south of SWMU 39, but north of SWMU 42, contains CVOCS at some of the highest concentrations yet observed in Zone A groundwater. The new wells are monitoring well clusters A039GW026 and A039GW027, located near Building 1607 over 300 feet south of SWMU 39; these wells were installed by CH2M-Jones as part of the SWMU 39 *Enhanced In Situ Biodegradation Pilot Test Work Plan* (CH2M-Jones, January 2001).

CH2M-Jones' DPT sampling of the shallow, intermediate, and deep aquifer zones in Zone A south of SWMU 39 included areas near SWMU 42 well A042GW02D, in an attempt to determine if CVOCs were reaching the well by southward migration of a dissolved CVOC plume in deep groundwater from the northern part of Zone A. The results indicate that cis-1,2-DCE was the most widely detected CVOC, and was consistently detected in intermediate and deep groundwater samples between SWMU 42 and SWMU 39. Figures 5, 6, 7, and 8 display the distribution of CVOCs in groundwater samples collected from existing and new monitoring wells and DPT locations in Zone A.

To better focus on the distribution of cis-1,2-DCE, a three-dimensional visualization of the dissolved VOC groundwater plume was created using the personal computer (PC)-based program Environmental Visualization System (EVS) to assist in understanding the shape of the plume. All available historical and current groundwater data have been incorporated into the model to attempt to determine the strength and extent of the dissolved CVOC plume for remedial alternative screening.

The use of the EVS kriging model to interpolate the extent of the dissolved cis-1,2-DCE plume extent at greater than $10 \mu\text{g}/\text{L}$ resulted in the enclosed map view figure, which shows one large diffuse cis-1,2-DCE plume, with a southwestern component reaching SWMU 42 (see Figure 9). When viewed from the side, the southwestern plume extent is limited to the deep zone of the aquifer, directly on top of the Ashley Formation (Figure 10).

The data presented in this section support the conclusion that cis-1,2-DCE in deep groundwater at SWMU 42 is connected to upgradient contaminated groundwater.

4. A source of groundwater contamination (surface soil, subsurface soil, shallow and intermediate groundwater) was not identified.

Results of RFI and post-RFI soil and groundwater data conclude that CVOC contamination is not present in soil or shallow/intermediate groundwater at SWMU 42, indicating that a source of CVOC contamination is not present. Furthermore, the presence of the marsh clay at SWMU 42 (see well log in Appendix I of the *CMS Work Plan/IM Completion Report, SWMU*

42/AOC 505, Zone A, Revision 0 [CH2M-Jones, 2001]) would act as a barrier to downward migration of contaminants at SWMU 42.

This information supports the position that there is no suspected source of groundwater contamination at SWMU 42 and any potential past source of contamination would likely not readily migrate to the deep groundwater due to the presence of aquicludes in SWMU 42.

Conclusion

In this memorandum, CH2M-Jones has supported the premise that the cis-1,2-DCE detected in the deep groundwater well at SWMU 42 is associated with upgradient groundwater contamination from the SWMU 39 area, and is not the result of past activities at SWMU 42. The preponderance of data support this conclusion.

Based on this conclusion, CH2M-Jones proposes to continue the evaluation of corrective measures for the VOCs in groundwater at SWMU 42 as part of the SWMU 39 RCRA process, and requests that SCDHEC complete the closeout of SWMU 42 (NFA).

References

CH2M-Jones. *Enhanced In Situ Biodegradation Pilot Test Work Plan, SWMU 39, Zone A*. Revision 0. January 2001.

CH2M-Jones. *Groundwater Monitoring Plan*. Charleston Naval Complex. February 2001.

CH2M-Jones. *CMS Work Plan/IM Completion Report, SWMU 42/AOC 505, Zone A*. Revision 0. December 2001.

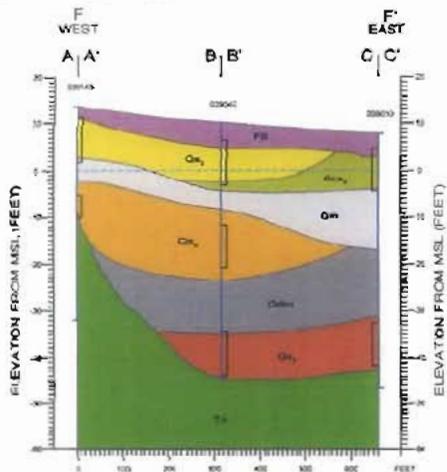
CH2M-Jones. *Sampling and Analysis Plan, SWMU 39, Zone A*. Revision 0. March 2002.

EnSafe Inc. *Zone A RCRA Facility Investigation Report, NAVBASE Charleston*. Revision 0. August 7, 1998.

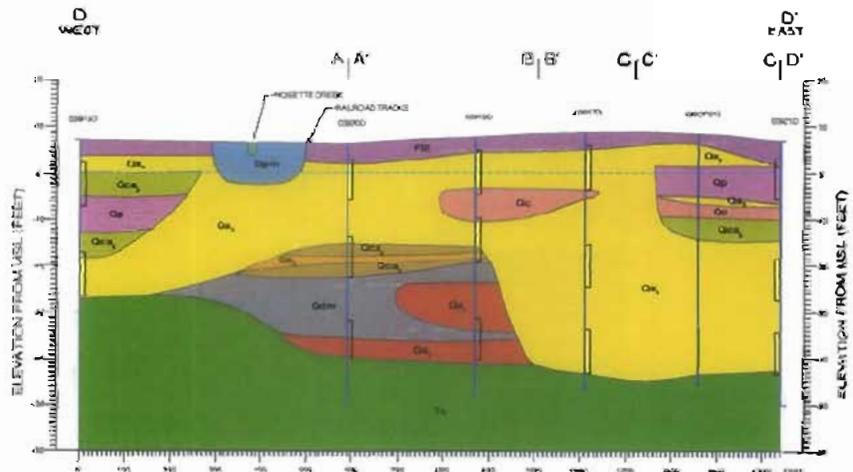
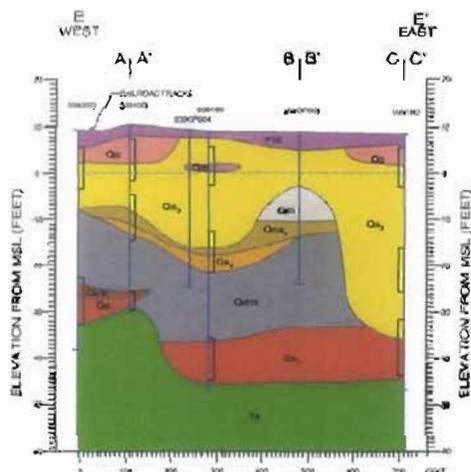
EnSafe Inc. *Zone A SWMU 39 Corrective Measures Study Technical Memorandum on Monitored Natural Attenuation Feasibility, NAVBASE Charleston*. December 22, 1999.

**Geologic Cross-Sections and Structural Contours of the Investigated
Zone A Subsurface Hydrogeologic Units (EnSafe, 1999)**

CROSS-SECTION F-F'



CROSS-SECTION E-E'



CROSS-SECTION D-D'

NO.	DESCRIPTION	DATE
1
2
3
4
5
6
7
8
9
10

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

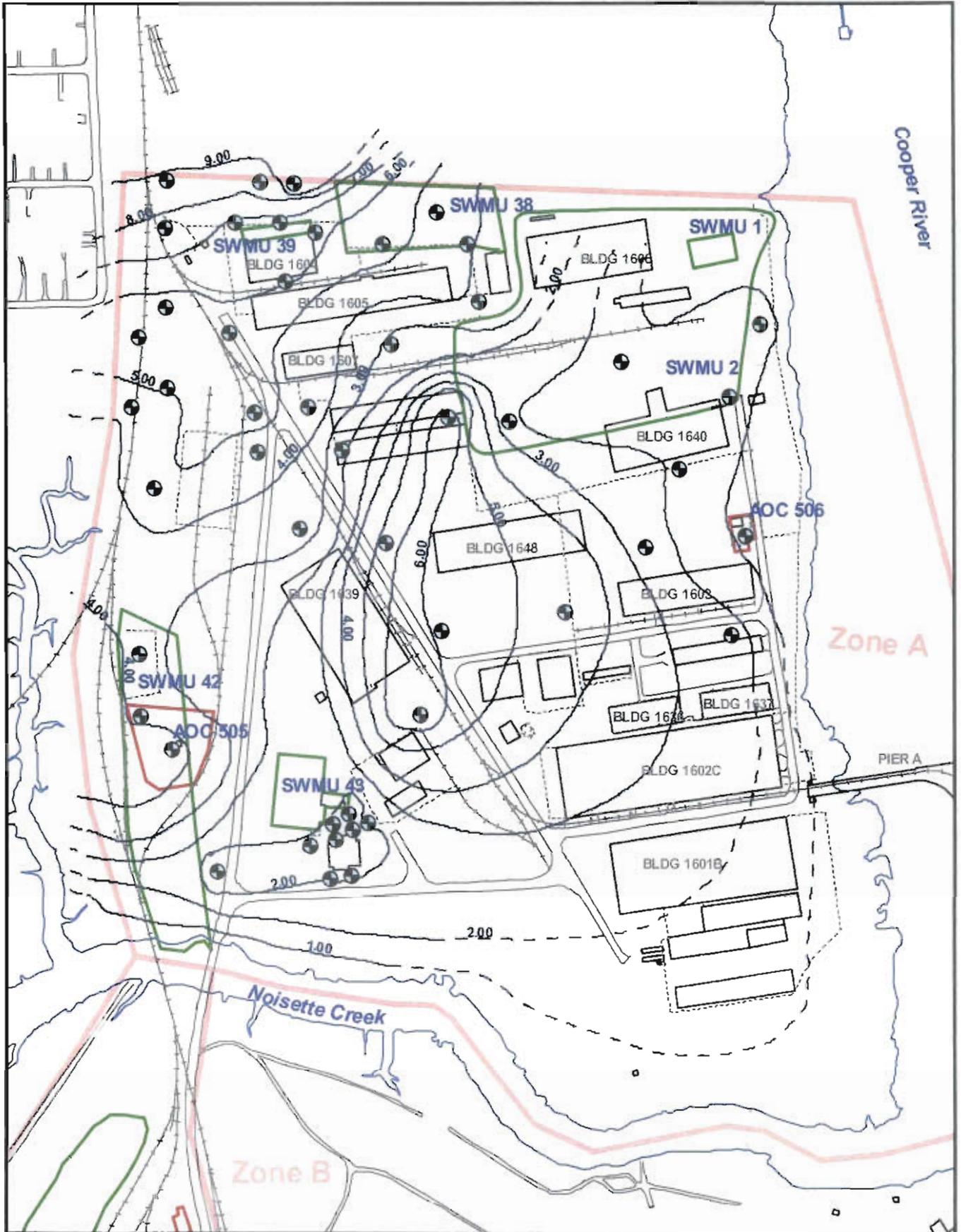
 UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

 CIVIL AND ENVIRONMENTAL ENGINEERING

 PROJECT: ...

 DATE: ...

Figures 1-10



Shallow Groundwater Contours (07/13/01) (ft msl)

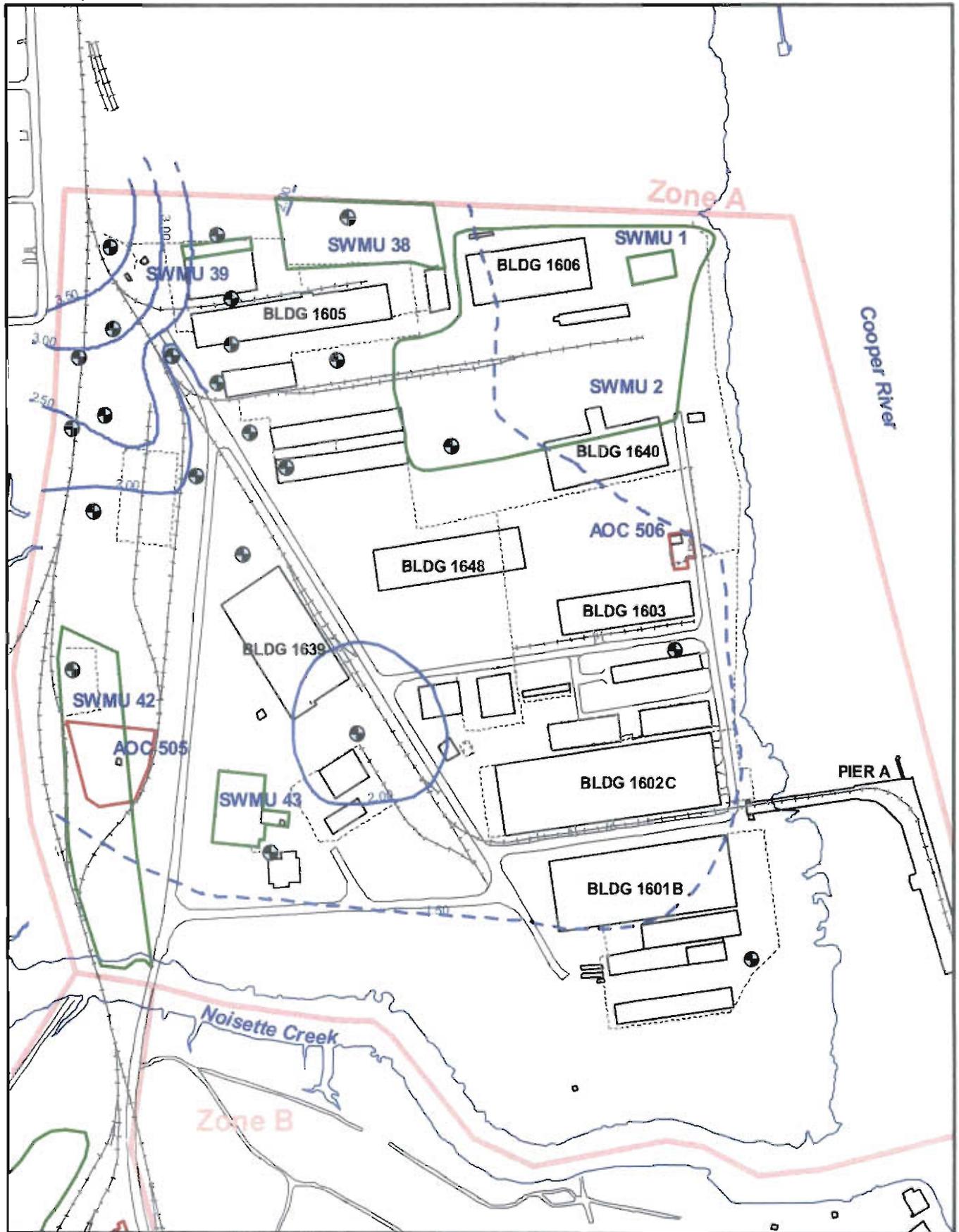
- | | |
|-----------|------------------|
| Known | Groundwater Well |
| Inferred | AOC Boundary |
| Fence | SWMU Boundary |
| Roads | Buildings |
| Shoreline | Zone Boundary |
| Railroads | |



0 300 600 Feet

Figure 1
Shallow Groundwater Contours
Zone A
Charleston Naval Complex

NOTE: Original figure created in color



Deep Groundwater Contours (07/13/01) (ftmsl)

- | | |
|-----------|------------------|
| Known | Groundwater Well |
| Inferred | AOC Boundary |
| Fence | SWMU Boundary |
| Roads | Buildings |
| Shoreline | Zone Boundary |
| Railroads | |



0 300 600 Feet

Figure 3
 Deep Groundwater Contours
 Zone A
 Charleston Naval Complex

CH2MHILL

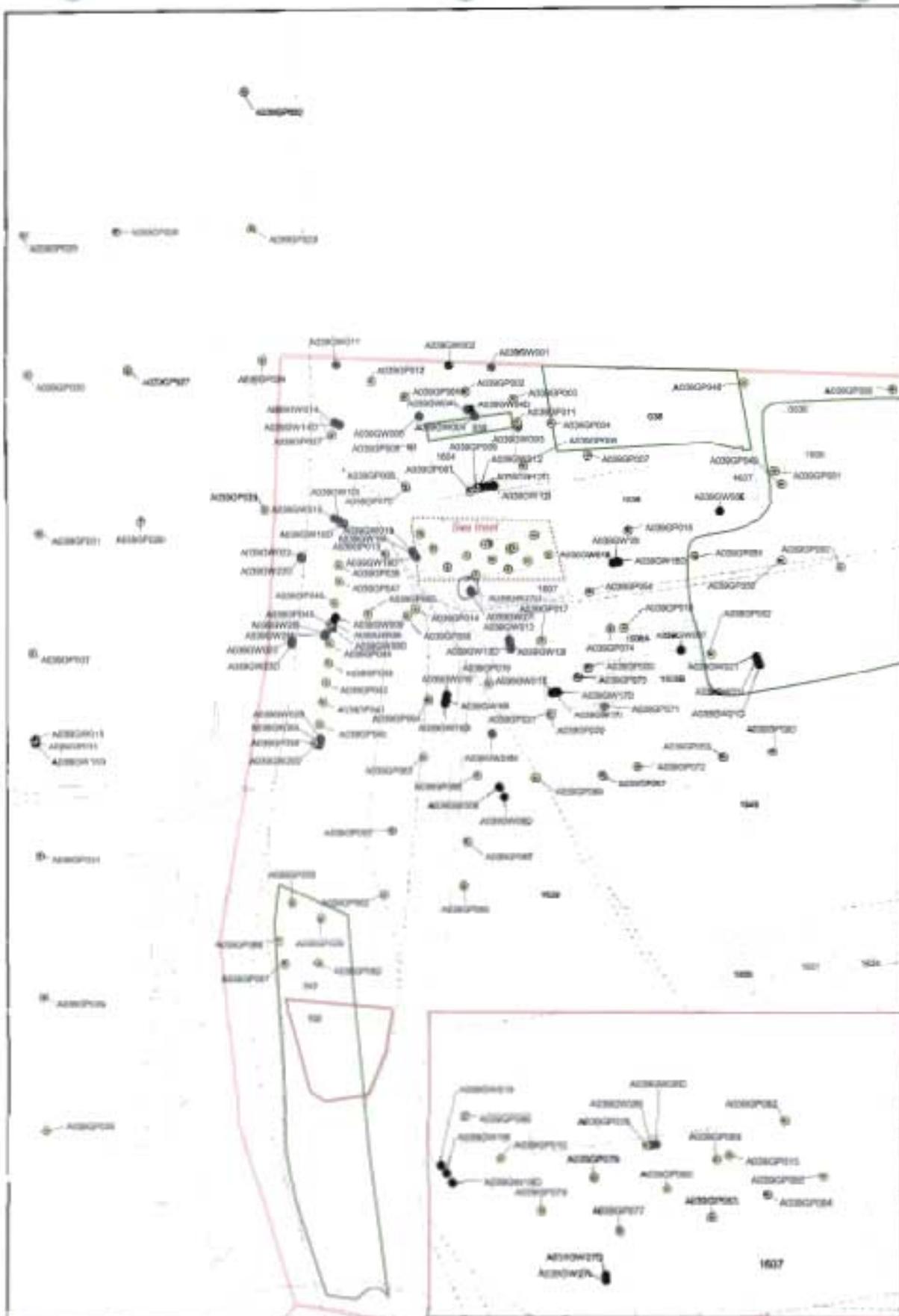
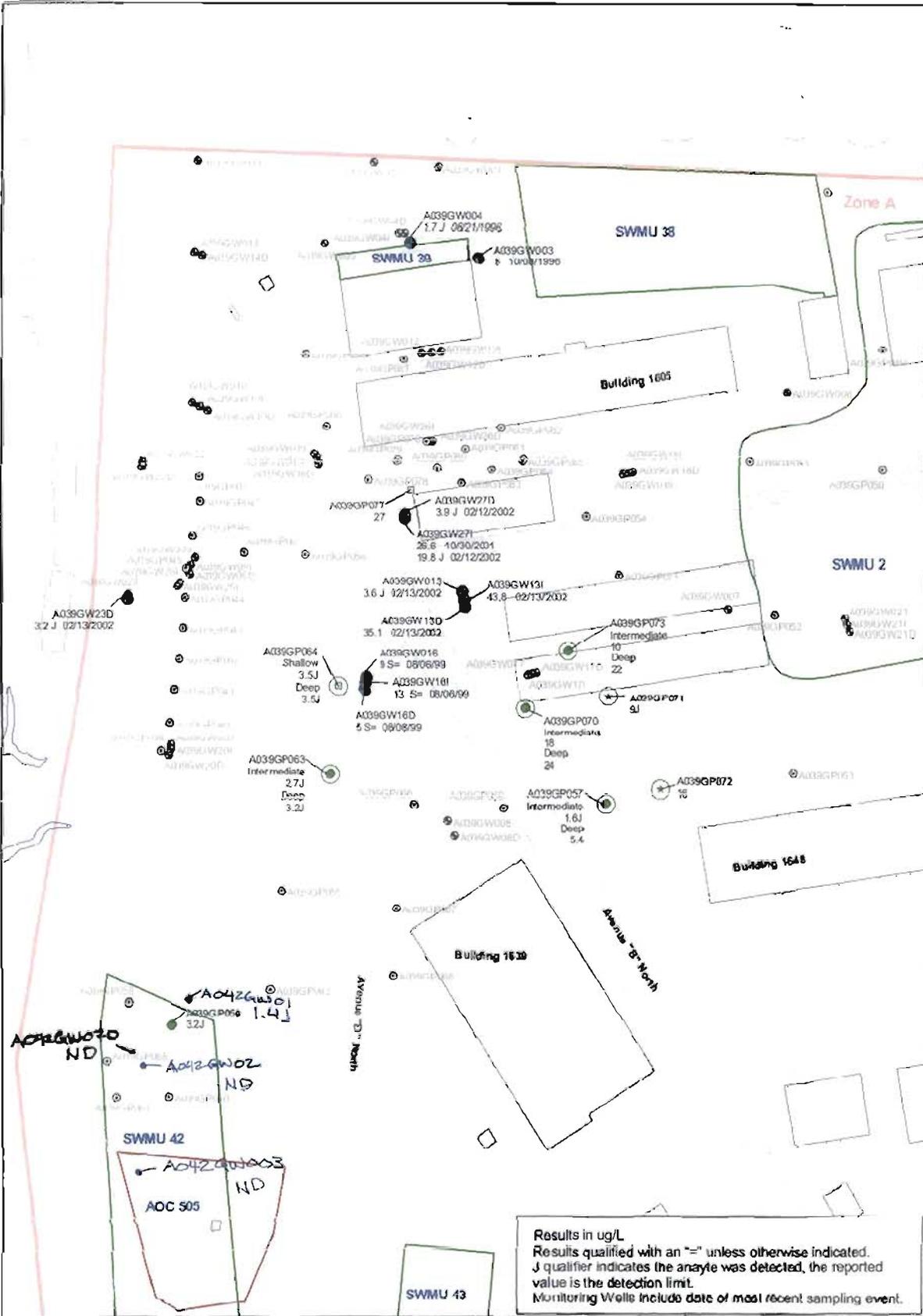


Figure 4
Groundwater Sample Locations
SWMU 39, Zone A
Charleston Naval Complex



<ul style="list-style-type: none"> □ Groundwater Probes Shallow Results ● Groundwater Probes Intermediate Results ⊙ Groundwater Probes Deep Results 	<ul style="list-style-type: none"> ⊙ Groundwater Wells where the Analyte was Not Detected ⊙ Groundwater Probes where the Analyte was Not Detected ⊙ Groundwater Wells with Analyte Detections 	<ul style="list-style-type: none"> ~ Shoreline ~ Railroads ~ Roads ~ Pavement □ AOC Boundary □ SWMU Boundary □ Buildings □ Zone Boundary 	<p>Figure 5 PCE Concentration Distribution SWMU 39, Zone A Charleston Naval Complex</p> <p>1 inch = 125 feet</p> <p>0 80 160 Feet</p> <p>CH2MHILL</p>
--	--	--	--



Figure 8
 VC Concentrations Distribution
 SWMU 39, Zone A
 Charleston Naval Complex

<ul style="list-style-type: none"> ○ Groundwater Probes Shallow Results ● Groundwater Probes Intermediate Results ⊙ Groundwater Probes Deep Results ⊙ Groundwater Wells where the Analyte was Not Detected ⊙ Groundwater Probes where the Analyte was Not Detected ⊙ Groundwater Wells with Analyte Detectors 	<ul style="list-style-type: none"> ~ Shoreline ~ Railroads ~ Roads ~ Pavement □ AOC Boundary □ SWMU Boundary □ Building □ Zone Boundary 	<p>1 inch = 125 feet</p> <p>0 100 200 Feet</p>
---	---	--

CH2MHILL

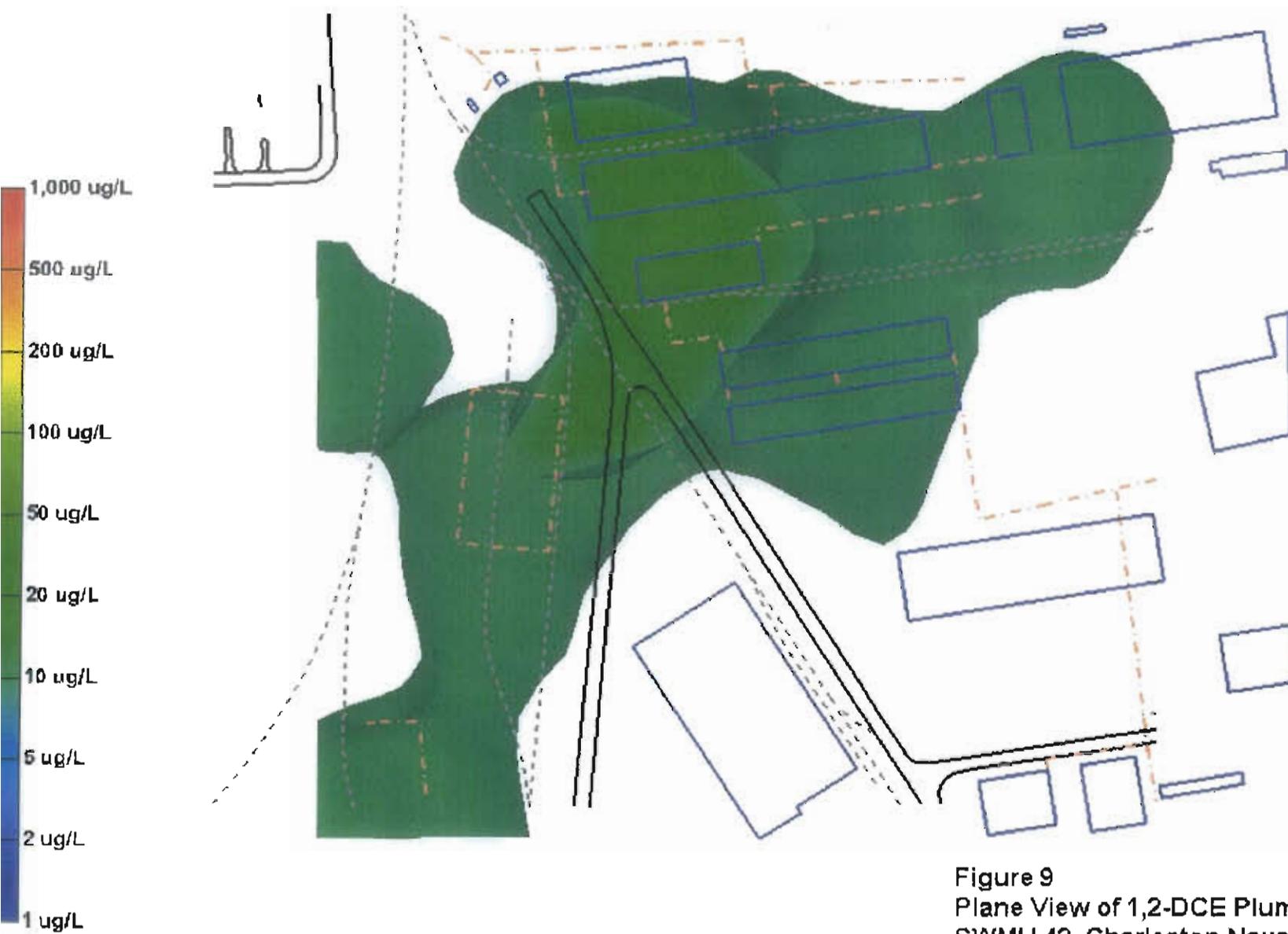


Figure 9
Plane View of 1,2-DCE Plume Above 10 ug/L
SWMU 42, Charleston Naval Complex

North

South

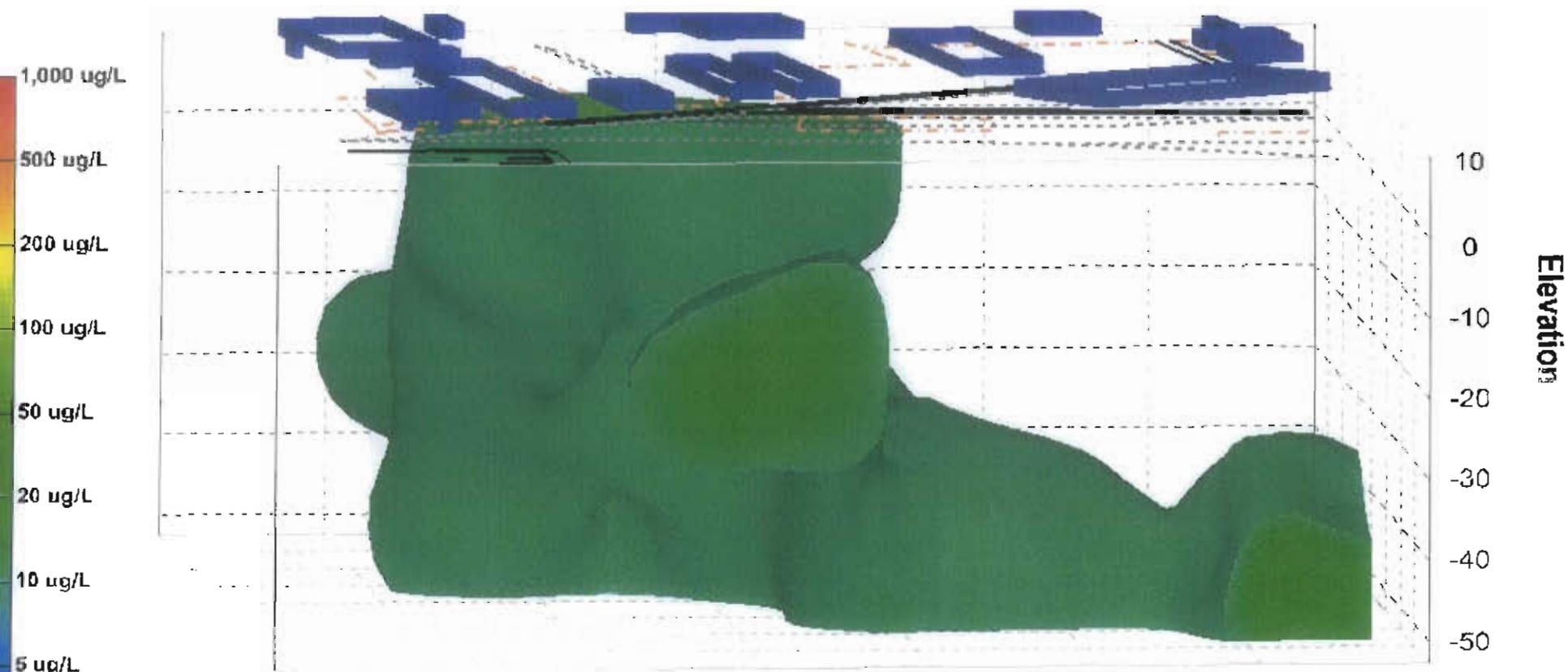


Figure 10
Profile View of 1,2-DCE Plume Above 10 ug/L
View Looking East
SWMU 42, Charleston Naval Complex