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RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT ADDENDUM SOLID WASTE MANAGEMENT UNIT 120 (SWMU 120) ZONE G CNC CHARLESTON SC

8/6/2001

CH2M HILL

RFI REPORT ADDENDUM

Solid Waste Management Unit 120, Zone G

Charleston Naval Complex
North Charleston, South Carolina

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

CH2M-Jones

July 2001

Contract N62467-99-C-0960

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CH2MHILL

August 6, 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: RFI Report Addendum (Revision 0), SWMU 120, Zone G

Dear Mr. Scaturo:

Enclosed please find four copies of the RFI Report Addendum (Revision 0), for SWMU 120 in Zone G of the Charleston Naval Complex (CNC). This report has been prepared pursuant to agreements by the CNC BRAC Cleanup Team for completing the RCRA Corrective Action process.

Please contact me if you have any questions or comments.

Sincerely,

CH2M HILL

Dean Williamson

Dean Williamson, P.E.

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

SWMU 120 Metals Associations for Monitoring Wells and Zone G Grid Wells

Station ID	Sample ID	Date Collected	Arsenic (µg/L)	Iron (µg/L)	Magnesium (µg/L)	Manganese (µg/L)
GGDGGW01D	GDGGW01D04	16-Dec-1997		= 2,560	= 589,000	= 175
GGDGGW02D	GDGGW02D01	17-Nov-1996	= 52.3	= 16,500	= 91,600	= 9,030
GGDGGW02D	GDGGW02D02	18-Jun-1997	= 57.9	= 16,900	= 82,800	= 8,460
GGDGGW02D	GDGGW02D03	17-Sep-1997	= 55.2	= 16,300	= 77,400	= 8,180
GGDGGW02D	GDGGW02D04	15-Dec-1997		J 38.3	J 225	= 20.7

Units for all samples are in micrograms per liter ((µg/L).

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

J Indicates that the analyte was reported at an estimated concentration.

CH2MHILL TRANSMITTAL

To: Mr. David Scaturo
Division of Hazardous and Infectious Wastes
South Carolina Department of Health and Environmental Control

From: Bill Elliott
(352) 335-5877, ext. 2477

Date: April 10, 2002

Re: CH2M-Jones' Responses to SCDHEC Comments on the SWMU 120, Zone G RFI Report Addendum, Revision 0

Quantity	Description
4	Four (4) copies of CH2M-Jones' Responses to SCDHEC Comments on the SWMU 120, Zone G RFI Report Addendum, Revision 0, and attached material.

The attached material includes:

- CH2M-Jones' Responses to SCDHEC Comments, SWMU 120, Zone G RFI Report Addendum, Revision 0, originally submitted August 2001
- Copies of selected pages from Tables 3 and 4, Appendix J of the CNC Project Team Notebook and Instructions, Revision 1A (December 2001)

If material received is not as listed, please notify us at once.

The Division of Hydrogeology has the following comments:

SCDHEC Comment 1:

Figures (2-1, 4-1, 4-2, 4-3 attached) presented in this RFI addendum show that SWMU 120 does not align with the footprint of former Building AS-40-1.

CH2M-Jones Response 1:

The RFI RA figures are correct as presented. The actual solid waste management unit (SWMU) as historically documented did not coincide with the footprint of former building AS-40-1. The SWMU was an outdoor laydown area adjacent to the building, just off the asphalt pavement, and was larger than the building footprint.

SCDHEC Comment 2:

Arsenic exceeds the Maximum Contaminant Level (MCL) in G120GW001 and G120GW003 in a successive increasing concentration from November 1996 to December 1997 sampling events (see table below). Zone G background concentrations for arsenic in shallow groundwater is 17.80 ug/l and 5.40 ug/l in the deep groundwater. The MCL for arsenic is 50 ug/l. This report failed to support the natural geochemical occurrence of inorganics in general and arsenic in particular. To support the geochemical evidence it is advisable to bring all pertinent data such as arsenic concentrations linearly related to accompanying other inorganics like iron, aluminum, manganese and magnesium with relative parameters of Eh/pH and oxidation-reduction for both the shallow and deep groundwater zones. Note that Table 5-1 of the addendum shows only arsenic and iron concentrations in Zone G Grid Wells GGDGW01 and GGDW002, which are not linked to the site.

CH2M-Jones Response 2:

The grid well groundwater data presented in Table 5-1 of the RFI Report Addendum was intended to demonstrate that background concentrations of arsenic in groundwater from unaffected Zone G sites exceed the EPA Primary Drinking Water MCL of 50 µg/L, that iron-reducing conditions exist in Zone G groundwater, and that natural mobilization of arsenic and other inorganics into the groundwater is likely occurring. The SCDHEC use of 17.8 µg/L and 5.40 µg/L as arsenic background concentrations for Zone G groundwater are based on the RFI background reference concentrations established for certain inorganic parameters.

The reviewer is referred to Tables 3 and 4 in Appendix J of the CNC Project Team Notebook and Instructions dated December 2001 (Revision 1A), wherein the ranges of arsenic and other naturally occurring inorganic analytes in shallow and deep groundwater are presented by investigation zone. Copies of these tables are also attached. As Table 3 indicates, the background range for arsenic in Zone G groundwater samples from the two Grid Wells is from 8 to 166 µg/L, with an average (mean) detected concentration of 76 µg/L, which exceeds the 50 µg/L MCL. The three monitoring wells installed around SWMU 120 are shallow wells, and none of the arsenic concentrations from these wells exceed the background range maximum concentration for Zone G shallow groundwater. An additional supporting table is attached to this response package which shows the relationships between arsenic and iron in groundwater samples taken from both the Grid Wells and from SWMU 120 monitoring wells. The table presents the arsenic concentrations observed in samples for each well during each sampling event, and the corresponding concentrations of iron, magnesium, and

manganese in each sample. A summary for Zone G grid wells and SWMU 120 monitoring well samples with the highest arsenic concentrations is presented below.

These data indicate that for all samples in grid wells and site monitor wells where arsenic exceeds the MCL, iron concentrations indicate that iron-reducing conditions are present. This information supports the RFI RA conclusions that the arsenic detected in SWMU 120 groundwater is not related to past Navy activities there, but is likely due to natural geochemical processes.

Metals Associations for SWMU 120 Wells and Zone G Grid Wells

Well I.D.	Maximum Arsenic Detection (µg/L) Arsenic	Iron	Magnesium	Manganese	Sampling Date
Zone G Grid Wells					
GDGGW001	166	2,000	249,000	149	06/18/1997
GDGGW002	59.7	16,300	80,200	7,980	12/15/1997
SWMU 120 Wells					
G120GW001	60.4	9,610	27,700	324	12/05/1997
G120GW002	11.9	6,890	38,800	646	12/05/1997
G120GW003	57.7	9,900	26,500	223	12/05/1997

SCDHEC Comment 3:

During a site visit on the 16th of January 2001, the Department noted that monitoring well G120GW001 has been damaged (Attached: Memo from Mansour Malik to Mihir Mehta dated 01/31/2001). EnSafe requested replacement of the damaged well (Peter Bayley's letter to Paul Bergstrand dated March 19, 2001). The Department approved the request on March 21, 2001 (Ref: CNC Conference call Minutes 03/21/2001 sent by Todd Haverkost from EnSafe). Section 44-55-0 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations requires that completion and submittal of a monitoring well record or other form provided and/or approved by the Department within 30 days after completion containing all well information. This RFI Report Addendum did not indicate whether that well has been repaired, replaced, or properly abandoned. So the Department must conclude that the necessary repairs to this well had not been completed as of 30 days prior to the report date.

CH2M-Jones Response 3:

No monitoring wells at SWMU 120 have been replaced, repaired or abandoned as of the date of this response. The site is currently being used by the CIP for storage of construction materials, and the steam line adjacent to the SWMU has been removed. Because the site requires no further action, the wells will be located and abandoned in accordance with SCDHEC guidance, and appropriate documentation will be submitted.

SWMU 120 Metals Associations for Monitoring Wells and Zone G Grid Wells

Station ID	Sample ID	Date Collected	Arsenic (µg/L)	Iron (µg/L)	Magnesium (µg/L)	Manganese (µg/L)
SWMU 120 Monitoring Wells						
G120GW001	120GW00101	18-Nov-96	= 26.5	7,970	= 26,600	= 330
G120GW001	120GW00102	21-May-97	= 41.1	J 8,260	J 25,400	J 322
G120GW001	120GW00103	15-Sep-97	= 60	J 8,500		J 311
G120GW001	120GW00104	05-Dec-97	= 60.4	= 9,610	= 27,700	= 324
G120GW002	120GW00201	18-Nov-96		= 3,950	= 45,500	= 627
G120GW002	120GW00202	21-May-97	J 3.7	J 2,550	J 48,300	J 610
G120GW002	120GW00203	15-Sep-97	J 5.8	J 4,790	J 35,500	J 636
G120GW002	120GW00204	05-Dec-97	= 11.9	= 6,890	= 38,800	= 646
G120GW003	120GW00301	18-Nov-96	= 35.4	= 6,860	= 35,000	= 221
G120GW003	120GW00302	21-May-97	= 32.2	J 8,070	J 32,700	J 251
G120GW003	120GW00303	15-Sep-97	= 37.3	J 8,360	J 35,000	J 277
G120GW003	120GW00304	05-Dec-97	= 57.7	= 9,900	= 26,500	= 223
Zone G Grid Wells						
Station ID	**Sample ID**	**Date Collected**	**Arsenic (µg/L)**	**Iron (µg/L)**	**Magnesium (µg/L)**	**Manganese (µg/L)**
GGDGGW001	GDGGW00101	16-Nov-1996	= 117	= 10,300	= 533,000	= 343
GGDGGW001	GDGGW00102	18-Jun-1997	= 166	= 2,000	= 249,000	= 149
GGDGGW001	GDGGW00103	17-Sep-1997	= 112	= 2,210	= 229,000	= 195
GGDGGW001	GDGGW00104	16-Dec-1997	= 79.9	= 2,780	= 141,000	= 231
GGDGGW001	GDGGW001A1	29-Jan-1997	= 126	J 4,160	J 216,000	J 212
GGDGGW002	GDGGW00201	17-Nov-1996	J 7.8	= 28,200	= 100,000	= 2,630
GGDGGW002	GDGGW00202	18-Jun-1997	J 10	= 35,700	= 81,000	= 2,820
GGDGGW002	GDGGW00203	17-Sep-1997	J 9.4	= 30,500	= 70,100	= 2,580
GGDGGW002	GDGGW00204	15-Dec-1997	= 59.7	= 16,300	= 80,200	= 7,980
GGDGGW01D	GDGGW01D01	17-Nov-1996	J 2.9	= 2,080	= 624,000	= 329
GGDGGW01D	GDGGW01D02	18-Jun-1997	J 2.5	= 2,350	= 595,000	= 208
GGDGGW01D	GDGGW01D03	17-Sep-1997		= 4,000	= 62,4000	= 249

RFI REPORT ADDENDUM

Solid Waste Management Unit 120, Zone G

Charleston Naval Complex
North Charleston, South Carolina

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

PREPARED BY
CH2M-Jones

August 2001

Revision 0
Contract N62467-99-C-0960
158814.ZG.PR.12

Certification Page for RFI Report Addendum – SWMU 120, Zone G

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

South Carolina

Temporary Permit No. T2000342

Dean Williamson, P.E.

8/2/2001

Date

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

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A Database of Analytical Results from Additional RFI Investigation
B Validation Reports from Additional RFI Investigation
C Responses to SCDHEC Comments

Acronyms and Abbreviations

AOC	area of concern
BCT	BRAC Cleanup Team
BEQ	benzo(a)pyrene equivalent
BRAC	Base Realignment and Closure Act
BRC	background reference concentration
CA	corrective action
CMS	corrective measures study
CNC	Charleston Naval Complex
COC	chemical of concern
COPC	chemical of potential concern
DAF	dilution attenuation factor
EnSafe	EnSafe Inc.
EPA	U.S. Environmental Protection Agency
ft bls	feet below land surface
ft/d	feet per day
HHRA	human health risk assessment
HI	hazard index
IM	interim measure
MCL	maximum contaminant level
µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
msl	mean sea level
NAVBASE	Naval Base
NFA	no further action
NFI	no further investigation
OWS	oil/water separator
PAH	polycyclic aromatic hydrocarbon

PCB	polychlorinated biphenyl
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SCDHEC	South Carolina Department of Health and Environmental Control
SPLP	synthetic precipitation leaching procedure
SSL	soil screening level
SSV	sediment screening value
SVOC	semivolatile organic compound
SWMU	solid waste management unit
ThQ	target hazard quotient
TOC	total organic carbon
UST	underground storage tank
VOC	volatile organic compound

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).

In April 2000, CH2M-Jones was awarded a contract to provide environmental investigation and remediation services at the CNC. This submittal has been prepared by CH2M-Jones to complete the RCRA Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 120 in Zone G of the Naval Complex. The site is recommended for no further action (NFA). Figure 1-1 illustrates the location of Zone G within the CNC.

1.1 Background

SWMU 120 is the laydown area for Pier M, which included former building AS-40-1, and is located northeast of the intersection of Hobson Avenue and Brumby Street. Building AS-40-1 was a paint spray booth. The building structure has since been torn down, but the concrete foundation remains at SWMU 120. SWMU 120 was a temporary staging area from approximately 1976 until base closure. Materials were temporarily stored in this area while maintenance activities were conducted on naval submarines. The exact location of where the materials were stored is unknown. Materials potentially stored, released, or disposed of included lead bricks (used as shielding for the nuclear reactors on the submarines), paints, paint thinners, and greases. It is suspected that radiologically contaminated tarps may have also been stored in this area. Radiological issues are being addressed under a separate program and are not part of the RFI scope of work. The surface at the site is currently unpaved, with asphalt-paved areas surrounding the site along the dock and in the parking lot south of the former building. Above ground, steam pipes run through the northern portion of the site. Figure 1-2 shows an aerial view of SWMU 120.

As part of the RFI, EnSafe Inc. (EnSafe) advanced six soil borings, installed three monitoring wells, and collected two sediment samples to assess the presence of soil contamination related to the staging area. EnSafe reported its findings in the *Zone G RFI Report, Revision 0* (EnSafe, 1998). Benzo(a)pyrene equivalents (BEQs) in surface soil and arsenic in groundwater were identified as chemicals of concern (COCs) at SWMU 120.

Additional investigations were made by EnSafe as presented in the *Zone G RFI Workplan Addendum* (EnSafe, 2000) to delineate inorganic and SVOC impacts to surface and subsurface soil, and to further evaluate groundwater impacts. The results of these additional investigations are presented in this RFI Report Addendum.

1.2 Purpose of the RFI Report Addendum

This report provides information about SWMU 120 that documents the conclusions from the RFI report, provides the results of additional sampling performed after the RFI, evaluates chemicals of potential concern (COPCs) and COCs, and presents a recommendation for NFA.

The results of additional investigations subsequent to the RFI are presented to complete the nature and extent investigation for COPCs identified in surface soil, subsurface soil, and groundwater.

Based on the available data and screening criteria in use during the RFI, BEQs in surface soil and arsenic in groundwater were identified as COCs for unrestricted land use. Arsenic in groundwater was also identified as a COC for industrial land use. Because the site is zoned for future industrial land use, and based on the additional investigation data and the re-evaluation of the RFI data presented, CH2M-Jones recommends NFA at SWMU 120.

As part of completion of the RFI and final remedy selection process, the BRAC Cleanup Team (BCT) agreed that the following issues should be considered:

- Status of the RFI
- Presence of metals (inorganics) in groundwater
- Potential linkage to SWMU 37, Investigated Sanitary Sewers at the CNC
- Potential linkage to Area of Concern (AOC) 699, Investigated Storm Sewers at the CNC
- Potential linkage of AOC 504, Investigated Railroad Lines at the CNC
- Potential linkage to surface water bodies (Zone J)
- Potential contamination associated with oil/water separators (OWSs)
- Relevance or need for land use controls at the site

Information regarding these issues is provided in this RFI Report Addendum to expedite evaluation of the site.

Provided that the information presented in this report is adequate to address these site closeout items, it is expected that the BCT will concur that NFA is appropriate for the site. The next step will be to prepare a Statement of Basis that will be made available for public comment in accordance with SCDHEC policy. This will allow for public participation in the final remedy selection.

1.3 Report Organization

This RFI Report Addendum consists of the following sections, including this introductory section:

1.0 Introduction — Presents the purpose of the report and background information relating to the RFI Report Addendum.

2.0 Summary of RFI Conclusions for SWMU 120— Summarizes the conclusions from the RFI investigations and risk evaluations for SWMU 120.

3.0 Interim Measures and UST/AST Removals at SWMU 120 – Summarizes the work performed and to the extent it was conducted.

4.0 Summary of Additional Investigations — Summarizes information collected after completion of the RFI report.

5.0 COPC/COC Refinement – Presents conclusions of the additional investigation and identification of COPCs based on the previous and additional investigations.

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

7.0 Recommendations—Provides recommendations for proceeding with site closure.

8.0 References — Lists the references used in this document.

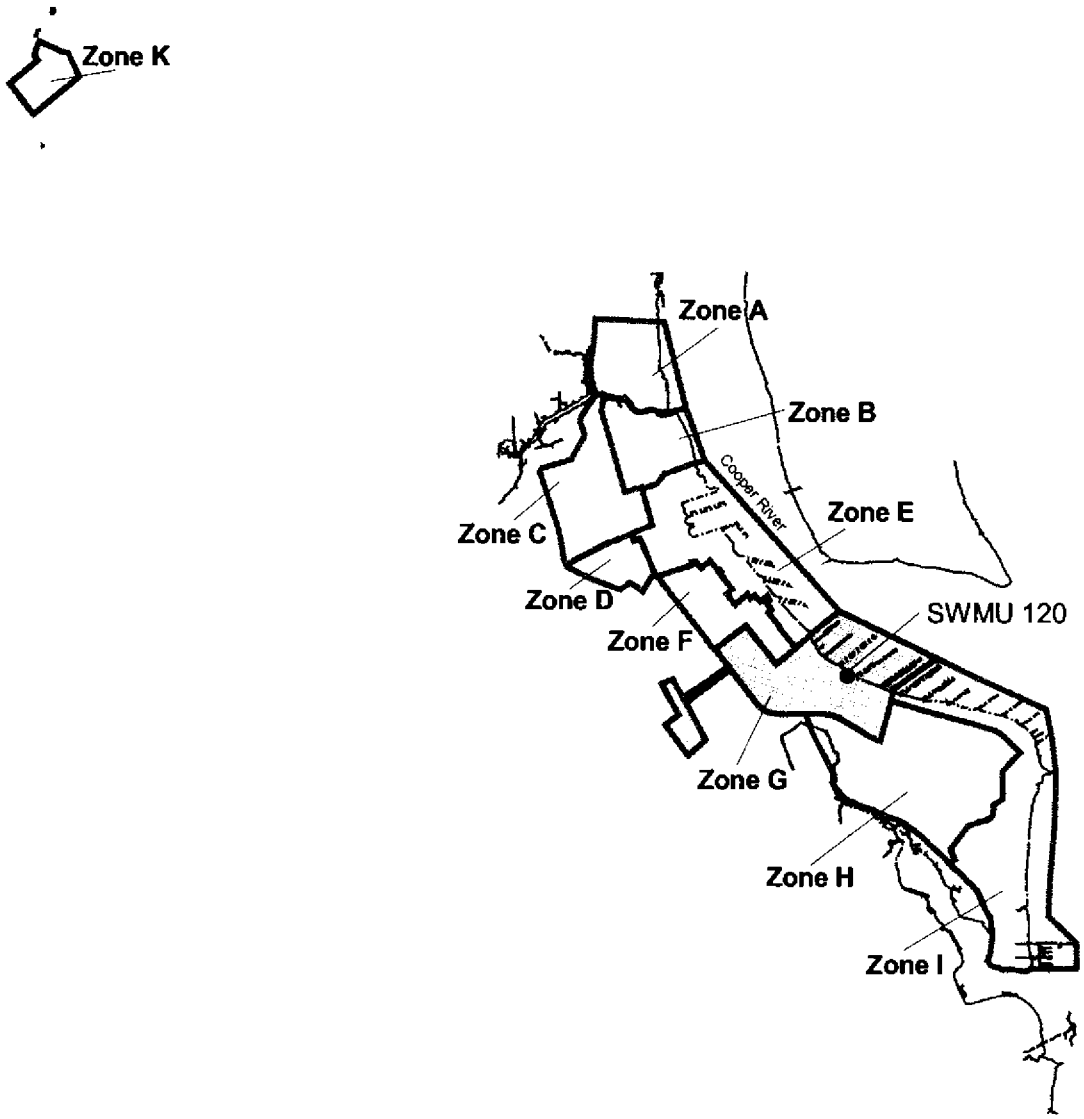
Appendix A contains a database of analytical results from sampling subsequent to the RFI report.

Appendix B contains data validation summaries of the data from sampling subsequent to the RFI report.

Appendix C contains responses to SCDHEC comments.

All tables and figures appear at the end of their respective sections.

NOTE: Original figure created in color



Shoreline
Zone Boundary
Zone G

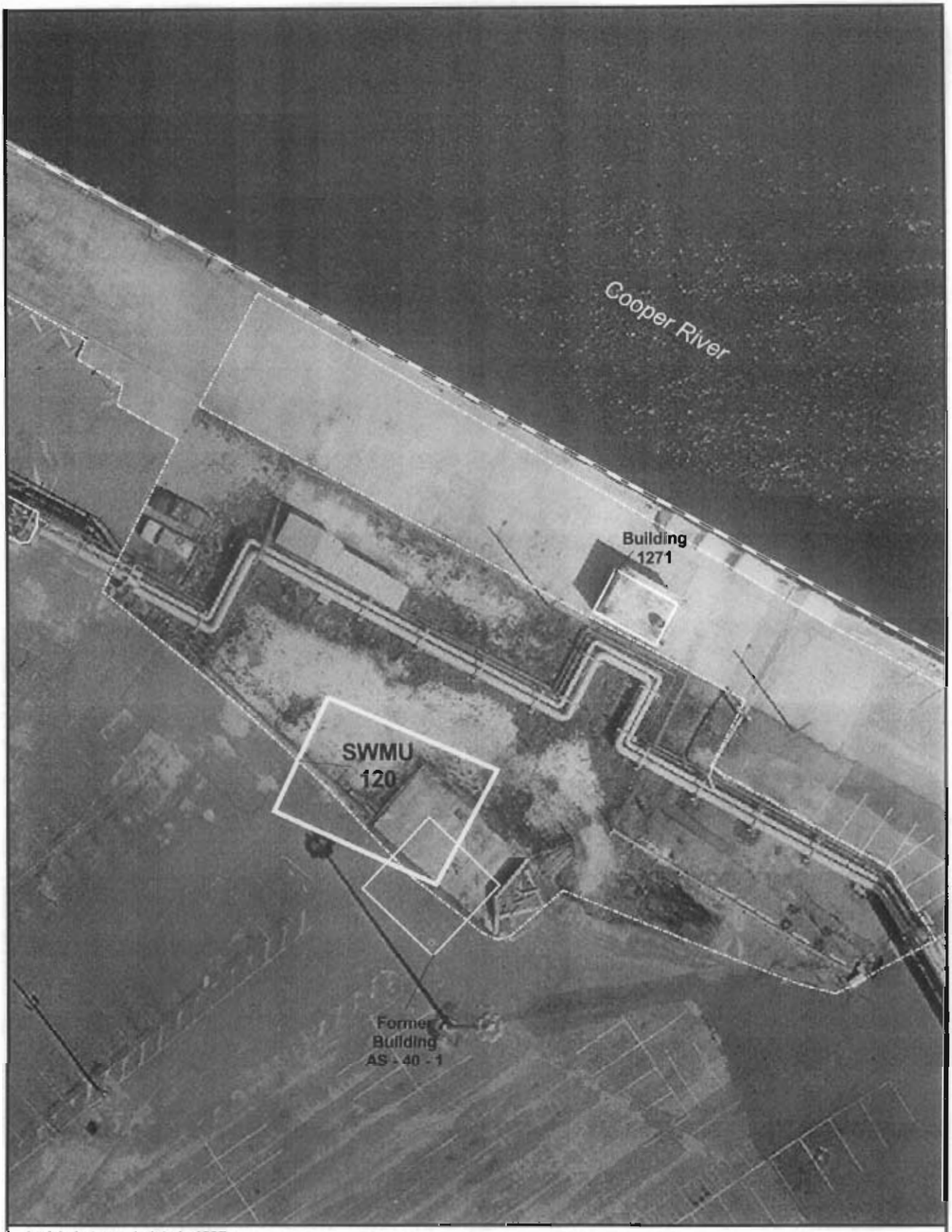
N

0 4000 8000 Feet

Figure 1-1
SWMU 120
Zone G
Charleston Naval Complex

CH2MHILL

File Path: c:\18gis\cnc\projects\zone_g\swmu_120\swmu120a.apr, Date: 30 Jul 2001 9:22, User: ASWINFOR



Aerial photograph date is 1997

- Buildings
- SWMU Boundary
- Pavement
- Shoreline

N

0 30 60 Feet

Figure 1-2
Aerial View of SWMU 120
SWMU 120, Zone G
Charleston Naval Complex

CH2MHILL

File Path: c:\18gis\cnc\projects\zone_g\swmu_120\swmu120b.apr, Date: 12 Jul 2001 14:53, User: ASWINFOR

Section 2.0

2.0 Summary of RFI Conclusions for SWMU 120

As part of the Zone G RFI, soil and groundwater investigations were conducted at SWMU 120. During the RFI, six soil borings (G120SB001 through G120SB006) were advanced for the collection and analysis of surface (0-1 foot depth) and subsurface (3-5 foot depth) soils to determine if there were any impacts from site activities. Soil samples analyzed for metals, pesticides/polychlorinated biphenyls (PCBs), SVOCs, and volatile organic compounds (VOCs). Two sediment samples were also collected, one from a stormwater catch basin on site (G120M0002), and the other from the floor drain of the former building AS-40-1 (G120M0001). Three shallow groundwater monitoring wells (G120GW001 through G120GW003) were installed and sampled three times between November 1996 and September 1997. Figure 2-1 illustrates the site and the RFI sample locations within this area.

RFI sampling results were screened to determine whether each site required no further investigation, further investigation/delineation, or some type of corrective action. Surface soil samples were screened against risk-based criteria based on the U.S. Environmental Protection Agency (EPA) Region III risk-based concentration (RBC) table (1996) using a residential reuse scenario and a hazard index (HI) equal to 0.1, and against a Zone G background reference concentration (BRC) based on random grid samples collected and analyzed for inorganic/naturally occurring analytes.

Subsurface soil sample results were screened against leachability-based generic soil-to-groundwater screening levels (SSLs) presented in the *EPA Soil Screening Guidance: Technical Background Document*, (EPA, 1996a). SSLs were either used directly from the SSL table, modified from those presented in the RBC table, or calculated independently using the SSL default dilution attenuation factor (DAF) of 20 from the SSL guidance. Subsurface soil samples were also screened against the Zone G BRCs developed for inorganics in subsurface soils.

Groundwater sampling results were screened against the EPA Region III RBC table assuming a total hazard quotient (THQ) of 1.0, and against the Zone G groundwater BRCs developed for inorganics in groundwater. Results were also compared to the maximum contaminant levels (MCLs) presented in the *EPA Drinking Water Regulations and Health Advisories* (EPA, 1996b).

2.1 Surface Soil

No VOCs or PCBs were detected in the RFI surface soil samples. Some pesticides were detected in the surface soil samples at concentrations below their respective residential RBCs (HI=0.1). BEQs, and more specifically benzo(a)pyrene, were detected in the surface sample collected from G120SB001 above the residential RBC. Antimony (surface soil samples G120SB00101 and G120SB00201), chromium (surface soil sample G120SB00101) and iron (surface soil samples G120SB00101, G120SB00201, and G120SB00601) were detected at concentrations exceeding their respective residential RBCs and the Zone G BRC. EnSafe determined in its RFI report that BEQs, antimony, and chromium were COPCs in the surface soil. No other surface soil COPCs were identified.

2.2 Subsurface Soil

No SVOCs, VOCs, pesticides or inorganics were detected at concentrations above their respective SSLs in the subsurface soil samples. No PCBs were detected in the subsurface soil samples. EnSafe determined that there were no COPCs for the subsurface soil at SWMU 120.

2.3 Sediment

According to the RFI report, sample location G120M0002 did not have sufficient sediment for sample analysis. Based on the nature and location of the sediment sample collected and submitted for analysis (G120M0001), EnSafe did not screen the results against its background screening values or other criteria. No PCBs were detected in the sediment sample collected at SWMU 120. VOCs detected in sample G120M0001 were benzene (2 micrograms per kilogram [µg/kg]), toluene (10 µg/kg), ethylbenzene (30 µg/kg), xylenes (270 µg/kg), and carbon disulfide (7.0 µg/kg). SVOCs detected included BEQs (7.26 µg/kg) benzo(a)anthracene and chrysene, with the highest concentrations from benzyl alcohol (3,900 µg/kg) and butylbenzylphthalate (3,000 µg/kg). Two pesticides, 4,4'-DDD (8.6 µg/kg) and 4,4'-DDE (33 µg/kg), were detected in the sediment sample. All metals analyzed were detected in the sample G120M0001. Detected concentrations of selected inorganics included aluminum at 2,310 milligrams per kilogram (mg/kg), antimony at 3.0 mg/kg, chromium at 57.3 mg/kg, and iron at 61,200 mg/kg. In the RFI report, EnSafe did not identify any COPCs in sediment.

2.4 Groundwater

Three shallow monitoring wells (G120GW001 to G120GW003) were installed to approximately 12 feet below land surface (ft bls) to assess the groundwater quality at

SWMU 120. The RFI report indicated that groundwater is at approximately 4.2 feet mean sea level (msl), with little depth variation between high and low tides. However, flow direction varied from north-northwest at 7.1E-2 feet per day (ft/d) during low tide to east-northeast at 2E-2 ft/d during high tide. The monitoring wells were sampled three times between November 1996 and September 1997.

No VOCs or pesticides/PCBs were detected in the groundwater samples collected during the three sampling events. Benzoic acid and acenaphthene were detected during the third quarter sampling event at locations G120GW002 and G120GW003, but concentrations were below their respective tap water RBCs.

Arsenic was detected at concentrations exceeding the Zone G BRC, its tap water RBC, and MCL at location G120GW001 in the sample collected from the third quarter sampling event. Arsenic concentrations exceeded the Zone G BRC and the tap water RBC, but were below the MCL in the samples collected from G120GW001 during the first and second quarterly sampling events, and in the samples collected from G120GW003 during all three sampling events. Arsenic was detected in well G120GW002 during the second, third and fourth sampling events, but at a maximum concentration of 11.9 micrograms per liter (µg/L), well below the tap water RBC and MCL, and below the BRC of 17.8 µg/L.

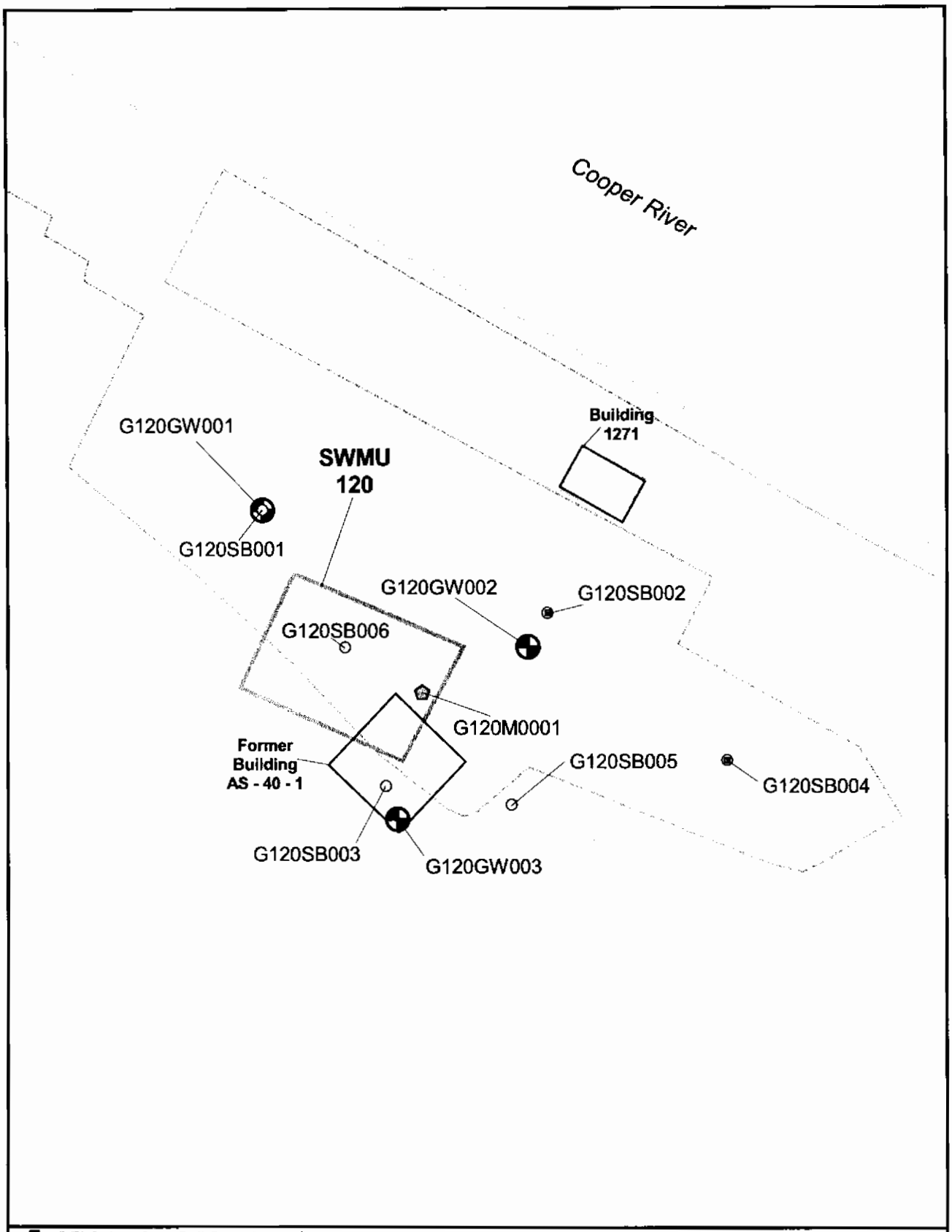
Beryllium was detected at concentrations exceeding its tap water RBC (EnSafe did not determine a BRC for beryllium) in the second and third quarter sampling events at monitoring well location G120GW003. Iron exceeded its MCL in all the monitoring well samples collected from all sampling events (EnSafe did not determine a BRC for iron). Arsenic was identified a COPC in groundwater in the RFI report.

2.5 Human Health Risk Assessment

As part of the RFI, a human health risk assessment (HHRA) was prepared for the BEQs, antimony, and chromium concentrations detected in surface soil, and the arsenic concentrations detected in groundwater at SWMU 120. The HHRA identified BEQs in surface soil and arsenic in shallow groundwater as COCs. No COCs were identified for subsurface soil at SWMU 120. The results of the HHRA identified BEQs in surface soil sample G120SB00101 as a residential soil pathway COC for SWMU 120. No industrial soil pathway COCs were identified for SWMU 120. Arsenic concentrations observed in the samples collected from G120GW001 and G120GW003 were identified as a groundwater pathway risk for the residential and site worker scenarios.

2.6 Conclusions and Recommendations

The RFI report concluded that a corrective measures study (CMS) should be conducted for the surface soil (BEQs) and groundwater (arsenic) COCs identified at SWMU 120.



RFI Subsurface Soil Samples
RFI Surface Soil Samples
Groundwater Samples
Pavement
Roads
Shoreline
Buildings
SWMU Boundary
Sediment Sample

N

0 30 60 Feet

Figure 2-1
RFI Sampling Locations
SWMU 120, Zone G
Charleston Naval Complex

CH2MHILL

File Path: c:\18gis\cnc\projects\zone_g\swmu_120\swmu120b.apr, Date: 12 Jul 2001 13:26, User: ASWINFOR

Section 3.0

3.0 Interim Measures and UST/AST Removals

Based on a review of the history of activities at SWMU 120, there have been no RCRA interim measures (IMs) or underground storage tank (UST) removals performed at the site.

4.0 Summary of Additional Investigations

From December 1997 to January 2000, EnSafe continued the RFI activities with additional soil and groundwater sampling. The additional soil samples were collected to further delineate metals and SVOCs in the surface and subsurface soils, and to develop site-specific SSLs for metals by analysis of synthetic precipitation leaching procedure (SPLP) and total organic carbon content (TOC) of soils. One additional groundwater sampling event was also conducted on December 5, 1997. These additional activities were conducted to address comments received from SCDHEC on the *Zone G RFI Report, Revision 0* (EnSafe, 1998). The results of the additional investigations are summarized in this section; the analytical data and validation summaries for this work are provided as Appendices A and B, respectively.

4.1 Soil Sampling and Analysis

During the additional investigation of SWMU 120, EnSafe installed six borings in December 1999 (G120SB007 through G120SB012) located near RFI borings G120SB001, G120SB002, and G120SB004. An additional four borings (G120SB013 through G120SB016) were performed in January 2000 closer to the Cooper River than the previous boring locations. Surface (0 to 1 ft bls) and subsurface (3 to 5 ft bls) soil samples were collected from each of these sampling locations. The sampling locations are depicted in Figure 4-1.

4.1.1 Surface Soil

EnSafe installed ten additional soil borings (G120SB007 through G120SB016) at SWMU 120. Surface soil samples were collected from these borings and analyzed for SVOCs and metals. Additional soil samples were collected from borings G120SB009 and G120SB010 for analysis of SPLP metals and TOC. A summary of the detected analytes, along with applicable screening criteria, is presented in Tables 4-1 and 4-2.

The analytical results for inorganic parameters in the surface soil samples collected from the additional investigation were screened against the range of Zone G background (grid-based) sample results, and then compared to the EPA Region III residential RBCs with a HI=0.1 (2000), and SSLs (using a DAF=1 for VOCs, and a DAF=10 for other analytes). Analytes detected above the Zone G background (grid-based) range were not considered COPCs if their detected concentration was less than the RBCs and SSLs. Results for organic analytes were screened against their RBCs and SSLs, where established. BEQs were screened against a site-wide reference concentration of 1,304 mg/kg.

Arsenic was detected at a concentration exceeding its residential RBC in the sample collected from G120SB009, but is well within the Zone G background range. Chromium was detected at concentrations exceeding its RBC in the samples collected from G120SB008 and G120SB009, but these concentrations are within the Zone G background range. The SVOCs benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene slightly exceeded their individual RBCs in sample G120SB012, but the concentrations were below their BEQ background concentrations.

There were no inorganic analytes detected above both the background ranges and residential RBCs or SSLs in the surface soil samples collected from the additional investigation. No other organic analytes were detected at concentrations exceeding their Zone G background ranges, RBCs, or SSLs, where established.

4.1.2 Subsurface Soil

The list of analytes detected in the subsurface soil samples from the additional investigation (G120SB007 through G120SB016), along with applicable screening criteria, is presented in Tables 4-3 and 4-4. Subsurface soil sample inorganics were screened against SSLs and the Zone G background (grid-based) concentration ranges. BEQs were screened against the 1,400 mg/kg subsurface soil reference concentration. Detected analytes with concentrations within the Zone G background ranges for subsurface soils were eliminated from further consideration. The inorganic analytes detected above the background range were then screened against the EPA Region III SSLs (using a DAF=10). Organic parameters other than BEQs were screened against their SSLs (DAF=1 for VOCs, and DAF=10 for other parameters), where established. Analytes detected above both the background range and SSLs were considered COPCs, based on their potential to adversely affect the groundwater quality.

Soil concentrations for tin (3.9 to 6.6 mg/kg) in borings G120SB007 through G120SB010 were above the Zone G background (grid-based) ranges. The tin levels detected in site samples are well below the residential RBC (HI=1) of 47,000 mg/kg. Antimony, arsenic, and chromium were detected at concentrations exceeding their respective SSLs in the soil samples collected from boring locations G12SB008 and G120SB009. However, the levels detected were within the background ranges.

No other inorganics were detected at concentrations above their Zone G background range. No BEQs or other SVOCs were detected at concentrations exceeding their background ranges or SSLs.

4.2 Groundwater Sampling and Analysis

Monitoring wells G120GW001, G120GW002, and G120GW003 were sampled for the fourth quarterly event in December 1997, with samples analyzed for metals and SVOCs. Based on groundwater elevation data collected on September 30, 1999 (midday), groundwater flow was to the west. The groundwater sampling results for the analytes detected during the additional investigation are presented in Table 4-5. The groundwater sampling locations are shown on Figure 4-1. Shallow groundwater elevations and flow direction (arrow) for SWMU 120 are shown on Figure 4-2.

Groundwater sample results were compared to EPA drinking water MCLs (or tap water RBCs where no MCL has been established), and Zone G BRCs. Barium concentrations detected in the groundwater sample collected from G12GW003 were above the Zone G BRC, but below its respective MCL. Zinc was also detected at a concentration exceeding the Zone G BRC at location G12GW003, and below its MCL.

Arsenic was detected at concentrations exceeding its BRC and its MCL in the samples collected from G120GW001 and G120GW003. SWMU 120 arsenic concentrations at each monitoring well location for all sampling events are presented on Figure 4-3. Arsenic is identified as a COPC in groundwater, and is addressed further in Section 5.0.

TABLE 4-1
Inorganic Analytes Detected in Surface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Region III Residential Soil RBC[b,c] (HI= 0.1)	Zone G Surface Soil Background (Grid-Based) Range[d]
Aluminum	G120SB007	3,330	=	NL	7,800	2,190 - 17,800
	G120SB008	4,890	=			
	G120SB009	5,420	=			
	G120SB010	3,970	=			
	G120SB012	3,180	=			
Antimony	G120SB010	0.57	J	2.5	3.1	0.79 - 5.7
	G120SB012	0.71	J			
Arsenic	G120SB007	2.1	J	14.5	0.43	3.1 - 25
	G120SB008	4.3	J			
	G120SB009	11.0	=			
	G120SB010	1.3	J			
	G120SB012	1.6	J			
Barium	G120SB007	11.9	J	800	550	11 - 129
	G120SB008	29.4	J			
	G120SB009	45.3	J			
	G120SB010	10.9	J			
	G120SB012	28.6	=			
Cadmium	G120SB007	0.26	J	4.0	3.9	0.12 - 1.7
	G120SB012	0.13	J			
Calcium	G120SB007	227,000	J	NL	NL	8,920 - 52,300
	G120SB008	92,600	J			
	G120SB009	59,800	J			
	G120SB010	3,960	J			
	G120SB012	27,600	J			
Chromium, Total	G120SB007	10.6	=	19	23(VI)	7.0 - 39
	G120SB008	23.2	=			
	G120SB009	24.3	=			
	G120SB010	5.9	=			
	G120SB012	8.3	=			
Cobalt	G120SB007	1.50	J	NL	470	1.1 - 6.2
	G120SB008	3.50	J			
	G120SB009	5.10	J			
	G120SB010	0.47	J			
	G120SB012	1.10	J			
Copper	G120SB007	20.2	J	NL	310	23 - 431
	G120SB008	145.0	=			
	G120SB009	277.0	=			

TABLE 4-1
Inorganic Analytes Detected in Surface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Region III Residential Soil RBC[b,c] (HI= 0.1)	Zone G Surface Soil Background (Grid-Based) Range[d]
Copper	G120SB010	6.7	=	NL	310	23 - 431
	G120SB012	32.8	=			
Iron	G120SB007	3,640	=	NL	2,300	4,300 - 32,700
	G120SB008	5,720	=			
	G120SB009	9,430	=			
	G120SB010	2,230	=			
	G120SB012	3,270	=			
Lead	G120SB007	15.0	=	400	400	3.5 - 275
	G120SB008	89.4	=			
	G120SB009	142.0	=			
	G120SB010	7.0	=			
	G120SB012	38.3	=			
Magnesium	G120SB007	3,140	J	NL	NL	766 - 5,280
	G120SB008	2,000	J			
	G120SB009	1,790	J			
	G120SB010	219	J			
	G120SB012	495	=			
Manganese	G120SB007	128.0	=	NL	160	39 - 359
	G120SB008	112.0	=			
	G120SB009	93.9	=			
	G120SB010	30.8	=			
	G120SB012	42.4	=			
Mercury	G120SB008	0.06	=	1.0	2.3	0.060 - 2.0
	G120SB009	0.06	=			
Nickel	G120SB007	6.7	J	65	160	2.0 - 27
	G120SB008	20.3	J			
	G120SB009	41.3	=			
	G120SB010	2.2	J			
	G120SB012	7.9	=			
Potassium	G120SB007	549.0	J	NL	NL	280 - 1,730
	G120SB008	385.0	J			
	G120SB009	513.0	J			
	G120SB010	99.1	J			
	G120SB012	176.0	J			
Selenium	G120SB009	2.00	J	2.5	39	0.45 - 1.4
	G120SB010	0.47	J			
	G120SB012	0.48	J			

TABLE 4-1
Inorganic Analytes Detected in Surface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Region III Residential Soil RBC[b,c] (HI= 0.1)	Zone G Surface Soil Background (Grid-Based) Range[d]
Silver	G120SB012	0.04	J	17	39	0.050 - 5.0[e]
Sodium	G120SB007	765	J	NL	NL	394 - 1,150
	G120SB008	669	J			
	G120SB009	607	J			
	G120SB010	106	J			
	G120SB012	146	J			
Tin	G120SB008	18.5	J	NL	4,700	2.6 – 26
	G120SB009	24.7	J			
	G120SB010	2.6	J			
	G120SB012	3.6	J			
Vanadium	G120SB007	7.6	J	3,000	55	7.2 – 57
	G120SB008	16.1	J			
	G120SB009	19.0	J			
	G120SB010	5.1	=			
	G120SB012	5.5	=			
Zinc	G120SB007	45.4	J	6,000	2,300	18 - 1,650
	G120SB008	294	J			
	G120SB009	409	J			
	G120SB010	12.4	J			
	G120SB012	94.3	J			

[a] Calculated using EPA Generic SSL (DAF=20) value, obtained from the *EPA Soil Screening Guidance: Technical Background Document*, EPA/540/R-95/128, May 1996, and dividing by 2 for DAF=10 value.

[b] Residential RBCs (HI = 0.1 for non-carcinogens) were obtained from the EPA Region III, RBC Table, October 5, 2000 (http://www.epa.gov/epahome/search.html) unless otherwise noted.

[c] Residential RBC for lead and mercury were obtained from ingestion value in the EPA Soil Screening Guidance: Technical Background Document, EPA/540/R-95/128, May 1996.

[d] Surface soil background (grid-based) range is a range of Zone G grid-based sample concentrations.

[e] Surface soil background (grid-based) range for silver is the base-wide range of sample concentrations.

= chemical detected at the concentration shown

HI Hazard index

DAF dilution-attenuation factor

J chemical detected at concentration below the method detection limit

NL Not listed

RBC risk-based concentration

SSL soil screening level

TABLE 4-2
Organic Analytes Detected in Surface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Region III Residential RBC[b] (HI= 0.1)	BEQ Surface Soil Background (Grid-Based) Concentration[c]
BEQs	G120SB012	0.34137		NL	NL	0.842
	G120SB013	0.29584				
Benzo(a)anthracene	G120SB012	**0.22**	J	1.0	0.087	0.037
Benzo(a)pyrene	G120SB012	**0.099**	J	4.0	0.0087	0.376
	G120SB015	**0.02**	J			
Benzo(b)fluoranthene	G120SB012	**0.35**	J	2.5	0.087	0.048
	G120SB015	0.037	J			
Benzo(k)fluoranthene	G120SB012	0.24	J	24.5	0.87	0.004
Chrysene	G120SB012	0.67	=	80	8.7	0.001[d]
Indeno(1,2,3-c,d)pyrene	G120SB012	0.073	J	6.4	0.087	0.048
Benzoic acid	G120SB013	0.036	J	200	31,000	NA
	G120SB014	7.400	=			
	G120SB016	0.028	J			
Benzylbutylphthalate	G120SB012	0.120	J	465	NL	NA
	G120SB016	0.038	J			
bis(2-ethylexyl)phthalate	G120SB007	0.096	J	1,800	4.6	NA
	G120SB012	0.120	J			
	G120SB016	0.038	J			
Di-n-butylphthalate	G120SB014	0.180	J	1,150	780	NA
	G120SB016	0.023	J			
Fluoranthene	G120SB012	0.97	=	2,150	310	NA
Fluorene	G120SB014	0.14	J	280	310	NA
Hexachlorobutadiene	G120SB014	0.13	J	1.0	0.82	NA
Phenanthrene	G120SB014	0.23	J	NL	NL	NA
Pyrene	G120SB014	0.79	=	2,100	230	NA

Concentrations in bold text and outlined exceeded the zone background (grid-based) reference screening value and the RBCs.

[a] Calculated using EPA Generic SSL (DAF=20) value, obtained from the *EPA Soil Screening Guidance: Technical Background Document*, EPA/540/R-95/128, May 1996, and dividing by 2 for DAF=10 value.

[b] Residential RBCs (HI = 0.1 for non-carcinogens) were obtained from the EPA Region III, RBC Table, October 5, 2000 (http://www.epa.gov/epahome/search.html) unless otherwise noted.

[c] BEQ surface soil background (grid-based) reference screening value is 2x the adjusted mean value as reported in the *Background PAHs Study Report – Technical Information for Development of Background BEQ Values*, February 2001, CH2M-Jones.

TABLE 4-2
Organic Analytes Detected in Surface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Region III Residential RBC[b] (HI= 0.1)	BEQ Surface Soil Background (Grid-Based) Concentration[c]

[d] Surface soil background (grid-based) reference screening value for chrysene was obtained from adjacent Zone H.

= chemical detected at the concentration shown
BEQ benzo(a)pyrene equivalent
HI hazard index
J chemical detected at concentration below the method detection limit
NA not applicable
NL not listed
RBC risk-based concentration
RSV reference screening value

BEQ Calculation Procedure:

BEQ = Sum {TP x TEF}
TP Target Parameter
TEF Toxicity equivalency factor, relative to benzo(a)pyrene

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

If there was no detection of the TP, half the TP detection limit was used.
If there was no detection of all seven TPs, then BEQ = nondetect.

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Soil Background (Grid-Based) Range[b]
Aluminum	G120SB007	4,020	=	NL	2,630 - 36,800
	G120SB008	6,460	=		
	G120SB009	18,500	=		
	G120SB010	6,590	=		
	G120SB012	3,490	=		
Antimony	G120SB007	0.52	J	2.5	1.5 - 19[c]
	G120SB009	3.20	J		
	G120SB010	1.10	J		
	G120SB012	0.41	J		
Arsenic	G120SB007	1.40	J	14.5	1.4 - 36
	G120SB008	7.00	J		
	G120SB009	21.50	=		
	G120SB010	6.20	=		
	G120SB012	0.98	J		
Barium	G120SB007	7.1	J	800	7.7 - 63
	G120SB008	17.9	J		
	G120SB009	41.9	=		
	G120SB010	14.9	J		
	G120SB012	4.1	J		
Beryllium	G120SB007	0.11	J	31.5	0.45 - 2.4
	G120SB009	1.20	=		
	G120SB010	0.37	J		
Cadmium	G120SB007	0.09	J	4.0	0.08 - 0.52
	G120SB008	0.36	J		
	G120SB009	0.09	J		
	G120SB010	0.11	J		
	G120SB012	0.11	J		
Calcium	G120SB007	20,600	J	NL	6,390 -127,000
	G120SB008	138,000	J		
	G120SB009	47,600	J		
	G120SB010	45,200	J		
	G120SB012	2,180	J		
Chromium, Total	G120SB007	5.9	=	19	7.4 - 65
	G120SB008	33.8	=		
	G120SB009	47.9	=		
	G120SB010	15.7	=		
	G120SB012	4.3	=		

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Soil Background (Grid-Based) Range[b]
Cobalt	G120SB007	0.87	J	NL	0.90 - 15
	G120SB008	1.90	J		
	G120SB009	5.30	J		
	G120SB010	1.00	J		
	G120SB012	0.36	J		
Copper	G120SB007	16.6	=	5,500[d]	4.5 - 46
	G120SB008	63.0	=		
	G120SB009	119.0	=		
	G120SB010	27.1	=		
	G120SB012	2.5	=		
Iron	G120SB007	2,080	=	NL	3,110 - 58,100
	G120SB008	7,220	=		
	G120SB009	19,800	=		
	G120SB010	4,960	=		
	G120SB012	806	=		
Lead	G120SB007	14.0	=	400	2.4 - 76
	G120SB008	36.9	=		
	G120SB009	71.6	=		
	G120SB010	25.4	=		
	G120SB012	3.7	=		
Magnesium	G120SB007	407	J	NL	1,040 - 7,040
	G120SB008	5,260	J		
	G120SB009	4,220	=		
	G120SB010	2,070	=		
	G120SB012	144	J		
Manganese	G120SB007	22.1	=	4,750[d]	20 - 409
	G120SB008	191.0	=		
	G120SB009	155.0	=		
	G120SB010	78.9	=		
	G120SB012	5.4	=		
Mercury	G120SB009	0.16	=	1.0	0.050 - 0.37
Nickel	G120SB007	4.2	=	65	1.9 - 22
	G120SB008	17.4	J		
	G120SB009	20.4	=		
	G120SB010	6.6	=		
	G120SB012	1.3	J		

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Soil Background (Grid-Based) Range[b]
Potassium	G120SB007	117.0	J	NL	670 - 3,790
	G120SB008	710.0	J		
	G120SB009	1,800.0	=		
	G120SB010	488.0	J		
	G120SB012	45.4	J		
Selenium	G120SB007	0.49	J	2.5	0.54 - 1.0
	G120SB008	2.00	J		
	G120SB009	1.60	=		
	G120SB010	1.00	=		
	G120SB012	0.31	J		
Sodium	G120SB007	117	J	NL	1,070 - 3,890
	G120SB008	1,040	J		
	G120SB009	862	=		
	G120SB010	513	=		
	G120SB012	65.6	J		
Tin	G120SB007	**3.9**	J	NL	1.1 - 2.9
	G120SB008	**5.2**	J		
	G120SB009	**6.6**	J		
	G120SB010	**4.0**	J		
	G120SB012	2.6	J		
Vanadium	G120SB007	5.6	=	3,000	5.9 -112
	G120SB008	23.7	J		
	G120SB009	57.4	=		
	G120SB010	14.8	=		
	G120SB012	2.4	J		
Zinc	G120SB007	40.0	J	6,000	20 -198
	G120SB008	84.9	J		
	G120SB009	210.0	J		
	G120SB010	51.2	J		
	G120SB012	7.0	J		

Concentrations in bold text and outlined exceeded the zone background (grid-based) reference screening value range and the SSL.

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Soil Background (Grid-Based) Range[b]

[a] Calculated using EPA Generic SSL (DAF=20) value, obtained from the *EPA Soil Screening Guidance: Technical Background Document*, EPA/540/R-95/128, May 1996, and dividing by 2 for DAF=10 value.

[b] Suburface soil background (grid-based) reference screening value range is a range of Zone G grid-based sample concentrations.

[c] Subsurface soil background (grid-based) reference screening value range for antimony is a range of adjacent Zone H grid-based sample concentrations.

[d] Calculated using EPA Region III, RBC Table, October 5, 2000 generic SSL values, DAF=20 and dividing by 2 for DAF=10 value.

DAF dilution attenuation factor

NL not listed

RBC risk-based concentration

RSV reference screening value

SSL soil screening level

TABLE 4-4
Organic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	BEQ Subsurface Soil Background (Grid-Based) Concentration[b]
BEQs	G120SB008	0.4346		NL	0.972
	G120SB013	0.3716			
Benzo(a)anthracene	G120SB008	0.17	J	1.0	0.036
	G120SB013	0.21	J		
Benzo(a)pyrene	G120SB008	0.13	J	4.0	0.399
	G120SB013	0.21	J		
Benzo(b)fluoranthene	G120SB008	0.18	J	2.5	0.034
	G120SB013	0.28	J		
Benzo(k)fluoranthene	G120SB008	0.19	J	24.5	0.004
	G120SB013	0.23	J		
Dibenz(a,h)anthracene	G120SB013	0.09	J	1.0	0.461
Chrysene	G120SB008	0.23	J	80	0.001[c]
	G120SB013	0.30	J		
Indeno(1,2,3-c,d)pyrene	G120SB013	0.2	J	6.4	36
Acenaphthylene	G120SB013	0.058	J	285	NA
Anthracene	G120SB013	0.082	J	6,000	NA
Benzo(g,h,i)perylene	G120SB013	0.22	J	NL	NA
Benzoic acid	G120SB013	0.049	J	200	NA
	G120SB014	1.300	=		
	G120SB015	0.028	J		
	G120SB016	0.028	J		
bis(2-ethylexyl)phthalate	G120SB008	0.37	J	1,800	NA
	G120SB012	0.22	J		
Di-n-butylphthalate	G120SB013	0.034	J	1,150	NA
	G120SB014	0.065	J		
	G120SB015	0.032	J		
	G120SB016	0.021	J		
Fluoranthene	G120SB008	0.47	J	2,150	NA
	G120SB013	0.45	J		
2-methyl naphthalene	G120SB013	0.038	J	11[d]	NA
Phenanthrene	G120SB008	0.24	J	NL	NA
	G120SB013	0.079	J		
	G120SB014	0.026	J		
Phenol	G120SB008	0.24	J	500	NA

TABLE 4-4
Organic Analytes Detected in Subsurface Soil
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	BEQ Subsurface Soil Background (Grid-Based) Concentration[b]
Pyrene	G120SB008	0.46	J	2,100	NA
	G120SB013	0.42	J		

[a] Calculated using EPA Generic SSL (DAF=20) value, obtained from the *EPA Soil Screening Guidance: Technical Background Document*, EPA/540/R-95/128, May 1996, and dividing by 2 for DAF=10 value.

[b] BEQ subsurface soil background (grid-based) reference screening value is 2x the adjusted mean value as reported in the *Background PAHs Study Report – Technical Information for Development of Background BEQ Values*, February 2001, CH2M-Jones.

[c] Subsurface soil background (grid-based) reference screening value for chrysene was obtained from adjacent Zone H value.

[d] Calculated using EPA Region III, RBC Table, October 5, 2000 generic SSL values, DAF=20 and dividing by 2 for DAF=10 value.

= chemical detected at the concentration shown
BEQ benzo(a)pyrene equivalent
J chemical detected at concentration below the method detection limit
NA not applicable
NL not listed
RSV reference screening value
SSL soil screening level

BEQ Calculation Procedure:

BEQ = Sum {TP x TEF}
TP Target Parameter
TEF Toxicity equivalency factor, relative to benzo(a)pyrene

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

If there was no detection of the TP, half the TP detection limit was used.
If there was no detection of all seven TPs, then BEQ = nondetect.

TABLE 4-5
Analytes Detected in Shallow Groundwater
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (µg/L)	Qualifier	MCL for Drinking Water[a]	Zone G BRCs[b]	Tap Water RBCs[c]
			Inorganics			
Aluminum	G120GW001	231	=	50 - 200	692	37,000
	G120GW002	56.4	=			
	G120GW003	493	=			
Arsenic	G120GW001	**60.4**	=	50	17.8	0.045
	G120GW002	11.9	=			
	G120GW003	**57.7**	=			
Barium	G120GW001	14.4	=	2,000	31	2,600
	G120GW002	13.9	=			
	G120GW003	143	=			
Calcium	G120GW001	53,700	=	NL	NL	NL
	G120GW002	78,300	=			
	G120GW003	88,000	=			
Cobalt	G120GW003	1.2	J	NL	1.45	2,200
Copper	G120GW001	2.2	J	1,300	8.33	1,500
	G120GW003	1.6	J			
Chromium	G120GW01	1.5	J	50	3.88	110
	G120GW01	1.8	J			
	G120GW02	1.3	J			
Iron	G120GW001	9,610	=	300	30,400	11,000
	G120GW002	6,890	=			
	G120GW003	9,900	=			
Magnesium	G120GW001	27,700	=	NL	NL	NL
	G120GW002	38,800	=			
	G120GW003	26,500	=			
Manganese	G120GW001	324	=	50	2,906	730
	G120GW002	646	=			
	G120GW003	223	=			
Potassium	G120GW001	14,900	=	NL	NL	NL
	G120GW002	22,900	=			
	G120GW003	19,400	=			
Sodium	G120GW001	124,000	=	NL	NL	NL
	G120GW002	217,000	=			
	G120GW003	144,000	=			

TABLE 4-5
Analytes Detected in Shallow Groundwater
RFI Report Addendum, SWMU 120, Zone G, CNC

Parameter	Location	Concentration (µg/L)	Qualifier	MCL for Drinking Water[a]	Zone G BRCs[b]	Tap Water RBCs[c]
Vanadium	G120GW001	1.6	J	NL	15.4	260
	G120GW002	2.2	J			
	G120GW003	2.0	J			
Zinc	G120GW001	7.8	J	10,000	15.6	11,000
	G120GW003	316	=			
			SVOCs			
Acenaphthene	G120GW002	3.0	J	2,000	NA	370

Concentrations in bold text and outlined exceeded both the zone BRCs and the MCL/RBC, where established.

[a] MCLs are maximum concentration levels as published in the *EPA Drinking Water Standards and Health Advisories*, EPA 822-B-00-001, Summer 2000.

[b] BRCs are derived from twice the Zone G mean values measured during the RFI.

[c] Tap Water RBCs are the levels published in the EPA Risk-based Calculation Screening Tables, April 2000.

BRC Background reference concentration

HI Hazard index

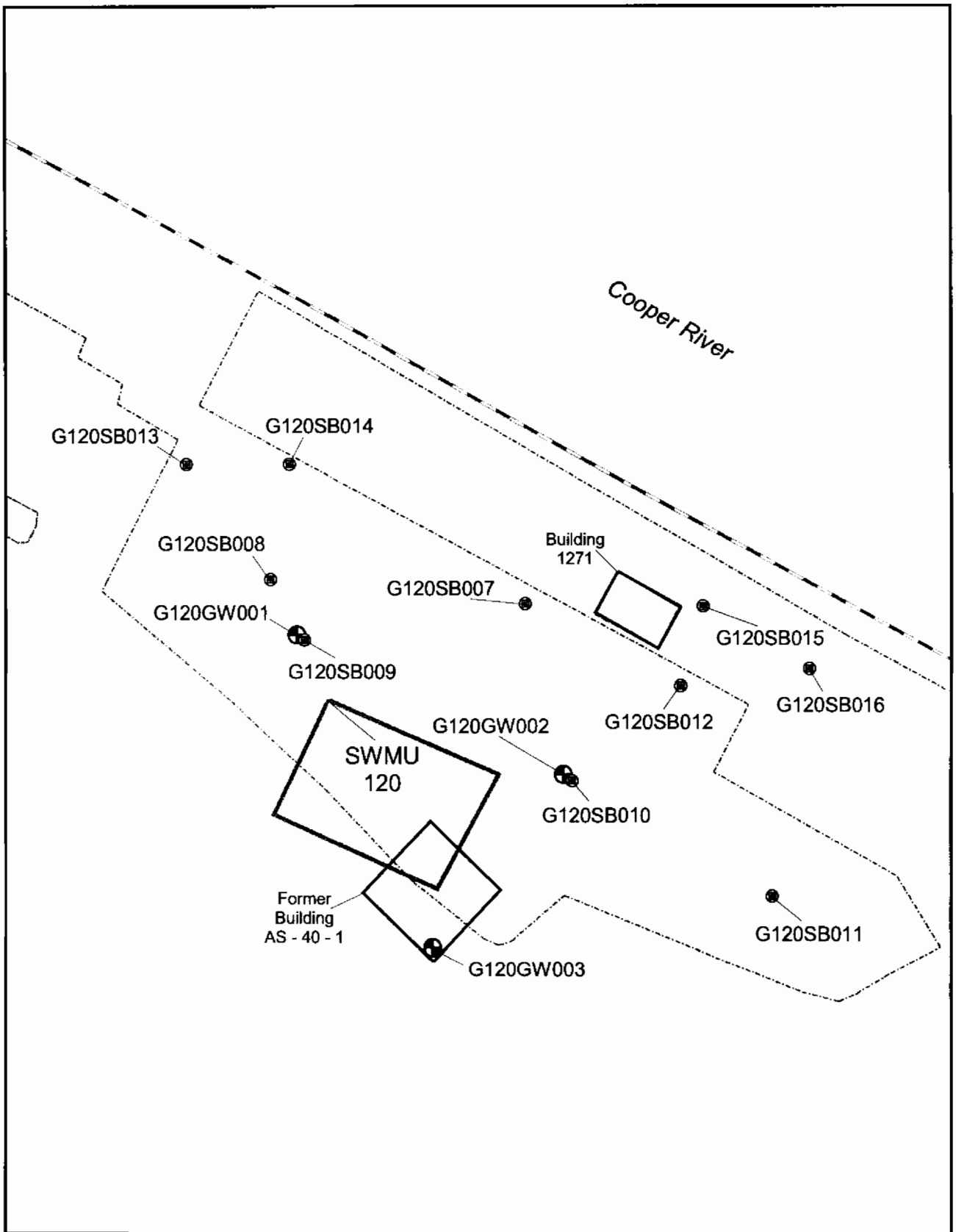
MCL Maximum contaminant level

NA Not applicable

NL No listed

RBC Risk-based concentration

SVOC Semivolatile organic compound



- RFI Addendum Subsurface Soil Samples
- RFI Addendum Surface Soil Samples
- Groundwater Samples
- Pavement
- Roads
- Shoreline
- Buildings
- SWMU Boundary

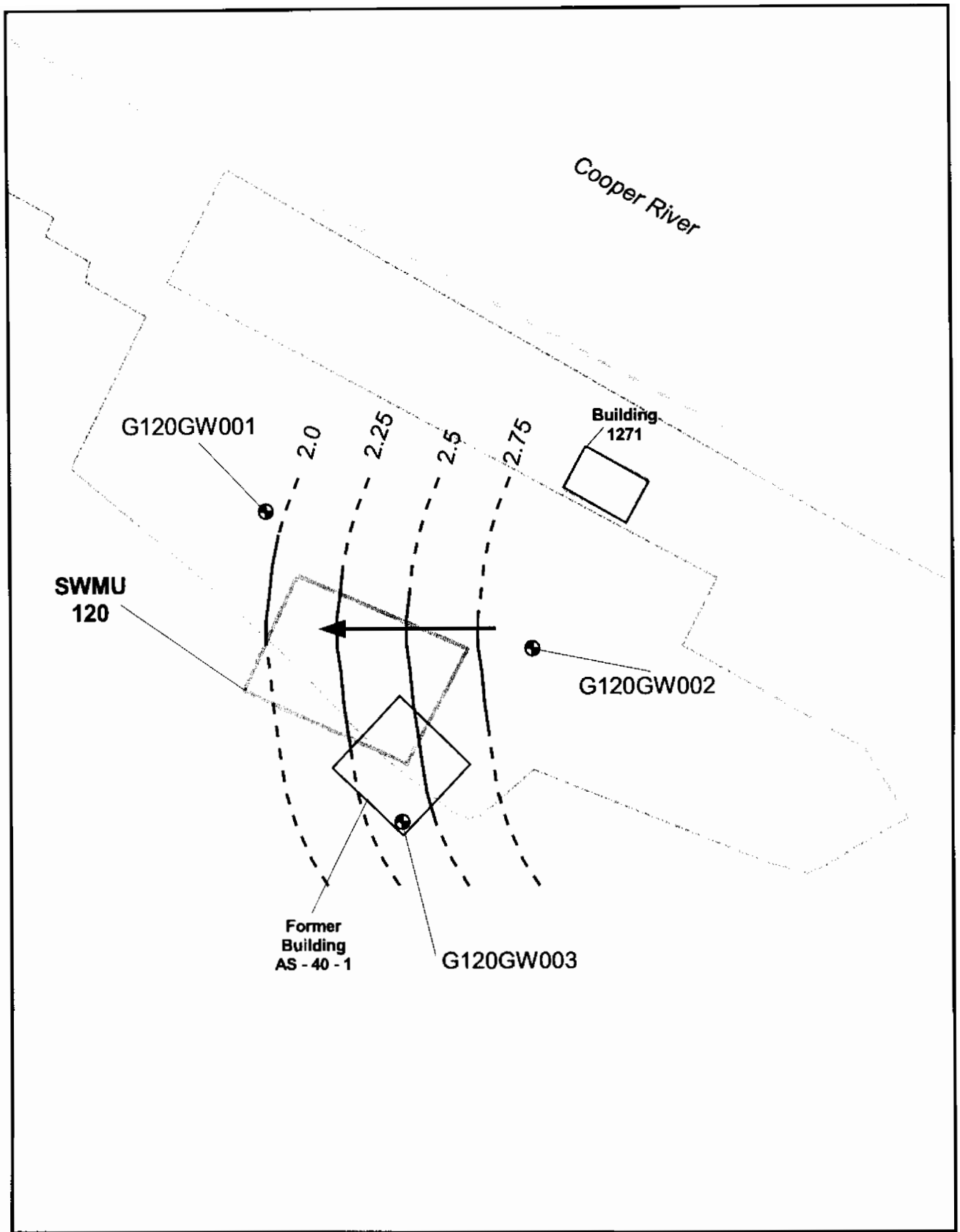
N

0 30 60 Feet

Figure 4-1
RFI Addendum Sampling Locations
SWMU 120, Zone G
Charleston Naval Complex

CH2MHILL

File Path: c:\18gis\cnc\projects\zone_g\swmu_120\swmu120b.apr, Date: 12 Jul 2001 12:45, User: ASWINFOR



Groundwater Samples
Pavement
Contour Interval = 0.25 feet
Shoreline
SWMU Boundary
Buildings

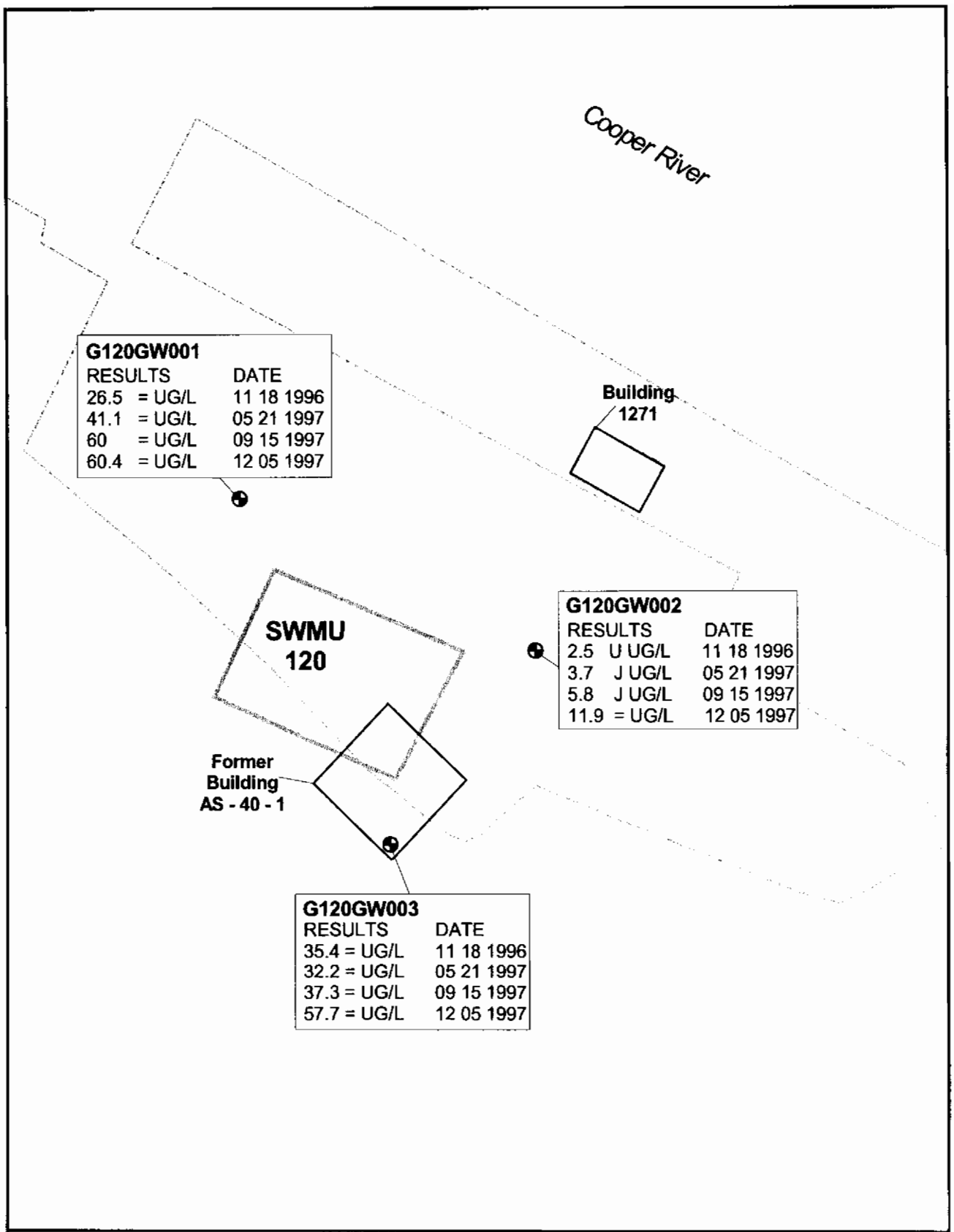
N

0 30 60 Feet

Figure 4-2
Groundwater Potentiometric Surface at SWMU 120
SWMU 120, Zone G
Charleston Naval Complex

CH2MHILL

File Path: c:\18gis\cnc\projects\zone_g\swmu_120\swmu120b.apr, Date: 12 Jul 2001 14:03, User: ASWINFOR



Groundwater Samples
Pavement
Roads
Shoreline
SWMU Boundary
Buildings

N

0 30 60 Feet

Figure 4-3
Arsenic Concentrations in Groundwater
SWMU 120, Zone G
Charleston Naval Complex

CH2MHILL

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5.0 COPC/COC Refinement

The risk assessment completed in the *Zone G RFI Report, Revision 0* (EnSafe, 1998) identified BEQs in the surface soil (unrestricted land use) and arsenic in groundwater (unrestricted and site worker scenarios) as COCs for the site. Based on screening of post-RFI data as described in Section 4.0 of this report, tin in subsurface soil and arsenic in groundwater were also identified as COPCs. Each of these COPCs are evaluated in the following sections.

5.1 Surface Soil

The only potential issue in surface soils involved re-screening of the polycyclic aromatic hydrocarbon (PAH) compounds detected on a BEQ basis, as discussed below.

5.1.1 BEQs

The RFI report presented a BEQ value of 0.126 mg/kg (126 µg/kg) for the surface soil sample collected from G120SB001. In particular, the benzo(a)pyrene concentration (0.092 mg/kg) in the sample from G120SB001 was reported in the RFI to exceed the residential RBC. CH2M-Jones recalculated the BEQ values using the procedures adopted by the BCT for evaluating PAHs (CH2M-Jones, 2001), and determined a BEQ value for G120SB001 of 0.346 mg/kg, and 0.319 mg/kg for G120SB001. These values are well below the base-wide BEQ background (grid-based) value of 1.304 mg/kg for surface soil. Based on this information, BEQs are not considered a COPC in the surface soil at SWMU 120.

5.2 Subsurface Soil

The re-screening of subsurface soil data assumed that any inorganic analytes detected above both the Zone G background (grid-based) range and SSLs could be considered COPCs. However, based on the limited number of background samples (fewer than 10) collected in Zone G, a base-wide subsurface background (grid-based) range was used for screening occurrence of inorganics in subsurface soils.

Using the overall CNC background ranges for tin (0.64 to 20 mg/kg), the subsurface soil concentrations observed in the SWMU 120 samples fall within the range.

No COPCs were identified in the subsurface soil samples collected during the initial RFI, nor during the additional RFI sampling and analysis at SWMU 120.

5.3 Groundwater

Only arsenic was identified as a COPC in groundwater in the RFI report.

5.3.1 Arsenic

Levels of arsenic observed in wells have ranged from a maximum value of 11.9 µg/L in well G120GW002, to values exceeding the MCLs in G120GW001 (60.4 µg/L) and G120GW003 (57.7 µg/L), as shown in Figure 4-3. Four groundwater sampling events have been conducted at SWMU 120, indicating a slight increase of arsenic concentrations in the samples collected from the monitoring wells. Arsenic concentrations observed in the samples collected from well location G120GW002 remain below the MCL.

Arsenic is not a COC in surface or subsurface soils, and cannot be tied to past site activities. No source of arsenic in surface or subsurface soils was identified during investigations. SWMU 120 soils do not display the elevated and widespread concentrations of arsenic that would be necessary for leaching to groundwater to occur. Available information regarding SWMU 120 operations does not indicate that arsenic-containing compounds such as pesticides were ever routinely stored or disposed of at this location.

Arsenic has been routinely detected in the four Zone G grid monitoring wells (GDGGW001, GDGGW01D, GDGGW002, and GDGGW02D) with both shallow monitoring wells exceeding the BRC and the 50 µg/L MCL. At GDGGW001, arsenic exceeded the MCL during all four sampling events, with concentrations ranging from 79.9 µg/L to 166 µg/L. In well GDGGW002, a maximum arsenic concentration of 59.7 µg/L was measured during the fourth RFI sampling event in December 1997. These data support the hypothesis that the elevated arsenic concentrations at SWMU 120 are related to geochemical conditions that extend across Zone G, and that the elevated arsenic concentrations at SWMU 120 are not related to specific waste disposal or handling activities at SWMU 120.

Table 5-1 presents a summary of historical arsenic and iron concentrations in Zone G background (grid) wells. Figure 5-1 shows the locations of these wells and the SWMU 120 wells within Zone G. Both arsenic and iron levels in the grid wells are elevated, suggesting the possibility that natural biological/geochemical processes, such as iron-reducing microbial action, may also be mobilizing arsenic.

Generally, groundwater systems contain arsenic in the form of arsenate (As[V]), an oxyanion. As described in *Arsenic in the Environment* (Nriagu, 1994), arsenate is strongly adsorbed to iron, aluminum, and manganese oxides, which helps control dissolved arsenic concentrations. In anoxic environments arsenate may be reduced to arsenite, a more soluble and mobile form of arsenic. Oxides of iron, aluminum, and manganese become more

soluble in water under reducing conditions. Dissolution of these oxides may result in the release of the adsorbed As(V), with subsequent reduction of As(V) to As(III), depending on reduction potential.

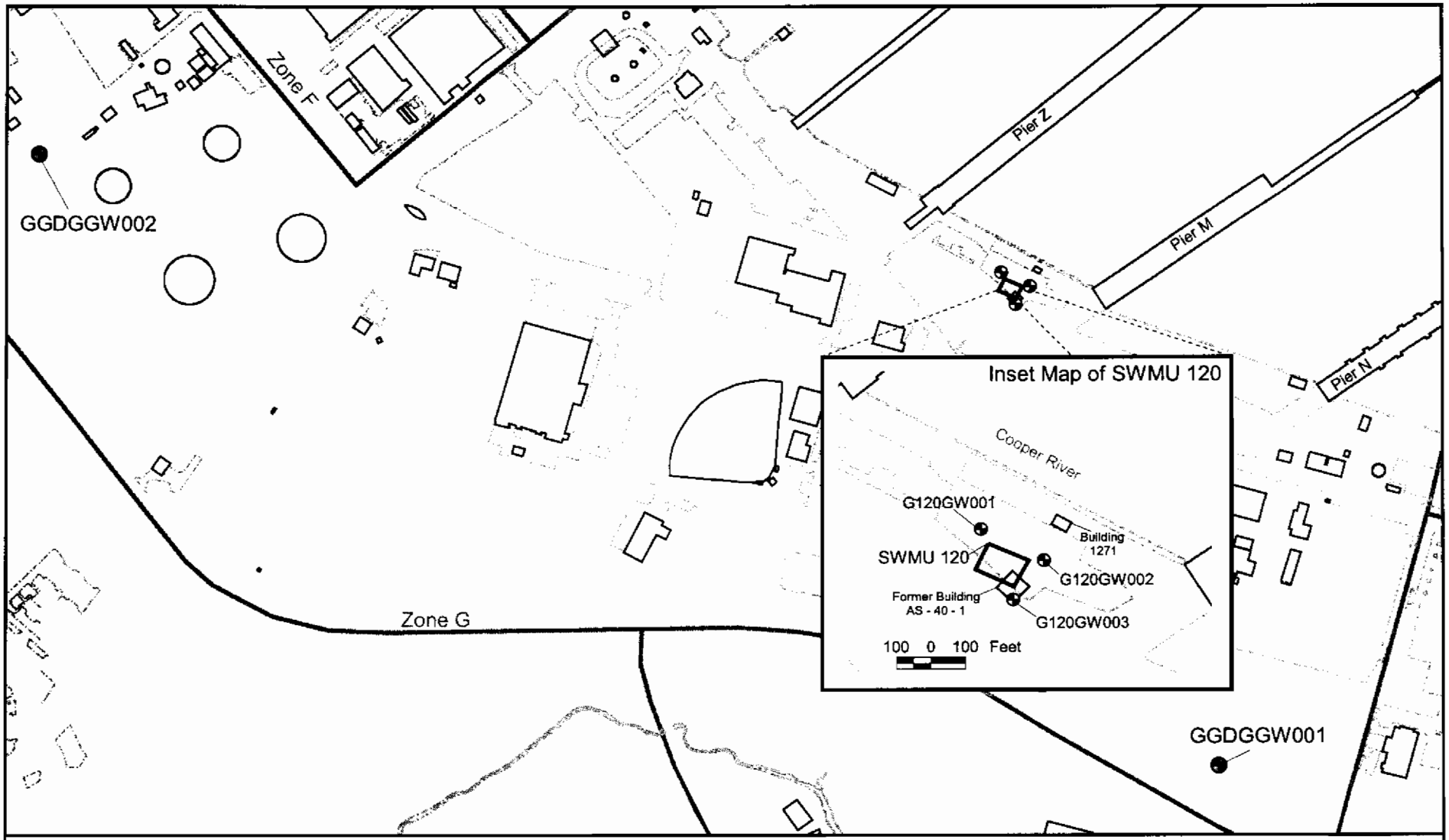
Microbial populations can also exert substantial influence over dissolved arsenic groundwater concentrations. The contribution of dissolved arsenic by anaerobic bacteria was reported in the article *Microbial Mobilization of Arsenic from Sediments of the Aberjona Watershed* (Ahmann et al, 1997). Several bacteria are known to reduce arsenate [As(V)] to arsenite [As(III)], which is more toxic and more mobile than arsenate. Among the microbial populations that reduce arsenic are sulfate-reducing and iron-reducing bacteria, both of which are ubiquitous in anoxic groundwater environments.

Based upon the above information, the lack of data indicating that arsenic is related to activities at SWMU 120, the occurrence of elevated arsenic in groundwater in Zone G grid wells, and the significant possibility that the elevated arsenic is due to natural geochemical processes, CH2M-Jones believes that arsenic should not be considered a COC in SWMU 120 groundwater and that further evaluation of arsenic at this site is not warranted.

TABLE 5-1
Arsenic and Iron Concentrations in Zone G Grid Wells
RFI Report Addendum, SWMU 120, Zone G, CNC

Location	Date Collected	Arsenic Concentration (µg/L)	Iron Concentration (µg/L)
GGDGGW001	11/16/1996	117.0 =	10,300.0 =
GGDGGW001	06/18/1997	166.0 =	2,000.0 =
GGDGGW001	09/17/1997	112.0 =	2,210.0 =
GGDGGW001	12/16/1997	79.9 =	2,780.0 =
GGDGGW001	01/29/1997	126.0 =	4,160.0 J
GGDGGW002	11/17/1996	7.8 J	28,200.0 =
GGDGGW002	06/18/1997	10.0 J	35,700.0 =
GGDGGW002	09/17/1997	9.4 J	30,500.0 =
GGDGGW002	12/15/1997	59.7 =	16,300.0 =

= Chemical detected at concentration shown.
J Chemical detected at concentration below method detection limit.
µg/L Micrograms per liter



- Zone G Grid Wells
- SWMU 120 Groundwater Samples
- Pavement
- Shoreline
- Zone Boundary
- SWMU 120
- Buildings

N

0 300 600 Feet

Figure 5-1
Zone G Grid Wells
SWMU 120
Charleston Naval Complex

CH2MHILL

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6.0 Summary of Information Related to Site Closeout Issues

6.1 RFI Status

The *Zone G RFI Report, Revision 0* (EnSafe, 1998) addressed SWMUs/AOCs within the Naval Complex, including SWMU 120. At the conclusion of the RFI report, EnSafe did not consider the investigation to be complete for this site, and their subsequent *Zone G RFI Workplan Addendum* (EnSafe, 2000) proposed additional sampling. Reports, comments and responses made by SCDHEC following the *Zone G RFI Report, Revision 0* indicated their agreement that additional sampling was needed. A copy of the responses to SCDHEC comments, on the *Zone G RFI Report, Revision 0* and the *Zone G RFI Work Plan Addendum* for this site are provided as Appendix C.

Based on the original field activities conducted as part of the RFI report, and subsequent sampling and analysis as presented in Section 4.0 of this report, the RFI is considered complete. No further investigation is required.

6.2 Presence of Inorganics in Groundwater

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

The RFI results indicated that the soil-to-groundwater pathway is not significant. Arsenic is present in shallow site groundwater at levels slightly exceeding the MCL, but arsenic is not a COC in soils, and additional sampling did not identify any new areas of arsenic contamination in soils that could be leaching to groundwater. As a result, the soil-to-groundwater pathway is considered invalid at this site, and further groundwater investigation for inorganics is not warranted.

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

SWMU 120 was a temporary staging area while maintenance activities were conducted on naval submarines. Based upon available information, there do not appear to be any impacts to groundwater from site operations or sanitary sewers. The only groundwater COPC identified was arsenic. No data are available that indicate the arsenic present in groundwater was released from the sanitary sewer. Therefore, further evaluation of this issue is not warranted.

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

Potential linkage of a SWMU or AOC to a storm sewer refers to the possibility of a groundwater plume at a SWMU or AOC migrating into a storm sewer from 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. The closest surface storm drains are 130 feet to the southwest and southeast in the paved parking lots. Based upon available information, there does not appear to be any impact to or from site storm sewers. The only COPC identified was arsenic in groundwater, which does not appear to be associated with storm sewers. Therefore, further evaluation of this issue is not warranted.

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

The nearest investigated railroad line to SWMU 120 is over 1,300 feet to the northwest. There is no known linkage between SWMU 120 and the investigated railroad lines of AOC 504. Therefore, further evaluation of this issue is not warranted.

6.6 Potential Migration Pathways to Surface Water Bodies at the CNC

The nearest surface water body to SWMU 120 is the Cooper River, adjacent to the north and east of the site (the site is at Pier M). Two potential migration pathways from the site to surface water are overland flow via storm water runoff, and subsurface flow via groundwater. There are no COCs in surface soils, and presence of arsenic in groundwater does not appear to be a SWMU 120 site-related issue.

6.7 Potential Contamination in Oil/Water Separators

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

Neither the RCRA Facility Investigation (RFA) nor the RFI refer to the presence or possible presence of an OWS at SWMU 120. In addition, there is no visual evidence of an OWS at this site. There is also no reference made to an OWS at this facility in the *Oil Water Separator Data* (Navy, 2000). Therefore, further evaluation of this issue at SWMU 120 is not warranted.

6.8 Land Use Control Management Plan

No COCs were identified in the surface and subsurface soil at SWMU 120 for unrestricted land use. Therefore, land use controls or restrictions are not necessary for this site.

7.0 Recommendations

SWMU 120 was a temporary staging area, which included former building AS-40-1, while maintenance activities were conducted on naval submarines. Building AS-40-1 was a paint spray booth. The building structure has since been torn down, but the concrete foundation remains at SWMU 120. Materials potentially stored, released, or disposed of included lead bricks (used as shielding for the nuclear reactors on the submarines), paints, paint thinners, and greases. The surface at the site is currently unpaved, with asphalt-paved areas surrounding the site along the dock and in the parking lot south of the former building. The site is zoned for future maritime industrial use.

After evaluation of data collected during the original RFI as well as during subsequent sampling and analysis, no COCs were identified for soil or groundwater for an unrestricted land use scenario. No further investigation of surface or subsurface soils is necessary at the site, and no land use controls are required for unrestricted future land use. The occurrence of arsenic in groundwater does not appear to be related to past operations of SWMU 120. Future land use is expected to be maritime industrial for the foreseeable future. Charleston International Ports currently leases this site. Therefore, SWMU 120 is proposed for a NFA status.

A Statement of Basis should be prepared that will be made available for public comment in accordance with SCDHEC policy. This will allow for public participation in the final remedy selection, currently proposed as NFA.

8.0 References

Ahmann et al. *Microbial Mobilization of Arsenic from Sediments of the Aberjona Watershed,* Environmental Science and Technology. 1997.

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Nriagu, J. (Ed.). *Arsenic in the Environment - Part 1; Cycling and Characterization*. Wiley & Sons. 1994.

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U.S. Environmental Protection Agency (EPA). *EPA Drinking Water Regulations and Health Advisories*. 1996b.

U.S. Navy. *Oil Water Separator Data*. September 2000.

	StationID	G120GW001		G120GW001		G120GW001		G120GW001	
	SampleID	120GW00101		120GW00102		120GW00103		120GW00104	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	11/26/96		6/3/97		10/3/97		12/12/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Aluminum	ug/L	662	J	273	=	475	J	231	=
Antimony	ug/L	2.1	U	1.6	U	1.6	U	2.1	U
Arsenic	ug/L	26.5	=	41.1	=	60	=	60.4	=
Barium	ug/L	17.9	=	14.8	J	16	U	14.4	=
Beryllium	ug/L	0.58	U	0.2	UJ	0.2	U	0.2	U
Cadmium	ug/L	0.5	U	0.3	U	0.34	J	0.3	U
Calcium	ug/L	51700	=	52400	J	53100	J	53700	=
Chromium, Total	ug/L	2.7	U	1.5	J	1.8	J	1.6	U
Cobalt	ug/L	0.9	U	1.4	U	0.8	U	0.8	U
Copper	ug/L	4	U	1.4	U	1.81	J	2.2	J
Iron	ug/L	7970	=	8260	J	8500	J	9610	=
Lead	ug/L	1.7	UJ	2	J	1	U	0.9	UJ
Magnesium	ug/L	26600	=	25400	J	25100	U	27700	=
Manganese	ug/L	330	=	322	J	311	J	324	=
Mercury	ug/L	0.1	U	0.1	U	0.1	J	0.1	U
Nickel	ug/L	5.9	J	4.7	J	4.7	J	7.5	U
Potassium	ug/L	15500	=	14500	=	16100	=	14900	=
Selenium	ug/L	2.8	U	3.4	U	3.4	U	3.4	U
Silver	ug/L	1.2	U	1	U	1	U	1	UJ
Sodium	ug/L	182000	=	150000	=	137000	U	124000	=
Thallium	ug/L	2.7	U	5	UJ	5	U	5	U
Tin (Sn)	ug/L	2.6	U	14	U	14	U	14	U
Vanadium	ug/L	4.3	J	1.9	J	1.72	J	1.6	J
Zinc	ug/L	20.6	U	5.8	U	5.8	U	7.8	J

	StationID	G120GW002		G120GW002		G120GW002		G120GW002	
	SampleID	120GW00201		120GW00202		120GW00203		120GW00204	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	11/22/96		6/3/97		10/3/97		12/12/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Aluminum	ug/L	52.5	J	57.4	J	15.5	UJ	56.4	=
Antimony	ug/L	2.1	U	1.6	U	1.6	U	1.6	U
Arsenic	ug/L	2.5	U	3.7	J	5.8	J	11.9	=
Barium	ug/L	18.1	=	18.1	J	15	U	13.9	=
Beryllium	ug/L	0.52	U	0.2	UJ	0.2	U	0.2	U
Cadmium	ug/L	0.5	U	0.3	U	0.3	U	0.3	U
Calcium	ug/L	101000	=	98700	J	76000	J	78300	=
Chromium, Total	ug/L	1.7	U	1.3	J	1	U	1	U
Cobalt	ug/L	0.9	U	1.4	U	0.8	U	0.8	U
Copper	ug/L	0.6	U	1.4	U	1.4	U	1.4	U
Iron	ug/L	3950	=	2550	J	4790	J	6890	=
Lead	ug/L	1.7	UJ	0.9	UJ	0.9	U	0.9	UJ
Magnesium	ug/L	45500	=	48300	J	35500	J	38800	=
Manganese	ug/L	627	=	610	J	636	J	646	=
Mercury	ug/L	0.1	U	0.1	U	0.1	UJ	0.1	U
Nickel	ug/L	1.9	J	2.2	J	1	J	1.7	U
Potassium	ug/L	29300	=	29800	=	24300	=	22900	=
Selenium	ug/L	2.8	U	3.4	U	3.4	U	3.4	U
Silver	ug/L	1.2	U	1	U	1	U	1	UJ
Sodium	ug/L	319000	=	372000	=	219000	=	217000	=
Thallium	ug/L	2.7	U	5	UJ	5	U	5	U
Tin (Sn)	ug/L	2.6	U	14	U	14	U	14	U
Vanadium	ug/L	1.1	J	1.5	J	1.3	J	2.2	J
Zinc	ug/L	5.6	U	5.8	U	5.8	U	5.8	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120GW00301		120GW00302		120GW00303		120GW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	11/22/96		6/3/97		10/3/97		12/12/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Aluminum	ug/L	23.8	J	61.6	J	117	J	493	=
Antimony	ug/L	2.1	U	5.1	U	2.8	U	1.6	U
Arsenic	ug/L	35.4	=	32.2	=	37.3	=	57.7	=
Barium	ug/L	156	=	189	J	193	J	143	=
Beryllium	ug/L	0.38	U	0.2	UJ	0.2	U	0.2	U
Cadmium	ug/L	0.5	U	0.3	U	0.39	J	0.3	U
Calcium	ug/L	91100	=	104000	J	114000	J	88000	=
Chromium, Total	ug/L	0.8	U	1	U	1	U	1.8	U
Cobalt	ug/L	1.3	J	3.5	U	0.91	J	1.2	J
Copper	ug/L	0.6	U	1.4	U	1.4	U	1.6	J
Iron	ug/L	6860	=	8070	J	8360	J	9900	=
Lead	ug/L	1.7	UJ	3.3	J	0.9	U	0.9	UJ
Magnesium	ug/L	35000	=	32700	J	35000	J	26500	=
Manganese	ug/L	221	=	251	J	277	J	223	=
Mercury	ug/L	0.1	U	0.1	U	0.1	UJ	0.1	U
Nickel	ug/L	12.1	J	23.4	J	14.5	J	15.6	U
Potassium	ug/L	28400	=	25700	=	28700	=	19400	=
Selenium	ug/L	3.3	J	3.4	U	3.4	U	3.4	U
Silver	ug/L	1.2	U	1	U	1	U	1	UJ
Sodium	ug/L	146000	=	211000	=	219000	=	144000	=
Thallium	ug/L	2.7	U	5	UJ	5	U	5	U
Tin (Sn)	ug/L	2.6	U	14	U	14	U	14	U
Vanadium	ug/L	0.74	J	1.1	U	1.1	U	2	J
Zinc	ug/L	82.7	=	198	=	71.9	=	316	=

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120HW00301		120HW00302		120HW00303		120HW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	11/22/96		6/3/97		10/3/97		12/12/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Aluminum	ug/L	24.1	J	60.6	J	170	J	417	=
Antimony	ug/L	2.1	U	5.6	U	1.6	U	2.1	U
Arsenic	ug/L	35.2	=	33.2	=	42.8	=	56.7	=
Barium	ug/L	146	=	191	J	194	J	145	=
Beryllium	ug/L	0.45	U	0.36	J	0.21	J	0.2	U
Cadmium	ug/L	0.5	U	0.3	U	0.76	J	0.3	U
Calcium	ug/L	84800	=	105000	J	117000	J	90600	=
Chromium, Total	ug/L	0.8	U	1	U	2.4	J	1.2	U
Cobalt	ug/L	1.6	J	3.2	U	3.5	J	1.6	J
Copper	ug/L	0.6	U	1.4	U	2.9	J	1.7	J
Iron	ug/L	6470	=	8130	J	8580	J	10100	=
Lead	ug/L	5.2	J	0.9	UJ	0.9	U	0.9	UJ
Magnesium	ug/L	32100	=	33000	J	36200	J	27500	=
Manganese	ug/L	206	=	253	J	282	J	228	=
Mercury	ug/L	0.1	U	0.1	U	0.1	UJ	0.1	U
Nickel	ug/L	11.8	J	23.6	J	16.4	J	15.2	U
Potassium	ug/L	26200	=	25700	=	29500	=	19600	=
Selenium	ug/L	2.8	U	3.4	U	3.4	U	3.7	J
Silver	ug/L	1.2	U	1	U	4	J	1	UJ
Sodium	ug/L	136000	=	214000	=	216000	U	140000	=
Thallium	ug/L	2.7	U	5	UJ	5	U	5	U
Tin (Sn)	ug/L	2.6	U	14	U	14	U	14	U
Vanadium	ug/L	0.5	U	1.1	U	3	J	1.8	J
Zinc	ug/L	106	=	191	=	71.2	=	236	=

	StationID	G120GW001		G120GW001		G120GW001		G120GW001		G120GW001	
	SampleID	120GW00101		120GW00102		120GW00103		120GW00103RE		120GW00104	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		10/8/97		12/23/97	
	SDGNumber	27651		29437		31030		31030		32020	
Parameter	**Units**										
1,2,3-Trichloropropane	ug/L										
1,2,4,5-Tetrachlorobenzene	ug/L										
1,3,5-Trinitrobenzene	ug/L										
1,3-Dinitrobenzene	ug/L										
1,4-Naphthoquinone	ug/L										
1-Naphthylamine	ug/L										
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	11	U	10	UJ	14	R	10	U
2,3,4,6-Tetrachlorophenol	ug/L										
2,6-Dichlorophenol	ug/L										
2-Methylnaphthalene	ug/L	10	U	11	U	10	UJ	14	R	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	11	U	10	U	14	R	10	U
2-Naphthylamine	ug/L										
2-Picoline	ug/L										
3,3-Dimethylbenzidine	ug/L										
3-Methyl cholanthrene	ug/L										
3-Methylphenol (m-Cresol)	ug/L										
4-Aminobiphenyl	ug/L										
4-Nitroquinoline 1-oxide	ug/L										
5-Nitro-o-toluidine	ug/L										
7,12-Dimethylbenz(a)anthracene	ug/L										
a,a-Dimethylphenethylamine	ug/L										
Acetamidofluorene	ug/L										
Acetophenone	ug/L										
Aniline	ug/L										
Aramite	ug/L										
Carbazole	ug/L										
Chlorobenzilate	ug/L										
Diphenylamine	ug/L										
Ethyl methacrylate	ug/L										
Ethyl methanesulfonate	ug/L										
Hexachlorophene	ug/L										

	StationID	G120GW002		G120GW002		G120GW002		G120GW002		G120GW002	
	SampleID	120GW00201		120GW00201RE		120GW00202		120GW00203		120GW00204	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		12/6/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		27651		29437		31030		32020	
Parameter	**Units**										
1,2,3-Trichloropropane	ug/L										
1,2,4,5-Tetrachlorobenzene	ug/L										
1,3,5-Trinitrobenzene	ug/L										
1,3-Dinitrobenzene	ug/L										
1,4-Naphthoquinone	ug/L										
1-Naphthylamine	ug/L										
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	10	R	12	U	10	U	10	U
2,3,4,6-Tetrachlorophenol	ug/L										
2,6-Dichlorophenol	ug/L										
2-Methylnaphthalene	ug/L	10	U	10	R	12	U	10	U	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	10	R	12	U	10	U	10	U
2-Naphthylamine	ug/L										
2-Picoline	ug/L										
3,3-Dimethylbenzidine	ug/L										
3-Methyl cholanthrene	ug/L										
3-Methylphenol (m-Cresol)	ug/L										
4-Aminobiphenyl	ug/L										
4-Nitroquinoline 1-oxide	ug/L										
5-Nitro-o-toluidine	ug/L										
7,12-Dimethylbenz(a)anthracene	ug/L										
a,a-Dimethylphenethylamine	ug/L										
Acetamidofluorene	ug/L										
Acetophenone	ug/L										
Aniline	ug/L										
Aramite	ug/L										
Carbazole	ug/L										
Chlorobenzilate	ug/L										
Diphenylamine	ug/L										
Ethyl methacrylate	ug/L										
Ethyl methanesulfonate	ug/L										
Hexachlorophene	ug/L										

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120GW00301		120GW00302		120GW00303		120GW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
1,2,3-Trichloropropane	ug/L								
1,2,4,5-Tetrachlorobenzene	ug/L								
1,3,5-Trinitrobenzene	ug/L								
1,3-Dinitrobenzene	ug/L								
1,4-Naphthoquinone	ug/L								
1-Naphthylamine	ug/L								
2,2'-Oxybis(1-chloro)propane	ug/L	10	U	11	U	10	U	10	U
2,3,4,6-Tetrachlorophenol	ug/L								
2,6-Dichlorophenol	ug/L								
2-Methylnaphthalene	ug/L	10	U	11	U	10	U	10	U
2-Methylphenol (o-Cresol)	ug/L	10	U	11	U	10	U	10	U
2-Naphthylamine	ug/L								
2-Picoline	ug/L								
3,3-Dimethylbenzidine	ug/L								
3-Methyl cholanthrene	ug/L								
3-Methylphenol (m-Cresol)	ug/L								
4-Aminobiphenyl	ug/L								
4-Nitroquinoline 1-oxide	ug/L								
5-Nitro-o-toluidine	ug/L								
7,12-Dimethylbenz(a)anthracene	ug/L								
a,a-Dimethylphenethylamine	ug/L								
Acetamidofluorene	ug/L								
Acetophenone	ug/L								
Aniline	ug/L								
Aramite	ug/L								
Carbazole	ug/L								
Chlorobenzilate	ug/L								
Diphenylamine	ug/L								
Ethyl methacrylate	ug/L								
Ethyl methanesulfonate	ug/L								
Hexachlorophene	ug/L								

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120HW00301		120HW00301		120HW00302		120HW00303	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997	
	DateAnalyzed	11/22/96		12/8/96		5/30/97		9/27/97	
	SDGNumber	27651		27651		29437		31030	
Parameter	**Units**								
1,2,3-Trichloropropane	ug/L	5	U						
1,2,4,5-Tetrachlorobenzene	ug/L			10	U				
1,3,5-Trinitrobenzene	ug/L			10	U				
1,3-Dinitrobenzene	ug/L			10	U				
1,4-Naphthoquinone	ug/L			10	U				
1-Naphthylamine	ug/L			10	U				
2,2'-Oxybis(1-chloro)propane	ug/L			10	U	12	U	10	U
2,3,4,6-Tetrachlorophenol	ug/L			10	U				
2,6-Dichlorophenol	ug/L			10	U				
2-Methylnaphthalene	ug/L			10	U	12	U	10	U
2-Methylphenol (o-Cresol)	ug/L			10	U	12	U	10	U
2-Naphthylamine	ug/L			10	U				
2-Picoline	ug/L			10	U				
3,3-Dimethylbenzidine	ug/L			10	U				
3-Methyl cholanthrene	ug/L			10	R				
3-Methylphenol (m-Cresol)	ug/L			10	U				
4-Aminobiphenyl	ug/L			10	U				
4-Nitroquinoline 1-oxide	ug/L			50	U				
5-Nitro-o-toluidine	ug/L			10	U				
7,12-Dimethylbenz(a)anthracene	ug/L			10	U				
a,a-Dimethylphenethylamine	ug/L			10	U				
Acetamidofluorene	ug/L			10	U				
Acetophenone	ug/L			10	UJ				
Aniline	ug/L			10	U				
Aramite	ug/L			50	R				
Carbazole	ug/L			10	R				
Chlorobenzilate	ug/L			10	U				
Diphenylamine	ug/L			10	UJ				
Ethyl methacrylate	ug/L	5	U						
Ethyl methanesulfonate	ug/L			10	UJ				
Hexachlorophene	ug/L			200	R				

	StationID	G120GW003		G120GW003	
	SampleID	120HW00303RE		120HW00304	
	DateCollected	09/15/1997		12/05/1997	
	DateAnalyzed	10/4/97		12/23/97	
	SDGNumber	31030		32020	
Parameter	**Units**				
1,2,3-Trichloropropane	ug/L				
1,2,4,5-Tetrachlorobenzene	ug/L				
1,3,5-Trinitrobenzene	ug/L				
1,3-Dinitrobenzene	ug/L				
1,4-Naphthoquinone	ug/L				
1-Naphthylamine	ug/L				
2,2'-Oxybis(1-chloro)propane	ug/L	10	R	10	U
2,3,4,6-Tetrachlorophenol	ug/L				
2,6-Dichlorophenol	ug/L				
2-Methylnaphthalene	ug/L	10	R	10	U
2-Methylphenol (o-Cresol)	ug/L	10	R	10	U
2-Naphthylamine	ug/L				
2-Picoline	ug/L				
3,3-Dimethylbenzidine	ug/L				
3-Methyl cholanthrene	ug/L				
3-Methylphenol (m-Cresol)	ug/L				
4-Aminobiphenyl	ug/L				
4-Nitroquinoline 1-oxide	ug/L				
5-Nitro-o-toluidine	ug/L				
7,12-Dimethylbenz(a)anthracene	ug/L				
a,a-Dimethylphenethylamine	ug/L				
Acetamidofluorene	ug/L				
Acetophenone	ug/L				
Aniline	ug/L				
Aramite	ug/L				
Carbazole	ug/L				
Chlorobenzilate	ug/L				
Diphenylamine	ug/L				
Ethyl methacrylate	ug/L				
Ethyl methanesulfonate	ug/L				
Hexachlorophene	ug/L				

	StationID	G120GW001		G120GW001		G120GW001		G120GW001		G120GW001	
	SampleID	120GW00101		120GW00102		120GW00103		120GW00103RE		120GW00104	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		10/8/97		12/23/97	
	SDGNumber	27651		29437		31030		31030		32020	
Parameter	**Units**										
Hexachloropropene	ug/L										
Isosafrole	ug/L										
Methapyrilene	ug/L										
Methyl methacrylate	ug/L										
Methyl methanesulfonate	ug/L										
N-Nitroso-di-n-butylamine	ug/L										
N-Nitrosodiethylamine	ug/L										
N-Nitrosodimethylamine	ug/L										
N-Nitrosomethylethylamine	ug/L										
N-Nitrosomorpholine	ug/L										
o-Toluidine	ug/L										
p-(Dimethylamino)azobenzene	ug/L										
p-Phenylenediamine	ug/L										
Pentachlorobenzene	ug/L										
Pentachloroethane	ug/L										
Pentachloronitrobenzene	ug/L										
Phenacetin	ug/L										
Pronamide	ug/L										
Pyridine	ug/L										
Safrole	ug/L										
Phenol	ug/L	10	U	11	U	10	U	14	R	10	U
Acenaphthylene	ug/L	10	U	11	U	10	UJ	14	R	10	U
bis(2-Chloroethyl) ether (2-Chlorc	ug/L	10	U	11	U	10	UJ	14	R	10	U
2-Chlorophenol	ug/L	10	U	11	U	10	U	14	R	10	U
Acenaphthene	ug/L	10	U	11	U	10	UJ	14	R	10	U
1,3-Dichlorobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Fluorene	ug/L	10	U	11	U	10	UJ	14	R	10	U
1,4--Dichlorobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Phenanthrene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Anthracene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzyl alcohol	ug/L	10	U	11	U	10	UJ	14	R	10	U

	StationID	G120GW002		G120GW002		G120GW002		G120GW002		G120GW002	
	SampleID	120GW00201		120GW00201RE		120GW00202		120GW00203		120GW00204	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		12/6/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		27651		29437		31030		32020	
Parameter	**Units**										
Hexachloropropene	ug/L										
Isosafrole	ug/L										
Methapyrilene	ug/L										
Methyl methacrylate	ug/L										
Methyl methanesulfonate	ug/L										
N-Nitroso-di-n-butylamine	ug/L										
N-Nitrosodiethylamine	ug/L										
N-Nitrosodimethylamine	ug/L										
N-Nitrosomethylethylamine	ug/L										
N-Nitrosomorpholine	ug/L										
o-Toluidine	ug/L										
p-(Dimethylamino)azobenzene	ug/L										
p-Phenylenediamine	ug/L										
Pentachlorobenzene	ug/L										
Pentachloroethane	ug/L										
Pentachloronitrobenzene	ug/L										
Phenacetin	ug/L										
Pronamide	ug/L										
Pyridine	ug/L										
Safrole	ug/L										
Phenol	ug/L	10	U	10	R	12	U	10	U	10	U
Acenaphthylene	ug/L	10	U	10	R	12	U	10	U	10	U
bis(2-Chloroethyl) ether (2-Chlorc	ug/L	10	U	10	R	12	U	10	U	10	U
2-Chlorophenol	ug/L	10	U	10	R	12	U	10	U	10	U
Acenaphthene	ug/L	10	U	10	R	12	U	2	J	3	J
1,3-Dichlorobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
Fluorene	ug/L	10	U	10	R	12	U	10	U	10	U
1,4--Dichlorobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
Phenanthrene	ug/L	10	U	10	R	12	U	10	U	10	U
Anthracene	ug/L	10	U	10	R	12	U	10	U	10	U
Benzyl alcohol	ug/L	10	U	10	R	12	U	10	U	10	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120GW00301		120GW00302		120GW00303		120GW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Hexachloropropene	ug/L								
Isosafrole	ug/L								
Methapyrilene	ug/L								
Methyl methacrylate	ug/L								
Methyl methanesulfonate	ug/L								
N-Nitroso-di-n-butylamine	ug/L								
N-Nitrosodiethylamine	ug/L								
N-Nitrosodimethylamine	ug/L								
N-Nitrosomethylethylamine	ug/L								
N-Nitrosomorpholine	ug/L								
o-Toluidine	ug/L								
p-(Dimethylamino)azobenzene	ug/L								
p-Phenylenediamine	ug/L								
Pentachlorobenzene	ug/L								
Pentachloroethane	ug/L								
Pentachloronitrobenzene	ug/L								
Phenacetin	ug/L								
Pronamide	ug/L								
Pyridine	ug/L								
Safrole	ug/L								
Phenol	ug/L	10	U	11	U	10	U	10	U
Acenaphthylene	ug/L	10	U	11	U	10	U	10	U
bis(2-Chloroethyl) ether (2-Chlorc	ug/L	10	U	11	U	10	U	10	U
2-Chlorophenol	ug/L	10	U	11	U	10	U	10	U
Acenaphthene	ug/L	10	U	11	U	10	U	10	U
1,3-Dichlorobenzene	ug/L	10	U	11	U	10	U	10	U
Fluorene	ug/L	10	U	11	U	10	U	10	U
1,4--Dichlorobenzene	ug/L	10	U	11	U	10	U	10	U
Phenanthrene	ug/L	10	U	11	U	10	U	10	U
Anthracene	ug/L	10	U	11	U	10	U	10	U
Benzyl alcohol	ug/L	10	U	11	U	10	U	10	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120HW00301		120HW00301		120HW00302		120HW00303	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997	
	DateAnalyzed	11/22/96		12/8/96		5/30/97		9/27/97	
	SDGNumber	27651		27651		29437		31030	
Parameter	**Units**								
Hexachloropropene	ug/L			10	U				
Isosafrole	ug/L			10	U				
Methapyrilene	ug/L			20	U				
Methyl methacrylate	ug/L	5	U						
Methyl methanesulfonate	ug/L			50	U				
N-Nitroso-di-n-butylamine	ug/L			10	U				
N-Nitrosodiethylamine	ug/L			10	U				
N-Nitrosodimethylamine	ug/L			10	U				
N-Nitrosomethylethylamine	ug/L			10	U				
N-Nitrosomorpholine	ug/L			10	U				
o-Toluidine	ug/L			10	UJ				
p-(Dimethylamino)azobenzene	ug/L			10	U				
p-Phenylenediamine	ug/L			50	UJ				
Pentachlorobenzene	ug/L			10	U				
Pentachloroethane	ug/L	5	U						
Pentachloronitrobenzene	ug/L			50	U				
Phenacetin	ug/L			10	U				
Pronamide	ug/L			10	U				
Pyridine	ug/L			10	U				
Safrole	ug/L			10	U				
Phenol	ug/L			10	U	12	U	10	U
Acenaphthylene	ug/L			10	U	12	U	10	U
bis(2-Chloroethyl) ether (2-Chlorc	ug/L			10	U	12	U	10	U
2-Chlorophenol	ug/L			10	U	12	U	10	U
Acenaphthene	ug/L			10	U	12	U	10	U
1,3-Dichlorobenzene	ug/L			10	U	12	U	10	U
Fluorene	ug/L			10	U	12	U	10	U
1,4--Dichlorobenzene	ug/L			10	U	12	U	10	U
Phenanthrene	ug/L			10	U	12	U	10	U
Anthracene	ug/L			10	U	12	U	10	U
Benzyl alcohol	ug/L			10	U	12	U	10	U

	StationID	G120GW003		G120GW003	
	SampleID	120HW00303RE		120HW00304	
	DateCollected	09/15/1997		12/05/1997	
	DateAnalyzed	10/4/97		12/23/97	
	SDGNumber	31030		32020	
Parameter	**Units**				
Hexachloropropene	ug/L				
Isosafrole	ug/L				
Methapyrilene	ug/L				
Methyl methacrylate	ug/L				
Methyl methanesulfonate	ug/L				
N-Nitroso-di-n-butylamine	ug/L				
N-Nitrosodiethylamine	ug/L				
N-Nitrosodimethylamine	ug/L				
N-Nitrosomethylethylamine	ug/L				
N-Nitrosomorpholine	ug/L				
o-Toluidine	ug/L				
p-(Dimethylamino)azobenzene	ug/L				
p-Phenylenediamine	ug/L				
Pentachlorobenzene	ug/L				
Pentachloroethane	ug/L				
Pentachloronitrobenzene	ug/L				
Phenacetin	ug/L				
Pronamide	ug/L				
Pyridine	ug/L				
Safrole	ug/L				
Phenol	ug/L	1	R	10	U
Acenaphthylene	ug/L	10	R	10	U
bis(2-Chloroethyl) ether (2-Chlorc	ug/L	10	R	10	U
2-Chlorophenol	ug/L	10	R	10	U
Acenaphthene	ug/L	1	R	10	U
1,3-Dichlorobenzene	ug/L	10	R	10	U
Fluorene	ug/L	10	R	10	U
1,4--Dichlorobenzene	ug/L	10	R	10	U
Phenanthrene	ug/L	10	R	10	U
Anthracene	ug/L	10	R	10	U
Benzyl alcohol	ug/L	10	R	10	U

	StationID	G120GW001		G120GW001		G120GW001		G120GW001		G120GW001	
	SampleID	120GW00101		120GW00102		120GW00103		120GW00103RE		120GW00104	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		10/8/97		12/23/97	
	SDGNumber	27651		29437		31030		31030		32020	
Parameter	**Units**										
Flouranthene	ug/L	10	U	11	U	10	UJ	14	R	10	U
1,2-Dichlorobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Pyrene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzo(a)Anthracene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Chrysene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzo(b)Fluoranthene	ug/L	10	U	11	U	10	UJ	14	R	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	11	U	10	UJ	14	R	10	U
N-Nitrosopyrrolidine	ug/L										
4-Methylphenol (p-Cresol)	ug/L	10	U	11	U	10	U	14	R	10	U
Benzo(k)Fluoranthene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzo(a)Pyrene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Hexachloroethane	ug/L	10	U	11	U	10	UJ	14	R	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Nitrobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Dibenz(a,h)anthracene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Isophorone	ug/L	10	U	11	U	10	UJ	14	R	10	U
2-Nitrophenol	ug/L	10	U	11	U	10	U	14	R	10	U
Benzo(g,h,i)Perylene	ug/L	10	U	11	U	10	UJ	14	R	10	U
2,4-Dimethylphenol	ug/L	10	U	11	U	10	U	14	R	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzoic acid	ug/L	50	U	56	U	50	U	4	R	50	U
2,4-Dichlorophenol	ug/L	10	U	11	U	10	U	14	R	10	U
1,2,4--Trichlorobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
4-Chloroaniline	ug/L	10	U	11	U	10	UJ	14	R	10	U
Hexachlorobutadiene	ug/L	10	U	11	U	10	UJ	14	R	10	U
4-Chloro-3-methylphenol	ug/L	10	U	11	U	10	U	14	R	10	U
Hexachlorocyclopentadiene	ug/L	10	U	11	U	10	UJ	14	R	10	U
2,4,6-Trichlorophenol	ug/L	10	U	11	U	10	U	14	R	10	U
2,4,5-Trichlorophenol	ug/L	50	U	56	U	50	U	68	R	50	U
2-Chloronaphthalene	ug/L	10	U	11	U	10	UJ	14	R	10	U
2-Nitroaniline	ug/L	50	U	56	U	50	UJ	68	R	50	U

	StationID	G120GW002		G120GW002		G120GW002		G120GW002		G120GW002	
	SampleID	120GW00201		120GW00201RE		120GW00202		120GW00203		120GW00204	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		12/6/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		27651		29437		31030		32020	
Parameter	**Units**										
Flouranthene	ug/L	10	U	10	R	12	U	10	U	10	U
1,2-Dichlorobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
Pyrene	ug/L	10	U	10	R	12	U	10	U	10	U
Benzo(a)Anthracene	ug/L	10	U	10	R	12	U	10	U	10	U
Chrysene	ug/L	10	U	10	R	12	U	10	U	10	U
Benzo(b)Fluoranthene	ug/L	10	U	10	R	12	U	10	U	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	10	R	12	U	10	U	10	U
N-Nitrosopyrrolidine	ug/L										
4-Methylphenol (p-Cresol)	ug/L	10	U	10	R	12	U	10	U	10	U
Benzo(k)Fluoranthene	ug/L	10	U	10	R	12	U	10	U	10	U
Benzo(a)Pyrene	ug/L	10	U	10	R	12	U	10	U	10	U
Hexachloroethane	ug/L	10	U	10	R	12	U	10	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	U	10	R	12	U	10	U	10	U
Nitrobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
Dibenz(a,h)anthracene	ug/L	10	U	10	R	12	U	10	U	10	U
Isophorone	ug/L	10	U	10	R	12	U	10	U	10	U
2-Nitrophenol	ug/L	10	U	10	R	12	U	10	U	10	U
Benzo(g,h,i)Perylene	ug/L	10	U	10	R	12	U	10	U	10	U
2,4-Dimethylphenol	ug/L	10	U	10	R	12	U	10	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	10	R	12	U	10	U	10	U
Benzoic acid	ug/L	50	U	50	R	59	U	6	J	50	U
2,4-Dichlorophenol	ug/L	10	U	10	R	12	U	10	U	10	U
1,2,4--Trichlorobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
4-Chloroaniline	ug/L	10	U	10	R	12	U	10	U	10	U
Hexachlorobutadiene	ug/L	10	U	10	R	12	U	10	U	10	U
4-Chloro-3-methylphenol	ug/L	10	U	10	R	12	U	10	U	10	U
Hexachlorocyclopentadiene	ug/L	10	U	10	R	12	U	10	U	10	U
2,4,6-Trichlorophenol	ug/L	10	U	10	R	12	U	10	U	10	U
2,4,5-Trichlorophenol	ug/L	50	U	50	R	59	U	50	U	50	U
2-Chloronaphthalene	ug/L	10	U	10	R	12	U	10	U	10	U
2-Nitroaniline	ug/L	50	U	50	R	59	U	50	U	50	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120GW00301		120GW00302		120GW00303		120GW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
Flouranthene	ug/L	10	U	11	U	10	U	10	U
1,2-Dichlorobenzene	ug/L	10	U	11	U	10	U	10	U
Pyrene	ug/L	10	U	11	U	10	U	10	U
Benzo(a)Anthracene	ug/L	10	U	11	U	10	U	10	U
Chrysene	ug/L	10	U	11	U	10	U	10	U
Benzo(b)Fluoranthene	ug/L	10	U	11	U	10	U	10	U
N-Nitrosodi-n-propylamine	ug/L	10	U	11	U	10	U	10	U
N-Nitrosopyrrolidine	ug/L								
4-Methylphenol (p-Cresol)	ug/L	10	U	11	U	10	U	10	U
Benzo(k)Fluoranthene	ug/L	10	U	11	U	10	U	10	U
Benzo(a)Pyrene	ug/L	10	U	11	U	10	U	10	U
Hexachloroethane	ug/L	10	U	11	U	10	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	U	11	U	10	U	10	U
Nitrobenzene	ug/L	10	U	11	U	10	U	10	U
Dibenz(a,h)anthracene	ug/L	10	U	11	U	10	U	10	U
Isophorone	ug/L	10	U	11	U	10	U	10	U
2-Nitrophenol	ug/L	10	U	11	U	10	U	10	U
Benzo(g,h,i)Perylene	ug/L	10	U	11	U	10	U	10	U
2,4-Dimethylphenol	ug/L	10	U	11	U	10	U	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	U	11	U	10	U	10	U
Benzoic acid	ug/L	50	U	57	U	6	J	50	U
2,4-Dichlorophenol	ug/L	10	U	11	U	10	U	10	U
1,2,4--Trichlorobenzene	ug/L	10	U	11	U	10	U	10	U
4-Chloroaniline	ug/L	10	U	11	U	10	U	10	U
Hexachlorobutadiene	ug/L	10	U	11	U	10	U	10	U
4-Chloro-3-methylphenol	ug/L	10	U	11	U	10	U	10	U
Hexachlorocyclopentadiene	ug/L	10	U	11	U	10	U	10	U
2,4,6-Trichlorophenol	ug/L	10	U	11	U	10	U	10	U
2,4,5-Trichlorophenol	ug/L	50	U	57	U	50	U	50	U
2-Chloronaphthalene	ug/L	10	U	11	U	10	U	10	U
2-Nitroaniline	ug/L	50	U	57	U	50	U	50	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120HW00301		120HW00301		120HW00302		120HW00303	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997	
	DateAnalyzed	11/22/96		12/8/96		5/30/97		9/27/97	
	SDGNumber	27651		27651		29437		31030	
Parameter	**Units**								
Flouranthene	ug/L			10	U	12	U	10	U
1,2-Dichlorobenzene	ug/L			10	U	12	U	10	U
Pyrene	ug/L			10	U	12	U	10	U
Benzo(a)Anthracene	ug/L			10	U	12	U	10	U
Chrysene	ug/L			10	U	12	U	10	U
Benzo(b)Fluoranthene	ug/L			10	U	12	U	10	U
N-Nitrosodi-n-propylamine	ug/L			10	U	12	U	10	U
N-Nitrosopyrrolidine	ug/L			10	U				
4-Methylphenol (p-Cresol)	ug/L			10	U	12	U	10	U
Benzo(k)Fluoranthene	ug/L			10	U	12	U	10	U
Benzo(a)Pyrene	ug/L			10	U	12	U	10	U
Hexachloroethane	ug/L			10	U	12	U	10	U
Indeno(1,2,3-c,d)pyrene	ug/L			10	U	12	U	10	U
Nitrobenzene	ug/L			10	U	12	U	10	U
Dibenz(a,h)anthracene	ug/L			10	U	12	U	10	U
Isophorone	ug/L			10	U	12	U	10	U
2-Nitrophenol	ug/L			10	U	12	U	10	U
Benzo(g,h,i)Perylene	ug/L			10	U	12	U	10	U
2,4-Dimethylphenol	ug/L			10	U	12	U	10	U
bis(2-Chloroethoxy) Methane	ug/L			10	U	12	U	10	U
Benzoic acid	ug/L					62	U	50	U
2,4-Dichlorophenol	ug/L			10	U	12	U	10	U
1,2,4--Trichlorobenzene	ug/L			10	U	12	U	10	U
4-Chloroaniline	ug/L			10	U	12	U	10	U
Hexachlorobutadiene	ug/L			10	U	12	U	10	U
4-Chloro-3-methylphenol	ug/L			10	U	12	U	10	U
Hexachlorocyclopentadiene	ug/L			10	U	12	U	10	U
2,4,6-Trichlorophenol	ug/L			10	U	12	U	10	U
2,4,5-Trichlorophenol	ug/L			50	U	62	U	50	U
2-Chloronaphthalene	ug/L			10	U	12	U	10	U
2-Nitroaniline	ug/L			50	U	62	U	50	U

	StationID	G120GW003		G120GW003	
	SampleID	120HW00303RE		120HW00304	
	DateCollected	09/15/1997		12/05/1997	
	DateAnalyzed	10/4/97		12/23/97	
	SDGNumber	31030		32020	
Parameter	**Units**				
Flouranthene	ug/L	10	R	10	U
1,2-Dichlorobenzene	ug/L	10	R	10	U
Pyrene	ug/L	10	R	10	U
Benzo(a)Anthracene	ug/L	10	R	10	U
Chrysene	ug/L	10	R	10	U
Benzo(b)Fluoranthene	ug/L	10	R	10	U
N-Nitrosodi-n-propylamine	ug/L	10	R	10	U
N-Nitrosopyrrolidine	ug/L				
4-Methylphenol (p-Cresol)	ug/L	10	R	10	U
Benzo(k)Fluoranthene	ug/L	10	R	10	U
Benzo(a)Pyrene	ug/L	10	R	10	U
Hexachloroethane	ug/L	10	R	10	U
Indeno(1,2,3-c,d)pyrene	ug/L	10	R	10	U
Nitrobenzene	ug/L	10	R	10	U
Dibenz(a,h)anthracene	ug/L	10	R	10	U
Isophorone	ug/L	10	R	10	U
2-Nitrophenol	ug/L	10	R	10	U
Benzo(g,h,i)Perylene	ug/L	10	R	10	U
2,4-Dimethylphenol	ug/L	10	R	10	U
bis(2-Chloroethoxy) Methane	ug/L	10	R	10	U
Benzoic acid	ug/L	8	R	50	U
2,4-Dichlorophenol	ug/L	10	R	10	U
1,2,4--Trichlorobenzene	ug/L	10	R	10	U
4-Chloroaniline	ug/L	10	R	10	U
Hexachlorobutadiene	ug/L	10	R	10	U
4-Chloro-3-methylphenol	ug/L	1	R	10	U
Hexachlorocyclopentadiene	ug/L	10	R	10	U
2,4,6-Trichlorophenol	ug/L	10	R	10	U
2,4,5-Trichlorophenol	ug/L	50	R	50	U
2-Chloronaphthalene	ug/L	10	R	10	U
2-Nitroaniline	ug/L	50	R	50	U

	StationID	G120GW001		G120GW001		G120GW001		G120GW001		G120GW001	
	SampleID	120GW00101		120GW00102		120GW00103		120GW00103RE		120GW00104	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		10/8/97		12/23/97	
	SDGNumber	27651		29437		31030		31030		32020	
Parameter	**Units**										
2,6-Dinitrotoluene	ug/L	10	U	11	U	10	UJ	14	R	10	U
3-Nitroaniline	ug/L	50	U	56	U	50	UJ	68	R	50	U
2,4-Dinitrophenol	ug/L	50	U	56	U	50	U	68	R	50	U
Dibenzofuran	ug/L	10	U	11	U	10	UJ	14	R	10	U
4-Nitrophenol	ug/L	50	U	56	U	50	U	68	R	50	U
2,4-Dinitrotoluene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Dimethyl Phthalate	ug/L	10	U	11	U	10	UJ	14	R	10	U
Diethyl Phthalate	ug/L	10	U	11	U	10	UJ	14	R	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	11	U	10	UJ	14	R	10	U
4-Nitroaniline	ug/L	50	U	56	U	50	UJ	68	R	50	U
4,6-Dinitro-2-methylphenol	ug/L	50	U	56	U	50	U	68	R	50	U
N-Nitrosodiphenylamine	ug/L	10	U	11	U	10	UJ	14	R	10	U
N-Nitrosopiperidine	ug/L										
4-Bromophenyl Phenyl Ether	ug/L	10	U	11	U	10	UJ	14	R	10	U
Hexachlorobenzene	ug/L	10	U	11	U	10	UJ	14	R	10	U
Pentachlorophenol	ug/L	50	U	56	U	50	U	68	R	50	U
Di-n-butyl Phthalate	ug/L	10	U	11	U	10	UJ	14	R	10	U
Benzyl Butyl Phthalate	ug/L	10	U	11	U	10	UJ	14	R	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	22	U	20	UJ	27	R	20	U
bis(2-Ethylhexyl) Phthalate	ug/L	50	U	11	U	10	UJ	4	R	10	U
Di-n-octylphthalate	ug/L	10	U	11	U	10	UJ	14	R	10	U

	StationID	G120GW002		G120GW002		G120GW002		G120GW002		G120GW002	
	SampleID	120GW00201		120GW00201RE		120GW00202		120GW00203		120GW00204	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		12/6/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		27651		29437		31030		32020	
Parameter	**Units**										
2,6-Dinitrotoluene	ug/L	10	U	10	R	12	U	10	U	10	U
3-Nitroaniline	ug/L	50	U	50	R	59	U	50	U	50	U
2,4-Dinitrophenol	ug/L	50	U	50	R	59	U	50	U	50	U
Dibenzofuran	ug/L	10	U	10	R	12	U	10	U	10	U
4-Nitrophenol	ug/L	50	U	50	R	59	U	50	U	50	U
2,4-Dinitrotoluene	ug/L	10	U	10	R	12	U	10	U	10	U
Dimethyl Phthalate	ug/L	10	U	10	R	12	U	10	U	10	U
Diethyl Phthalate	ug/L	10	U	10	R	12	U	10	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	10	R	12	U	10	U	10	U
4-Nitroaniline	ug/L	50	U	50	R	59	U	50	U	50	U
4,6-Dinitro-2-methylphenol	ug/L	50	U	50	R	59	U	50	U	50	U
N-Nitrosodiphenylamine	ug/L	10	U	10	R	12	U	10	U	10	U
N-Nitrosopiperidine	ug/L										
4-Bromophenyl Phenyl Ether	ug/L	10	U	10	R	12	U	10	U	10	U
Hexachlorobenzene	ug/L	10	U	10	R	12	U	10	U	10	U
Pentachlorophenol	ug/L	50	U	50	R	59	U	50	U	50	U
Di-n-butyl Phthalate	ug/L	10	U	10	R	12	U	10	U	10	U
Benzyl Butyl Phthalate	ug/L	10	U	10	R	12	U	10	U	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	20	R	24	U	20	U	20	U
bis(2-Ethylhexyl) Phthalate	ug/L	10	U	1	R	12	U	10	U	43	U
Di-n-octylphthalate	ug/L	10	U	10	R	12	U	10	U	10	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120GW00301		120GW00302		120GW00303		120GW00304	
	DateCollected	11/18/1996		05/21/1997		09/15/1997		12/05/1997	
	DateAnalyzed	12/5/96		5/30/97		10/2/97		12/23/97	
	SDGNumber	27651		29437		31030		32020	
Parameter	**Units**								
2,6-Dinitrotoluene	ug/L	10	U	11	U	10	U	10	U
3-Nitroaniline	ug/L	50	U	57	U	50	U	50	U
2,4-Dinitrophenol	ug/L	50	U	57	U	50	U	50	U
Dibenzofuran	ug/L	10	U	11	U	10	U	10	U
4-Nitrophenol	ug/L	50	U	57	U	50	U	50	U
2,4-Dinitrotoluene	ug/L	10	U	11	U	10	U	10	U
Dimethyl Phthalate	ug/L	10	U	11	U	10	U	10	U
Diethyl Phthalate	ug/L	10	U	11	U	10	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	U	11	U	10	U	10	U
4-Nitroaniline	ug/L	50	U	57	U	50	U	50	U
4,6-Dinitro-2-methylphenol	ug/L	50	U	57	U	50	U	50	U
N-Nitrosodiphenylamine	ug/L	10	U	11	U	10	U	10	U
N-Nitrosopiperidine	ug/L								
4-Bromophenyl Phenyl Ether	ug/L	10	U	11	U	10	U	10	U
Hexachlorobenzene	ug/L	10	U	11	U	10	U	10	U
Pentachlorophenol	ug/L	50	U	57	U	50	U	50	U
Di-n-butyl Phthalate	ug/L	10	U	11	U	10	U	10	U
Benzyl Butyl Phthalate	ug/L	10	U	11	U	10	U	10	U
3,3'-Dichlorobenzidine	ug/L	20	U	23	U	20	U	20	U
bis(2-Ethylhexyl) Phthalate	ug/L	10	U	11	U	10	U	10	U
Di-n-octylphthalate	ug/L	10	U	11	U	10	U	10	U

	StationID	G120GW003		G120GW003		G120GW003		G120GW003	
	SampleID	120HW00301		120HW00301		120HW00302		120HW00303	
	DateCollected	11/18/1996		11/18/1996		05/21/1997		09/15/1997	
	DateAnalyzed	11/22/96		12/8/96		5/30/97		9/27/97	
	SDGNumber	27651		27651		29437		31030	
Parameter	**Units**								
2,6-Dinitrotoluene	ug/L			10	U	12	U	10	U
3-Nitroaniline	ug/L			50	U	62	U	50	U
2,4-Dinitrophenol	ug/L			50	U	62	U	50	U
Dibenzofuran	ug/L			10	U	12	U	10	U
4-Nitrophenol	ug/L			50	U	62	U	50	U
2,4-Dinitrotoluene	ug/L			10	U	12	U	10	U
Dimethyl Phthalate	ug/L			10	U	12	U	10	U
Diethyl Phthalate	ug/L			10	U	12	U	10	U
4-Chlorophenyl Phenyl Ether	ug/L			10	U	12	U	10	U
4-Nitroaniline	ug/L			50	U	62	U	50	U
4,6-Dinitro-2-methylphenol	ug/L			50	U	62	U	50	U
N-Nitrosodiphenylamine	ug/L			10	U	12	U	10	U
N-Nitrosopiperidine	ug/L			10	U				
4-Bromophenyl Phenyl Ether	ug/L			10	U	12	U	10	U
Hexachlorobenzene	ug/L			10	U	12	U	10	U
Pentachlorophenol	ug/L			50	U	62	U	50	U
Di-n-butyl Phthalate	ug/L			10	U	12	U	10	U
Benzyl Butyl Phthalate	ug/L			10	U	12	U	10	U
3,3'-Dichlorobenzidine	ug/L			20	U	25	U	20	U
bis(2-Ethylhexyl) Phthalate	ug/L			10	U	12	U	10	U
Di-n-octylphthalate	ug/L			10	U	12	U	10	U

	StationID	G120GW003		G120GW003	
	SampleID	120HW00303RE		120HW00304	
	DateCollected	09/15/1997		12/05/1997	
	DateAnalyzed	10/4/97		12/23/97	
	SDGNumber	31030		32020	
Parameter	**Units**				
2,6-Dinitrotoluene	ug/L	10	R	10	U
3-Nitroaniline	ug/L	50	R	50	U
2,4-Dinitrophenol	ug/L	50	R	50	U
Dibenzofuran	ug/L	10	R	10	U
4-Nitrophenol	ug/L	8	R	50	U
2,4-Dinitrotoluene	ug/L	10	R	10	U
Dimethyl Phthalate	ug/L	10	R	10	U
Diethyl Phthalate	ug/L	10	R	10	U
4-Chlorophenyl Phenyl Ether	ug/L	10	R	10	U
4-Nitroaniline	ug/L	50	R	50	U
4,6-Dinitro-2-methylphenol	ug/L	50	R	50	U
N-Nitrosodiphenylamine	ug/L	10	R	10	U
N-Nitrosopiperidine	ug/L				
4-Bromophenyl Phenyl Ether	ug/L	10	R	10	U
Hexachlorobenzene	ug/L	10	R	10	U
Pentachlorophenol	ug/L	50	R	50	U
Di-n-butyl Phthalate	ug/L	10	R	10	U
Benzyl Butyl Phthalate	ug/L	10	R	10	U
3,3'-Dichlorobenzidine	ug/L	20	R	20	U
bis(2-Ethylhexyl) Phthalate	ug/L	2	R	22	U
Di-n-octylphthalate	ug/L	10	R	10	U

	StationID	G120SB001		G120SB002		G120SB002	
	SampleID	120SB00101 (0-1ft)		120SB00201 (0-1ft)		120SB00202 (3-5ft)	
	DateCollected	08/29/1996		08/29/1996		08/29/1996	
	DateAnalyzed	9/10/96		9/10/96		9/10/96	
	SDGNumber	26792		26792		26792	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg						
2,2'-Oxybis(1-chloro)propane	ug/Kg	440	U	350	U	440	U
2-Methylnaphthalene	ug/Kg	160	J	45	J	440	U
2-Methylphenol (o-Cresol)	ug/Kg	440	U	350	U	440	U
Carbazole	ug/Kg						
N-Nitrosodimethylamine	ug/Kg						
Phenol	ug/Kg	440	U	350	U	440	U
Acenaphthylene	ug/Kg	440	U	350	U	440	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	440	U	350	U	440	U
2-Chlorophenol	ug/Kg	440	U	350	U	440	U
Acenaphthene	ug/Kg	440	U	84	J	440	U
1,3-Dichlorobenzene	ug/Kg	440	U	350	U	440	U
Fluorene	ug/Kg	440	U	45	J	440	U
1,4--Dichlorobenzene	ug/Kg	440	U	350	U	440	U
Phenanthrene	ug/Kg	160	J	190	J	69	J
Anthracene	ug/Kg	440	U	350	U	440	U
Benzyl alcohol	ug/Kg	440	U	350	U	440	U
Flouranthene	ug/Kg	260	J	200	J	120	J
1,2-Dichlorobenzene	ug/Kg	440	U	350	U	440	U
Pyrene	ug/Kg	220	J	160	J	100	J
Benzo(a)Anthracene	ug/Kg	100	J	66	J	60	J
Chrysene	ug/Kg	160	J	88	J	160	J
Benzo(b)Fluoranthene	ug/Kg	170	J	72	J	250	J
N-Nitrosodi-n-propylamine	ug/Kg	440	U	350	U	440	U
4-Methylphenol (p-Cresol)	ug/Kg	440	U	350	U	440	U
Benzo(k)Fluoranthene	ug/Kg	92	J	49	J	440	U
Benzo(a)Pyrene	ug/Kg	92	J	53	J	140	J
Hexachloroethane	ug/Kg	440	U	350	U	440	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	57	J	350	U	77	J
Nitrobenzene	ug/Kg	440	U	350	U	440	U
Dibenz(a,h)anthracene	ug/Kg	440	U	350	U	440	U

	StationID	G120SB003		G120SB004		G120SB004	
	SampleID	120SB00301 (0-1ft)		120SB00401 (0-1ft)		120SB00402 (3-5ft)	
	DateCollected	08/29/1996		09/25/1996		09/25/1996	
	DateAnalyzed	9/10/96		10/16/96		10/16/96	
	SDGNumber	26792		27090		27090	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg						
2,2'-Oxybis(1-chloro)propane	ug/Kg	390	U	370	U	400	U
2-Methylnaphthalene	ug/Kg	390	U	370	U	400	U
2-Methylphenol (o-Cresol)	ug/Kg	390	U	370	U	400	U
Carbazole	ug/Kg						
N-Nitrosodimethylamine	ug/Kg						
Phenol	ug/Kg	390	U	370	U	400	U
Acenaphthylene	ug/Kg	390	U	370	U	400	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	390	U	370	U	400	U
2-Chlorophenol	ug/Kg	390	U	370	U	400	U
Acenaphthene	ug/Kg	390	U	370	U	400	U
1,3-Dichlorobenzene	ug/Kg	390	U	370	U	400	U
Fluorene	ug/Kg	390	U	370	U	400	U
1,4--Dichlorobenzene	ug/Kg	390	U	370	U	400	U
Phenanthrene	ug/Kg	390	U	370	U	400	U
Anthracene	ug/Kg	390	U	370	U	400	U
Benzyl alcohol	ug/Kg	390	U	370	U	400	U
Flouranthene	ug/Kg	390	U	370	U	400	U
1,2-Dichlorobenzene	ug/Kg	390	U	370	U	400	U
Pyrene	ug/Kg	390	U	370	U	400	U
Benzo(a)Anthracene	ug/Kg	390	U	370	U	400	U
Chrysene	ug/Kg	390	U	370	U	400	U
Benzo(b)Fluoranthene	ug/Kg	390	U	370	U	400	U
N-Nitrosodi-n-propylamine	ug/Kg	390	U	370	U	400	U
4-Methylphenol (p-Cresol)	ug/Kg	390	U	370	U	400	U
Benzo(k)Fluoranthene	ug/Kg	390	U	370	U	400	U
Benzo(a)Pyrene	ug/Kg	390	U	370	U	400	U
Hexachloroethane	ug/Kg	390	U	370	U	400	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	390	U	370	U	400	U
Nitrobenzene	ug/Kg	390	U	370	U	400	U
Dibenz(a,h)anthracene	ug/Kg	390	U	370	U	400	U

	StationID	G120SB005		G120SB006		G120SB007	
	SampleID	120SB00501 (0-1ft)		120SB00601 (0-1ft)		120SB00701 (0-1ft)	
	DateCollected	09/25/1996		09/24/1996		12/13/1999	
	DateAnalyzed	10/16/96		10/16/96		12/16/99	
	SDGNumber	27090		27065		EN031	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg					360	U
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	360	U	360	U
2-Methylnaphthalene	ug/Kg	370	U	360	U	360	U
2-Methylphenol (o-Cresol)	ug/Kg	370	U	360	U	360	U
Carbazole	ug/Kg					360	U
N-Nitrosodimethylamine	ug/Kg					360	U
Phenol	ug/Kg	370	U	360	U	360	U
Acenaphthylene	ug/Kg	370	U	360	U	360	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U	360	U	360	U
2-Chlorophenol	ug/Kg	370	U	360	U	360	U
Acenaphthene	ug/Kg	370	U	360	U	360	U
1,3-Dichlorobenzene	ug/Kg	370	U	360	U	360	U
Fluorene	ug/Kg	370	U	360	U	360	U
1,4--Dichlorobenzene	ug/Kg	370	U	360	U	360	U
Phenanthrene	ug/Kg	370	U	360	U	360	U
Anthracene	ug/Kg	370	U	360	U	360	U
Benzyl alcohol	ug/Kg	370	U	360	U	360	U
Flouranthene	ug/Kg	370	U	360	U	360	U
1,2-Dichlorobenzene	ug/Kg	370	U	360	U	360	U
Pyrene	ug/Kg	370	U	360	U	360	U
Benzo(a)Anthracene	ug/Kg	370	U	360	U	360	U
Chrysene	ug/Kg	370	U	360	U	360	U
Benzo(b)Fluoranthene	ug/Kg	370	U	360	U	360	U
N-Nitrosodi-n-propylamine	ug/Kg	370	U	360	U	360	U
4-Methylphenol (p-Cresol)	ug/Kg	370	U	360	U	360	U
Benzo(k)Fluoranthene	ug/Kg	370	U	360	U	360	U
Benzo(a)Pyrene	ug/Kg	370	U	360	U	360	U
Hexachloroethane	ug/Kg	370	U	360	U	360	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	370	U	360	U	360	U
Nitrobenzene	ug/Kg	370	U	360	U	360	U
Dibenz(a,h)anthracene	ug/Kg	370	U	360	U	360	U

	StationID	G120SB007		G120SB008		G120SB008	
	SampleID	120SB00702 (3-5ft)		120SB00801 (0-1ft)		120SB00802 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/16/99		12/16/99		12/16/99	
	SDGNumber	EN031		EN031		EN031	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg	370	U	370	U	470	U
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	370	U	470	U
2-Methylnaphthalene	ug/Kg	370	U	370	U	470	U
2-Methylphenol (o-Cresol)	ug/Kg	370	U	370	U	470	U
Carbazole	ug/Kg	370	U	370	U	470	U
N-Nitrosodimethylamine	ug/Kg	370	U	370	U	470	U
Phenol	ug/Kg	370	U	370	U	240	J
Acenaphthylene	ug/Kg	370	U	370	U	470	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U	370	U	470	U
2-Chlorophenol	ug/Kg	370	U	370	U	470	U
Acenaphthene	ug/Kg	370	U	370	U	470	U
1,3-Dichlorobenzene	ug/Kg	370	U	370	U	470	U
Fluorene	ug/Kg	370	U	370	U	470	U
1,4--Dichlorobenzene	ug/Kg	370	U	370	U	470	U
Phenanthrene	ug/Kg	370	U	370	U	240	J
Anthracene	ug/Kg	370	U	370	U	470	U
Benzyl alcohol	ug/Kg	370	U	370	U	470	U
Flouranthene	ug/Kg	370	U	370	U	470	J
1,2-Dichlorobenzene	ug/Kg	370	U	370	U	470	U
Pyrene	ug/Kg	370	U	370	U	460	J
Benzo(a)Anthracene	ug/Kg	370	U	370	U	170	J
Chrysene	ug/Kg	370	U	370	U	230	J
Benzo(b)Fluoranthene	ug/Kg	370	U	370	U	180	J
N-Nitrosodi-n-propylamine	ug/Kg	370	U	370	U	470	U
4-Methylphenol (p-Cresol)	ug/Kg	370	U	370	U	470	U
Benzo(k)Fluoranthene	ug/Kg	370	U	370	U	190	J
Benzo(a)Pyrene	ug/Kg	370	U	370	U	130	J
Hexachloroethane	ug/Kg	370	U	370	U	470	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	370	U	370	U	470	U
Nitrobenzene	ug/Kg	370	U	370	U	470	U
Dibenz(a,h)anthracene	ug/Kg	370	U	370	U	470	U

	StationID	G120SB012		G120SB012		G120SB013	
	SampleID	120SB01201 (0-1ft)		120SB01202 (3-5ft)		120SB01301 (0-1ft)	
	DateCollected	12/13/1999		12/13/1999		01/25/2000	
	DateAnalyzed	12/16/99		12/16/99		2/2/00	
	SDGNumber	EN031		EN031		41852	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg	350	U	360	U		
2,2'-Oxybis(1-chloro)propane	ug/Kg	350	U	360	U	380	U
2-Methylnaphthalene	ug/Kg	350	U	360	U	380	U
2-Methylphenol (o-Cresol)	ug/Kg	350	U	360	U	380	U
Carbazole	ug/Kg	350	U	360	U		
N-Nitrosodimethylamine	ug/Kg	350	U	360	U		
Phenol	ug/Kg	350	U	360	U	380	U
Acenaphthylene	ug/Kg	350	U	360	U	380	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	350	U	360	U	380	U
2-Chlorophenol	ug/Kg	350	U	360	U	380	U
Acenaphthene	ug/Kg	350	U	360	U	380	U
1,3-Dichlorobenzene	ug/Kg	350	U	360	U	380	U
Fluorene	ug/Kg	350	U	360	U	380	U
1,4--Dichlorobenzene	ug/Kg	350	U	360	U	380	U
Phenanthrene	ug/Kg	350	U	360	U	380	U
Anthracene	ug/Kg	350	U	360	U	380	U
Benzyl alcohol	ug/Kg	350	U	360	U	380	U
Flouranthene	ug/Kg	970	=	360	U	380	U
1,2-Dichlorobenzene	ug/Kg	350	U	360	U	380	U
Pyrene	ug/Kg	790	=	360	U	380	U
Benzo(a)Anthracene	ug/Kg	220	J	360	U	380	U
Chrysene	ug/Kg	670	=	360	U	380	U
Benzo(b)Fluoranthene	ug/Kg	350	J	360	U	380	U
N-Nitrosodi-n-propylamine	ug/Kg	350	U	360	U	380	U
4-Methylphenol (p-Cresol)	ug/Kg	350	U	360	U	380	U
Benzo(k)Fluoranthene	ug/Kg	240	J	360	U	380	U
Benzo(a)Pyrene	ug/Kg	99	J	360	U	380	U
Hexachloroethane	ug/Kg	350	U	360	U	380	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	73	J	360	U	380	U
Nitrobenzene	ug/Kg	350	U	360	U	380	U
Dibenz(a,h)anthracene	ug/Kg	350	U	360	U	380	U

	StationID	G120SB013		G120SB014		G120SB014	
	SampleID	120SB01302 (3-5ft)		120SB01401 (0-1ft)		120SB01401DL (0-1ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/7/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg						
2,2'-Oxybis(1-chloro)propane	ug/Kg	470	U	380	U	1900	R
2-Methylnaphthalene	ug/Kg	38	J	380	U	1900	R
2-Methylphenol (o-Cresol)	ug/Kg	470	U	380	U	1900	R
Carbazole	ug/Kg						
N-Nitrosodimethylamine	ug/Kg						
Phenol	ug/Kg	470	U	380	U	1900	R
Acenaphthylene	ug/Kg	58	J	380	U	1900	R
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	470	U	380	U	1900	R
2-Chlorophenol	ug/Kg	470	U	380	U	1900	R
Acenaphthene	ug/Kg	470	U	380	U	1900	R
1,3-Dichlorobenzene	ug/Kg	470	U	380	U	1900	R
Fluorene	ug/Kg	470	U	140	J	140	R
1,4--Dichlorobenzene	ug/Kg	470	U	380	U	1900	R
Phenanthrene	ug/Kg	79	J	230	J	280	R
Anthracene	ug/Kg	82	J	380	U	1900	R
Benzyl alcohol	ug/Kg	470	U	380	U	1900	R
Flouranthene	ug/Kg	450	J	380	U	1900	R
1,2-Dichlorobenzene	ug/Kg	470	U	380	U	1900	R
Pyrene	ug/Kg	420	J	380	U	1900	R
Benzo(a)Anthracene	ug/Kg	210	J	380	U	1900	R
Chrysene	ug/Kg	300	J	380	U	1900	R
Benzo(b)Fluoranthene	ug/Kg	280	J	380	UJ	1900	R
N-Nitrosodi-n-propylamine	ug/Kg	470	U	380	U	1900	R
4-Methylphenol (p-Cresol)	ug/Kg	470	U	380	U	1900	R
Benzo(k)Fluoranthene	ug/Kg	230	J	380	UJ	1900	R
Benzo(a)Pyrene	ug/Kg	210	J	380	UJ	1900	R
Hexachloroethane	ug/Kg	470	U	380	U	1900	R
Indeno(1,2,3-c,d)pyrene	ug/Kg	200	J	380	UJ	1900	R
Nitrobenzene	ug/Kg	470	U	380	U	1900	R
Dibenz(a,h)anthracene	ug/Kg	90	J	380	UJ	1900	R

	StationID	G120SB014		G120SB015		G120SB015	
	SampleID	120SB01402 (3-5ft)		120SB01501 (0-1ft)		120SB01502 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/2/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
1,2-Diphenylhydrazine	ug/Kg						
2,2'-Oxybis(1-chloro)propane	ug/Kg	380	U	390	U	370	U
2-Methylnaphthalene	ug/Kg	380	U	390	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	380	U	390	U	370	U
Carbazole	ug/Kg						
N-Nitrosodimethylamine	ug/Kg						
Phenol	ug/Kg	380	U	390	U	370	U
Acenaphthylene	ug/Kg	380	U	390	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	380	U	390	U	370	U
2-Chlorophenol	ug/Kg	380	U	390	U	370	U
Acenaphthene	ug/Kg	380	U	390	U	370	U
1,3-Dichlorobenzene	ug/Kg	380	U	390	U	370	U
Fluorene	ug/Kg	380	U	390	U	370	U
1,4--Dichlorobenzene	ug/Kg	380	U	390	U	370	U
Phenanthrene	ug/Kg	26	J	390	U	370	U
Anthracene	ug/Kg	380	U	390	U	370	U
Benzyl alcohol	ug/Kg	380	U	390	U	370	U
Flouranthene	ug/Kg	380	U	390	U	370	U
1,2-Dichlorobenzene	ug/Kg	380	U	390	U	370	U
Pyrene	ug/Kg	380	U	390	U	370	U
Benzo(a)Anthracene	ug/Kg	380	U	390	U	370	U
Chrysene	ug/Kg	380	U	390	U	370	U
Benzo(b)Fluoranthene	ug/Kg	380	U	37	J	370	U
N-Nitrosodi-n-propylamine	ug/Kg	380	U	390	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	380	U	390	U	370	U
Benzo(k)Fluoranthene	ug/Kg	380	U	390	U	370	U
Benzo(a)Pyrene	ug/Kg	380	U	20	J	370	U
Hexachloroethane	ug/Kg	380	U	390	U	370	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	380	U	390	U	370	U
Nitrobenzene	ug/Kg	380	U	390	U	370	U
Dibenz(a,h)anthracene	ug/Kg	380	U	390	U	370	U

	StationID	G120SB016		G120SB016	
	SampleID	120SB01601 (0-1ft)		120SB01602 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000	
	DateAnalyzed	2/2/00		2/2/00	
	SDGNumber	41852		41852	
Parameter	**Units**				
1,2-Diphenylhydrazine	ug/Kg				
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	U	370	U
2-Methylnaphthalene	ug/Kg	370	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	370	U	370	U
Carbazole	ug/Kg				
N-Nitrosodimethylamine	ug/Kg				
Phenol	ug/Kg	370	U	370	U
Acenaphthylene	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
Acenaphthene	ug/Kg	370	U	370	U
1,3-Dichlorobenzene	ug/Kg	370	U	370	U
Fluorene	ug/Kg	370	U	370	U
1,4--Dichlorobenzene	ug/Kg	370	U	370	U
Phenanthrene	ug/Kg	370	U	370	U
Anthracene	ug/Kg	370	U	370	U
Benzyl alcohol	ug/Kg	370	U	370	U
Flouranthene	ug/Kg	370	U	370	U
1,2-Dichlorobenzene	ug/Kg	370	U	370	U
Pyrene	ug/Kg	370	U	370	U
Benzo(a)Anthracene	ug/Kg	370	U	370	U
Chrysene	ug/Kg	370	U	370	U
Benzo(b)Fluoranthene	ug/Kg	370	U	370	U
N-Nitrosodi-n-propylamine	ug/Kg	370	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	370	U	370	U
Benzo(k)Fluoranthene	ug/Kg	370	U	370	U
Benzo(a)Pyrene	ug/Kg	370	U	370	U
Hexachloroethane	ug/Kg	370	U	370	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	370	U	370	U
Nitrobenzene	ug/Kg	370	U	370	U
Dibenz(a,h)anthracene	ug/Kg	370	U	370	U

	StationID	G120SB001		G120SB002		G120SB002	
	SampleID	120SB00101 (0-1ft)		120SB00201 (0-1ft)		120SB00202 (3-5ft)	
	DateCollected	08/29/1996		08/29/1996		08/29/1996	
	DateAnalyzed	9/10/96		9/10/96		9/10/96	
	SDGNumber	26792		26792		26792	
Parameter	**Units**						
Isophorone	ug/Kg	440	U	350	U	440	U
2-Nitrophenol	ug/Kg	440	U	350	U	440	U
Benzo(g,h,i)Perylene	ug/Kg	57	J	350	U	94	J
2,4-Dimethylphenol	ug/Kg	440	U	350	U	440	U
bis(2-Chloroethoxy) Methane	ug/Kg	440	U	350	U	440	U
Benzoic acid	ug/Kg	87	J	1700	U	84	J
2,4-Dichlorophenol	ug/Kg	440	U	350	U	440	U
1,2,4--Trichlorobenzene	ug/Kg	440	U	350	U	440	U
4-Chloroaniline	ug/Kg	440	U	350	U	440	U
Hexachlorobutadiene	ug/Kg	440	U	350	U	440	U
4-Chloro-3-methylphenol	ug/Kg	440	U	350	U	440	U
Hexachlorocyclopentadiene	ug/Kg	440	U	350	U	440	U
2,4,6-Trichlorophenol	ug/Kg	440	U	350	U	440	U
2,4,5-Trichlorophenol	ug/Kg	2200	U	1700	U	2100	U
2-Chloronaphthalene	ug/Kg	440	U	350	U	440	U
2-Nitroaniline	ug/Kg	2200	U	1700	U	2100	U
2,6-Dinitrotoluene	ug/Kg	440	U	350	U	440	U
3-Nitroaniline	ug/Kg	2200	U	1700	U	2100	U
2,4-Dinitrophenol	ug/Kg	2200	U	1700	U	2100	U
Dibenzofuran	ug/Kg	440	U	350	U	440	U
4-Nitrophenol	ug/Kg	2200	U	1700	U	2100	U
2,4-Dinitrotoluene	ug/Kg	440	U	350	U	440	U
Dimethyl Phthalate	ug/Kg	440	U	350	U	440	U
Diethyl Phthalate	ug/Kg	440	U	350	U	440	U
4-Chlorophenyl Phenyl Ether	ug/Kg	440	U	350	U	440	U
4-Nitroaniline	ug/Kg	2200	U	1700	U	2100	U
4,6-Dinitro-2-methylphenol	ug/Kg	2200	U	1700	U	2100	U
N-Nitrosodiphenylamine	ug/Kg	440	U	350	U	440	U
4-Bromophenyl Phenyl Ether	ug/Kg	440	U	350	U	440	U
Hexachlorobenzene	ug/Kg	440	U	350	U	440	U
Pentachlorophenol	ug/Kg	2200	U	1700	U	2100	U

	StationID	G120SB003		G120SB004		G120SB004	
	SampleID	120SB00301 (0-1ft)		120SB00401 (0-1ft)		120SB00402 (3-5ft)	
	DateCollected	08/29/1996		09/25/1996		09/25/1996	
	DateAnalyzed	9/10/96		10/16/96		10/16/96	
	SDGNumber	26792		27090		27090	
Parameter	**Units**						
Isophorone	ug/Kg	390	U	370	U	400	U
2-Nitrophenol	ug/Kg	390	U	370	U	400	U
Benzo(g,h,i)Perylene	ug/Kg	390	U	370	U	400	U
2,4-Dimethylphenol	ug/Kg	390	U	370	U	400	U
bis(2-Chloroethoxy) Methane	ug/Kg	390	U	370	U	400	U
Benzoic acid	ug/Kg	58	J	1800	U	2000	U
2,4-Dichlorophenol	ug/Kg	390	U	370	U	400	U
1,2,4--Trichlorobenzene	ug/Kg	390	U	370	U	400	U
4-Chloroaniline	ug/Kg	390	U	370	U	400	U
Hexachlorobutadiene	ug/Kg	390	U	370	U	400	U
4-Chloro-3-methylphenol	ug/Kg	390	U	370	U	400	U
Hexachlorocyclopentadiene	ug/Kg	390	U	370	U	400	U
2,4,6-Trichlorophenol	ug/Kg	390	U	370	U	400	U
2,4,5-Trichlorophenol	ug/Kg	1900	U	1800	U	2000	U
2-Chloronaphthalene	ug/Kg	390	U	370	U	400	U
2-Nitroaniline	ug/Kg	1900	U	1800	U	2000	U
2,6-Dinitrotoluene	ug/Kg	390	U	370	U	400	U
3-Nitroaniline	ug/Kg	1900	U	1800	U	2000	U
2,4-Dinitrophenol	ug/Kg	1900	U	1800	U	2000	U
Dibenzofuran	ug/Kg	390	U	370	U	400	U
4-Nitrophenol	ug/Kg	1900	U	1800	U	2000	U
2,4-Dinitrotoluene	ug/Kg	390	U	370	U	400	U
Dimethyl Phthalate	ug/Kg	390	U	370	U	400	U
Diethyl Phthalate	ug/Kg	390	U	370	U	400	U
4-Chlorophenyl Phenyl Ether	ug/Kg	390	U	370	U	400	U
4-Nitroaniline	ug/Kg	1900	U	1800	U	2000	U
4,6-Dinitro-2-methylphenol	ug/Kg	1900	U	1800	U	2000	U
N-Nitrosodiphenylamine	ug/Kg	390	U	370	U	400	U
4-Bromophenyl Phenyl Ether	ug/Kg	390	U	370	U	400	U
Hexachlorobenzene	ug/Kg	390	U	370	U	400	U
Pentachlorophenol	ug/Kg	1900	U	1800	U	2000	U

	StationID	G120SB005		G120SB006		G120SB007	
	SampleID	120SB00501 (0-1ft)		120SB00601 (0-1ft)		120SB00701 (0-1ft)	
	DateCollected	09/25/1996		09/24/1996		12/13/1999	
	DateAnalyzed	10/16/96		10/16/96		12/16/99	
	SDGNumber	27090		27065		EN031	
Parameter	Units						
Isophorone	ug/Kg	370	U	360	U	360	U
2-Nitrophenol	ug/Kg	370	U	360	U	360	U
Benzo(g,h,i)Perylene	ug/Kg	370	U	360	U	360	U
2,4-Dimethylphenol	ug/Kg	370	U	360	U	360	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U	360	U	360	U
Benzoic acid	ug/Kg	1800	U	1800	U	1800	U
2,4-Dichlorophenol	ug/Kg	370	U	360	U	360	U
1,2,4--Trichlorobenzene	ug/Kg	370	U	360	U	360	U
4-Chloroaniline	ug/Kg	370	U	360	U	360	U
Hexachlorobutadiene	ug/Kg	370	U	360	U	360	U
4-Chloro-3-methylphenol	ug/Kg	370	U	360	U	360	U
Hexachlorocyclopentadiene	ug/Kg	370	U	360	U	360	U
2,4,6-Trichlorophenol	ug/Kg	370	U	360	U	360	U
2,4,5-Trichlorophenol	ug/Kg	1800	U	1800	U	360	U
2-Chloronaphthalene	ug/Kg	370	U	360	U	360	U
2-Nitroaniline	ug/Kg	1800	U	1800	U	360	U
2,6-Dinitrotoluene	ug/Kg	370	U	360	U	360	U
3-Nitroaniline	ug/Kg	1800	U	1800	U	360	U
2,4-Dinitrophenol	ug/Kg	1800	U	1800	U	720	U
Dibenzofuran	ug/Kg	370	U	360	U	360	U
4-Nitrophenol	ug/Kg	1800	U	1800	U	720	U
2,4-Dinitrotoluene	ug/Kg	370	U	360	U	360	U
Dimethyl Phthalate	ug/Kg	370	U	360	U	360	U
Diethyl Phthalate	ug/Kg	370	U	360	U	360	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	360	U	360	U
4-Nitroaniline	ug/Kg	1800	U	1800	U	360	U
4,6-Dinitro-2-methylphenol	ug/Kg	1800	U	1800	U	720	U
N-Nitrosodiphenylamine	ug/Kg	370	U	360	U	360	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	U	360	U	360	U
Hexachlorobenzene	ug/Kg	370	U	360	U	360	U
Pentachlorophenol	ug/Kg	1800	U	1800	U	720	U

	StationID	G120SB007		G120SB008		G120SB008	
	SampleID	120SB00702 (3-5ft)		120SB00801 (0-1ft)		120SB00802 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/16/99		12/16/99		12/16/99	
	SDGNumber	EN031		EN031		EN031	
Parameter	**Units**						
Isophorone	ug/Kg	370	U	370	U	470	U
2-Nitrophenol	ug/Kg	370	U	370	U	470	U
Benzo(g,h,i)Perylene	ug/Kg	370	U	370	U	470	U
2,4-Dimethylphenol	ug/Kg	370	U	370	U	470	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U	370	U	470	U
Benzoic acid	ug/Kg	1800	U	1900	U	2300	U
2,4-Dichlorophenol	ug/Kg	370	U	370	U	470	U
1,2,4--Trichlorobenzene	ug/Kg	370	U	370	U	470	U
4-Chloroaniline	ug/Kg	370	U	370	U	470	U
Hexachlorobutadiene	ug/Kg	370	U	370	U	470	U
4-Chloro-3-methylphenol	ug/Kg	370	U	370	U	470	U
Hexachlorocyclopentadiene	ug/Kg	370	U	370	U	470	U
2,4,6-Trichlorophenol	ug/Kg	370	U	370	U	470	U
2,4,5-Trichlorophenol	ug/Kg	370	U	370	U	470	U
2-Chloronaphthalene	ug/Kg	370	U	370	U	470	U
2-Nitroaniline	ug/Kg	370	U	370	U	470	U
2,6-Dinitrotoluene	ug/Kg	370	U	370	U	470	U
3-Nitroaniline	ug/Kg	370	U	370	U	470	U
2,4-Dinitrophenol	ug/Kg	730	U	740	U	940	U
Dibenzofuran	ug/Kg	370	U	370	U	470	U
4-Nitrophenol	ug/Kg	730	U	740	U	940	U
2,4-Dinitrotoluene	ug/Kg	370	U	370	U	470	U
Dimethyl Phthalate	ug/Kg	370	U	370	U	470	U
Diethyl Phthalate	ug/Kg	370	U	370	U	470	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	370	U	470	U
4-Nitroaniline	ug/Kg	370	U	370	U	470	U
4,6-Dinitro-2-methylphenol	ug/Kg	730	U	740	U	940	U
N-Nitrosodiphenylamine	ug/Kg	370	U	370	U	470	U
4-Bromophenyl Phenyl Ether	ug/Kg	370	U	370	U	470	U
Hexachlorobenzene	ug/Kg	370	U	370	U	470	U
Pentachlorophenol	ug/Kg	730	U	740	U	940	U

	StationID	G120SB012		G120SB012		G120SB013	
	SampleID	120SB01201 (0-1ft)		120SB01202 (3-5ft)		120SB01301 (0-1ft)	
	DateCollected	12/13/1999		12/13/1999		01/25/2000	
	DateAnalyzed	12/16/99		12/16/99		2/2/00	
	SDGNumber	EN031		EN031		41852	
Parameter	**Units**						
Isophorone	ug/Kg	350	U	360	U	380	U
2-Nitrophenol	ug/Kg	350	U	360	U	380	U
Benzo(g,h,i)Perylene	ug/Kg	350	U	360	U	380	U
2,4-Dimethylphenol	ug/Kg	350	U	360	U	380	U
bis(2-Chloroethoxy) Methane	ug/Kg	350	U	360	U	380	U
Benzoic acid	ug/Kg	1800	U	1800	U	36	J
2,4-Dichlorophenol	ug/Kg	350	U	360	U	380	U
1,2,4--Trichlorobenzene	ug/Kg	350	U	360	U	380	U
4-Chloroaniline	ug/Kg	350	U	360	U	380	U
Hexachlorobutadiene	ug/Kg	350	U	360	U	380	U
4-Chloro-3-methylphenol	ug/Kg	350	U	360	U	380	U
Hexachlorocyclopentadiene	ug/Kg	350	U	360	U	380	U
2,4,6-Trichlorophenol	ug/Kg	350	U	360	U	380	U
2,4,5-Trichlorophenol	ug/Kg	350	U	360	U	940	U
2-Chloronaphthalene	ug/Kg	350	U	360	U	380	U
2-Nitroaniline	ug/Kg	350	U	360	U	940	U
2,6-Dinitrotoluene	ug/Kg	350	U	360	U	380	U
3-Nitroaniline	ug/Kg	350	U	360	U	940	U
2,4-Dinitrophenol	ug/Kg	710	U	720	U	940	U
Dibenzofuran	ug/Kg	350	U	360	U	380	U
4-Nitrophenol	ug/Kg	710	U	720	U	940	U
2,4-Dinitrotoluene	ug/Kg	350	U	360	U	380	U
Dimethyl Phthalate	ug/Kg	350	U	360	U	380	U
Diethyl Phthalate	ug/Kg	350	U	360	U	380	U
4-Chlorophenyl Phenyl Ether	ug/Kg	350	U	360	U	380	U
4-Nitroaniline	ug/Kg	350	U	360	U	940	U
4,6-Dinitro-2-methylphenol	ug/Kg	710	U	720	U	940	U
N-Nitrosodiphenylamine	ug/Kg	350	U	360	U	380	U
4-Bromophenyl Phenyl Ether	ug/Kg	350	U	360	U	380	U
Hexachlorobenzene	ug/Kg	350	U	360	U	380	U
Pentachlorophenol	ug/Kg	710	U	720	U	940	U

	StationID	G120SB013		G120SB014		G120SB014	
	SampleID	120SB01302 (3-5ft)		120SB01401 (0-1ft)		120SB01401DL (0-1ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/7/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
Isophorone	ug/Kg	470	U	380	U	1900	R
2-Nitrophenol	ug/Kg	470	U	380	U	1900	R
Benzo(g,h,i)Perylene	ug/Kg	220	J	380	UJ	1900	R
2,4-Dimethylphenol	ug/Kg	470	U	380	U	1900	R
bis(2-Chloroethoxy) Methane	ug/Kg	470	U	380	U	1900	R
Benzoic acid	ug/Kg	49	J	7400	=	7400	R
2,4-Dichlorophenol	ug/Kg	470	U	380	U	1900	R
1,2,4--Trichlorobenzene	ug/Kg	470	U	380	U	1900	R
4-Chloroaniline	ug/Kg	470	U	380	U	1900	R
Hexachlorobutadiene	ug/Kg	470	U	130	J	1900	R
4-Chloro-3-methylphenol	ug/Kg	470	U	380	U	1900	R
Hexachlorocyclopentadiene	ug/Kg	470	U	380	U	1900	R
2,4,6-Trichlorophenol	ug/Kg	470	U	380	U	1900	R
2,4,5-Trichlorophenol	ug/Kg	1200	U	940	U	4700	R
2-Chloronaphthalene	ug/Kg	470	U	380	U	1900	R
2-Nitroaniline	ug/Kg	1200	U	940	U	4700	R
2,6-Dinitrotoluene	ug/Kg	470	U	380	U	1900	R
3-Nitroaniline	ug/Kg	1200	U	940	U	4700	R
2,4-Dinitrophenol	ug/Kg	1200	U	940	U	4700	R
Dibenzofuran	ug/Kg	470	U	380	U	1900	R
4-Nitrophenol	ug/Kg	1200	U	940	U	4700	R
2,4-Dinitrotoluene	ug/Kg	470	U	380	U	1900	R
Dimethyl Phthalate	ug/Kg	470	U	380	U	1900	R
Diethyl Phthalate	ug/Kg	470	U	380	U	1900	R
4-Chlorophenyl Phenyl Ether	ug/Kg	470	U	380	U	1900	R
4-Nitroaniline	ug/Kg	1200	U	940	U	4700	R
4,6-Dinitro-2-methylphenol	ug/Kg	1200	U	940	U	4700	R
N-Nitrosodiphenylamine	ug/Kg	470	U	380	U	1900	R
4-Bromophenyl Phenyl Ether	ug/Kg	470	U	380	U	1900	R
Hexachlorobenzene	ug/Kg	470	U	380	U	1900	R
Pentachlorophenol	ug/Kg	1200	U	940	U	4700	R

	StationID	G120SB014		G120SB015		G120SB015	
	SampleID	120SB01402 (3-5ft)		120SB01501 (0-1ft)		120SB01502 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/2/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
Isophorone	ug/Kg	380	U	390	U	370	U
2-Nitrophenol	ug/Kg	380	U	390	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	380	U	390	U	370	U
2,4-Dimethylphenol	ug/Kg	380	U	390	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	380	U	390	U	370	U
Benzoic acid	ug/Kg	1300	=	390	U	28	J
2,4-Dichlorophenol	ug/Kg	380	U	390	U	370	U
1,2,4--Trichlorobenzene	ug/Kg	380	U	390	U	370	U
4-Chloroaniline	ug/Kg	380	U	390	U	370	U
Hexachlorobutadiene	ug/Kg	380	U	390	U	370	U
4-Chloro-3-methylphenol	ug/Kg	380	U	390	U	370	U
Hexachlorocyclopentadiene	ug/Kg	380	U	390	U	370	U
2,4,6-Trichlorophenol	ug/Kg	380	U	390	U	370	U
2,4,5-Trichlorophenol	ug/Kg	950	U	980	U	930	U
2-Chloronaphthalene	ug/Kg	380	U	390	U	370	U
2-Nitroaniline	ug/Kg	950	U	980	U	930	U
2,6-Dinitrotoluene	ug/Kg	380	U	390	U	370	U
3-Nitroaniline	ug/Kg	950	U	980	U	930	U
2,4-Dinitrophenol	ug/Kg	950	U	980	U	930	U
Dibenzofuran	ug/Kg	380	U	390	U	370	U
4-Nitrophenol	ug/Kg	950	U	980	U	930	U
2,4-Dinitrotoluene	ug/Kg	380	U	390	U	370	U
Dimethyl Phthalate	ug/Kg	380	U	390	U	370	U
Diethyl Phthalate	ug/Kg	380	U	390	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	380	U	390	U	370	U
4-Nitroaniline	ug/Kg	950	U	980	U	930	U
4,6-Dinitro-2-methylphenol	ug/Kg	950	U	980	U	930	U
N-Nitrosodiphenylamine	ug/Kg	380	U	390	U	370	U
4-Bromophenyl Phenyl Ether	ug/Kg	380	U	390	U	370	U
Hexachlorobenzene	ug/Kg	380	U	390	U	370	U
Pentachlorophenol	ug/Kg	950	U	980	U	930	U

	StationID	G120SB016		G120SB016	
	SampleID	120SB01601 (0-1ft)		120SB01602 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000	
	DateAnalyzed	2/2/00		2/2/00	
	SDGNumber	41852		41852	
Parameter	**Units**				
Isophorone	ug/Kg	370	U	370	U
2-Nitrophenol	ug/Kg	370	U	370	U
Benzo(g,h,i)Perylene	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
Benzoic acid	ug/Kg	28	J	28	J
2,4-Dichlorophenol	ug/Kg	370	U	370	U
1,2,4--Trichlorobenzene	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
Hexachlorocyclopentadiene	ug/Kg	370	U	370	U
2,4,6-Trichlorophenol	ug/Kg	370	U	370	U
2,4,5-Trichlorophenol	ug/Kg	940	U	930	U
2-Chloronaphthalene	ug/Kg	370	U	370	U
2-Nitroaniline	ug/Kg	940	U	930	U
2,6-Dinitrotoluene	ug/Kg	370	U	370	U
3-Nitroaniline	ug/Kg	940	U	930	U
2,4-Dinitrophenol	ug/Kg	940	U	930	U
Dibenzofuran	ug/Kg	370	U	370	U
4-Nitrophenol	ug/Kg	940	U	930	U
2,4-Dinitrotoluene	ug/Kg	370	U	370	U
Dimethyl Phthalate	ug/Kg	370	U	370	U
Diethyl Phthalate	ug/Kg	370	U	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U	370	U
4-Nitroaniline	ug/Kg	940	U	930	U
4,6-Dinitro-2-methylphenol	ug/Kg	940	U	930	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	940	U	930	U

	StationID	G120SB001		G120SB002		G120SB002	
	SampleID	120SB00101 (0-1ft)		120SB00201 (0-1ft)		120SB00202 (3-5ft)	
	DateCollected	08/29/1996		08/29/1996		08/29/1996	
	DateAnalyzed	9/10/96		9/10/96		9/10/96	
	SDGNumber	26792		26792		26792	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	440	U	350	U	440	U
Benzyl Butyl Phthalate	ug/Kg	95	J	37	J	440	U
3,3'-Dichlorobenzidine	ug/Kg	890	U	710	U	880	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	440	U	350	U	440	U
Di-n-octylphthalate	ug/Kg	440	U	350	U	440	U

	StationID	G120SB003		G120SB004		G120SB004	
	SampleID	120SB00301 (0-1ft)		120SB00401 (0-1ft)		120SB00402 (3-5ft)	
	DateCollected	08/29/1996		09/25/1996		09/25/1996	
	DateAnalyzed	9/10/96		10/16/96		10/16/96	
	SDGNumber	26792		27090		27090	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	390	U	370	U	400	U
Benzyl Butyl Phthalate	ug/Kg	390	U	370	U	400	U
3,3'-Dichlorobenzidine	ug/Kg	780	U	740	U	800	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	390	U	370	U	400	U
Di-n-octylphthalate	ug/Kg	390	U	370	U	400	U

	StationID	G120SB005		G120SB006		G120SB007	
	SampleID	120SB00501 (0-1ft)		120SB00601 (0-1ft)		120SB00701 (0-1ft)	
	DateCollected	09/25/1996		09/24/1996		12/13/1999	
	DateAnalyzed	10/16/96		10/16/96		12/16/99	
	SDGNumber	27090		27065		EN031	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	370	U	360	U	360	U
Benzyl Butyl Phthalate	ug/Kg	370	U	53	J	360	U
3,3'-Dichlorobenzidine	ug/Kg	730	U	720	U	720	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U	360	U	96	J
Di-n-octylphthalate	ug/Kg	370	U	360	U	360	U

	StationID	G120SB007		G120SB008		G120SB008	
	SampleID	120SB00702 (3-5ft)		120SB00801 (0-1ft)		120SB00802 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/16/99		12/16/99		12/16/99	
	SDGNumber	EN031		EN031		EN031	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	370	U	370	U	470	U
Benzyl Butyl Phthalate	ug/Kg	370	U	370	U	470	U
3,3'-Dichlorobenzidine	ug/Kg	730	U	740	U	940	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U	110	J	370	J
Di-n-octylphthalate	ug/Kg	370	U	370	U	470	U

	StationID	G120SB012		G120SB012		G120SB013	
	SampleID	120SB01201 (0-1ft)		120SB01202 (3-5ft)		120SB01301 (0-1ft)	
	DateCollected	12/13/1999		12/13/1999		01/25/2000	
	DateAnalyzed	12/16/99		12/16/99		2/2/00	
	SDGNumber	EN031		EN031		41852	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	350	U	360	U	380	U
Benzyl Butyl Phthalate	ug/Kg	120	J	360	U	380	U
3,3'-Dichlorobenzidine	ug/Kg	710	U	720	U	380	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	110	J	220	J	380	U
Di-n-octylphthalate	ug/Kg	350	U	360	U	380	U

	StationID	G120SB013		G120SB014		G120SB014	
	SampleID	120SB01302 (3-5ft)		120SB01401 (0-1ft)		120SB01401DL (0-1ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/7/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	34	J	180	J	200	R
Benzyl Butyl Phthalate	ug/Kg	470	U	380	U	1900	R
3,3'-Dichlorobenzidine	ug/Kg	470	U	380	U	1900	R
bis(2-Ethylhexyl) Phthalate	ug/Kg	470	U	380	U	220	R
Di-n-octylphthalate	ug/Kg	470	U	380	U	1900	R

	StationID	G120SB014		G120SB015		G120SB015	
	SampleID	120SB01402 (3-5ft)		120SB01501 (0-1ft)		120SB01502 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000		01/25/2000	
	DateAnalyzed	2/3/00		2/2/00		2/2/00	
	SDGNumber	41852		41852		41852	
Parameter	**Units**						
Di-n-butyl Phthalate	ug/Kg	65	J	390	U	32	J
Benzyl Butyl Phthalate	ug/Kg	380	U	390	U	370	U
3,3'-Dichlorobenzidine	ug/Kg	380	U	390	U	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	380	U	390	U	370	U
Di-n-octylphthalate	ug/Kg	380	U	390	U	370	U

	StationID	G120SB016		G120SB016	
	SampleID	120SB01601 (0-1ft)		120SB01602 (3-5ft)	
	DateCollected	01/25/2000		01/25/2000	
	DateAnalyzed	2/2/00		2/2/00	
	SDGNumber	41852		41852	
Parameter	**Units**				
Di-n-butyl Phthalate	ug/Kg	23	J	21	J
Benzyl Butyl Phthalate	ug/Kg	38	J	370	U
3,3'-Dichlorobenzidine	ug/Kg	370	U	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U	370	U
Di-n-octylphthalate	ug/Kg	370	U	370	U

	StationID	G120SB001		G120SB002		G120SB002		G120SB003	
	SampleID	120SB00101 (0-1ft)		120SB00201 (0-1ft)		120SB00202 (3-5ft)		120SB00301 (0-1ft)	
	DateCollected	08/29/1996		08/29/1996		08/29/1996		08/29/1996	
	DateAnalyzed	9/12/96		9/12/96		9/12/96		9/12/96	
	SDGNumber	26792		26792		26792		26792	
Parameter	Units								
Aluminum, SPLP	ug/L								
Antimony, SPLP	ug/L								
Arsenic,SPLP	ug/L								
Barium, SPLP	ug/L								
Beryllium, SPLP	ug/L								
Cadmium, SPLP	ug/L								
Calcium, SPLP	ug/L								
Cobalt, SPLP	ug/L								
Copper, SPLP	ug/L								
Iron, SPLP	ug/L								
Lead, SPLP	ug/L								
Magnesium, SPLP	ug/L								
Manganese, SPLP	ug/L								
Mercury, SPLP	ug/L								
Nickel, SPLP	ug/L								
Potassium, SPLP	ug/L								
Selenium, SPLP	ug/L								
Silver, SPLP	ug/L								
Sodium, SPLP	ug/L								
Thallium, SPLP	ug/L								
Tin (Sn), SPLP	ug/L								
Vanadium, SPLP	ug/L								
Aluminum	mg/Kg	9950	=	3980	=	17300	=	3620	=
Antimony	mg/Kg	10	J	4.4	J	3.3	J	0.36	UJ
Arsenic	mg/Kg	16.3	J	5.2	J	19.1	J	0.91	J
Barium	mg/Kg	37	=	27	=	40.1	=	2.9	=
Beryllium	mg/Kg	0.74	=	0.5	=	1	=	0.15	U
Cadmium	mg/Kg	1.3	=	0.32	=	0.5	=	0.06	J
Calcium	mg/Kg	25000	J	47900	J	42000	J	40400	J
Chromium, Total	mg/Kg	46.5	=	13.6	=	39.4	=	3.5	=
Chromium, Total	ug/L								

	StationID	G120SB004		G120SB004		G120SB005		G120SB006	
	SampleID	120SB00401 (0-1ft)		120SB00402 (3-5ft)		120SB00501 (0-1ft)		120SB00601 (0-1ft)	
	DateCollected	09/25/1996		09/25/1996		09/25/1996		09/24/1996	
	DateAnalyzed	10/13/96		10/13/96		10/13/96		10/15/96	
	SDGNumber	27090		27090		27090		27065	
Parameter	Units								
Aluminum, SPLP	ug/L								
Antimony, SPLP	ug/L								
Arsenic,SPLP	ug/L								
Barium, SPLP	ug/L								
Beryllium, SPLP	ug/L								
Cadmium, SPLP	ug/L								
Calcium, SPLP	ug/L								
Cobalt, SPLP	ug/L								
Copper, SPLP	ug/L								
Iron, SPLP	ug/L								
Lead, SPLP	ug/L								
Magnesium, SPLP	ug/L								
Manganese, SPLP	ug/L								
Mercury, SPLP	ug/L								
Nickel, SPLP	ug/L								
Potassium, SPLP	ug/L								
Selenium, SPLP	ug/L								
Silver, SPLP	ug/L								
Sodium, SPLP	ug/L								
Thallium, SPLP	ug/L								
Tin (Sn), SPLP	ug/L								
Vanadium, SPLP	ug/L								
Aluminum	mg/Kg	3950	=	1330	=	4490	=	3030	=
Antimony	mg/Kg	0.34	UJ	0.37	UJ	0.33	UJ	1.6	J
Arsenic	mg/Kg	1.2	=	0.65	J	1.5	=	2.7	=
Barium	mg/Kg	12.3	=	7.9	=	5.9	=	27.1	=
Beryllium	mg/Kg	0.11	U	0.22	J	0.17	U	0.4	=
Cadmium	mg/Kg	0.04	U	0.05	U	0.09	J	0.22	J
Calcium	mg/Kg	15900	=	55000	=	11400	=	67600	=
Chromium, Total	mg/Kg	7.4	J	3.3	J	5.5	J	7.9	J
Chromium, Total	ug/L								

	StationID	G120SB007		G120SB007		G120SB008		G120SB008	
	SampleID	120SB00701 (0-1ft)		120SB00702 (3-5ft)		120SB00801 (0-1ft)		120SB00802 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/17/99		12/17/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	Units								
Aluminum, SPLP	ug/L								
Antimony, SPLP	ug/L								
Arsenic,SPLP	ug/L								
Barium, SPLP	ug/L								
Beryllium, SPLP	ug/L								
Cadmium, SPLP	ug/L								
Calcium, SPLP	ug/L								
Cobalt, SPLP	ug/L								
Copper, SPLP	ug/L								
Iron, SPLP	ug/L								
Lead, SPLP	ug/L								
Magnesium, SPLP	ug/L								
Manganese, SPLP	ug/L								
Mercury, SPLP	ug/L								
Nickel, SPLP	ug/L								
Potassium, SPLP	ug/L								
Selenium, SPLP	ug/L								
Silver, SPLP	ug/L								
Sodium, SPLP	ug/L								
Thallium, SPLP	ug/L								
Tin (Sn), SPLP	ug/L								
Vanadium, SPLP	ug/L								
Aluminum	mg/Kg	3330	=	4020	=	4890	=	6460	=
Antimony	mg/Kg	2.1	UJ	0.52	J	2.2	UJ	2.9	UJ
Arsenic	mg/Kg	2.1	J	1.4	J	4.3	J	7	J
Barium	mg/Kg	11.9	J	7.1	J	29.4	J	17.9	J
Beryllium	mg/Kg	0.79	U	0.11	J	0.84	U	1.1	U
Cadmium	mg/Kg	0.26	J	0.09	J	0.28	U	0.36	J
Calcium	mg/Kg	227000	J	20600	J	92600	J	138000	J
Chromium, Total	mg/Kg	10.6	=	5.9	=	23.2	=	33.8	=
Chromium, Total	ug/L								

	StationID	G120SB009		G120SB009		G120SB009		G120SB009	
	SampleID	120SB009S1 (0-1ft)		120SB009S2 (3-5ft)		120SB009T1 (0-1ft)		120SB009T2 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/21/99		12/21/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	**Units**								
Aluminum, SPLP	ug/L	513	J	440	J				
Antimony, SPLP	ug/L	16.2	J	27.1	J				
Arsenic,SPLP	ug/L	4	J	7.7	J				
Barium, SPLP	ug/L	509	=	1080	=				
Beryllium, SPLP	ug/L	0.9	U	0.9	U				
Cadmium, SPLP	ug/L	0.3	U	0.3	J				
Calcium, SPLP	ug/L	13700	=	14400	=				
Cobalt, SPLP	ug/L	0.5	U	0.5	U				
Copper, SPLP	ug/L	14	J	14.6	J				
Iron, SPLP	ug/L	415	J	960	J				
Lead, SPLP	ug/L	6.6	U	14.2	=				
Magnesium, SPLP	ug/L	1490	J	3440	J				
Manganese, SPLP	ug/L	3.2	J	8.6	J				
Mercury, SPLP	ug/L	0.2	U	0.2	U				
Nickel, SPLP	ug/L	3.3	J	4.3	J				
Potassium, SPLP	ug/L	1530	J	3420	J				
Selenium, SPLP	ug/L	3.6	J	2.5	J				
Silver, SPLP	ug/L	0.5	UJ	0.5	J				
Sodium, SPLP	ug/L	8930	=	15200	=				
Thallium, SPLP	ug/L	2.4	UJ	2.4	UJ				
Tin (Sn), SPLP	ug/L	2.7	U	2.7	U				
Vanadium, SPLP	ug/L	7.6	J	11.4	J				
Aluminum	mg/Kg					5420	=	18500	=
Antimony	mg/Kg					2.1	UJ	3.2	J
Arsenic	mg/Kg					11	=	21.5	=
Barium	mg/Kg					45.3	J	41.9	=
Beryllium	mg/Kg					0.8	U	1.2	=
Cadmium	mg/Kg					0.27	U	0.09	J
Calcium	mg/Kg					59800	J	47600	J
Chromium, Total	mg/Kg					24.3	=	47.9	=
Chromium, Total	ug/L	2.3	J	2.7	J				

	StationID	G120SB010		G120SB010		G120SB010		G120SB010	
	SampleID	120SB010S1 (0-1ft)		120SB010S2 (3-5ft)		120SB010T1 (0-1ft)		120SB010T2 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/21/99		12/21/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	**Units**								
Aluminum, SPLP	ug/L	2840	J	473	J				
Antimony, SPLP	ug/L	2.4	U	4.1	J				
Arsenic,SPLP	ug/L	2	U	2.3	J				
Barium, SPLP	ug/L	402	=	707	=				
Beryllium, SPLP	ug/L	0.9	U	0.9	U				
Cadmium, SPLP	ug/L	0.3	U	0.3	U				
Calcium, SPLP	ug/L	13400	=	15800	=				
Cobalt, SPLP	ug/L	0.5	U	0.5	U				
Copper, SPLP	ug/L	7.5	J	5	U				
Iron, SPLP	ug/L	1560	J	333	J				
Lead, SPLP	ug/L	5	U	4.6	U				
Magnesium, SPLP	ug/L	718	J	2950	J				
Manganese, SPLP	ug/L	8.9	J	3.7	J				
Mercury, SPLP	ug/L	0.2	U	0.2	U				
Nickel, SPLP	ug/L	2.1	J	1.4	J				
Potassium, SPLP	ug/L	219	J	1630	J				
Selenium, SPLP	ug/L	2.7	J	2.9	J				
Silver, SPLP	ug/L	0.5	UJ	1	J				
Sodium, SPLP	ug/L	3850	J	11700	=				
Thallium, SPLP	ug/L	2.4	UJ	2.4	UJ				
Tin (Sn), SPLP	ug/L	2.7	U	2.7	U				
Vanadium, SPLP	ug/L	5.8	J	4.7	J				
Aluminum	mg/Kg					3970	=	6590	=
Antimony	mg/Kg					0.57	J	1.1	J
Arsenic	mg/Kg					1.3	J	6.2	=
Barium	mg/Kg					10.9	J	14.9	J
Beryllium	mg/Kg					0.08	U	0.37	J
Cadmium	mg/Kg					0.03	U	0.11	J
Calcium	mg/Kg					3960	J	45200	J
Chromium, Total	mg/Kg					5.9	=	15.7	=
Chromium, Total	ug/L	2.7	J	1.3	J				

	StationID	G120SB012		G120SB012	
	SampleID	120SB01201 (0-1ft)		120SB01202 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999	
	DateAnalyzed	12/17/99		12/17/99	
	SDGNumber	EN031		EN031	
Parameter	**Units**				
Aluminum, SPLP	ug/L				
Antimony, SPLP	ug/L				
Arsenic,SPLP	ug/L				
Barium, SPLP	ug/L				
Beryllium, SPLP	ug/L				
Cadmium, SPLP	ug/L				
Calcium, SPLP	ug/L				
Cobalt, SPLP	ug/L				
Copper, SPLP	ug/L				
Iron, SPLP	ug/L				
Lead, SPLP	ug/L				
Magnesium, SPLP	ug/L				
Manganese, SPLP	ug/L				
Mercury, SPLP	ug/L				
Nickel, SPLP	ug/L				
Potassium, SPLP	ug/L				
Selenium, SPLP	ug/L				
Silver, SPLP	ug/L				
Sodium, SPLP	ug/L				
Thallium, SPLP	ug/L				
Tin (Sn), SPLP	ug/L				
Vanadium, SPLP	ug/L				
Aluminum	mg/Kg	3180	=	3490	=
Antimony	mg/Kg	0.71	J	0.41	J
Arsenic	mg/Kg	1.6	J	0.98	J
Barium	mg/Kg	28.6	=	4.1	J
Beryllium	mg/Kg	0.08	U	0.08	U
Cadmium	mg/Kg	0.13	J	0.11	J
Calcium	mg/Kg	27600	J	2180	J
Chromium, Total	mg/Kg	8.3	=	4.3	=
Chromium, Total	ug/L				

	StationID	G120SB001		G120SB002		G120SB002		G120SB003	
	SampleID	120SB00101 (0-1ft)		120SB00201 (0-1ft)		120SB00202 (3-5ft)		120SB00301 (0-1ft)	
	DateCollected	08/29/1996		08/29/1996		08/29/1996		08/29/1996	
	DateAnalyzed	9/12/96		9/12/96		9/12/96		9/12/96	
	SDGNumber	26792		26792		26792		26792	
Parameter	**Units**								
Cobalt	mg/Kg	3.4	=	3.5	=	4.7	=	0.73	=
Copper	mg/Kg	286	=	160	=	69.3	=	1.8	J
Iron	mg/Kg	12700	=	5640	=	20900	=	954	=
Lead	mg/Kg	223	J	155	J	58.3	J	2.2	J
Magnesium	mg/Kg	2600	=	955	=	3650	=	467	=
Manganese	mg/Kg	118	J	81.9	J	174	J	20.5	J
Mercury	mg/Kg	0.35	=	0.23	=	0.26	=	0.04	U
Nickel	mg/Kg	22.1	=	25.1	=	17.9	=	1.7	=
Potassium	mg/Kg	908	=	295	=	1370	=	80	U
Selenium	mg/Kg	0.41	UJ	0.64	J	0.41	J	0.44	J
Silver	mg/Kg	0.26	U	0.2	U	0.25	U	0.23	U
Sodium	mg/Kg	723	=	441	=	882	=	242	=
Thallium	mg/Kg	0.46	UJ	0.37	UJ	0.45	UJ	0.4	UJ
Tin (Sn)	mg/Kg	8.2	U	20.8	=	4.3	U	0.67	U
Vanadium	mg/Kg	46.9	=	10.9	=	51.5	=	2.5	=
Zinc, SPLP	ug/L								
Zinc	mg/Kg	501	=	392	=	209	=	5.8	=

	StationID	G120SB004		G120SB004		G120SB005		G120SB006	
	SampleID	120SB00401 (0-1ft)		120SB00402 (3-5ft)		120SB00501 (0-1ft)		120SB00601 (0-1ft)	
	DateCollected	09/25/1996		09/25/1996		09/25/1996		09/24/1996	
	DateAnalyzed	10/13/96		10/13/96		10/13/96		10/15/96	
	SDGNumber	27090		27090		27090		27065	
Parameter	**Units**								
Cobalt	mg/Kg	0.86	J	0.68	J	0.71	J	2.9	=
Copper	mg/Kg	3.6	U	0.47	U	10.2	=	83.1	=
Iron	mg/Kg	1880	=	2390	=	1400	=	3520	=
Lead	mg/Kg	11.4	=	1.4	=	7.7	=	59.4	=
Magnesium	mg/Kg	334	=	254	=	287	=	1050	=
Manganese	mg/Kg	23.5	=	14.7	=	12.7	=	110	=
Mercury	mg/Kg	0.04	U	0.04	U	0.04	U	0.04	U
Nickel	mg/Kg	1.9	J	0.7	J	2.5	J	21.2	J
Potassium	mg/Kg	224	U	245	U	222	U	253	J
Selenium	mg/Kg	0.35	J	0.37	UJ	0.55	J	0.33	U
Silver	mg/Kg	0.21	U	0.23	U	0.21	U	0.21	U
Sodium	mg/Kg	187	U	786	U	148	U	338	U
Thallium	mg/Kg	0.38	UJ	0.42	UJ	0.38	UJ	0.37	UJ
Tin (Sn)	mg/Kg	1.1	U	1.1	U	1.3	U	11	=
Vanadium	mg/Kg	4.4	=	4	=	4.8	=	7.6	=
Zinc, SPLP	ug/L								
Zinc	mg/Kg	14.3	=	6.2	U	13.1	=	167	=

	StationID	G120SB007		G120SB007		G120SB008		G120SB008	
	SampleID	120SB00701 (0-1ft)		120SB00702 (3-5ft)		120SB00801 (0-1ft)		120SB00802 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/17/99		12/17/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	**Units**								
Cobalt	mg/Kg	1.5	J	0.87	J	3.5	J	1.9	J
Copper	mg/Kg	20.2	J	16.6	=	145	=	63	=
Iron	mg/Kg	3640	=	2080	=	5720	=	7220	=
Lead	mg/Kg	15	=	14	=	89.4	=	36.9	=
Magnesium	mg/Kg	3140	J	407	J	2000	J	5260	J
Manganese	mg/Kg	128	=	22.1	=	112	=	191	=
Mercury	mg/Kg	0.04	U	0.04	U	0.06	=	0.06	U
Nickel	mg/Kg	6.7	J	4.2	=	20.3	J	17.4	J
Potassium	mg/Kg	549	J	117	J	385	J	710	J
Selenium	mg/Kg	1.5	U	0.49	J	1.6	U	2	J
Silver	mg/Kg	0.44	U	0.05	U	0.46	U	0.6	U
Sodium	mg/Kg	765	J	117	J	669	J	1040	J
Thallium	mg/Kg	0.21	UJ	0.22	UJ	0.22	UJ	0.29	UJ
Tin (Sn)	mg/Kg	2.4	U	3.9	J	18.5	J	5.2	J
Vanadium	mg/Kg	7.6	J	5.6	=	16.1	J	23.7	J
Zinc, SPLP	ug/L								
Zinc	mg/Kg	45.4	J	40	J	294	J	84.9	J

	StationID	G120SB009		G120SB009		G120SB009		G120SB009	
	SampleID	120SB009S1 (0-1ft)		120SB009S2 (3-5ft)		120SB009T1 (0-1ft)		120SB009T2 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/21/99		12/21/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	**Units**								
Cobalt	mg/Kg					5.1	J	5.3	J
Copper	mg/Kg					277	=	119	=
Iron	mg/Kg					9430	=	19800	=
Lead	mg/Kg					142	=	71.6	=
Magnesium	mg/Kg					1790	J	4220	=
Manganese	mg/Kg					93.9	=	155	=
Mercury	mg/Kg					0.06	=	0.16	=
Nickel	mg/Kg					41.3	=	20.4	=
Potassium	mg/Kg					513	J	1800	=
Selenium	mg/Kg					2	J	1.6	=
Silver	mg/Kg					0.45	U	0.07	U
Sodium	mg/Kg					607	J	862	=
Thallium	mg/Kg					0.21	UJ	0.32	UJ
Tin (Sn)	mg/Kg					24.7	J	6.6	J
Vanadium	mg/Kg					19	J	57.4	=
Zinc, SPLP	ug/L	23.6	J	60.6	J				
Zinc	mg/Kg					409	J	210	J

	StationID	G120SB010		G120SB010		G120SB010		G120SB010	
	SampleID	120SB010S1 (0-1ft)		120SB010S2 (3-5ft)		120SB010T1 (0-1ft)		120SB010T2 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999		12/13/1999		12/13/1999	
	DateAnalyzed	12/21/99		12/21/99		12/17/99		12/17/99	
	SDGNumber	EN031		EN031		EN031		EN031	
Parameter	**Units**								
Cobalt	mg/Kg					0.47	J	1	J
Copper	mg/Kg					6.7	=	27.1	=
Iron	mg/Kg					2230	=	4960	=
Lead	mg/Kg					7	=	25.4	=
Magnesium	mg/Kg					219	J	2070	=
Manganese	mg/Kg					30.8	=	78.9	=
Mercury	mg/Kg					0.04	U	0.05	U
Nickel	mg/Kg					2.2	J	6.6	=
Potassium	mg/Kg					99.1	J	488	J
Selenium	mg/Kg					0.47	J	1	=
Silver	mg/Kg					0.04	U	0.05	U
Sodium	mg/Kg					106	J	513	=
Thallium	mg/Kg					0.21	UJ	0.25	UJ
Tin (Sn)	mg/Kg					2.6	J	4	J
Vanadium	mg/Kg					5.1	=	14.8	=
Zinc, SPLP	ug/L	45.7	J	25.7	J				
Zinc	mg/Kg					12.4	J	51.2	J

	StationID	G120SB012		G120SB012	
	SampleID	120SB01201 (0-1ft)		120SB01202 (3-5ft)	
	DateCollected	12/13/1999		12/13/1999	
	DateAnalyzed	12/17/99		12/17/99	
	SDGNumber	EN031		EN031	
Parameter	**Units**				
Cobalt	mg/Kg	1.1	J	0.36	J
Copper	mg/Kg	32.8	=	2.5	=
Iron	mg/Kg	3270	=	806	=
Lead	mg/Kg	38.3	=	3.7	=
Magnesium	mg/Kg	495	=	144	J
Manganese	mg/Kg	42.4	=	5.4	=
Mercury	mg/Kg	0.04	U	0.04	U
Nickel	mg/Kg	7.9	=	1.3	J
Potassium	mg/Kg	176	J	45.4	J
Selenium	mg/Kg	0.48	J	0.31	J
Silver	mg/Kg	0.04	J	0.05	U
Sodium	mg/Kg	146	J	65.6	J
Thallium	mg/Kg	0.21	UJ	0.22	UJ
Tin (Sn)	mg/Kg	3.6	J	2.6	J
Vanadium	mg/Kg	5.5	=	2.4	J
Zinc, SPLP	ug/L				
Zinc	mg/Kg	94.3	J	7	J

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	41852
Date:	February 17, 2000
Client Name:	Ensafe
Project/Site Name:	Charleston Zone G
Date Sampled:	January 25, 2000
Number of Samples:	23 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:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles and Metals

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

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

Craig G. Seazon

Paul B. Humburg, President

2-24-00.

Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

SDG# 41852

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

ENSAFE ID	MATRIX	SVOA		MET	
120SB01301	SOIL		X		
120SB01302	SOIL		X		
120SB01401	SOIL		X		
120SB01402	SOIL		X		
120SB01501	SOIL		X		
120SB01502	SOIL		X		
120SB01601	SOIL		X		
120SB01602	SOIL		X		
638SB00601	SOIL				X
638SB00602	SOIL				X
638SB01001	SOIL		X		
638SB01002	SOIL		X		
638SB01101	SOIL		X		
638SB01102	SOIL		X		
643SB01401	SOIL		X		
643SB02101	SOIL		X		X
643SB02102	SOIL		X		X
643SB02501	SOIL		X		X
643SB02502	SOIL		X		X
643SB02601	SOIL		X		X
643SB02602	SOIL		X		X
643SB02701	SOIL		X		X
643SB02702	SOIL		X		X
Total Billable Samples (Water/Soil)		0	21	0	10

SVOA= Semivolatiles
MET= Metals

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 for GC/MS Semivolatiles; the National Functional Guidelines for Organic Data Validation, 2/94, 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 # 41852

A validation was performed on the Semivolatile Data from SDG 41852. The data was evaluated based on the following parameters:

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

* - All criteria were met for this parameter.

Internal Standards

The following samples exhibited non-compliant EICP area recoveries below the QC limits for the noted internal standards. All reported positive and non-detect results are qualified as estimated, J/UJ.

643SB02101	naphthalene-d8 acenaphthene-d10 phenanthrene-d10
120SB01401	perylene-d12

Blanks

The two (2) method blanks associated with the field samples in this SDG exhibited contamination for which qualifications were required. The end user should note that the action levels indicated for the blank analysis may not involve the same weights, volumes, dilution factors, or percent moisture as associated samples. These factors must be taken into considerations when applying the 5X and 10X criteria to field samples.

Associated blank	Compound	Concentration	Action Level
SBLK1	naphthalene	18J ug/Kg	90 ug/Kg
	bis(2-ethylhexyl)phthalate	43J ug/Kg	430 ug/Kg
SBLK2	bis(2-ethylhexyl)phthalate	20J ug/Kg	200 ug/Kg

Samples	Compound	Qualifications
120SB01301	naphthalene	CRQL
120SB01601		
120SB01501		
120SB01401		
643SB02702		
643SB01401		
638SB01001		
643SB02101		
120SB01402		
643SB02502		
643SB02701		
643SB01102		
643SB02602		
120SB01302		
638SB01101		
643SB02102		
120SB01301	bis(2-ethylhexyl)phthalate	CRQL
120SB01601		
120SB01602		
120SB01501		
120SB01502		
120SB01401		
643SB02702		

Blanks (continued)

Samples	Compound	Qualifications
643SB01401	bis(2-ethylhexyl)phthalate	CRQL
638SB01001		
643SB02101		
120SB01402		
643SB02502		
643SB02701		
643SB01102		
643SB02602		
120SB01302		
638SB01101		
643SB02102		
643SB02501		
643SB02601		
638SB01002		

Compound Quantitation

For the following sample, the E flagged result is not used in favor of the corresponding D flagged result reported in the dilution analysis of the sample. All other results reported in the dilution analysis are not used in favor of the results reported in the lessor dilution of the sample.

120SB01401
643SB02501

System Performance and Overall Assessment

The data, as reported, required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

L = Result is estimated and biased low.

K = Result is estimated and biased high.

R = Result is rejected and unusable

D = Result value is based on dilution analysis

BLANK QUALIFICATION CODES

CRQL =	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U =	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action =	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
643SB02101	*All associated with* naphthalene-d8 acenaphthene-d10 phenanthrene-d10	+/-	J/UJ
120SB01401	*All associated with* perylene-d12	+/-	J/UJ
120SB01301 120SB01601 120SB01501 120SB01401 643SB02702 643SB01401 638SB01001 643SB02101 120SB01402 643SB02502 643SB02701 643SB01102 643SB02602 120SB01302 638SB01101 643SB02102	naphthalene	+B	CRQL
120SB01301 120SB01601 120SB01602 120SB01501 120SB01502 120SB01401 643SB02702 643SB01401 638SB01001 643SB02101 120SB01402 643SB02502 643SB02701	bis(2-ethylhexyl)phthalate	+B	CRQL

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL
643SB01102 643SB02602 120SB01302 638SB01101 643SB02102 643SB02501 643SB02601 638SB01002	bis(2-ethylhexyl)phthalate	+B	CRQL
120SB01401 643SB02501	All E flagged compounds	+E	Do not use
120SB01401DL 643SB02501DL	All except corresponding D flagged results	+/-	Do Not use

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

DATA ASSESSMENT NARRATIVE
METALS

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike and LCS recoveries, matrix duplicates and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW 846 methods: 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 # 41852

A validation was performed on the Metals Data from SDG 41852. The data was evaluated based on the following parameters.

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

* - All criteria were met for this parameter.

Preparation and Field Blanks

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

Elements	Conc.	Samples affected
Antimony	0.52 mg/kg	all soil samples below 2.6 mg/kg
Barium	0.18 mg/kg	no impact
Cadmium	0.20 mg/kg	all soil samples below 1.0 mg/kg
Iron	6.85 mg/kg	no impact
Lead	0.22 mg/kg	no impact
Manganese	0.09 mg/kg	no impact
Silver	0.55 mg/kg	all soil samples below 2.75 mg/kg

Zinc	0.99 mg/kg	no impact
Tin	3.49 mg/kg	all soil samples below 17.5 mg/kg

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

The preparation blanks exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-0.22 mg/kg	all soil samples below 2.2 mg/kg
Mercury	-0.03 mg/kg	all soil samples below 0.3 mg/kg

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

Matrix Spike Recovery results

The matrix spike recovery for soils for Antimony (72%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ"

Matrix Duplicate results

The matrix duplicate RPD for soils for Iron (24%) was below 35%. No qualification is necessary.

Serial Dilution results

The serial dilution result for soils for Zinc 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 soil samples below 2.6 mg/kg	Sb.	+	U
all soil samples below 1.0 mg/kg	Cd.		
all soil samples below 2.75 mg/kg	Ag.		
all soil samples below 17.5 mg/kg	Sn.		
all soil samples below 2.2 mg/kg	As.	+/U	J/UJ
all soil samples below 0.3 mg/kg	Hg.		
all soil samples	Sb.	+/U	J/UJ
all soil samples	Zn.	+	J
all samples	all analytes	B	J

EN SAFE

800-388-7942
MEMPHIS, TENNESSEE
STON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
TEDLAW; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
MILDOR, MO; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

PROJECT/JOB NO: 2907-051-08420

COC NO:

PO NO: 4

REL NO: 139

LAB NAME: SWL

ENT Naval Base Charleston

PROJECT MANAGER Charlie Vernoy

CATION Zone G

TELE/FAX NO. 843-884-6029

MPLERS: (SIGNATURE)

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	SVOC								REMARKS
CG6435B021Ø1	01-25-00	1035	S	4 oz. JARS	4°C	None	2	X	X								
CG6435BØ21Ø2		1041					2	X	X								
CG6435BØ27Ø1		11Ø5					2	X	X								
CG6435BØ27Ø2		1110					2	X	X								
CG6435BØ26Ø1		1135					2	X	X								
CG6435BØ26Ø2		1141					2	X	X								
CG6435BØ25Ø1		12ØØ					2	X	X								
CG6435BØ25Ø2		12Ø8					2	X	X								
CG6435BØ14Ø1		1221					2		X								
CG12ØSBØ16Ø1		15ØØ					2		X								
CG12ØSBØ16Ø2		15Ø5					2		X								
CG12ØSBØ15Ø1		1516					2		X								
CG12ØSBØ15Ø2		1519					2		X								
CG12ØSBØ14Ø1		153Ø					2		X								
CG12ØSBØ14Ø2		1535					2		X								
CG12ØSBØ13Ø1		155Ø					2		X								

	DATE		DATE		DATE		DATE
ISHED: Rachel M. White	1-25-00	RECEIVER:		RELINQUISHER:		RECEIVER:	
Rachel M. White	TIME 1755	PRINTED:	TIME	PRINTED:	TIME	PRINTED:	TIME
n: EnSafe		COMPANY:		COMPANY:		COMPANY:	

IOD OF SHIPMENT: Fed Ex

NO. 4849147870

RESULTS TO: Charlie Vernoy

COMMENTS:

JAN-26-2000 10:18 EN SAFE, INC. 803 656 0107 P.02/03

EN'SAFE

800-[illegible]-[illegible]
MEMPHIS, TENNESSEE
[illegible] CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL; MALDEN, MA; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

PROJECT/JOB NO: 2907-001-L-Y20-0
COC NO:
PO NO: 4
REL NO: 139
LAB NAME: SWL

Naval Base Charleston
Zone G
PROJECT MANAGER Charlie Verney
TELE/FAX NO. 843-984-0029
RS: (SIGNATURE)

FIELD PLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals	REMARKS
12Ø5BØ13Ø2	Ø1-25-ØØ	1557	S	4oz. JARS	4°C	None	2	X		
638SBØ11Ø1	↓	1626	↓	↓	↓	↓	2	X		
638SBØ11Ø2	↓	1633	↓	↓	↓	↓	2	X		
638SBØ1ØØ1	↓	1645	↓	↓	↓	↓	2	X		
638SBØ1ØØ2	↓	1653	↓	↓	↓	↓	2	X		
638SBØØ6Ø1	↓	1713	↓	↓	↓	↓	2		X	
638SBØØ6Ø2	↓	1721	↓	↓	↓	↓	2		X	

Rachel M. White
1-25-00

	DATE		DATE		DATE		DATE
Rachel M. White	1-25-00	RECEIVER:		RELINQUISHER:		RECEIVER:	
Rachel M. White	TIME 1755	PRINTED:	TIME	PRINTED:	TIME	PRINTED:	TIME
EnSafe		COMPANY:		COMPANY:		COMPANY:	

OF SHIPMENT: FedEx
NO. 4849147870
TO: Charlie Verney

COMMENTS:

JAN-26-2000 10:19 EN SAFE, INC. 803 856 0107 P.03/03

EN SAFE

800-583-7842
MEMPHIS, TENNESSEE
CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN; MIDDLETOWN, PA; NASHVILLE, TN; NORFOLK, VA; PROVIDENCE, RI; PENSACOLA, FL; MALDEN, MA; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

PROJECT/JOB NO: 2907-00, 08420

COC NO:

PO NO: 4

REL NO: 139

LAB NAME: SWL

CLIENT: Naval Base Charleston

PROJECT MANAGER: Charlie Verney

LOCATION: Zone G

TELE/FAX NO. 843-974-6029

SAMPLERS: (SIGNATURE)

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	SVOC	REMARKS
CG6435B021Ø1	01-25-00	1035	S	4 oz. JARS	4°C	None	2	X	X	
CG6435BØ21Ø2		1041					2	X	X	
CG6435BØ27Ø1		1105					2	X	X	
CG6435BØ27Ø2		1110					2	X	X	
CG6435BØ26Ø1		1135					2	X	X	
CG6435BØ26Ø2		1141					2	X	X	
CG6435BØ25Ø1		1200					2	X	X	
CG6435BØ25Ø2		1208					2	X	X	
CG6435BØ14Ø1		1221					2		X	
CG12ØSBØ16Ø1		1500					2		X	
CG12ØSBØ16Ø2		1505					2		X	
CG12ØSBØ15Ø1		1516					2		X	
CG12ØSBØ15Ø2		1519					2		X	
CG12ØSBØ14Ø1		1530					2		X	
CG12ØSBØ14Ø2		1535					2		X	
CG12ØSBØ13Ø1		1550					2		X	

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Rachel M. White	1-25-00	1755									
Rachel M. White											
EnSafe											

MODE OF SHIPMENT: Fed Ex

AIRBILL NO. 4809147870

RESULTS TO: Charlie Verney

COMMENTS:

JAN-26-2000 10:18 EN SAFE, INC. 803 856 0107 P.02/03

EN SAFE

800-500-7242
MEMPHIS, TENNESSEE
SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

PROJECT/JOB NO: 2907-001-0,120-0

COC NO:

PO NO: 4

REL NO: 139

LAB NAME: SWL

Naval Base Charleston

PROJECT MANAGER Charlie Verney

ON Zone G

TELE/FAX NO. 843-884-0029

RS: (SIGNATURE)

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals	REMARKS
12ØSBØ13Ø2	Ø1-25-ØØ	1557	S	4oz. JARS	4°C	None	2	X		
638SBØ11Ø1		1626					2	X		
638SBØ11Ø2		1633					2	X		
638SBØ1ØØ1		1645					2	X		
638SBØ1ØØ2		1653					2	X		
638SBØØ6Ø1		1713					2		X	
638SBØØ6Ø2		1721					2		X	

Rachel M. White
1-25-00

	DATE		DATE		DATE		DATE
R: Rachel M. White	1-25-00	RECEIVER:		RELINQUISHER:		RECEIVER:	
achel M. White	TIME 1755	PRINTED:	TIME	PRINTED:	TIME	PRINTED:	TIME
EnSafe		COMPANY:		COMPANY:		COMPANY:	

OF SHIPMENT: Fed EX

NO. 4849147870

TO: Charlie Verney

COMMENTS:

JAN-26-2000 10:19 EN SAFE, INC. 803 856 0107 P.03/03

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EN031
Date:	January 13, 2000
Client Name:	Ensafe
Project/Site Name:	Charleston Zone G
Date Sampled:	December 13 - 14, 1999
Number of Samples:	22 Non-Aqueous Sample(s) with 0 MS/MSD(s)
Laboratory:	Laucks Testing Laboratories
Validation Guidance:	National Functional Guidelines for Organic and Inorganic Data, February, 1994
QA/QC Level:	EPA DQO Level III
Method(s) Utilized:	SW846 Third Edition
Analytical Fractions:	Semivolatiles, Metals, SPLP Metals and Total Organic Carbon

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

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

Craig G. Simpson
for Paul B. Humburg, President

1-20-00.
Date

4127 Plaza 94 South • St. Charles, MO 63304
(636) 936-1332 • Fax (636) 936-1335

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 # EN031

A validation was performed on the Semivolatile Data from SDG EN031. 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.

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

SAMPLE ID	COMPOUND 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 (SOILS AND SPLP) AND TOC

General

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

SDGs # EN031

A validation was performed on the Metals for soils and SPLP and TOC Data from SDG EN031. The data was evaluated based on the following parameters.

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

* - All criteria were met for this parameter.

Preparation and Field Blanks

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

Elements	Conc.	Samples affected
Copper	1.0 ug/l	all SPLP samples below 5.0 ug/l
Lead	2.1 ug/l	all SPLP samples below 10.5 ug/l
Manganese	0.5 ug/l	all SPLP samples below 2.5 ug/l
Zinc	2.4 ug/l	no impact

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

The preparation blanks exhibited negative bias for the following elements.

Elements	Conc.	Samples affected
Arsenic	-0.24 mg/kg	all soil samples below 2.4 mg/kg
Calcium	-11.5 mg/kg	no impact
Thallium	-0.86 mg/kg	all soil samples below 8.6 mg/kg
Thallium	-2.7 ug/l	all SPLP samples below 27.0 ug/l

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

Matrix Spike Recovery results

The matrix spike recoveries for soils for Antimony (62%) and for SPLP for Aluminum (58%), Iron (63%) and Silver (46%) 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 recovery for soils for Zinc (199%) was above the upper control limits (>125%). All positive results are qualified as estimated, "J".

Matrix Duplicate results

The matrix duplicate RPD results for soils for Calcium (37%) was greater than 35% for waters for Aluminum (83%), Iron (113%) and Zinc (70%) were greater than 20%. All positive results are qualified as estimated, "J". The difference for soils for Mercury was not greater than two times the CRDL and the percent differences for soils for Chromium (33%), Lead (21%), Manganese (21%) and Zinc (26%) were not greater than 35% and therefore are not qualified.

Serial Dilution recovery results

The serial dilution results for SPLPs for Magnesium 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 SPLP samples below 5.0 ug/l	Cu.	+	U
all SPLP samples below 10.5 ug/l	Pb.		
all SPLP samples below 2.5 ug/l	Mn.		
all soil samples below 8.6 mg/kg	Tl.	+/U	J/UJ
all SPLP samples below 2.7 ug/l	Tl..		
all soil samples below 2.4 mg/kg	As.		
all soil samples	Sb.	+/U	J/UJ
all SPLP samples	Al, Fe and Ag.		
all soil samples	Zn.	+	J
all soil samples	Ca.	+	J
all SPLP samples	Al, Fe and Zn.		
all SPLP samples	Mg.	+	J
all "B" results	all analytes	B	J

99 2329 EN031

ENSAFE

800-368-7362
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

Amended COC 12/15/99

PAGE 1 OF

PROJECT/JOB NO: 2907-001-08-120
COC NO:
PO NO: 1840
REL NO: 38
LAB NAME: Laucks

CLIENT: Navy Clean CNC
PROJECT MANAGER: T. Haverhurst
LOCATION: Zone G / SWMU 11
TELE/FAX NO.: (843) 884-0029
SAMPLERS: (SIGNATURE)

ANALYSIS REQUIRED

	FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	TOC	SPLP Metals							REMARKS
1	NBCG/011SB00601	11/14/99	1301	S	Glass 8 oz	Ice	None	2	✓	~~✓~~ *								* Destroy TOC
2	NBCG/011SB00602	"	1310	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
3	NBCG/011SB00701	"	1308	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
4	NBCG/011SB00702	"	1316	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
6, 5	NBCG/011SB00801	"	1327	S	"	"	"	3	✓	✓	✓							offset to SB001
11, 6	NBCG/011SB00802	"	1335	S	"	"	"	3	✓	✓	✓							
12, 7	NBCG/011SB00901	"	1335	S	"	"	"	3	✓	✓	✓							offset to SB00
13, 8	NBCG/011SB00902	"	1340	S	"	"	"	3	✓	✓	✓							
14, 9	NBCG/011SB01001	"	1350	S	"	"	"	3	✓	✓	✓							near SB005
15, 10	NBCG/011SB01101	"	1357	S	"	"	"	3	✓	✓	✓							near SB004
	NBCG/011M00040	"	1415	S	"	"	"	2	✓	* ✓	✓							* Added TOC
	NBCG/011M00030	"	1420	S	"	"	"	2	✓	* ✓	✓							* Added TOC
	NBCG/011SB01102	"	1403	S	"	"	"	3	✓	✓	✓							

RELINQUISHED:	DATE	RECEIVED:	DATE	RELINQUISHED:	DATE	RECEIVED:	DATE
Fred Erdmann	11/14/99	Charles Christensen	11/15/99				
PRINTED: Fred Erdmann	TIME 1505	PRINTED: Charles Christensen	TIME 0545	PRINTED:	TIME	PRINTED:	TIME
COMPANY: Ensafe		COMPANY: Laucks		COMPANY:		COMPANY:	

METHOD OF SHIPMENT: Fed Ex
SHIPMENT NO. 814795922658
Charles Verney

COMMENTS: * TOC not needed for samples 011SB00601 + 00602, and 011SB00701 + 00702

IWOTTC

800-338-7983
MEMPHIS, TENNESSEE
CHARLESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN; LANCASTER, PA; NASHVILLE, TN; NORFOLK, VA; PAGUCALUY; PENSACOLA, FL; RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

99/2247 Amended COC 12/15/99 EN039

PROJECT/JOB NO: 2907 -08-420-00
COC NO:
PO NO: 1840
REL NO: 38
LAB NAME: Laucks

CLIENT: Navy Clean CNC
PROJECT MANAGER: T. Haverkost
LOCATION: Zone G, SWMU 120
TELE/FAX NO. (843) 884-0029
SAMPLERS: (SIGNATURE) William Herrick EFG

ANALYSIS REQUIRED

	FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals	SPLP Metals	TOC	Pesticides						REMARKS
1	NBCG/120SB01201	12/13/99	1339	S	Glass/8oz	ICE	None	2	✓	✓									120SB01201
2	NBCG/120SB01202	"	1345	S	"	"	"	2	✓	✓									120SB01202
3	NBCG/120SB00701	"	1346	S	"	"	"	2	✓	✓									
4	NBCG/120SB00702	"	1346	S	"	"	"	2	✓	✓									
5	NBCG/120SB00801	"	1400	S	"	"	"	2	✓	✓									
6	NBCG/120SB00802	"	1409	S	"	"	"	2	✓	✓									
7	NBCG/120SB00901	"	1413	S	"	"	"	3		✓	✓	✓							offset to 001
8	NBCG/120SB00902	"	1425	S	"	"	"	3		✓	✓	✓							
9	NBCG/120SB01001	"	1431	S	"	"	"	3		✓	✓	✓	~~✓~~	-					offset to 002
10	NBCG/120SB01002	"	1440	S	"	"	"	3		✓	✓	✓	~~✓~~	-	*				
11	NBCG/120SB01101	"	1456	S	"	"	"	2				✓	~~✓~~	-					offset to 001
12	NBCG/120SB01102	"	1503	S	"	"	"	2				✓	~~✓~~	-					

RELINQUISHED:	DATE	RECEIVED:	DATE	RELINQUISHED:	DATE	RECEIVED:	DATE
PRINTED: Fred Erdmann	12/14/99	PRINTED: Charles Christensen	12/14/99	PRINTED:		PRINTED:	
COMPANY: EnSafe	TIME 1507	COMPANY: Laucks	TIME 0830	COMPANY:	TIME	COMPANY:	TIME

METHOD OF SHIPMENT: Fed Exp
SHIPMENT NO. 814795922670
SEND RESULTS TO: Charles Vernry

COMMENTS: * Comment do-not analyze the pesticide fraction for 120SB01001, 01002 + 120SB01101, 1102.

TOTAL P.02

EN5002

7 12329 EN031

EN SAFE

CHARLESTON, LANCASTER, JACKSONVILLE, KNOXVILLE, PADUCAH, PENSACOLA, GERMANY

CHAIN OF CUSTODY RECORD

Amended COC 12/15/99

PAGE 1 OF 1

PROJECT/JOB NO: 2907-001-08-11

COC NO:

PO NO: 1840

REL NO: 38

LAB NAME: Lancas

CLIENT Navy Clean CNC

PROJECT MANAGER T. Havenhurst

LOCATION Zone G / SWMU 11

TELE/FAX NO. (843) 884-0029

SAMPLERS: (SIGNATURE)

ANALYSIS REQUIRED

	FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	TOC	SPLP Metals							REMARKS
1	NBCG/011SB00601	12/14/99	1301	S	Glass 8oz	Ice	None	2	✓	~~✓~~ *								* Destroy TOC
2	NBCG/011SB00602	"	1310	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
3	NBCG/011SB00701	"	1308	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
4	NBCG/011SB00702	"	1316	S	"	"	"	2	✓	~~✓~~ *								* Destroy TOC
16, 5	NBCG/011SB00801	"	1327	S	"	"	"	3	✓	✓	✓							offset to SB00
11, 6	NBCG/011SB00802	"	1335	S	"	"	"	3	✓	✓	✓							
12, 7	NBCG/011SB00901	"	1335	S	"	"	"	3	✓	✓	✓							offset to SB0
13, 8	NBCG/011SB00902	"	1340	S	"	"	"	3	✓	✓	✓							
14, 9	NBCG/011SB01001	"	1350	S	"	"	"	3	✓	✓	✓							near SB005
15, 10	NBCG/011SB01101	"	1357	S	"	"	"	3	✓	✓	✓							near SB004
	NBCG/011M00040D	"	1415	S	"	"	"	2	✓	* ✓	✓							* Added TO
	NBCG/011M00030D	"	1420	S	"	"	"	2	✓	* ✓	✓							* Added TO
	NBCG/011SB01102	"	1403	S	"	"	"	3	✓	✓	✓							

RELINQUISHER:	DATE	RECEIVER:	DATE	RELINQUISHER:	DATE	RECEIVER:
Fred Erdmann	12/14/99	Charles Christensen	12/15/99			
PRINTED: Fred Erdmann	TIME 1505	PRINTED: Charles Christensen	TIME 0545	PRINTED:	TIME	PRINTED:
COMPANY: En Safe		COMPANY: Lancas		COMPANY:		COMPANY:

TOTAL P.02

METHOD OF SHIPMENT: Fed Exp

SHIPMENT NO. 814795922658

SEND RESULTS TO: Charles Verney

COMMENTS: * TOC not needed for samples 011SB00601 + 00602, and 011SB00701 + 00702

* All TOC samples 011M00401 + 011M00301

ENSOTECH

800-548-7863
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

9912247 Amended COC 12/15/99 EN031

PROJECT/JOB NO: 2901-001-08-00
COC NO:
PO NO: 18460
REL NO: 38
LAB NAME: Laucks

CLIENT: Navy Clean CNC
PROJECT MANAGER: T. Haverkost
LOCATION: Zone G, SWMU 120
TELE/FAX NO.: (843) 884-0029
SAMPLERS: (SIGNATURE) William Herrick EFG

ANALYSIS REQUIRED

	FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals	SPLP Metals	TOC	Pesticides						REMARKS
1	NBCG/120SB01201	12/13/99	1339	S	Glass/8oz	Ice	None	2	✓	✓									120SB01201
2	NBCG/120SB01202	"	1345	S	"	"	"	2	✓	✓									120SB01202
3	NBCG/120SB00701	"	1346	S	"	"	"	2	✓	✓									
4	NBCG/120SB00702	"	1346	S	"	"	"	2	✓	✓									
5	NBCG/120SB00801	"	1400	S	"	"	"	2	✓	✓									
6	NBCG/120SB00802	"	1409	S	"	"	"	2	✓	✓									
3, 7	NBCG/120SB00901	"	1413	S	"	"	"	3		✓	✓	✓							offset to 001
4, 8	NBCG/120SB00902	"	1425	S	"	"	"	3		✓	✓	✓							
5, 9	NBCG/120SB01001	"	1431	S	"	"	"	3		✓	✓	✓	~~✓~~	-					offset to 002
6, 10	NBCG/120SB01002	"	1440	S	"	"	"	3		✓	✓	✓	~~✓~~	-	*				
11	NBCG/120SB01101	"	1456	S	"	"	"	2				✓	~~✓~~	-					offset to 007
12	NBCG/120SB01102	"	1503	S	"	"	"	2				✓	~~✓~~	-					

RELINQUISHED:	DATE	RECEIVED:	DATE	RELINQUISHED:	DATE	RECEIVED:	DATE
PRINTED: Fred Erdmann	12/14/99	PRINTED: Charles Christensen	12/14/99	PRINTED:		PRINTED:	
COMPANY: EnSafe	TIME 1507	COMPANY: LAUCKS	TIME 0830	COMPANY:	TIME	COMPANY:	TIME

METHOD OF SHIPMENT: Fed Exp
SHIPMENT NO. 8147795922670
SEND RESULTS TO: Charles Vernay

COMMENTS: * Comment: do not analyze the pesticide fraction for 120SB01001, 01002 + 120SB01101, 1102.

TOTAL P.02

INITIALS/DATE

ENSCO 7
REV. 03/97

SCDHEC Comment 25:

Section 10.9 SWMU 120 Pier M Laydown, Page 10.9.1

This section provides a description of SWMU 120, however, the Department has noted some deficiencies. There is no indication of the dates of operation or the access control to the site. Additionally, there is no description of the ground covering (i.e., Is the area paved with asphalt?). Please revise this section accordingly.

Navy/EnSafe Response 25:

Pier M was constructed in 1976. It can be assumed that the associated laydown area has been in operation from then until the base was closed. The entire area surrounding SWMU 120 is fenced which limits access. Former Building AS-40-1 (only the building's concrete foundation remains) has an adjoining fenced area that is unpaved with gravel land cover. All other land surface in the area is asphalt paved. Figure 10.9-1 and the text will be revised to reflect this information.

CH2M-Jones Response 25:

Figure 1-2 of this RFIRA is a plan view of SWMU 120 which includes an aerial photograph circa 1997, showing the site. In that photo, SWMU 120 is depicted as an unpaved, roughly rectangular area surrounded by asphalt pavement, and bounded on the east side by an overhead steam line. The ground surface appears to be soil with sporadic vegetative cover. The concrete floor slab for former Building AS-40-1 is visible at the west side of the unpaved area. A site inspection completed on December 11, 2000 by CH2M-Jones confirmed that site conditions appeared as generally indicated in the 1997 aerial photograph.

SCDHEC Comment 26:

Figure 10.9-1 Sampling Locations SWMU 120

Section 10.9 states that pelletized lead bricks and shielding were stored at the site. The location of the pelletized storage is not noted on Figure 10.9-1. Please revise the figure to include the storage area. If the storage area is unknown, that fact should be stated in Section 10.9.

Navy/EnSafe Response 26:

The exact area where the lead bricks were stored is unknown. The text will be revised to reflect this.

CH2M-Jones Response 26:

CH2M-Jones has not been able to determine the exact area of lead brick storage, but it is assumed that the fence was constructed to secure these materials in accordance with Navy regulations. The lead bricks were reportedly unloaded from submarines and stored here on pallets during repairs, hence the term "palletized". The usage of the term "pelletized" is incorrect. The bricks were used and stored in ingot form only.

SCDHEC Comment 27:

Section 10.9.4.1 Nature of Contamination in Sediment, Page 10.9.25, Lines 7 & 8

This sentence states that the potential for surface soil erosion and sediment transport from the immediate site area is limited because most of SWMU 120 is paved. The Department would better understand the relevance of this statement if the paved area was indicated on Figure 10.9-1. Also, please indicate if the area was paved prior to, during, or after the storage began. Please revise Figure 10.9-1 and the appropriate sections of the report.

Navy/EnSafe Response 27:

The figure will be revised to show the current extent of pavement at the site. Historical photos will be reviewed to attempt to determine the type and area of ground surface covering in the past. The date the stormwater catch basin was constructed will also be investigated.

CH2M-Jones Response 27:

No COCs were identified for surface soil, therefore, migration of soils/sediments/stormwater runoff from the site is not a concern. Navy's Facility Engineering/Public Works drawings indicate that the Pier M area was asphalt-paved as early as 1967, when Pier M consisted of a small "tee" slip incapable of supporting a nuclear submarine. The drawings indicate that sometime between 1970 and 1977, Pier M was extended and angled to accept the nuclear submarines, which coincides with the reported start dates and usage of SWMU 120. Stormwater catch basins have also been in place since at least 1967. The aerial photograph (see Figure 1-2 of this RFIRA) indicates the boundary between paved and unpaved areas (represented by a white line). Also see CH2M-Jones response to SCDHEC comment 25 above.