N61165.AR.003500
CNC CHARLESTON
5090.3a

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT ADDENDUM AREA OF CONCERN 628 (AOC 628) ZONE G CNC CHARLESTON SC

12/1/2001

CH2M HILL

RFI REPORT ADDENDUM

Area of Concern 628, Zone G

Charleston Naval Complex
North Charleston, South Carolina

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

CH2M-Jones

December 2001

Contract N62467-99-C-0960

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

CH2MHILL

December 7, 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) – AOC 628, Zone G

Dear Mr. Scaturo:

Enclosed please find four copies of the RFI Report Addendum (Revision 0) for AOC 628 in Zone G of the Charleston Naval Complex (CNC). This report has been prepared pursuant to agreements by the CNC BRAC Cleanup Team for completing the RCRA Corrective Action process.

The principal author of this document is Bill Elliott. Please contact him at 352/335-5877, extension 2477, if you have any questions or comments.

Sincerely,

CH2M HILL

Dean Williamson, P.E.

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

RFI REPORT ADDENDUM

Area of Concern 628, Zone G

Charleston Naval Complex
North Charleston, South Carolina

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

PREPARED BY
CH2M-Jones

December 2001

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

Certification Page for RFI Report Addendum (Revision 0) – AOC 628, 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

P.E. No. 21428

Dean Williamson, P.E.

12/6/2001

Date

Contents

Section **Page**

Acronyms and Abbreviations ..... **v**

1.0 Introduction **1-1**

1.1 Background 1-1

1.2 Purpose of the RFI Report Addendum 1-2

1.3 Report Organization 1-2

Figure 1-1 Location of AOC 628, Zone G within the CNC 1-4

Figure 1-2 Aerial Photograph of AOC 628 1-5

2.0 Summary of RFI Conclusions for AOC 628 ..... **2-1**

2.1 Surface Soil 2-1

2.2 Subsurface Soil 2-2

2.3 Risk Assessment Results 2-2

2.4 Summary of RFI Results 2-2

Figure 2-1 RFI Soil Sampling Locations 2-4

3.0 Interim Measures and UST/AST Removals **3-1**

4.0 Summary of Additional Investigations **4-1**

4.1 Surface Soil Sampling and Analysis 4-2

4.1.1 BEQs 4-2

4.1.2 Antimony 4-2

4.1.3 Chromium 4-2

4.1.4 Copper 4-3

4.1.5 Lead 4-3

4.2 Subsurface Soil Sampling and Analysis 4-3

Table 4-1 Inorganic Analytes Detected in Surface Soil—Add. Investigations 4-5

Table 4-2 Organic Analytes Detected in Surface Soil—Add. Investigations 4-10

Table 4-3 Inorganic Analytes Detected in Subsurface Soil—Add. Investigations 4-13

Table 4-4 Organic Analytes Detected in Subsurface Soil —Add. Investigations 4-17

Figure 4-1 Additional Sampling Locations 4-18

5.0 COPC/COC Refinement **5-1**

5.1 Surface Soil 5-1

5.1.1 Antimony 5-1
5.1.2 Arsenic 5-2
5.1.3 Total Chromium 5-2
5.1.4 Copper 5-2
5.1.5 Lead 5-3
5.1.6 BEQs 5-3
5.1.7 Risk-based Evaluation for Non-carcinogenic Chemicals 5-4
5.2 Subsurface Soil 5-5
5.2.1 Lead 5-5
5.2.2 Nickel 5-5
5.2.3 Selenium 5-5
Table 5-1 COPCs in Surface Soil 5-7
Table 5-2 Risk Evaluation Summary for Surface Soil Non-carcinogenic Metals 5-8
Table 5-3 UCL_{95} Calculations 5-9
Table 5-4 COPCs in Subsurface Soil 5-10
Figure 5-1 Additional Sample Exceedances 5-11

6.0 Summary of Information Related to Site Closeout Issues 6-1
6.1 RFI Status 6-1
6.2 Presence of Inorganics in Groundwater 6-1
6.3 Potential Linkage to SWMU 37, Investigated Sanitary Sewers 6-1
6.4 Potential Linkage to AOC 699, Investigated Storm Sewers 6-2
6.5 Potential Linkage to AOC 504, Investigated Railroad Lines 6-2
6.6 Potential Migration Pathways to Surface Water Bodies 6-2
6.7 Potential Contamination in Oil/Water Separators 6-2
6.8 Land Use Control Management Plan 6-3

7.0 Conclusions and Recommendations 7-1

8.0 References 8-1

Appendices

A Excerpts from the *Zone G RFI Report, Revision 0* (EnSafe, 1998), including Figure 2-5, *Shallow Groundwater Potentiometric Contours*
B Analytical Data from Additional Sampling
C Validation Reports from Additional Sampling Data
D Results of SPLP Evaluation
E Responses to SCDHEC comments on the *Zone G RFI Report, Revision 0* (EnSafe, 1998) and the *Zone G RFI Work Plan Addendum* (EnSafe, 2000)

Acronyms and Abbreviations

AOC	area of concern
AST	aboveground storage tank
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
CSI	confirmatory sampling investigation
DAF	dilution attenuation factor
DQO	Data Quality Objective
EnSafe	EnSafe Inc.
EPA	U.S. Environmental Protection Agency
ft bls	feet below land surface
HI	hazard index
ILCR	Incremental Lifetime Cancer Risk
IM	interim measure
LUC	land use control
µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
MCL	maximum contaminant level
NAVBASE	Naval Base
NFA	no further action
OWS	oil/water separator
PAH	polycyclic aromatic hydrocarbon

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
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TTL	target treatment level
VOC	volatile organic compound
UCL_{95}	95-percent Upper Confidence Limit
UST	underground storage tank
WPA	Work Plan Addendum

Section 1.0

1.0 Introduction

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

Corrective Action (CA) activities are being conducted under the Resource Conservation and Recovery Act (RCRA) with the South Carolina Department of Health and Environmental Control (SCDHEC) as the lead agency for CA activities at the CNC. All RCRA CA activities are performed in accordance with 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 Area of Concern (AOC) 628 in Zone G of the CNC. The site is recommended for No Further Action (NFA). Figure 1-1 illustrates the location of AOC 628 within Zone G. Figure 1-2 is an aerial photograph of AOC 628.

1.1 Background

AOC 628 is an open area southeast of Building 68 that was reportedly used from 1962 to 1967 for abrasive blasting of large metal parts, including ship parts. No visible evidence of the former activities remains at the site. A high-pressure fuel line currently runs beneath the site. Kilo Street and a railroad line parallel the area immediately to the northwest and southeast, respectively. As reported in the *Zone G RFI Report, Revision 0* (EnSafe Inc. [EnSafe], 1998), materials potentially released, stored, or disposed of included spent blasting media, paint and metallic residues, organic solvent wastes, and petroleum products. No interim measures (IMs) have been conducted at this site to date. AOC 620 in Zone F lies to the north, while AOC 619 lies to the west. AOC 628 is zoned M-1, for marine industrial use.

The RCRA Facility Assessment (RFA) conducted by EnSafe in 1995 did not identify any visible remains of the former operations, but recommended a Confirmatory Sampling Investigation (CSI) for soils, due to the uncontained nature of the former sandblasting operation.

1.2 Purpose of the RFI Report Addendum

This RFI Report Addendum provides information that documents the conclusions of the *Zone G RFI Report, Revision 0*, provides results of limited additional post-RFI sampling, and recommends the site for NFA under the RCRA Permit.

Prior to changing the status of any site to NFA under the CNC RCRA CA permit, 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 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 (LUCs) at the site

Information regarding these issues is provided in this report to expedite evaluation of closure 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. At that time, a Statement of Basis will 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.

1.3 Report Organization

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

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

2.0 Summary of RFI Conclusions for AOC 628 — Summarizes the conclusions from the RFI and risk evaluations for AOC 628.

3.0 Interim Measures and UST/AST Removals — Summarizes any IMs or underground storage tank (UST)/aboveground storage tank (AST) removals conducted at the site.

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

5.0 COPC/COC Refinement — Provides further evaluation of chemicals of potential concern (COPCs) based upon RFI and additional data, to assess them as chemicals of concern (COCs).

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

7.0 Conclusions and Recommendations — Provides recommendations for proceeding with site closure.

8.0 References — Lists the references used in this document.

Appendix A contains excerpts from the *Zone G RFI Report, Revision 0*, including tables summarizing detected parameters in soil samples and RFI Report Figure 2-5, *Shallow Groundwater Potentiometric Map*.

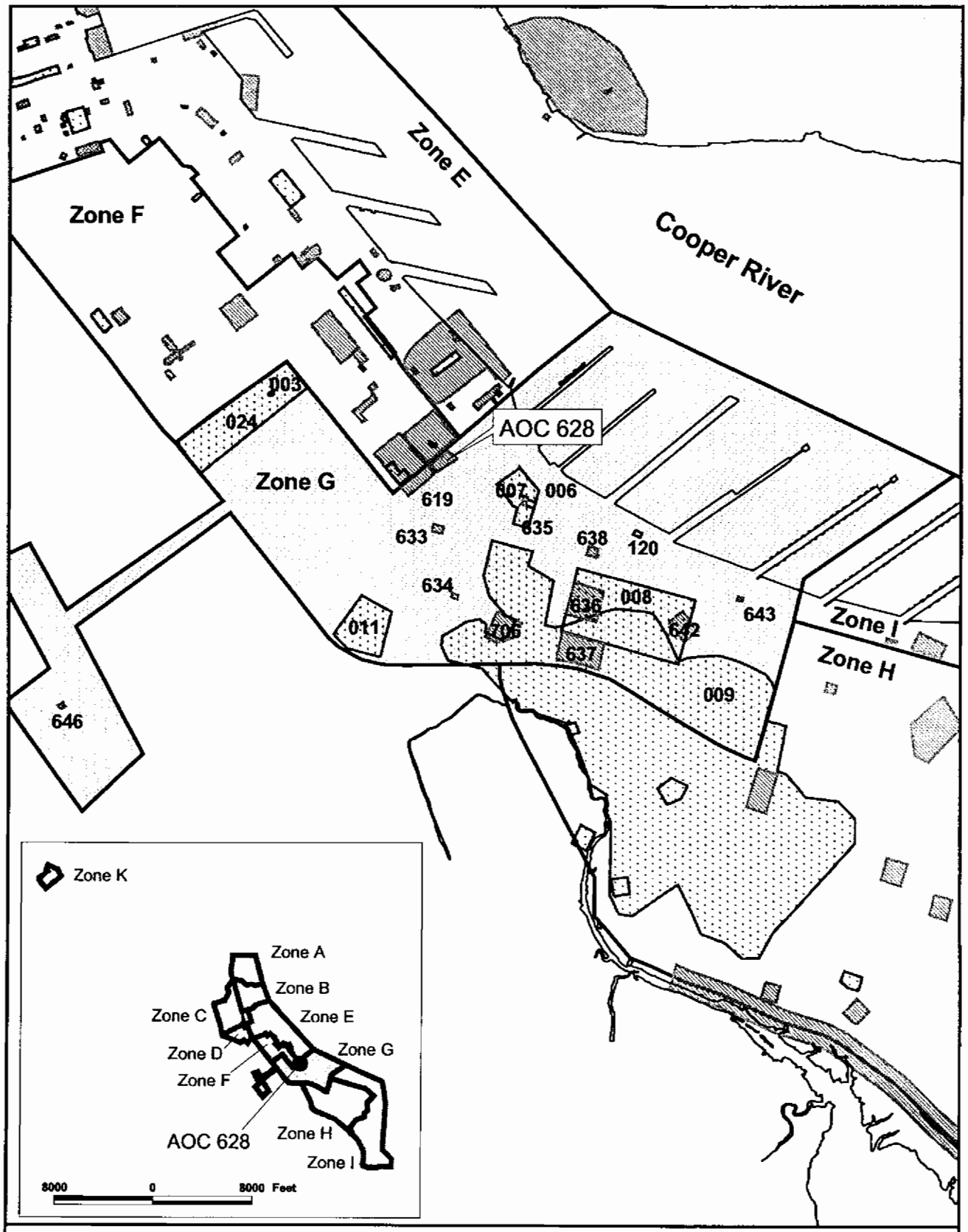
Appendix B contains analytical data from sampling subsequent to *Zone G RFI Report, Revision 0*.

Appendix C contains validation reports for the data from sampling subsequent to the *Zone G RFI Report, Revision 0*.

Appendix D provides results of the synthetic precipitation leaching procedure (SPLP) evaluation.

Appendix E contains responses to SCDHEC comments on the *Zone G RFI Report, Revision 0* and the *Zone G RFI Report Work Plan Addendum*.

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



Shoreline
AOC Boundary
SWMU Boundary
Zone Boundary
Zone G

N

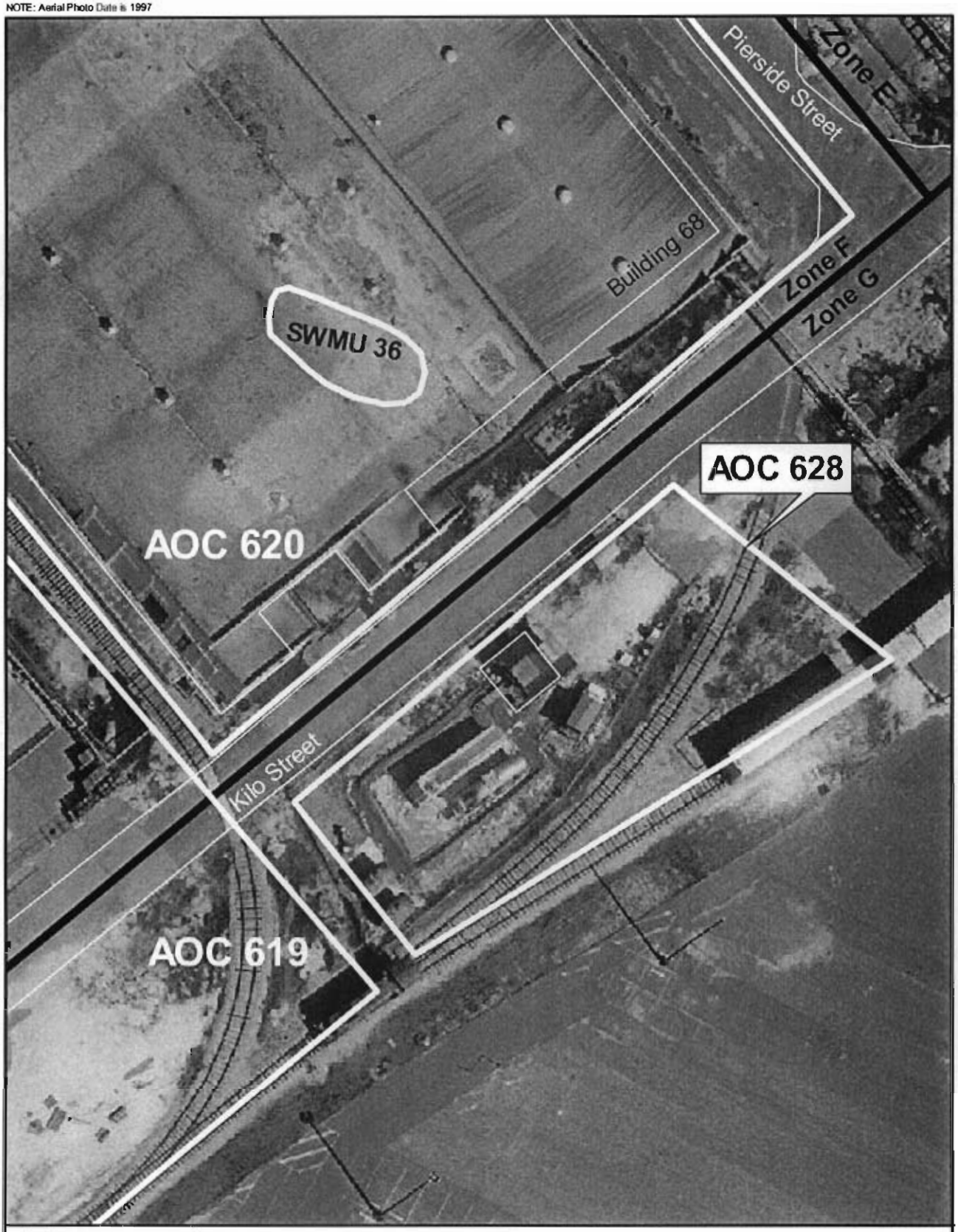
0 700 1400 Feet

Figure 1-1
Location of AOC 628
Zone G
Charleston Naval Complex

CH2MHILL

File Path: C:\18gis\Projects\Zone_G\aoc_628\aprs\aoc_628.apr, Date: 05 Dec 2001 10:11, User: ASWINFOR, Zone G Focus - Figure 1-1 Location of AOC 628

NOTE: Aerial Photo Date is 1997



Zone Boundary
Railroads
Roads
AOC Boundary
SWMU Boundary
Buildings

N

0 40 80 Feet

Figure 1-2
Aerial View of AOC 628
Zone G
Charleston Naval Complex

CH2MHILL

File Path: C:\18gis\Projects\Zone_G\aoc_628\apr\aoc_628.apr, Date: 10 Oct 2001 10:32, User: ASWINFOR, Figure 1-2 Aerial View of AOC 628

Section 2.0

2.0 Summary of RFI Conclusions for AOC 628

As part of the Zone G RFI, soil sampling was conducted in the area southeast of Building 68, known as the old sandblasting area. Figure 2-1 illustrates the AOC boundaries, and the locations of RFI samples collected in this area.

Five soil borings were installed as illustrated on Figure 2-1, with both surface soil (0 to 1 foot below land surface [ft bls]) and subsurface soil (3 to 5 ft bls) samples collected at four of the five borings. At boring location G628SB004, only the upper interval sample was collected. Soil samples were analyzed for metals, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs). The criteria used during the RFI to screen soil samples included the U.S. Environmental Protection Agency (EPA) Region III risk-based concentration (RBC) (hazard index [HI]=0.1) for unrestricted (residential) land use, the EPA generic soil screening level (SSL) with a dilution attenuation factor (DAF)=20, and Zone G soil background reference concentrations (BRCs). A summary of detected parameters in soil samples collected during the original RFI field work is presented in Appendix A.

2.1 Surface Soil

Two VOCs were detected in RFI surface soil samples at AOC 628, but no VOC concentrations exceeded their respective RBCs. The SVOCs benzo(a) pyrene and dibenz(a,h)anthracene exceeded their individual RBCs in surface soil. Arsenic (in boring G628SB004 at 21 mg/kg) and chromium (in boring G628SB004 at 44.7 mg/kg) exceeded their respective RBCs and Zone G BRCs, and both were detected in all five samples. Iron exceeded its RBC in all five surface soil borings, but no background level was established for iron in the RFI.

2.2 Subsurface Soil

No COCs were identified at AOC 628 for subsurface soil in the *Zone G RFI Report, Revision 0* (EnSafe, 1998).

Methylene chloride was detected in only one subsurface RFI soil sample from boring G628SB001, at 32 (micrograms per kilogram [µg/kg]), exceeding its generic SSL (DAF=20) of 20 µg/kg; however, this may be representative of a laboratory extraction artifact. Some of the polycyclic aromatic hydrocarbons (PAHs) detected in surface soil were also detected in

subsurface RFI soil samples, but none were identified as COPCs, as they did not exceed their respective SSLs. Various metals were also detected in RFI subsurface soils, but none exceeded the applicable SSLs.

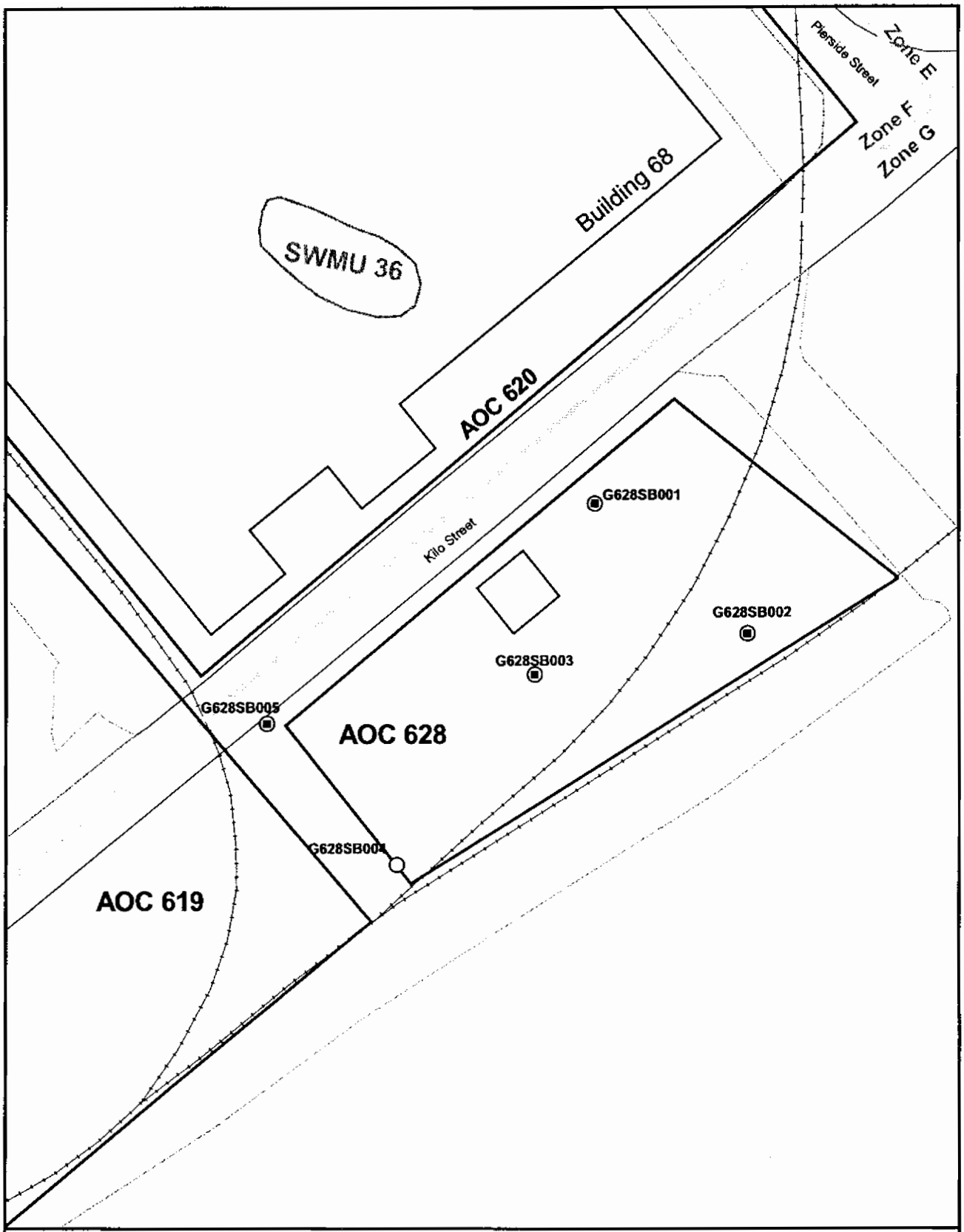
2.3 Risk Assessment Summary

The human health risk assessment (HHRA) for AOC 628 identified arsenic, chromium, and BEQs in surface soil as COCs, due to a potential incremental lifetime cancer risk (ILCR) above 1 E-06 under an unrestricted (residential) land use scenario. The risk was posed primarily by arsenic (21 mg/kg), with a minor contribution from BEQs (0.45 mg/kg). This calculation was based on the maximum detected concentrations of each chemical. The total HI was calculated at approximately 1 for an unrestricted (residential) scenario, primarily due to arsenic (HI=0.96) at 21 mg/kg, with a minor contribution from chromium (HI=0.12) at 44 mg/kg (assuming the hexavalent form of chromium was present). The industrial land use scenario risks were also above 1 E-06, due to the same chemicals and their maximum detected concentrations.

2.4 Summary of RFI Results

The RFI and HHRA for AOC 628 identified arsenic, chromium, and BEQs in surface soil as COCs. No COCs were identified for subsurface soil.

The *Zone G RFI Report, Revision 0* (EnSafe, 1998) recommendations for AOC 628 included a Corrective Measures Study (CMS) for surface soils to address the COCs that were identified. A request for clarification of the proximity of AOC 620 to AOC 628 was the only SCDHEC comment made concerning the RFI field work conducted at AOC 628. This comment is addressed in Appendix E of this RFI Report Addendum.



Subsurface Soil Samples
Surface Soil Samples
AOC Boundary
SWMU Boundary
Buildings
Zone Boundary
Pavement
Railroads
Roads

N

0 40 80 Feet

Figure 2-1
RFI Sampling Locations
AOC 628, Zone G
Charleston Naval Complex

CH2MHILL

File Path: C:\18gis\Projects\Zone_G\aoc_628\aprs\aoc_628.apr, Date: 18 Oct 2001 15:32, User: ASWINFOR, RFI Sampling Plan - Figure 2-1 RFI Sampling Locations

Section 3.0

3.0 Interim Measures and UST/AST Removals

This section summarizes information available concerning any IMs conducted at AOC 628, and the status of any USTs or ASTs located at the site.

No IMs have been conducted at this site. No records indicating the presence of USTs or ASTs at AOC 628 were identified.

Section 4.0

4.0 Summary of Additional Investigations

Following completion of the *Zone G RFI Report, Revision 0* (EnSafe, 1998), a series of additional soil samples were collected at AOC 628 to respond to SCDHEC comments on the RFI report. The overall objectives, as stated in the *Zone G RFI Report Work Plan Addendum* (EnSafe, 2000) were to complete the delineation of PAHs, arsenic, and chromium in surface soil to the south and east of RFI boring G628SB004, and to collect samples for SPLP analysis.

Soil samples from borings G628SB001, G628SB003, G628SB004, and G628SB005 were analyzed for PAHs, and soil samples from borings G628SB001, G628SB002, and G628SB005 were analyzed for metals.

Two additional soil borings (G628SB006 and G628SB007) were advanced to delineate the extent of BEQs, arsenic, and chromium in surface and subsurface soil in the south and east of G628SB004. Borings G628SB008 through G628SB012 were installed to collect samples for SPLP analysis to support calculation of site-specific SSLs. In response to SCDHEC comments, soil borings (G628SB013 and G628SB014) were installed in addition to those indicated in the *Zone G RFI Report Work Plan Addendum*, to provide additional delineation of SVOCs at AOC 628. Locations of all Work Plan Addendum (WPA) borings are shown in Figure 4-1.

Soil samples collected from borings G628SB006, G628SB007, G628SB013, and G628SB014 were collected from beneath the asphalt-paved area to the southeast of the AOC, on the far side of the railroad line that crosses the site. The samples designated "surface soil' from these borings were actually collected from depths below the parking lot sub-base, at approximately 1.5 to 2.5 ft bls, as there is no exposed surface soil available for sampling.

Tables 4-1 and 4-2 present a summary of results of the additional surface soil analyses for inorganic and organic compounds, respectively. Tables 4-3 and 4-4 present a summary of results of subsurface soil analyses for inorganic and organic compounds, respectively. These tables show all detections and compare them to appropriate screening criteria as follows:

- The criteria used for surface soil are EPA Region III residential RBCs (HI=0.1 for non-carcinogenic chemicals), EPA generic SSLs (at DAF=10 for non-VOCs, and DAF=1.0 for VOCs), and the Zone G background concentration ranges (for inorganic analytes). When a generic SSL value is not available, the EPA Region III SSLs were used.

- The criteria used for subsurface soil are the SSLs and the Zone G background concentration ranges (for inorganic analytes).

For antimony in subsurface soils, the subsurface soil background data for Zone H samples were used for comparison, since the Zone G samples had no detectable antimony concentrations.

The PAH results were also compared as BEQs against the base-wide reference concentrations recently developed by the BCT for surface soil (1,304 µg/kg) and subsurface soil (1,400 µg/kg). The complete analytical data for this additional fieldwork is presented in Appendix B.

4.1 Surface Soil Sampling and Analysis

Two additional delineation soil borings (G628SB006 and G628SB007) were advanced south and east of RFI boring G628SB004; samples collected from these borings were evaluated for SW-846 Metals and SVOCs at Data Quality Objective (DQO) Level III under the *Zone G RFI Report Work Plan Addendum*.

4.1.1 BEQs

BEQs were detected in boring G628SB006, which is located within the asphalt-paved parking lot, at a concentration of 11.8 mg/kg. This concentration exceeds both the industrial RBC (0.78 mg/kg for benzo[a]pyrene) and the base-wide BEQ reference concentration (1.304 mg/kg) for surface soil.

4.1.2 Antimony

Antimony exceeded the RBC (3.1 mg/kg) and the maximum concentration of its Zone G background range (0.79 to 5.7 mg/kg) in samples from borings G628SB006 (7.1 mg/kg) and G628SB007 (15.8 mg/kg).

4.1.3 Chromium

Chromium (total) exceeded its RBC and the maximum concentration of its Zone G background range in boring G628SB006 (42.1 mg/kg) and boring G628SB007 (125 mg/kg), but was not detected in any of the SPLP samples analyzed from this location.

4.1.4 Copper

Copper exceeded its RBC and maximum concentration of its Zone G background range in borings G628SB006 and G628007, but was an order of magnitude below the SSL of 5,500 mg/kg.

4.1.5 Lead

Lead exceeded its RBC and the maximum concentration of its Zone G background range in the sample from boring G628SB007 (458 mg/kg), but lead leachate concentrations from SPLP samples did not exceed the EPA Primary Drinking Water Standards target treatment level (TTL) of 15 µg/L at any location.

Five additional soil borings (G628SB008 through G628SB0012) were advanced and the samples collected were evaluated for total metals and also for leachable concentrations through SPLP analysis. The total metals results in these surface soil samples did not exceed the screening criteria for any of the analytes. Sample G628SB008 is located adjacent to RFI sample G628SB004, which had arsenic and chromium identified as COCs in the *Zone G RFI Report, Revision 0*. The SPLP results are presented in Appendix C of this RFI Report Addendum.

In response to SCDHEC comments, two additional soil borings (G628SB013 and G628SB014) were advanced and the samples collected were evaluated for SVOCs at DQO Level III. The sample from boring G628SB014 collected from under the asphalt pavement of the parking lot had PAHs slightly exceeding the base-wide reference concentration for BEQ in surface soil (1.3 mg/kg).

4.2 Subsurface Soil Sampling and Analysis

Results of the WPA subsurface soil sampling are summarized in Table 4-3 (inorganics) and Table 4-4 (organics). The subsurface interval could not be sampled at soil boring locations G628SB007 or G628SB013. The subsurface sample collected from boring G628SB006 had no exceedances of SSLs.

Five additional soil borings (G628SB008 through G628SB012) were advanced, and the samples collected were evaluated for total metals and also for leachable fractions through SPLP analysis. Lead (at a concentration of 418 mg/kg) slightly exceeded its SSL and the maximum concentration of its Zone G background range in total analysis at sample G628SB0112 (see Table 4-3). Nickel (at a concentration of 76.6 mg/kg) slightly exceeded the 65 mg/kg SSL and the maximum concentration of its Zone G background range in boring

G628SB008. Selenium also slightly exceeded its SSL of 3 mg/kg and the Zone G background range in boring G628SB012 at 3.3 mg/kg. There were no other subsurface soil SSL exceedances in samples from borings G628SB008 through G628SB012. SPLP results at these locations indicate that none of these analytes are leachable in concentrations that could present unacceptable risks to the groundwater quality.

TABLE 4-1
Inorganic Analytes Detected in Surface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	Zone G Surface Background Concentration Range[c]
Aluminum	G628SB006	2,280	=	7,800	NL	2,190 - 17,800
	G628SB007	4,650	=			
	G628SB008	13,700	=			
	G628SB009	5,840	=			
	G628SB010	8,450	=			
	G628SB011	1,410	=			
	G628SB012	2,600	=			
	G628SB006	2,280	=			
	G628SB007	4,650	=			
	G628SB008	13,700	=			
	G628SB009	5,840	=			
	G628SB010	8,450	=			
	G628SB011	1,410	=			
	G628SB012	2,600	=			
Antimony	G628SB006	**7.1**	J	3.1	2.5	0.79 - 5.7
	G628SB007	**15.8**	J			
	G628SB012	1.3	J			
Arsenic	G628SB006	9.6	=	0.43[d]	14.5	3.1 - 25
	G628SB007	8.4	=			
	G628SB008	16.9	=			
	G628SB009	4.4	=			
	G628SB010	5.4	=			
	G628SB011	2.5	=			
	G628SB012	5.0	=			
Barium	G628SB006	81.2	=	550	800	11 - 129
	G628SB007	127	=			
	G628SB008	39.3	=			
	G628SB009	22.7	=			
	G628SB010	17.7	J			
	G628SB011	9.7	J			
	G628SB012	26	=			
Beryllium	G628SB006	0.31	J	16	31.5	0.47 - 1.1
	G628SB007	1.20	J			
	G628SB008	1.10	J			
	G628SB009	0.29	J			
	G628SB010	0.40	J			
	G628SB012	0.18	J			

TABLE 4-1
Inorganic Analytes Detected in Surface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	Zone G Surface Background Concentration Range[c]
Calcium	G628SB006	19,900	J	NL	NL	NL
	G628SB007	11,600	J			
	G628SB008	16,600	J			
	G628SB009	116,000	=			
	G628SB010	26,900	J			
	G628SB011	314,000	J			
	G628SB012	11,500	J			
Chromium, Total	G628SB006	**42.1**	=	23	19	7.0 - 39
	G628SB007	**125**	=			
	G628SB008	35.6	=			
	G628SB009	1.2	J			
	G628SB009	25.9	=			
	G628SB010	15.1	=			
	G628SB010	0.6	J			
	G628SB011	4.6	=			
	G628SB012	22.9	=			
	G628SB012	4.7	J			
Cobalt	G628SB006	5.1	=	470	NL	1.1 - 6.2
	G628SB007	22.5	=			
	G628SB008	5.5	J			
	G628SB009	2.4	J			
	G628SB010	2.7	J			
	G628SB011	2.4	J			
	G628SB012	2.1	J			
Copper	G628SB006	**776**	J	310	5,500[g]	23 - 431
	G628SB007	**459**	J			
	G628SB008	180	J			
	G628SB009	12.3	J			
	G628SB010	14.8	J			
	G628SB011	3.7	J			
	G628SB012	51.9	J			
Iron	G628SB006	9,500	J	2,300	NL	4,300 - 32,700
	G628SB007	21,200	J			
	G628SB008	20,400	J			
	G628SB009	6,480	J			
	G628SB010	9,010	J			
	G628SB011	2,280	J			
	G628SB012	4,130	J			

TABLE 4-1
Inorganic Analytes Detected in Surface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	Zone G Surface Background Concentration Range[c]
Lead	G628SB006	191	=	400[e]	400	3.5 - 275
	G628SB007	**458**	=			
	G628SB008	54.9	=			
	G628SB009	27.4	=			
	G628SB010	72.3	=			
	G628SB011	3.3	=			
	G628SB012	57.8	=			
Magnesium	G628SB006	547	J	NL	NL	NL
	G628SB007	585	J			
	G628SB008	3,980	J			
	G628SB009	2,280	J			
	G628SB010	1,440	J			
	G628SB011	4,830	J			
	G628SB012	301	J			
Manganese	G628SB006	66.1	=	160	NL	39 - 359
	G628SB007	59.2	=			
	G628SB008	141	=			
	G628SB009	130	=			
	G628SB010	99.6	=			
	G628SB011	247	=			
	G628SB012	39.7	=			
Mercury	G628SB006	0.1	J	2.3[f]	1	0.060 - 2
	G628SB007	0.05	J			
	G628SB008	0.1	J			
	G628SB009	0.1	J			
	G628SB010	0.07	J			
	G628SB012	0.07	J			
Nickel	G628SB006	36.6	J	160	65	2 - 26.5
	G628SB007	38	J			
	G628SB008	12.8	J			
	G628SB009	8.4	J			
	G628SB010	6.4	J			
	G628SB011	7.5	J			
	G628SB012	13.2	J			
Potassium	G628SB006	405	J	NL	NL	NL
	G628SB007	535	J			
	G628SB008	2,590	J			

TABLE 4-1
Inorganic Analytes Detected in Surface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	Zone G Surface Background Concentration Range[c]
Potassium	G628SB009	963	J	NL	NL	NL
	G628SB010	713	J			
	G628SB011	874	J			
	G628SB012	134	J			
Selenium	G628SB007	1.7	J	39	2.5	0.45 - 1.4
	G628SB008	2	J			
	G628SB010	0.94	J			
Silver	G628SB007	0.66	J	39	17	NL
Sodium	G628SB006	270	J	NL	NL	NL
	G628SB007	590	=			
	G628SB008	1,410	=			
	G628SB009	400	J			
	G628SB010	199	J			
	G628SB011	713	=			
	G628SB012	113	J			
Tin (Sn)	G628SB007	72.8	J	47,000	NL	2.6 - 26
Vanadium	G628SB006	9.1	=	55	3,000	7.2 - 57
	G628SB007	12.4	=			
	G628SB008	45.2	=			
	G628SB009	15.2	=			
	G628SB010	20.1	=			
	G628SB011	4	J			
	G628SB012	6.6	=			
Zinc	G628SB006	211	J	2,300	6,000	18 - 1,650
	G628SB007	1,200	J			
	G628SB008	243	J			
	G628SB009	200	J			
	G628SB010	68.1	J			
	G628SB011	19.3	J			
	G628SB012	139	J			

Concentrations in bold and outlined in boxes exceeded the RBCs or SSLs and the Zone G background concentration range.

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

[b] Generic soil-to-groundwater SSLs (DAF = 10) are from EPA Soil Screening Guidance: Technical Background Document (Table A-1), EPA/540/R-95/128, May 1996, unless otherwise noted.

[c] Background values for Zone G are as described in the Zone G RFI Report, Revision 0 (EnSafe, 1998) Section 5 – Data Evaluation and Background Comparison.

TABLE 4-1
Inorganic Analytes Detected in Surface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

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

[d] Carcinogen-residential RBC was used directly from the EPA Region III RBC Table, October 5, 2000.

[e] Residential RBC for lead was obtained from EPA Soil Screening Guidance: Technical Background Document, Appendix A (page A-5) EPA/540/R-95/128, May 1996.

[f] Residential RBC (THI=0.1) for mercury was obtained from the EPA Region III RBC Table document distributed on October 22, 1997.

[g] Where SSLs are not available from EPA Tables, SSLs from EPA Region III RBC tables are used .

=	Chemical detected at the concentration shown
HI	Hazard index
J	Chemical detected at concentration below the method detection limit, concentration not known
NL	Not listed
RBC	Risk-based concentration
DAF	Dilution attenuation factor
SSL	Soil screening level

TABLE 4-2
Organic Analytes Detected in Surface Soil - Additonal Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	BEQ Surface Soil BRC[c]
BEQ[c]	G628SB006	**11.8**		NA	NA	1.304
	G628SB007	0.4				
	G628SB013	0.23				
	G628SB014	**1.6**				
1,4-Dichlorobenzene	G628SB014	0.021	J	27	1	
2-Methylnaphthalene	G628SB014	1.3	J	NL	NL	
2-Methylphenol (o-Cresol)	G628SB014	0.029	J	390	7.5	
4-Methylphenol (p-Cresol)	G628SB014	0.026	J	390	NL	
Acenaphthene	G628SB006	0.33	J	470	285	
	G628SB014	0.12	J			
Acenaphthylene	G628SB006	1.3	J	NL	NL	
	G628SB014	0.07	J			
Anthracene	G628SB006	2.5	=	2,300	6,000	
	G628SB014	0.39	=			
Benzo(a)Anthracene	G628SB006	**6.8**	=	0.87	1	
	G628SB013	0.023	J			
	G628SB014	**1.6**	=			
Benzo(a)Pyrene	G628SB006	**8.3**	=	0.087[d]	4	
	G628SB013	0.021	J			
	G628SB014	0.96	=			
Benzo(b)Fluoranthene	G628SB006	**15**	J	0.87[d]	2.5	
	G628SB007	0.086	J			
	G628SB013	0.025	J			
	G628SB014	**1.3**	=			
Benzo(g,h,i)Perylene	G628SB006	2.7	=	NL	NL	
	G628SB013	0.02	J			
	G628SB014	0.57	=			
Benzo(k)Fluoranthene	G628SB006	8.4	J	8.7[d]	24.5	
	G628SB013	0.028	J			
	G628SB014	0.65	=			
Benzyl Butyl Phthalate	G628SB006	1.5	J	NL	NL	
	G628SB014	0.29	J			

TABLE 4-2
Organic Analytes Detected in Surface Soil - Additonal Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC[a] (HI=0.1)	Soil-to-Groundwater SSL[b] (DAF=10)	BEQ Surface Soil BRC[c]
bis(2-Ethylhexyl) Phthalate	G628SB006	0.87	J	4.6[d]	1,800	
	G628SB007	0.3	J			
	G628SB013	3.1	=			
Chrysene	G628SB006	12	=	87[c]	80	0.620
	G628SB013	0.036	J			
	G628SB014	1.7	=			
Di-n-butyl Phthalate	G628SB007	0.087	J	780	1,150	
	G628SB013	0.91	=			
	G628SB014	0.049	J			
Di-n-octylphthalate	G628SB014	0.14	J	NL		
Dibenz(a,h)anthracene	G628SB006	**1.2**	J	0.087[d]	1	0.525
	G628SB014	0.28	J			
Dibenzofuran	G628SB014	0.42	=	310	NL	
Diethyl Phthalate	G628SB013	0.024	J	NL	235	
Fluoranthene	G628SB006	15	=	310	2,150	
	G628SB013	0.042	J			
	G628SB014	2.6	=			
Fluorene	G628SB006	0.53	J	310	280	
	G628SB014	0.084	J			
Indeno(1,2,3-c,d)pyrene	G628SB006	0.54	J	0.87[d]	7	0.525
	G628SB014	0.54	=			
Phenanthrene	G628SB006	5.2	=	NL	NL	
	G628SB013	0.028	J			
	G628SB014	1.4	=			
Pyrene	G628SB006	18	=	230	2,100	
	G628SB013	0.051	J			
	G628SB014	3	J			
Naphthalene	G628SB014	0.95	=	1,600	42	

Concentrations in bold and outlined boxes exceed the applicable RBC or background screening concentration.

[a] Non-carcinogen-residential RBCs (HI = 0.1) were obtained from the EPA Region III, Risk-Based Concentration Table, October 5, 2000 (http://www.epa.gov/epahome/search.html), unless noted otherwise.

[b] Generic soil-to-groundwater SSLs (DAF=10) are from EPA Soil Screening Guidance: Technical Background Document (Table A-1_, EPA/540/R-95/128, May 1996, unless otherwise noted.

[c] 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 - Additonal Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

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

[d] Carcinogen-residential RBC was used directly from the EPA Region III, Risk-Based Concentration Table, October 5, 2000.

=	Chemical detected at the concentration shown
BEQ	Benzo(a)pyrene equivalent
DAF	Dilution attenuation factor
J	Chemical detected at concentration below the method detection limit; concentration not known
NA	Not applicable/not available/not analyzed
NL	Not listed
PAH	Polycylic aromatic hydrocarbon
RBC	Risk-based concentration
SVOC	Semivolatile organic compound
THI	Target hazard index
VOC	Volatile organic compound

BEQ Calculation
Procedure:

Equation 1: BEQ = Sum {PAH * TEF}

BEQ = benzo(a)pyrene equivalents, using the concentrations of the seven target parameters (TP) listed below, or if there was no detection of a TP, half the TP detection limit is
used.
TEF = Toxicity equivalency factor (TEF) listed below, relative to benzo(a)pyrene.

If there were no detection of all seven TP, then the BEQ = nondetect (ND).

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

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Background Concentration Range[b]
Aluminum	G628SB006	873	=	NL	2,630 - 36,800
	G628SB008	3,880	=		
	G628SB009	4,110	=		
	G628SB010	8,890	=		
	G628SB011	7,870	=		
	G628SB012	23,000	=		
Antimony	G628SB006	9.3	J	2.5	1.5 - 19[d]
	G628SB008	2.9	J		
	G628SB011	2.2	J		
	G628SB012	1.4	J		
Arsenic	G628SB006	2.8	=	14.5	1.4 - 36
	G628SB008	4.4	=		
	G628SB009	1.7	=		
	G628SB010	7.8	=		
	G628SB011	9.3	=		
	G628SB012	25.5	=		
Barium	G628SB006	12.9	J	800	7.7 - 63
	G628SB008	20.3	=		
	G628SB009	12.7	J		
	G628SB010	21.1	=		
	G628SB011	35.3	=		
	G628SB012	39.1	=		
Beryllium	G628SB006	0.26	J	31.5	0.45 - 2.4
	G628SB008	0.26	J		
	G628SB009	0.14	J		
	G628SB010	0.43	J		
	G628SB011	0.98	J		
	G628SB012	1.60	J		
Calcium	G628SB006	1,850	J	NL	NL
	G628SB008	17,000	J		
	G628SB009	17,500	J		
	G628SB010	50,600	J		
	G628SB011	15,000	J		
	G628SB012	8,690	J		
Chromium, Total	G628SB006	44.2	=	19	7.4 - 65
	G628SB008	63	=		
	G628SB008	4.3	J		
	G628SB009	6.7	=		

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Background Concentration Range[b]
Chromium, Total	G628SB009	1.5	J	19	7.4 - 65
	G628SB010	23.7	=		
	G628SB011	1	J		
	G628SB011	32.1	=		
	G628SB012	14.7	=		
	G628SB012	45.2	=		
Cobalt	G628SB006	3.3	J	NL	0.9 - 15
	G628SB008	3.8	J		
	G628SB009	1.1	J		
	G628SB010	3.5	J		
	G628SB011	4.4	J		
	G628SB012	8.5	=		
Copper	G628SB006	66.3	J	5,500[c]	4.5 - 46
	G628SB008	51.7	J		
	G628SB009	4.3	J		
	G628SB010	21	J		
	G628SB011	151	J		
	G628SB012	34.3	J		
Iron	G628SB006	4,070	J	NL	3,110 - 58,100
	G628SB008	9,230	J		
	G628SB009	2,360	J		
	G628SB010	12,100	J		
	G628SB011	14,500	J		
	G628SB012	44,000	J		
Lead	G628SB006	188	=	400	2.4 - 76
	G628SB008	148	=		
	G628SB009	13.60	=		
	G628SB010	52.90	=		
	G628SB011	**418**	=		
	G628SB012	48	=		
Magnesium	G628SB006	127	J	NL	NL
	G628SB008	821	J		
	G628SB009	394	J		
	G628SB010	2,000	J		
	G628SB011	1,530	J		
	G628SB012	5,110	J		

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Background Concentration Range[b]
Manganese	G628SB006	20.2	=	NL	20 - 409
	G628SB008	99.2	=		
	G628SB009	28.6	J		
	G628SB010	340	=		
	G628SB011	153	=		
	G628SB012	1,710	=		
Mercury	G628SB006	2.2	J	1	0.050 - 3.7
	G628SB008	0.13	J		
	G628SB009	0.07	J		
	G628SB010	0.2	J		
	G628SB011	0.41	J		
	G628SB012	0.25	J		
Nickel	G628SB006	14.3	J	65[c]	1.9 - 22
	G628SB008	**76.6**	J		
	G628SB009	3	J		
	G628SB010	9.1	J		
	G628SB011	21.9	J		
	G628SB012	14.5	J		
Potassium	G628SB006	56.10	J	NL	NL
	G628SB008	365	J		
	G628SB009	166	J		
	G628SB010	1,030	J		
	G628SB011	733	J		
	G628SB012	2,910	J		
Selenium	G628SB011	1.40	J	3	0.54 - 1
	G628SB012	**3.3**	J		
Sodium	G628SB006	252	J	NL	NL
	G628SB008	262	J		
	G628SB009	132	J		
	G628SB010	325	J		
	G628SB011	299	J		
	G628SB012	3,020	=		
Vanadium	G628SB006	3.7	J	3,000	5.9 - 112
	G628SB008	10.6	=		
	G628SB009	5.5	=		
	G628SB010	22.6	=		
	G628SB011	24.6	=		
	G628SB012	79	=		

TABLE 4-3
Inorganic Analytes Detected in Subsurface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	Zone G Subsurface Background Concentration Range[b]
Zinc	G628SB006	598	J	6,000	20 -198
	G628SB008	252	J		
	G628SB009	37.80	J		
	G628SB010	107	J		
	G628SB011	437	J		
	G628SB012	115	J		

Concentrations in bold and outlined in boxes exceed the SSL and the Zone G background range.

[a] Generic soil-to-groundwater SSLs (DAF = 10) are from EPA Soil Screening Guidance: Technical Background Document (Table A-1), EPA/540/R-95/128, May 1996, unless otherwise noted.

[b] Background values for Zone G are as described in the Zone G RFI Report, Section 5 – Data Evaluation and Background Comparison, unless otherwise noted.

[c] Where SSLs are not available from EPA Tables, SSLs from the EPA Region III RBC tables are used.

[d] Background range for antimony is not available for Zone G due to no detections; range shown is for Zone H.

= Chemical detected at the concentration shown

DAF Dilution attenuation factor

J Chemical detected at concentration below the method detection limit; concentration not known

NA Not applicable/not available/not analyzed

NL Not listed

SSL Soil screening level

TABLE 4-4
Organic Analytes Detected in Subsurface Soil - Additional Investigations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Soil-to-Groundwater SSL[a] (DAF=10)	BEQ Subsurface Soil BRC[b]
Benzo(k)Fluoranthene	G628SB006	0.085	J	2.5	0.609
bis(2-Ethylhexyl) Phthalate	G628SB006	0.21	J	1,800	
Pyrene	G628SB006	0.09	J	2,100	
BEQ[b]	G628SB006	0.47			1.4

[a] Generic soil-to-groundwater SSLs (DAF = 10) are from the EPA Soil Screening Guidance: Technical Background Document (Table A-1), EPA/540/R-95/128 (May, 1996), unless otherwise noted.

[b] Background PAHs Study Report - Technical information for Development of Background BEQ Values, February 2001, CH2M-Jones.

J Chemical detected at concentration below the method detection limit; concentration not known

= Chemical detected at the concentration shown

BEQ Benzo(a)pyrene equivalent

DAF Dilution attenuation factor

SSL Soil screening level

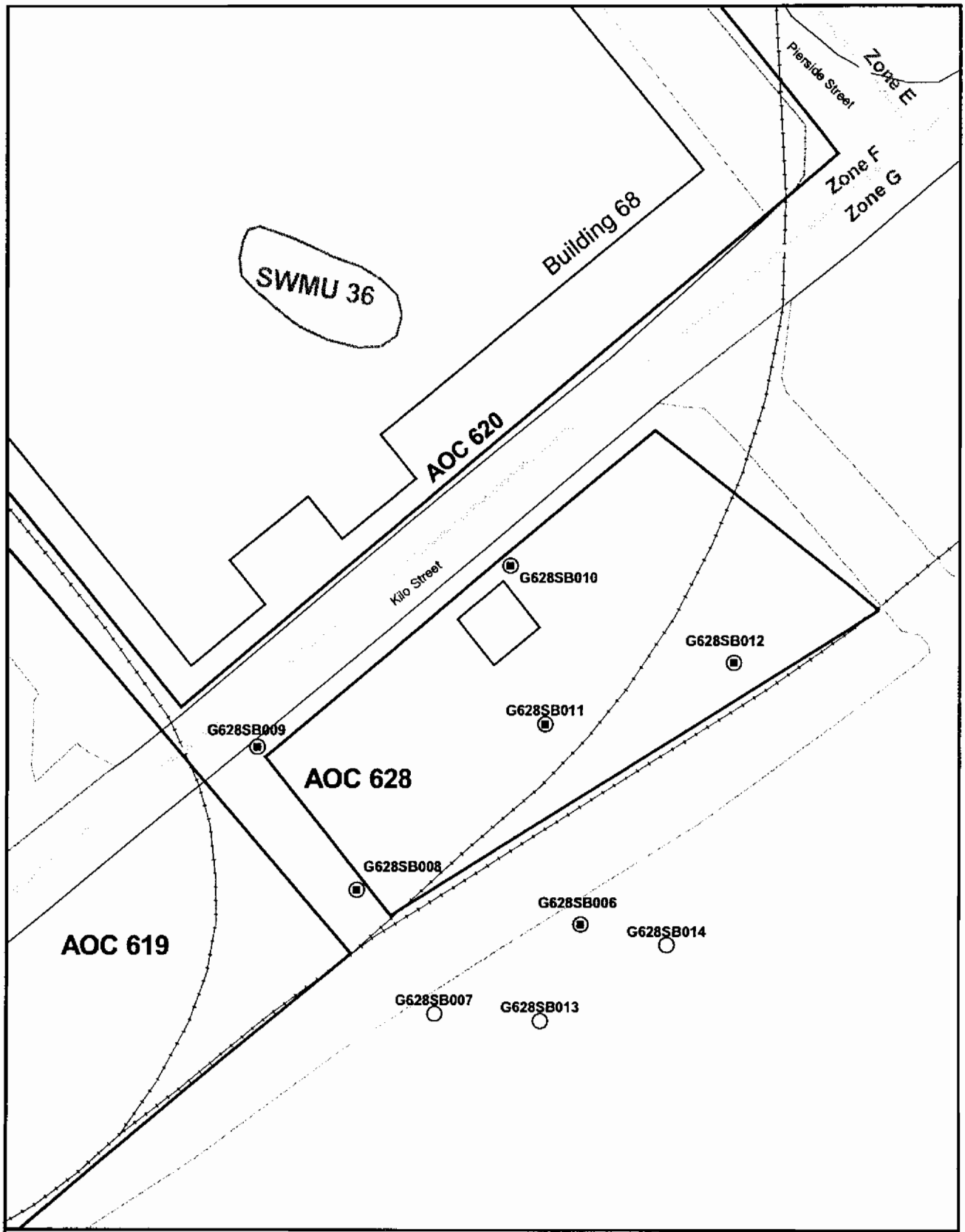
BEQ Calculation
Procedure:

Equation 1: BEQ = Sum {PAH * TEF}

BEQ = benzo(a)pyrene equivalents, using the concentrations of the seven target parameters (TP) listed below, or if there was no detection of a TP, half the TP detection limit is
used.
TEF = Toxicity equivalency factor (TEF) listed below, relative to benzo(a)pyrene.

If there were no detection of all seven TP, then the BEQ = nondetect (ND).

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



- Additional Subsurface Soil Samples
- Additional Surface Soil Samples
- AOC Boundary
- SWMU Boundary
- Zone Boundary
- Buildings
- Railroads
- Roads
- Pavement

N

0 30 60 Feet

Figure 4-1
Additional Sampling Locations
AOC 628, Zone G
Charleston Naval Complex

CH2MHILL

File Path: C:\18gis\Projects\Zone_G\aoc_628\aprs\aoc_628.apr, Date: 06 Dec 2001 10:31, User: ASWINFOR, Additional Sampling Locations - Figure 4-1 Additional Sampling Locations

Section 5.0

5.0 COPC/COC Refinement

This section discusses and further evaluates chemicals that were identified as COCs in the *Zone G RFI Report, Revision 0* (EnSafe, 1998). This section also addresses chemicals that were identified as COPCs in Section 4.0 of this RFI Report Addendum, following the collection of further data after completion of the original RFI field work.

5.1 Surface Soil

The *Zone G RFI Report, Revision 0* identified BEQs, arsenic, and chromium as COCs for surface soil. In addition, antimony, copper, and lead were identified as surface soil COPCs in Section 4.0 of this RFI Report Addendum. Each of these chemicals is presented in Table 5-1 and is discussed below.

5.1.1 Antimony

Antimony exceeded the maximum concentration of its Zone G background range (0.79 to 5.7 mg/kg) and RBC (3.1 mg/kg, at an HI=0.1) in two of the seven samples taken during the *Zone G RFI Report Work Plan Addendum* (EnSafe, 2000) collection activities. At boring G628SB006 the antimony concentration was 7.1 J mg/kg; at boring G628SB007 the concentration of antimony was 15.8 J mg/kg. Both of these soil sample locations are across the railroad lines from AOC 628 , and were collected from beneath the asphalt. The site-wide statistical average for antimony in surface soil is below the residential RBC of 31 mg/kg, at HI=1.0 (see Table 5-1). The ratio of the maximum detected antimony concentration to its RBC is 0.51. The potential cumulative effects from an exceedance of the RBC at HI=0.1 is addressed in Section 5.1.7.

The SPLP leachate analysis results showed that antimony was not detected in any of the surface soil samples analyzed for leachability (via SPLP). There were no detections in the SPLP extract from sample G628SB007, which had an antimony concentration of 15.8 J mg/kg, thus indicating that antimony is not leachable from soils. Based on these considerations, antimony is not considered a COC, as it does not present a human health exposure or leachability concern.

5.1.2 Arsenic

Arsenic was originally identified in the *Zone G RFI Report, Revision 0* as a COPC based on one sample exceeding the RBC and BRC in boring G628SB004 (21 mg/kg). However, this concentration is within the Zone G arsenic background range (3.1 to 25 mg/kg). Therefore, arsenic is not considered a COC in surface soil, and does not warrant further investigation at AOC 628.

5.1.3 Total Chromium

Chromium (total) was originally identified as a COPC in the *Zone G RFI Report, Revision 0.* This was based on the concentration of chromium (total) that was found to be above the RBC of 23 mg/kg at boring G628SB004 (44 mg/kg). The surface soil sample taken from boring G628SB006 across from the site, and under the asphalt-paved parking lot, during the *Zone G RFI Report Work Plan Addendum* sample collection contained a chromium concentration of 42 mg/kg. These values slightly exceeded the Zone G background range for chromium in surface soil (7 to 39 mg/kg). The maximum detected chromium value, although above the residential RBC of 23 at HI=0.1, is well below the RBC of 230 mg/kg, based on HI=1.0.

Chromium was also detected above its RBC and the Zone G background range in one other WPA surface soil sample (G628SB007: 125 mg/kg). Review of the SPLP leachate analytical results for G628SB008 through G628SB012 (see Appendix C) indicates that chromium was not detected in any of the five surface soil SPLP leachate samples above the 3 micrograms per liter (µg/L) detection limit.

Because the chromium detected in the three surface soil samples is not above the RBC (based on HI=1.0), and is not leaching to groundwater at significant concentrations, it is not considered to be a COC in surface soils at AOC 628.

5.1.4 Copper

Copper was detected in samples collected from borings G628SB006 (776 J mg/kg) and G628SB007 (459 J mg/kg) at concentrations that exceeded the residential RBC (310 mg/kg, at HI=0.1) and the Zone G range of background concentrations (23 to 431 mg/kg). The detected maximum concentration for copper did not exceed the RBC (HI=1.0) of 3,100 mg/kg. The ratio of the maximum detected copper concentration to its RBC is 0.25. The cumulative effects from multiple non-carcinogenic chemicals exceeding RBC at HI=0.1 are evaluated below in Section 5.1.7.

The maximum detected copper concentration was below the generic SSL (DAF=10), indicating that these isolated concentrations do not present a leachability to groundwater concern. Copper does not exceed SSLs in any subsurface soils. Based on these considerations, copper is not retained as a COC at AOC 628.

5.1.5 Lead

Lead was detected at 458 mg/kg, which is above its RBC (400 mg/kg) and Zone G background range of concentrations (3.5 to 275 mg/kg), in surface soil from boring G628SB007. This sample was collected at a sample located outside the AOC boundary, across a ditch, and beneath an asphalt-paved parking lot. Although this sample is designated as a surface soil sample (0 to 1 ft bls), it was collected from below the sub-base of the asphalt parking lot, at a depth of approximately 1.5 to 2.5 ft bls through a sawed hole in the asphalt. Lead was also detected at 418 mg/kg in boring G628SB011 inside the AOC boundary. This concentration slightly exceeds the residential RBC of 400 mg/kg. The average site concentration for lead (95 mg/kg) is well below the residential screening RBC value of 400 mg/kg. Review of SPLP results (see Appendix C) for sample G628SB011 indicates that lead is not leaching from surface soils into groundwater at significant concentrations. Lead is not considered a COC for AOC 628, since its average concentration in surface soil is well below the residential risk-based screening criteria and leachability criteria.

5.1.6 BEQs

BEQs were identified as COPCs in the *Zone G RFI Report, Revision 0* based on calculated BEQ concentrations at borings G628SB001 (0.45 mg/kg), G628SB003 (0.33 mg/kg), and G628SB005 (0.34 mg/kg); these concentrations exceeded the residential RBC of 0.088 mg/kg in surface soil. However, these results all fall below the site-wide BEQ reference concentration of 1.304 mg/kg. BEQs were detected in two WPA surface soil samples (G628SB00601 and G628SB014) at concentrations exceeding the base-wide BEQ reference concentrations (11.8 and 1.6 mg/kg, respectively). Both of these borings are located beneath the adjacent asphalt-paved parking lot across, the railroad lines, and ditch that bounds AOC 628 to the southeast.

Samples were collected by mechanically sawing a plug from the asphalt and hand-augering below the pavement sub-base to collect the soil samples. Extensive use and/or disposal of PAHs containing BEQs was not determined to be associated with the former outdoor sandblasting operation. No USTs were used at this location, and no fuel oil spills were documented in this area. BEQs do not exceed criteria at any other locations in the AOC, and

their presence in isolated samples from beneath the asphalt is believed to be associated with the asphalt, and not with the site operations that ended 35 years ago. Direct exposure is not possible due to the asphalt cover. Based on this information, BEQs are not retained as COCs in surface soil for AOC 628.

5.1.7 Risk-Based Evaluation for Non-carcinogenic Chemicals

Most of the recently collected samples were from soil depths between 1.5 to 2.5 ft bls, as soils from shallower locations could not be sampled due to physical limitations such as the presence of asphalt or mixing of soil with sub-base material, making sampling at shallower depths impractical. Thus, these are not typical surface soils, and direct exposure concern is limited to surface soils at this site. As stated above, the site itself is located within several railroad lines (see Figure 1-2), making exposure to soils under the unrestricted (residential) land use scenario unlikely for this site. However, for conservative evaluation, it was evaluated for the unrestricted land use scenario using residential RBCs.

Table 5-2 includes a focused risk estimation for surface soil non-carcinogenic metals (except lead, which was previously discussed and has a unique toxicity pathway) by taking a ratio of the site concentrations and the residential RBC values. The three chemicals evaluated are antimony, chromium, and copper. Hexavalent chromium is highly soluble, whereas the SPLP analysis of the samples had no detectable soluble chromium, indicating the total chromium measured in the site soils is likely in trivalent form. Thus, the RBC for trivalent chromium is more appropriate for comparison.

The total HI estimated by taking this preliminary risk evaluation ratio (following EPA Region IV guidance for PRE) is at 1.3, assuming all the chromium is in hexavalent form, and that all chemicals have the same target organ for individual chemical toxicity (most conservative assumptions). However, when a ratio of 95-percent Upper Confidence Limit (UCL_{95}) to the RBC is used (see Table 5-3 for UCL_{95} calculations for these metals), and chromium is evaluated for trivalent and hexavalent form, the ratio is 0.25 to 0.0004. However, antimony, chromium, and copper do not have the same target organ, and are not truly additive. Therefore, no ratios are above a value of 1.0. Thus, there no are excess health risks from the site surface soil exposures from past site operations.

Based on the lack of excessive health hazard from these non-carcinogenic metals at AOC 628, no further actions are recommended for surface soils at this site.

5.2 Subsurface Soil

The *Zone G RFI Report, Revision 0* did not identified any COCs in subsurface soil. The supplemental sampling conducted after the original RFI field work, as described in Section 4.0 of this RFI Report Addendum, identified lead, nickel, and selenium as exceeding the COPC screening criteria.

Figure 5-1 presents the subsurface soil COPCs and their reported concentrations; Table 5-4 presents the COPC concentrations in each sample, and Appendix C presents the SPLP data for soil at AOC 628.

5.2.1 Lead

Lead was detected in the RFI addendum subsurface soil sample collected at boring G628SB011 (418 mg/kg), and in the RFI addendum surface sample G628SB007 at 458 mg/kg; both concentrations slightly exceeded the 400 mg/kg criterion. The subsurface soil detection does not appear to be related to the surface soil sample, as they are approximately 60 ft apart and separated by the railroad and ditch. The surface soil sample at the G628SB011 location does not exceed criteria for lead, and SPLP results at this location do not exceed drinking water criteria, indicating that this isolated occurrence of lead is not adversely impacting groundwater quality. The average lead concentration in subsurface soil at the site is 114.3 mg/kg, which is well below the SSL of 400 mg/kg. Thus, lead is not present at the site at concentrations that present a risk to groundwater. Therefore, lead is not considered a COC for subsurface soil at this site.

5.2.2 Nickel

Nickel was detected in one subsurface soil sample collected from boring G628SB008 at a concentration of 76 mg/kg, which is above the Zone G range of background concentrations (1.9 to 22 mg/kg), and slightly exceeds the SSL (65 mg/kg). The SPLP results for nickel at this location (5.9 J µg/L) are well below the tap water RBC of 73 µg/L, and the surface soil sample at this location does not exceed the RBC or background range. Also, the average nickel concentration for subsurface soil is 17.5 mg/kg, which is well below the SSL. Therefore, nickel is not considered a COC for subsurface soil at AOC 628.

5.2.3 Selenium

Selenium was detected in subsurface soil sample G628SB012 at 3.3 mg/kg, slightly exceeding the SSL of 3 mg/kg and Zone G background range of concentrations (0.54 to 1 mg/kg). There were no other samples with exceedances for selenium in soil. Selenium was

not detected in surface soil at this location, and the SPLP leachate concentration from this location does not exceed the tap water RBC. The average selenium concentration for subsurface soil at the site is 0.96 mg/kg, which is well below the SSL. Therefore, selenium is not considered a COC for subsurface soil at AOC 628.

TABLE 5-1
COPCs in Surface Soil
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Qualifier	Region III Residential Soil RBC (HI=0.1)	Soil-to-Groundwater SSL (DAF=10)
Antimony	G628SB006	7.1	J	3.1	2.5
	G628SB007	15.8	J		
Chromium, total	G628SB006	42.1	=	23	18
	G628SB007	125	=		
Copper	G628SB006	776	J	310	5,500
	G628SB007	459	J		
Lead	G628SB007	458	=	400	400
BEQ	G628SB006	11.8			
	G628SB007	1.6			

mg/kg Milligrams per kilogram

J Concentration shown is estimated.

= Chemical is detected at the concentration shown.

TABLE 5-2
Risk Evaluation Summary for Surface Soil Non-carcinogenic Metals
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Chemical	Sample Location	Maximum Concentration (mg/kg)	UCL_{95} Concentration	RBC (mg/kg)	Ratio of Max/RBC	Ratio of UCL_{95}/RBC	Target Organs	COC (Yes/No)
Antimony	G628SB007	15.8	10.6	31	0.51	0.34	Whole body, blood	No
Chromium (Total)	G628SB007	125	57.9	230-120,000[b]	0.54 - 0.001	0.25 - 0.0004	None specified	No
Copper	G628SB006	776	776[a]	3,100	0.25	0.25	GI Tract	No
Total HI (PRE Ratio)					**1.3**	**0.8**		

[a] Copper UCL_{95} is the same as its maximum concentration.

[b] Chromium RBC for hexavalent = 230 mg/kg, and for trivalent = 120,000 mg/kg.

TABLE 5-3
UCL_{95} Calculations
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Chemical	No. Samples	No. Detects	Frequency of Detection (%)	Minimum Detect (mg/kg)	Maximum Detect (mg/kg)	Mean of Detects (mg/kg)	UCL_{95} (mg/kg)	Basis
Antimony	12	4	33.3	0.64	15.8	6.21	10.6	Lognormal
Chromium	13	13	100	4.60	125	30.3	57.9	Lognormal
Copper	13	8	61.5	3.7	776	127.2	776	Maximum

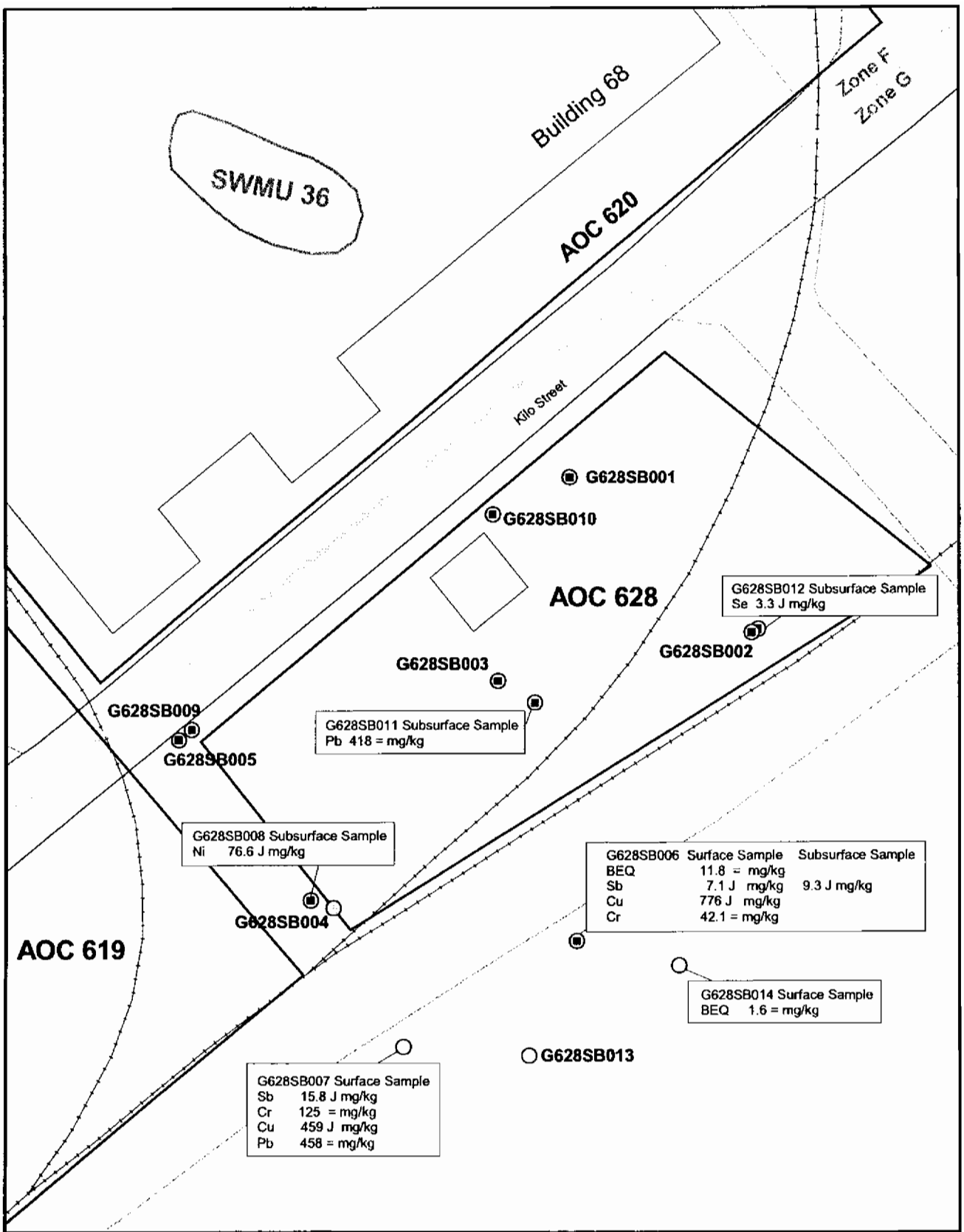
mg/kg Milligrams per kilogram

UCL_{95} 95-percent Upper Confidence Limit

TABLE 5-4
COPCs in Subsurface Soil
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Parameter	Location	Concentration (mg/kg)	Soil-to-Groundwater SSL (DAF=10)	Average Site Concentration (mg/kg)
Lead	G628SB011	418	400	114.3
Nickel	G628SB008	76.6	65	17.5
Selenium	G628SB012	3.3	3	0.96

mg/kg Milligrams per kilogram



- RFI Subsurface Soil Samples
- RFI Surface Soil Samples
- Additional Subsurface Soil Samples
- Additional Surface Soil Samples
- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary
- Railroads
- Roads
- Pavement

N

0 30 60 Feet

Figure 5-1
Additional Sample Exceedances
AOC 628, Zone G
Charleston Naval Complex

CH2MHILL

File Path: C:\18gia\Projects\Zone_G\aoc_628\aprs\aoc_628.apr, Date: 06 Dec 2001 14:02, User: ASWINFOR, Additional Sample Exceedances - Figure 5-1 Additional Sample Results

Section 6.0

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 CNC, including AOC 628. At the conclusion of the RFI Report, the investigation was not considered to be complete for this site, and as a result the subsequent *Zone G RFI Report Work Plan Addendum* (EnSafe, 2000) proposed additional sampling.

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 E to this report addendum.

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.

Groundwater was not investigated at this site as part of the RFI field activities. The soil data suggest that significant releases of arsenic, thallium, and antimony have not occurred at this site. Therefore, no impacts to groundwater would be expected at this site. Further evaluation of this issue is not warranted.

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

AOC 628 was a former sand blasting area. No data have been found that indicate that this unit was connected to the sanitary sewer or that impacts to the sanitary sewer from this site have occurred. There is no linkage between AOC 628 and the sanitary sewers, 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. Potential linkage also refers to the presence of a cross connection between the sanitary sewer and storm sewer, which could in turn transport pollutants directly to surface waters.

Regarding the first of these potential linkages, there are no data which suggest that a groundwater plume is present at this site.

Regarding the second potential linkage issue, there are no data to suggest that this site ever had a connection to the storm sewer or that potential cross connections between the storm sewer and sanitary sewer are present at this site. Further evaluation of this issue is not warranted.

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

Although railroad lines cut across this site, no investigations related to AOC 504 were conducted at AOC 628. No significant impacts from the railroads appear to have occurred at this site. Further evaluation of this issue is not warranted.

6.6 Potential Migration Pathways to Surface Water Bodies at the CNC

The nearest water body to AOC 628 is the Cooper River, approximately 550 ft east of the site. Potential migration of contamination is not considered an issue at this site since no COCs were identified in the soil. Further evaluation of this issue is not warranted.

6.7 Potential Contamination in Oil/Water Separators (OWSs)

The issue of potential contamination in 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 process.

Neither the RFA nor the RFI refer to the presence or possible presence of an OWS at AOC 628. In addition, there is no visual evidence of an OWS at this site. Nor is there reference to

an OWS at this facility in the base-wide OWS report prepared by the Navy in Y2000. Therefore, further evaluation of this issue at AOC 628 is not warranted.

6.8 Land Use Control Management Plan

This site is zoned M-1 for marine industrial use. Because no COCs were identified at this site, no land use controls are needed.

Section 7.0

7.0 Recommendations

AOC 628 is the location of a former sand blasting area that was reportedly used from 1962 to 1967 for abrasive blasting of large metal parts, including ship parts. No visible evidence of the former activities remains at the site. Based on an evaluation of all data collected during the RFI, no COCs were identified in surface or subsurface soil. The site is in an area zoned for future marine industrial use (M-1). Because there are no COCs present, the site is recommended for NFA.

Section 8.0

8.0 References

EnSafe Inc. *Zone G RFI Report, NAVBASE Charleston*. Revision 0. February 20, 1998.

EnSafe Inc. *Zone G RFI Report Work Plan Addendum, NAVBASE Charleston*. January 17, 2000.

Appendix A

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC[a] (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL[a] (DAF=20)	Subsurface Background
Volatile Organic Compounds (μg/kg)							
Benzene	628SB002	2.000	22000	NA	ND	30	NA
2-Butanone (MEK)	628SB002	ND	4700000	NA	44	7900	NA
Carbon disulfide	628SB002	ND	780000	NA	1.0	32000	NA
	628SB003	ND			2.0		
Methylene chloride	628SB001	ND	85000	NA	32	20	NA
Trichloroethene	628SB002	2.000	58000	NA	ND	60	NA
Semivolatile Organic Compounds (μg/kg)							
BEQs[1] 1,5,3	628SB001	453.66	88	NA	NA	NA	NA
	628SB002	84.843			NA		
	628SB003	325.80			NA		
	628SB004	259.15			NA		
	628SB005	336.18			NA		
Benzo(a)anthracene	628SB001	140	880	NA	140	2000	NA
2,3,4,1	628SB002	54			330		
	628SB003	260			230		
	628SB004	170			NT		
	628SB005	120			ND		

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Benzo(b)fluoranthene	628SB001	250	880	NA	220.000	5000	NA
	628SB002	76			250.000		
	628SB003	210			190.000		
	628SB004	320			NT		
	628SB005	210			74.000		
Benzo(k)fluoranthene	628SB001	230	8800	NA	ND	49000	NA
	628SB002	79			350		
	628SB003	150			260		
	628SB004	250			NT		
	628SB005	200			64		
Benzo(a)pyrene	628SB001	270	88	NA	160	8000	NA
	628SB002	66			280		
	628SB003	210			270		
	628SB004	150			NT		
	628SB005	200			73		
Chrysene	628SB001	250	88000	NA	180	160000	NA
	628SB002	53			540		
	628SB003	300			280		
	628SB004	650			NT		
	628SB005	180			89		
Indeno(1,2,3-cd)pyrene	628SB001	220	880	NA	100	14000	NA
	628SB002	50			170		
	628SB003	110			180		
	628SB004	110			NT		
	628SB005	150			ND		

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Acenaphthene	628SB002	ND	470000	NA	52	570000	NA
	628SB003	ND			86		
Acenaphthylene	628SB003	ND	230000	NA	69	293000	NA
	628SB004	73			NT		
	628SB005	60			ND		
Anthracene	628SB001	60	2300000	NA	56	12000000	NA
	628SB002	ND			130		
	628SB003	75			110		
	628SB004	170			NT		
	628SB005	98			22		
Benzo(g,h,i)perylene	628SB001	300	230000	NA	130	4.66E08	NA
	628SB002	54			150		
	628SB003	110			190		
	628SB004	110			NT		
	628SB005	190			ND		
Dibenz(a,h)anthracene	628SB001	120	88	NA	55	2000	NA
1,53	628SB003	56			77		
	628SB004	46			NT		
	628SB005	86			24		
Di-n-butylphthalate	628SB005	ND	780000	NA	24	2300000	NA
Fluoranthene	628SB001	190	310000	NA	340	4300000	NA
	628SB002	ND			2100		
	628SB003	710			560		
	628SB004	2100			NT		
	628SB005	180			100		

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Fluorene	628SB002	ND	310000	NA	48	560000	NA
2-Methylnaphthalene	628SB005	42	310000	NA	ND	126000	NA
Naphthalene	628SB003	ND	310000	NA	44	84000	NA
Phenanthrene	629SB001	100	230000	NA	180	1380000	NA
	628SB002	ND			1100		
	628SB003	260			130		
	628SB004	450			NT		
	628SB005	69			26		
Pyrene	628SB001	160	230000	NA	270	4200000	NA
	628SB002	ND			1400		
	628SB003	600			480		
	628SB004	1400			NT		
	628SB005	160			78		
1,2,4-Trichlorobenzene	628SB003	ND	78000	NA	76	5000	NA
Inorganics (mg/kg)							
Aluminum (Al)	628SB001	5590	7800	18700	5150	1000000	23600
	628SB002	3130			8010		
	628SB003	4450			10200		
	628SB004	10600			NT		
	628SB005	5150			15800		
Antimony (Sb) 1, 2	628SB001	0.64	3.1	2.89	0.57	5	NL
	628SB002	ND			0.50		

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Arsenic (As)	628SB001	7.4	0.43	17.2[a]	10.8	29	15.5[a]
	628SB002	1.4			7.5		
	628SB003	6.2			10		
	628SB004	21			NT		
	628SB005	6.4			19.4		
Barium (Ba)	628SB001	17.1	550	109	16.5	1600	64.5
	628SB002	11			28.2		
	628SB003	23.1			44.4		
	628SB004	38.5			NT		
	628SB005	16.9			29.2		
Beryllium (Be)	628SB005	ND	0.15	1.20	1.3	63	1.63
Cadmium (Cd)	628SB001	0.31	3.9	1.07	0.42	8	0.48
	628SB002	0.20			0.34		
	628SB003	0.33			0.32		
	629SB005	0.17			ND		
Calcium (Ca)	628SB001	11300	NL	NL	5460	NL	NL
	628SB002	80600			9520		
	628SB003	69400			15500		
	628SB004	7080			NT		
	628SB005	5970			11700		
Chromium (Cr) 4, 5, 1	628SB001	22.2	7800 (III)	42.8	22.4	1000000	43.4[a]
	628SB002	5.4	39 (IV)		24.4	2	
	628SB003	14.9			24.4		
	628SB004	44.7			NT		
	628SB005	18.6			32.6		

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Cobalt (Co)	628SB001	2.2	470	6.60	3.1	2000	8.14
	628SB002	0.86			2.7		
	628SB003	2			3.1		
	628SB004	2.1			NT		
	628SB005	2			6.6		
Iron (Fe)	628SB001	8090	2300	NL	11000	NL	NL
	628SB002	2780			11500		
	628SB003	7040			14400		
	628SB004	23900			NT		
	628SB005	6640			30600		
Lead(Pb)	628SB001	97	400	181	57.6	400	66.3
	628SB002	11.2			76.5		
	628SB003	53.8			98		
	628SB004	63.7			NT		
	628SB005	48.9			42.9		
Magnesium (Mg)	628SB001	1250	NL	NL	1450	NL	NL
	628SB002	1260			1660		
	628SB003	1880			2360		
	628SB004	2560			NT		
	628SB005	798			4810		
Manganese (Mn) 5/11	628SB001	120	180	325	171	1100	291
	628SB002	67.3			158		
	628SB003	146			175		
	628SB004	55.4			44.9		
	628SB005	95.1			655		

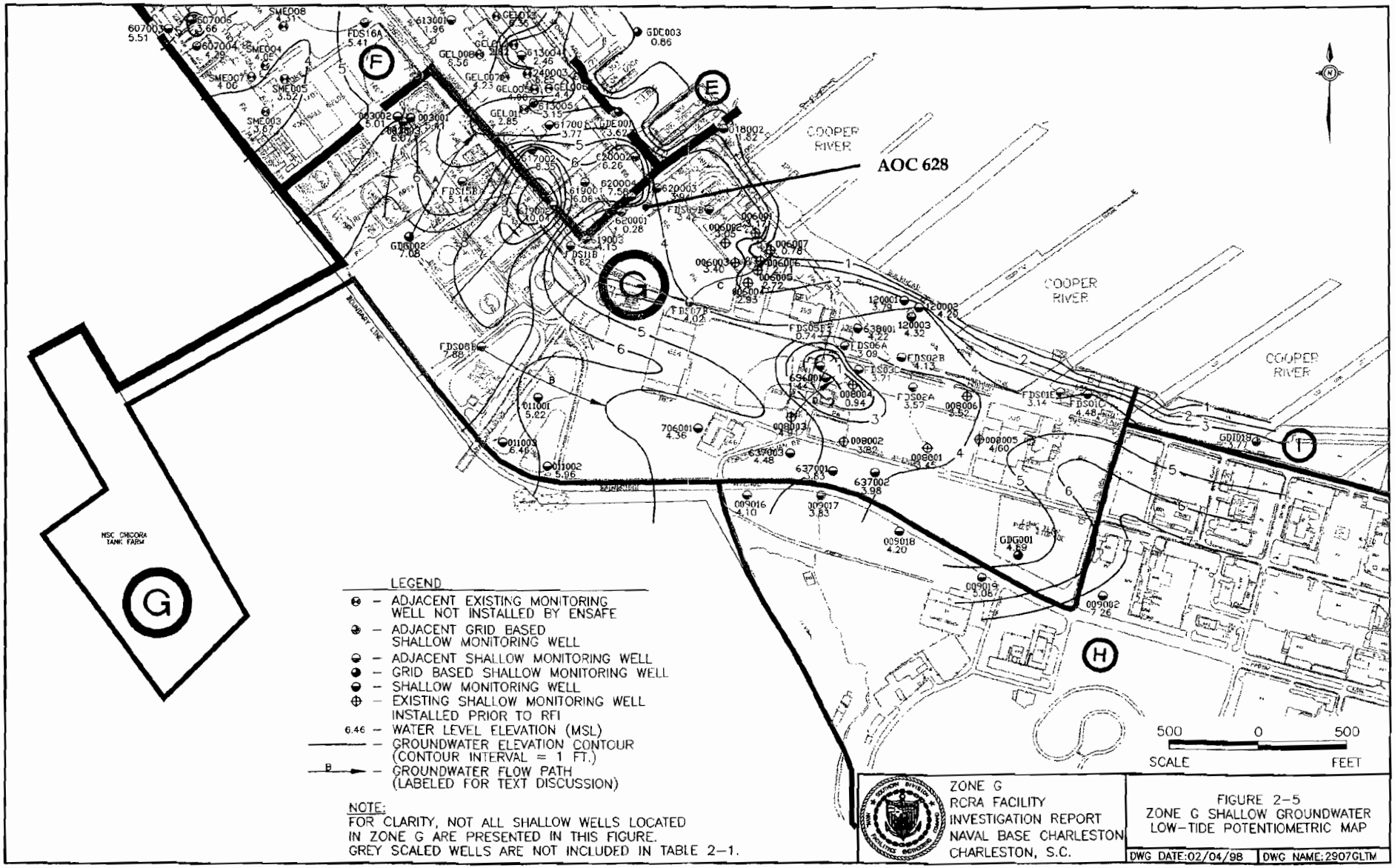
Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Mercury (Hg) 2,3,1 1,2	628SB001	0.19	2.3	1.03	0.26	2.1	0.31
	628SB002	0.04			0.40		
	628SB003	0.1			0.31		
	628SB004	0.16			NT		
	628SB005	0.19			0.17		
Nickel (Ni)	628SB001	6.8	160	20.6	10	130	18.3
	628SB002	4.4			6.7		
	628SB003	7.1			8.3		
	628SB004	5			NT		
	628SB005	11.4			10.9		
Potassium (K)	628SB001	530	NL	NL	649	NL	NL
	628SB002	ND			770		
	628SB003	511			1080		
	629SB004	2330			NT		
	628SB005	396			2490		
Selenium (Se) 5,4,3,1 1,5	628SB001	0.52	39	1.22	0.50	5	1.26
	628SB002	ND			0.38		
	628SB003	0.62			0.80		
	628SB004	1.40			NT		
	628SB005	0.38			1.80		
Thallium (Tl)	628SB002	ND	0.63	0.85	0.47	0.95	0.95

Table 10.1.4
Zone G
AOC 628
Analytes Detected in Surface and Subsurface Soil

Parameters	Location	Surface Conc.	Residential RBC* (THQ=0.1)	Surface Background	Subsurface Conc.	Soil to Groundwater SSL* (DAF=20)	Subsurface Background
Vanadium (V)	628SB001	15.8	55	60.9	18.3	6000	72.5
	628SB002	4.3			22.6		
	628SB003	12.3			29.1		
	628SB004	37.9			NT		
	628SB005	12.1			59.9		
Zinc (Zn)	628SB001	88.5	2300	519	145	12000	145
	628SB002	24.5			161		
	628SB003	79.5			144		
	628SB004	91.6			NT		
	628SB005	81.4			101		

Notes:
a = Background value for non-clay samples
* = Residential RBCs (THQ=0.1) were used as a reference concentration for upper interval samples. Generic soil-to-groundwater SSLs (DAF=20) from the *Soil Screening Guidance: Technical Background Document* (USEPA, 1996b) were used as a reference concentration for lower interval samples
1 = Calculated from methods described in USEPA Interim *Supplemental Guidance to RAGS: Human Health Risk Assessment*, Bulletin 2 (USEPA, 1995c)
ND = Not detected
NT = Not taken
NL = Not listed
NA = Not applicable
Bolded concentrations exceed both the reference concentration (RBC or SSL) and the zone background
All background values for Zone G are based on twice the means of the grid sample concentrations


AOC 628
COOPER RIVER
COOPER RIVER
COOPER RIVER
NSC CHICORA TANK FARM
BOUNDARY LINE
F
E
G
H
I
LEGEND
- ADJACENT EXISTING MONITORING WELL NOT INSTALLED BY ENSAFE
- ADJACENT GRID BASED SHALLOW MONITORING WELL
- ADJACENT SHALLOW MONITORING WELL
- GRID BASED SHALLOW MONITORING WELL
- SHALLOW MONITORING WELL
- EXISTING SHALLOW MONITORING WELL INSTALLED PRIOR TO RFI
6.46 - WATER LEVEL ELEVATION (MSL)
- GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = 1 FT.)
B - GROUNDWATER FLOW PATH (LABELED FOR TEXT DISCUSSION)
NOTE:
FOR CLARITY, NOT ALL SHALLOW WELLS LOCATED IN ZONE G ARE PRESENTED IN THIS FIGURE.
GREY SCALED WELLS ARE NOT INCLUDED IN TABLE 2-1.
500 0 500
SCALE FEET
ZONE G
RCRA FACILITY
INVESTIGATION REPORT
NAVAL BASE CHARLESTON
CHARLESTON, S.C.
FIGURE 2-5
ZONE G SHALLOW GROUNDWATER
LOW-TIDE POTENTIOMETRIC MAP
DWG DATE:02/04/98
DWG NAME:2907GLTM

Appendix B

	StationID	G628SB006		G628SB006		G628SB007		G628SB008		G628SB008	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB00801 (0-1ft)		628SB00802 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/13/00		1/13/00		1/13/00		1/13/00		1/13/00	
	SDGNumber	EN036		EN036		EN036		EN036		EN036	
Parameter	**Units**										
Total Organic Carbon	%, DR	6.5	=	2	=	2.9	=	4.8	=	2.4	=

	StationID	G628SB009	G628SB009	G628SB010	G628SB010	G628SB010
	SampleID	628SB00901 (0-1ft)	628SB00902 (3-5ft)	628CB01001 (0-1ft)	628CB01002 (3-5ft)	628SB01001 (0-1ft)
	DateCollected	12/17/1999 0:00	12/17/1999 0:00	12/17/1999 0:00	12/17/1999 0:00	12/17/1999 0:00
	DateAnalyzed	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00
	SDGNumber	EN036	EN036	EN036	EN036	EN036
Parameter	**Units**					
Total Organic Carbon	%, DR	0.7 =	1.7 =	0.9 =	1.4 =	0.8 =

	StationID	G628SB010		G628SB011		G628SB011		G628SB012		G628SB012	
	SampleID	628SB01002 (3-5ft)		628SB01101 (0-1ft)		628SB01102 (3-5ft)		628SB01201 (0-1ft)		628SB01202 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/13/00		1/13/00		1/13/00		1/13/00		1/13/00	
	SDGNumber	EN036		EN036		EN036		EN036		EN036	
Parameter	**Units**										
Total Organic Carbon	%, DR	2.1	=	0.3	=	2.6	=	3.7	=	0.4	=

	StationID	G628SB006		G628SB006		G628SB007		G628SB008		G628SB008	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB008S1 (0-1ft)		628SB008S2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/7/00		1/7/00		1/4/00		1/4/00	
	SDGNumber	EN036		EN036		EN036		EN035		EN035	
Parameter	**Units**										
Aluminum, SPLP	ug/L							58.7	UJ	382	J
Antimony, SPLP	ug/L							2.4	U	29.5	J
Arsenic,SPLP	ug/L							3.9	J	3.7	J
Barium, SPLP	ug/L							186	J	420	=
Beryllium, SPLP	ug/L							0.9	U	0.9	U
Cadmium, SPLP	ug/L							3.1	U	3.2	U
Calcium, SPLP	ug/L							122000	=	11900	=
Cobalt, SPLP	ug/L							0.5	UJ	0.5	UJ
Copper, SPLP	ug/L							10.5	J	1.9	J
Iron, SPLP	ug/L							49	J	488	=
Lead, SPLP	ug/L							2.1	U	7	J
Magnesium, SPLP	ug/L							19000	=	2360	J
Manganese, SPLP	ug/L							67.1	=	4.2	J
Mercury, SPLP	ug/L							0.2	U	0.2	U
Nickel, SPLP	ug/L							1.1	J	5.9	J
Potassium, SPLP	ug/L							7660	=	1330	J
Selenium, SPLP	ug/L							1.7	UJ	1.7	UJ
Silver, SPLP	ug/L							0.5	U	0.5	U
Sodium, SPLP	ug/L							35000	=	8650	=
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							0.5	U	3.5	J
Zinc, SPLP	ug/L							41.9	=	23.3	=
Chromium, Total	ug/L							0.6	UJ	4.3	J
Aluminum	mg/Kg	2280	=	873	=	4650	=				
Antimony	mg/Kg	7.1	J	9.3	J	15.8	J				
Arsenic	mg/Kg	9.6	=	2.8	=	8.4	=				
Barium	mg/Kg	81.2	=	12.9	J	127	=				
Beryllium	mg/Kg	0.31	J	0.26	J	1.2	J				
Cadmium	mg/Kg	0.25	U	1.5	U	0.03	U				
Calcium	mg/Kg	19900	J	1850	J	11600	J				

	StationID	G628SB008		G628SB008		G628SB009		G628SB009		G628SB009	
	SampleID	628SB008T1 (0-1ft)		628SB008T2 (3-5ft)		628SB009S1 (0-1ft)		628SB009S2 (3-5ft)		628SB009T1 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/7/00		1/4/00		1/4/00		1/7/00	
	SDGNumber	EN036		EN036		EN035		EN035		EN036	
Parameter	**Units**										
Aluminum, SPLP	ug/L					383	J	1410	J		
Antimony, SPLP	ug/L					2.4	U	2.4	U		
Arsenic,SPLP	ug/L					4.3	J	2.8	J		
Barium, SPLP	ug/L					155	J	477	=		
Beryllium, SPLP	ug/L					0.9	U	0.9	U		
Cadmium, SPLP	ug/L					3.5	U	3.4	U		
Calcium, SPLP	ug/L					12800	=	19800	=		
Cobalt, SPLP	ug/L					0.5	UJ	0.5	UJ		
Copper, SPLP	ug/L					3.3	J	2.8	J		
Iron, SPLP	ug/L					309	=	582	=		
Lead, SPLP	ug/L					3.6	J	4.7	J		
Magnesium, SPLP	ug/L					189	J	538	J		
Manganese, SPLP	ug/L					1.8	J	2.3	J		
Mercury, SPLP	ug/L					0.2	U	0.2	U		
Nickel, SPLP	ug/L					1.1	U	2.3	J		
Potassium, SPLP	ug/L					46.7	J	122	J		
Selenium, SPLP	ug/L					1.7	UJ	1.7	UJ		
Silver, SPLP	ug/L					0.5	U	0.5	U		
Sodium, SPLP	ug/L					3890	J	4800	J		
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					11.5	J	8.5	J		
Zinc, SPLP	ug/L					21.7	=	60.9	=		
Chromium, Total	ug/L					1.2	J	1.5	J		
Aluminum	mg/Kg	13700	=	3880	=					5840	=
Antimony	mg/Kg	0.82	U	2.9	J					0.73	U
Arsenic	mg/Kg	16.9	=	4.4	=					4.4	=
Barium	mg/Kg	39.3	=	20.3	=					22.7	=
Beryllium	mg/Kg	1.1	J	0.26	J					0.29	J
Cadmium	mg/Kg	0.04	U	0.16	U					0.41	U
Calcium	mg/Kg	16600	J	17000	J					116000	=

	StationID	G628SB009		G628SB010		G628SB010		G628SB010		G628SB010	
	SampleID	628SB009T2 (3-5ft)		628CB010S1 (0-1ft)		628CB010S2 (3-5ft)		628CB010T1 (0-1ft)		628CB010T2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/4/00		1/4/00		1/7/00		1/7/00	
	SDGNumber	EN036		EN035		EN035		EN036		EN036	
Parameter	**Units**										
Aluminum, SPLP	ug/L			1720	J	888	J				
Antimony, SPLP	ug/L			2.4	U	2.4	U				
Arsenic,SPLP	ug/L			2	U	2.2	J				
Barium, SPLP	ug/L			494	=	438	=				
Beryllium, SPLP	ug/L			0.9	U	0.9	U				
Cadmium, SPLP	ug/L			3	U	3.2	U				
Calcium, SPLP	ug/L			18700	=	21300	=				
Cobalt, SPLP	ug/L			0.5	UJ	0.5	UJ				
Copper, SPLP	ug/L			4.2	J	1.6	J				
Iron, SPLP	ug/L			1270	=	803	=				
Lead, SPLP	ug/L			6.3	J	4.1	J				
Magnesium, SPLP	ug/L			891	J	1480	J				
Manganese, SPLP	ug/L			6.5	J	3.9	J				
Mercury, SPLP	ug/L			0.2	U	0.2	U				
Nickel, SPLP	ug/L			1.5	J	1.3	J				
Potassium, SPLP	ug/L			175	J	441	J				
Selenium, SPLP	ug/L			1.7	UJ	1.7	UJ				
Silver, SPLP	ug/L			0.5	U	0.5	U				
Sodium, SPLP	ug/L			4530	J	6010	=				
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			5.2	J	4.6	J				
Zinc, SPLP	ug/L			36.5	=	24.8	=				
Chromium, Total	ug/L			2.7	J	1.5	J				
Aluminum	mg/Kg	4110	=					6820	=	8260	=
Antimony	mg/Kg	0.39	UJ					0.68	UJ	0.98	UJ
Arsenic	mg/Kg	1.7	=					3.7	=	6.9	=
Barium	mg/Kg	12.7	J					14.2	J	19.6	J
Beryllium	mg/Kg	0.14	J					0.24	J	0.37	J
Cadmium	mg/Kg	0.07	U					0.17	U	0.58	U
Calcium	mg/Kg	17500	J					44700	J	52600	J

	StationID	G628SB010		G628SB010		G628SB010		G628SB010		G628SB011	
	SampleID	628SB010S1 (0-1ft)		628SB010S2 (3-5ft)		628SB010T1 (0-1ft)		628SB010T2 (3-5ft)		628SB011S1 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/4/00		1/4/00		1/7/00		1/7/00		1/4/00	
	SDGNumber	EN035		EN035		EN036		EN036		EN035	
Parameter	**Units**										
Aluminum, SPLP	ug/L	321	J	248	J					125	J
Antimony, SPLP	ug/L	2.4	U	2.8	J					2.4	U
Arsenic,SPLP	ug/L	2	U	2	U					2	U
Barium, SPLP	ug/L	541	=	388	=					191	J
Beryllium, SPLP	ug/L	0.9	U	0.9	U					0.9	U
Cadmium, SPLP	ug/L	4	U	2.8	U					3	U
Calcium, SPLP	ug/L	19700	=	23500	=					24900	=
Cobalt, SPLP	ug/L	0.5	UJ	0.5	UJ					0.5	UJ
Copper, SPLP	ug/L	2.1	J	1.5	J					1.8	J
Iron, SPLP	ug/L	579	=	360	=					269	=
Lead, SPLP	ug/L	4.5	J	3	J					2.2	J
Magnesium, SPLP	ug/L	857	J	1780	J					1330	J
Manganese, SPLP	ug/L	4.7	J	2.5	J					1.1	J
Mercury, SPLP	ug/L	0.2	U	0.2	U					0.2	U
Nickel, SPLP	ug/L	1.1	U	1.1	J					1.3	J
Potassium, SPLP	ug/L	134	J	837	J					166	J
Selenium, SPLP	ug/L	1.7	UJ	1.7	UJ					1.7	UJ
Silver, SPLP	ug/L	0.5	U	0.5	U					0.5	U
Sodium, SPLP	ug/L	5550	=	6090	=					5060	=
Thallium, SPLP	ug/L	2.4	UJ	2.4	UJ					2.4	UJ
Tin (Sn), SPLP	ug/L	2.7	U	2.7	U					2.7	U
Vanadium, SPLP	ug/L	2.6	J	3.3	J					1.6	J
Zinc, SPLP	ug/L	17	J	14.2	J					21.1	=
Chromium, Total	ug/L	0.6	J	0.6	UJ					0.6	UJ
Aluminum	mg/Kg					8450	=	8890	=		
Antimony	mg/Kg					0.68	UJ	0.93	UJ		
Arsenic	mg/Kg					5.4	=	7.8	=		
Barium	mg/Kg					17.7	J	21.1	=		
Beryllium	mg/Kg					0.4	J	0.43	J		
Cadmium	mg/Kg					0.03	U	0.19	U		
Calcium	mg/Kg					26900	J	50600	J		

	StationID	G628SB011		G628SB011		G628SB011		G628SB012		G628SB012	
	SampleID	628SB011S2 (3-5ft)		628SB011T1 (0-1ft)		628SB011T2 (3-5ft)		628SB012S1 (0-1ft)		628SB012S2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/4/00		1/7/00		1/7/00		1/4/00		1/4/00	
	SDGNumber	EN035		EN036		EN036		EN035		EN035	
Parameter	**Units**										
Aluminum, SPLP	ug/L	618	J					363	J	9810	=
Antimony, SPLP	ug/L	14.1	J					2.4	U	2.4	U
Arsenic,SPLP	ug/L	3.1	J					7.1	J	11.4	=
Barium, SPLP	ug/L	489	=					339	=	1360	=
Beryllium, SPLP	ug/L	0.9	U					0.9	U	0.9	U
Cadmium, SPLP	ug/L	2.6	U					3.3	U	2.4	U
Calcium, SPLP	ug/L	21300	=					10200	=	2590	J
Cobalt, SPLP	ug/L	0.5	UJ					0.5	UJ	0.5	UJ
Copper, SPLP	ug/L	3	J					1.2	J	15.5	J
Iron, SPLP	ug/L	514	=					330	=	8250	=
Lead, SPLP	ug/L	6.9	J					6.1	J	9.9	J
Magnesium, SPLP	ug/L	1730	J					173	J	1600	J
Manganese, SPLP	ug/L	1.8	J					1.3	J	55.7	=
Mercury, SPLP	ug/L	0.2	U					0.2	U	0.2	U
Nickel, SPLP	ug/L	2.2	J					1.1	U	7.5	J
Potassium, SPLP	ug/L	1680	J					40.2	UJ	5760	=
Selenium, SPLP	ug/L	1.7	J					1.7	UJ	2.9	J
Silver, SPLP	ug/L	0.5	U					0.5	U	0.5	U
Sodium, SPLP	ug/L	6730	=					2220	J	52600	=
Thallium, SPLP	ug/L	2.4	UJ					2.4	UJ	2.4	UJ
Tin (Sn), SPLP	ug/L	2.7	U					2.7	U	2.7	U
Vanadium, SPLP	ug/L	2.9	J					2.6	J	30.3	J
Zinc, SPLP	ug/L	29.3	=					22.9	=	209	=
Chromium, Total	ug/L	1	J					4.7	J	14.7	=
Aluminum	mg/Kg			1410	=	7870	=				
Antimony	mg/Kg			0.37	UJ	2.2	J				
Arsenic	mg/Kg			2.5	=	9.3	=				
Barium	mg/Kg			9.7	J	35.3	=				
Beryllium	mg/Kg			0.08	U	0.98	J				
Cadmium	mg/Kg			1.2	U	0.25	U				
Calcium	mg/Kg			314000	J	15000	J				

	StationID	G628SB012		G628SB012	
	SampleID	628SB012T1 (0-1ft)		628SB012T2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/7/00	
	SDGNumber	EN036		EN036	
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				
Zinc, SPLP	ug/L				
Chromium, Total	ug/L				
Aluminum	mg/Kg	2600	=	23000	=
Antimony	mg/Kg	1.3	J	1.4	J
Arsenic	mg/Kg	5	=	25.5	=
Barium	mg/Kg	26	=	39.1	=
Beryllium	mg/Kg	0.18	J	1.6	J
Cadmium	mg/Kg	1.2	U	0.04	U
Calcium	mg/Kg	11500	J	8690	J

	StationID	G628SB006		G628SB006		G628SB007		G628SB008	G628SB008
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB008S1 (0-1ft)	628SB008S2 (3-5ft)
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	12/17/1999 0:00
	DateAnalyzed	1/7/00		1/7/00		1/7/00		1/4/00	1/4/00
	SDGNumber	EN036		EN036		EN036		EN035	EN035
Parameter	**Units**								
Chromium, Total	mg/Kg	42.1	=	44.2	=	125	=		
Cobalt	mg/Kg	5.1	=	3.3	J	22.5	=		
Copper	mg/Kg	776	J	66.3	J	459	J		
Iron	mg/Kg	9500	J	4070	J	21200	J		
Lead	mg/Kg	191	=	188	=	458	=		
Magnesium	mg/Kg	547	J	127	J	585	J		
Manganese	mg/Kg	66.1	=	20.2	=	59.2	=		
Mercury	mg/Kg	0.1	J	2.2	J	0.05	J		
Nickel	mg/Kg	36.6	J	14.3	J	38	J		
Potassium	mg/Kg	405	J	56.1	J	535	J		
Selenium	mg/Kg	0.77	U	0.56	U	1.7	J		
Silver	mg/Kg	0.04	U	0.05	U	0.66	J		
Sodium	mg/Kg	270	J	252	J	590	=		
Thallium	mg/Kg	0.21	UJ	0.24	UJ	0.21	UJ		
Tin (Sn)	mg/Kg	10.4	U	13.3	U	72.8	J		
Vanadium	mg/Kg	9.1	=	3.7	J	12.4	=		
Zinc	mg/Kg	211	J	598	J	1200	J		

	StationID	G628SB008		G628SB008		G628SB009		G628SB009		G628SB009	
	SampleID	628SB008T1 (0-1ft)		628SB008T2 (3-5ft)		628SB009S1 (0-1ft)		628SB009S2 (3-5ft)		628SB009T1 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/7/00		1/4/00		1/4/00		1/7/00	
	SDGNumber	EN036		EN036		EN035		EN035		EN036	
Parameter	**Units**										
Chromium, Total	mg/Kg	35.6	=	63	=					25.9	=
Cobalt	mg/Kg	5.5	J	3.8	J					2.4	J
Copper	mg/Kg	180	J	51.7	J					12.3	J
Iron	mg/Kg	20400	J	9230	J					6480	J
Lead	mg/Kg	54.9	=	148	=					27.4	=
Magnesium	mg/Kg	3980	J	821	J					2280	J
Manganese	mg/Kg	141	=	99.2	=					130	=
Mercury	mg/Kg	0.1	J	0.13	J					0.1	J
Nickel	mg/Kg	12.8	J	76.6	J					8.4	J
Potassium	mg/Kg	2590	J	365	J					963	J
Selenium	mg/Kg	2	J	0.8	U					0.44	U
Silver	mg/Kg	0.07	U	0.05	U					0.05	U
Sodium	mg/Kg	1410	=	262	J					400	J
Thallium	mg/Kg	0.32	UJ	0.23	UJ					0.22	UJ
Tin (Sn)	mg/Kg	5.5	U	10.7	U					3.7	U
Vanadium	mg/Kg	45.2	=	10.6	=					15.2	=
Zinc	mg/Kg	243	J	252	J					200	J

	StationID	G628SB009		G628SB010		G628SB010		G628SB010		G628SB010	
	SampleID	628SB009T2 (3-5ft)		628CB010S1 (0-1ft)		628CB010S2 (3-5ft)		628CB010T1 (0-1ft)		628CB010T2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/4/00		1/4/00		1/7/00		1/7/00	
	SDGNumber	EN036		EN035		EN035		EN036		EN036	
Parameter	**Units**										
Chromium, Total	mg/Kg	6.7	=					13.4	=	19.3	=
Cobalt	mg/Kg	1.1	J					1.9	J	2.9	J
Copper	mg/Kg	4.3	J					13.2	J	21.2	J
Iron	mg/Kg	2360	J					6250	J	9910	J
Lead	mg/Kg	13.6	=					25.6	=	45.2	=
Magnesium	mg/Kg	394	J					1270	J	1750	J
Manganese	mg/Kg	28.6	J					108	=	194	=
Mercury	mg/Kg	0.07	J					0.08	J	0.14	J
Nickel	mg/Kg	3	J					5.3	J	8.7	J
Potassium	mg/Kg	166	J					572	J	840	J
Selenium	mg/Kg	0.63	U					0.54	U	0.85	U
Silver	mg/Kg	0.05	U					0.05	U	0.05	U
Sodium	mg/Kg	132	J					228	J	314	J
Thallium	mg/Kg	0.23	UJ					0.22	UJ	0.25	UJ
Tin (Sn)	mg/Kg	2.5	U					3.6	U	4.2	U
Vanadium	mg/Kg	5.5	=					13.3	=	19.8	=
Zinc	mg/Kg	37.8	J					66.5	J	104	J

	StationID	G628SB010		G628SB010		G628SB010		G628SB011
	SampleID	628SB010S1 (0-1ft)	628SB010S2 (3-5ft)	628SB010T1 (0-1ft)		628SB010T2 (3-5ft)		628SB011S1 (0-1ft)
	DateCollected	12/17/1999 0:00	12/17/1999 0:00	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00
	DateAnalyzed	1/4/00	1/4/00	1/7/00		1/7/00		1/4/00
	SDGNumber	EN035	EN035	EN036		EN036		EN035
Parameter	**Units**							
Chromium, Total	mg/Kg			15.1	=	23.7	=	
Cobalt	mg/Kg			2.7	J	3.5	J	
Copper	mg/Kg			14.8	J	21	J	
Iron	mg/Kg			9010	J	12100	J	
Lead	mg/Kg			72.3	=	52.9	=	
Magnesium	mg/Kg			1440	J	2000	J	
Manganese	mg/Kg			99.6	=	340	=	
Mercury	mg/Kg			0.07	J	0.2	J	
Nickel	mg/Kg			6.4	J	9.1	J	
Potassium	mg/Kg			713	J	1030	J	
Selenium	mg/Kg			0.94	J	0.82	U	
Silver	mg/Kg			0.05	U	0.05	U	
Sodium	mg/Kg			199	J	325	J	
Thallium	mg/Kg			0.22	UJ	0.24	UJ	
Tin (Sn)	mg/Kg			3.7	U	5	U	
Vanadium	mg/Kg			20.1	=	22.6	=	
Zinc	mg/Kg			68.1	J	107	J	

	StationID	G628SB011		G628SB011		G628SB011		G628SB012		G628SB012	
	SampleID	628SB011S2 (3-5ft)		628SB011T1 (0-1ft)		628SB011T2 (3-5ft)		628SB012S1 (0-1ft)		628SB012S2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/4/00		1/7/00		1/7/00		1/4/00		1/4/00	
	SDGNumber	EN035		EN036		EN036		EN035		EN035	
Parameter	**Units**										
Chromium, Total	mg/Kg			4.6	=	32.1	=				
Cobalt	mg/Kg			2.4	J	4.4	J				
Copper	mg/Kg			3.7	J	151	J				
Iron	mg/Kg			2280	J	14500	J				
Lead	mg/Kg			3.3	=	418	=				
Magnesium	mg/Kg			4830	J	1530	J				
Manganese	mg/Kg			247	=	153	=				
Mercury	mg/Kg			0.04	U	0.41	J				
Nickel	mg/Kg			7.5	J	21.9	J				
Potassium	mg/Kg			874	J	733	J				
Selenium	mg/Kg			0.15	U	1.4	J				
Silver	mg/Kg			0.04	U	0.05	U				
Sodium	mg/Kg			713	=	299	J				
Thallium	mg/Kg			0.21	UJ	0.24	U				
Tin (Sn)	mg/Kg			2.8	U	13.7	U				
Vanadium	mg/Kg			4	J	24.6	=				
Zinc	mg/Kg			19.3	J	437	J				

	StationID	G628SB012		G628SB012	
	SampleID	628SB012T1 (0-1ft)		628SB012T2 (3-5ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00	
	DateAnalyzed	1/7/00		1/7/00	
	SDGNumber	EN036		EN036	
Parameter	**Units**				
Chromium, Total	mg/Kg	22.9	=	45.2	=
Cobalt	mg/Kg	2.1	J	8.5	=
Copper	mg/Kg	51.9	J	34.3	J
Iron	mg/Kg	4130	J	44000	J
Lead	mg/Kg	57.8	=	47.9	=
Magnesium	mg/Kg	301	J	5110	J
Manganese	mg/Kg	39.7	=	1710	=
Mercury	mg/Kg	0.07	J	0.25	J
Nickel	mg/Kg	13.2	J	14.5	J
Potassium	mg/Kg	134	J	2910	J
Selenium	mg/Kg	0.48	U	3.3	J
Silver	mg/Kg	0.05	U	0.07	U
Sodium	mg/Kg	113	J	3020	=
Thallium	mg/Kg	0.22	UJ	0.32	UJ
Tin (Sn)	mg/Kg	7.4	U	5.9	U
Vanadium	mg/Kg	6.6	=	79	=
Zinc	mg/Kg	139	J	115	J

	StationID	G628SB006		G628SB006		G628SB007		G628SB013	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB01301 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		01/27/2000 0:00	
	DateAnalyzed	12/29/99		12/28/99		12/29/99		2/1/00	
	SDGNumber	EN036		EN036		EN036		41892	
Parameter	**Units**								
2,2'-Oxybis(1-chloro)propane	ug/Kg	1500	U	410	U	350	UJ	370	UJ
2-Methylnaphthalene	ug/Kg	1500	U	410	U	350	U	370	U
2-Methylphenol (o-Cresol)	ug/Kg	1500	U	410	U	350	U	370	U
Phenol	ug/Kg	1500	U	410	U	350	U	370	U
Acenaphthylene	ug/Kg	1300	J	410	U	350	U	370	U
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	1500	U	410	U	350	U	370	U
2-Chlorophenol	ug/Kg	1500	U	410	U	350	U	370	U
Acenaphthene	ug/Kg	330	J	410	U	350	U	370	U
1,3-Dichlorobenzene	ug/Kg	1500	U	410	U	350	U	370	U
Fluorene	ug/Kg	530	J	410	U	350	U	370	U
1,4-Dichlorobenzene	ug/Kg	1500	U	410	U	350	U	370	U
Phenanthrene	ug/Kg	5200	=	410	U	350	U	28	J
Anthracene	ug/Kg	2500	=	410	U	350	U	370	U
Benzyl alcohol	ug/Kg	1500	U	410	U	350	U	370	U
Fluoranthene	ug/Kg	15000	=	410	U	350	U	42	J
1,2-Dichlorobenzene	ug/Kg	1500	U	410	U	350	U	370	U
Pyrene	ug/Kg	18000	=	90	J	350	U	51	J
Benzo(a)Anthracene	ug/Kg	6800	=	410	U	350	U	23	J
Chrysene	ug/Kg	12000	=	410	U	350	U	36	J
Benzo(b)Fluoranthene	ug/Kg	15000	J	410	U	86	J	25	J
N-Nitrosodi-n-propylamine	ug/Kg	1500	U	410	U	350	U	370	U
4-Methylphenol (p-Cresol)	ug/Kg	1500	U	410	U	350	U	370	U
Benzo(k)Fluoranthene	ug/Kg	8400	J	85	J	350	U	28	J
Benzo(a)Pyrene	ug/Kg	8300	=	410	U	350	U	21	J
Hexachloroethane	ug/Kg	1500	U	410	U	350	U	370	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	540	J	410	U	350	U	370	U
Nitrobenzene	ug/Kg	1500	U	410	U	350	U	370	U
Dibenz(a,h)anthracene	ug/Kg	1200	J	410	U	350	U	370	U

	StationID	G628SB014	
	SampleID	628SB01401 (0-1ft)	
	DateCollected	01/27/2000 0:00	
	DateAnalyzed	2/1/00	
	SDGNumber	41892	
Parameter	**Units**		
2,2'-Oxybis(1-chloro)propane	ug/Kg	370	UJ
2-Methylnaphthalene	ug/Kg	1300	J
2-Methylphenol (o-Cresol)	ug/Kg	29	J
Phenol	ug/Kg	370	U
Acenaphthylene	ug/Kg	70	J
bis(2-Chloroethyl) ether (2-Chloroethyl Ether)	ug/Kg	370	U
2-Chlorophenol	ug/Kg	370	U
Acenaphthene	ug/Kg	120	J
1,3-Dichlorobenzene	ug/Kg	370	U
Fluorene	ug/Kg	84	J
1,4-Dichlorobenzene	ug/Kg	21	J
Phenanthrene	ug/Kg	1400	=
Anthracene	ug/Kg	390	=
Benzyl alcohol	ug/Kg	370	U
Fluoranthene	ug/Kg	2600	=
1,2-Dichlorobenzene	ug/Kg	370	U
Pyrene	ug/Kg	3000	J
Benzo(a)Anthracene	ug/Kg	1600	=
Chrysene	ug/Kg	1700	=
Benzo(b)Fluoranthene	ug/Kg	1300	=
N-Nitrosodi-n-propylamine	ug/Kg	370	U
4-Methylphenol (p-Cresol)	ug/Kg	26	J
Benzo(k)Fluoranthene	ug/Kg	650	=
Benzo(a)Pyrene	ug/Kg	960	=
Hexachloroethane	ug/Kg	370	U
Indeno(1,2,3-c,d)pyrene	ug/Kg	540	=
Nitrobenzene	ug/Kg	370	U
Dibenz(a,h)anthracene	ug/Kg	280	J

	StationID	G628SB006		G628SB006		G628SB007		G628SB013	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB01301 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		01/27/2000 0:00	
	DateAnalyzed	12/29/99		12/28/99		12/29/99		2/1/00	
	SDGNumber	EN036		EN036		EN036		41892	
Parameter	**Units**								
Isophorone	ug/Kg	1500	U	410	U	350	U	370	U
2-Nitrophenol	ug/Kg	1500	U	410	U	350	U	370	U
Benzo(g,h,i)Perylene	ug/Kg	2700	=	410	U	350	U	20	J
2,4-Dimethylphenol	ug/Kg	1500	U	410	U	350	U	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	1500	U	410	U	350	U	370	U
Benzoic acid	ug/Kg	7600	U	2000	U	1800	U	920	U
2,4-Dichlorophenol	ug/Kg	1500	U	410	U	350	U	370	U
1,2,4--Trichlorobenzene	ug/Kg	1500	U	410	U	350	U	370	U
4-Chloroaniline	ug/Kg	1500	U	410	U	350	U	370	U
Hexachlorobutadiene	ug/Kg	1500	U	410	U	350	U	370	U
4-Chloro-3-methylphenol	ug/Kg	1500	U	410	U	350	U	370	U
Hexachlorocyclopentadiene	ug/Kg	1500	U	410	U	350	U	370	U
2,4,6-Trichlorophenol	ug/Kg	1500	U	410	U	350	U	370	U
2,4,5-Trichlorophenol	ug/Kg	1500	U	410	U	350	U	920	U
2-Chloronaphthalene	ug/Kg	1500	U	410	U	350	U	370	U
2-Nitroaniline	ug/Kg	1500	U	410	U	350	U	920	U
2,6-Dinitrotoluene	ug/Kg	1500	U	410	U	350	U	370	U
3-Nitroaniline	ug/Kg	1500	U	410	U	350	U	920	U
2,4-Dinitrophenol	ug/Kg	3000	U	810	U	710	U	920	U
Dibenzofuran	ug/Kg	1500	U	410	U	350	U	370	U
4-Nitrophenol	ug/Kg	3000	U	810	U	710	U	920	U
2,4-Dinitrotoluene	ug/Kg	1500	U	410	U	350	U	370	U
Dimethyl Phthalate	ug/Kg	1500	U	410	U	350	U	370	U
Diethyl Phthalate	ug/Kg	1500	U	410	U	350	U	24	J
4-Chlorophenyl Phenyl Ether	ug/Kg	1500	U	410	U	350	U	370	U
4-Nitroaniline	ug/Kg	1500	U	410	U	350	U	920	U
4,6-Dinitro-2-methylphenol	ug/Kg	3000	U	810	U	710	U	920	U
N-Nitrosodiphenylamine	ug/Kg	1500	U	410	U	350	U	370	U

	StationID	G628SB014	
	SampleID	628SB01401 (0-1ft)	
	DateCollected	01/27/2000 0:00	
	DateAnalyzed	2/1/00	
	SDGNumber	41892	
Parameter	**Units**		
Isophorone	ug/Kg	370	U
2-Nitrophenol	ug/Kg	370	U
Benzo(g,h,i)Perylene	ug/Kg	570	=
2,4-Dimethylphenol	ug/Kg	370	U
bis(2-Chloroethoxy) Methane	ug/Kg	370	U
Benzoic acid	ug/Kg	940	U
2,4-Dichlorophenol	ug/Kg	370	U
1,2,4--Trichlorobenzene	ug/Kg	370	U
4-Chloroaniline	ug/Kg	370	U
Hexachlorobutadiene	ug/Kg	370	U
4-Chloro-3-methylphenol	ug/Kg	370	U
Hexachlorocyclopentadiene	ug/Kg	370	U
2,4,6-Trichlorophenol	ug/Kg	370	U
2,4,5-Trichlorophenol	ug/Kg	940	U
2-Chloronaphthalene	ug/Kg	370	U
2-Nitroaniline	ug/Kg	940	U
2,6-Dinitrotoluene	ug/Kg	370	U
3-Nitroaniline	ug/Kg	940	U
2,4-Dinitrophenol	ug/Kg	940	U
Dibenzofuran	ug/Kg	420	=
4-Nitrophenol	ug/Kg	940	U
2,4-Dinitrotoluene	ug/Kg	370	U
Dimethyl Phthalate	ug/Kg	370	U
Diethyl Phthalate	ug/Kg	370	U
4-Chlorophenyl Phenyl Ether	ug/Kg	370	U
4-Nitroaniline	ug/Kg	940	U
4,6-Dinitro-2-methylphenol	ug/Kg	940	U
N-Nitrosodiphenylamine	ug/Kg	370	U

	StationID	G628SB006		G628SB006		G628SB007		G628SB013	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB01301 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		01/27/2000 0:00	
	DateAnalyzed	12/29/99		12/28/99		12/29/99		2/1/00	
	SDGNumber	EN036		EN036		EN036		41892	
Parameter	**Units**								
4-Bromophenyl Phenyl Ether	ug/Kg	1500	U	410	U	350	U	370	U
Hexachlorobenzene	ug/Kg	1500	U	410	U	350	U	370	U
Pentachlorophenol	ug/Kg	3000	U	810	U	710	U	920	U
Di-n-butyl Phthalate	ug/Kg	1500	U	410	U	87	J	910	=
Benzyl Butyl Phthalate	ug/Kg	1500	J	410	U	350	U	370	U
3,3'-Dichlorobenzidine	ug/Kg	3000	U	810	U	710	U	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	870	J	210	J	300	J	3100	=
Di-n-octylphthalate	ug/Kg	1500	U	410	U	350	U	370	U

	StationID	G628SB014	
	SampleID	628SB01401 (0-1ft)	
	DateCollected	01/27/2000 0:00	
	DateAnalyzed	2/1/00	
	SDGNumber	41892	
Parameter	**Units**		
4-Bromophenyl Phenyl Ether	ug/Kg	370	U
Hexachlorobenzene	ug/Kg	370	U
Pentachlorophenol	ug/Kg	940	U
Di-n-butyl Phthalate	ug/Kg	49	J
Benzyl Butyl Phthalate	ug/Kg	290	J
3,3'-Dichlorobenzidine	ug/Kg	370	U
bis(2-Ethylhexyl) Phthalate	ug/Kg	370	U
Di-n-octylphthalate	ug/Kg	140	J

	StationID	G628SB006		G628SB006		G628SB007		G628SB013		G628SB014	
	SampleID	628SB00601 (0-1ft)		628SB00602 (3-5ft)		628SB00701 (0-1ft)		628SB01301 (0-1ft)		628SB01401 (0-1ft)	
	DateCollected	12/17/1999 0:00		12/17/1999 0:00		12/17/1999 0:00		01/27/2000 0:00		01/27/2000 0:00	
	DateAnalyzed	12/29/99		12/28/99		12/29/99		2/1/00		2/1/00	
	SDGNumber	EN036		EN036		EN036		41892		41892	
Parameter	**Units**										
Naphthalene	ug/Kg	1500	U	410	U	350	U	370	U	950	=

Appendix C

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EN035
Date:	January 24, 2000
Client Name:	Ensafe
Project/Site Name:	Charleston Zone G
Date Sampled:	December 17, 1999
Number of Samples:	19 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:	SPLP 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. Swyson — 1-24-00.

Paul B. Humburg, President — Date

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

SDG# EN035

Samples and Fractions Reviewed

Sample Identifications Analytical Fraction

ENSAFE ID	MATRIX	SPLP-MET	
628SB00801	SOIL		X
628SB00802	SOIL		X
628SB00901	SOIL		X
628SB00902	SOIL		X
628SB01001	SOIL		X
628SB01002	SOIL		X
628SB01003	SOIL		X
628SB01004	SOIL		X
628SB01101	SOIL		X
628SB01102	SOIL		X
628SB01201	SOIL		X
628SB01202	SOIL		X
636SB01501	SOIL		X
636SB01502	SOIL		X
636SB01601	SOIL		X
636SB01602	SOIL		X
636SB01701	SOIL		X
643SB02401	SOIL		X
643SB02402	SOIL		X
Total Billable Samples (Water/Soil)		0	19

SPLP-MET= SPLP Metals

DATA ASSESSMENT NARRATIVE
METALS (SPLP)

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 # EN035

A validation was performed on the Metals for SPLP Data from SDG EN035. 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
Barium	0.80 ug/l	no impact
Cadmium	3.6 ug/l	all SPLP samples below 18.0 ug/l

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
Aluminum	-192 ug/l	all SPLP samples below 1920 ug/l
Chromium	-0.7 ug/l	all SPLP samples below 7.0 ug/l
Cobalt	-1.4 ug/l	all SPLP samples below 14.0 ug/l
Copper	-1.0 ug/l	all SPLP samples below 10.0 ug/l
Magnesium	-15.7 ug/l	no impact
Potassium	-75.3 ug/l	all SPLP samples below 753 ug/l
Thallium	-7.1 ug/l	all SPLP samples below 71.0 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 recovery for SPLP samples for Selenium (72%) was below the lower control limits (>30% but <75%). All positive and non-detect results are qualified as estimated, "J" or "UJ".

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

SUMMARY OF DATA QUALIFICATIONS

Sample ID	Analyte	DL	QL
all SPLP samples below 18.0 ug/l	Cd.	+	U
all SPLP samples below 11920 ug/l	Al.	+/U	J/UJ
all SPLP samples below 7.0 ug/l	Cr.		
all SPLP samples below 14.0 ug/l	Co.		
all SPLP samples below 10.0 ug/l	Cu.		
all SPLP samples below 753 ug/l	K.		
all SPLP samples below 71.0 ug/l	Tl		
all SPLP samples	Se.	+/U	J/UJ
all "B" results	all analytes	B	J

C40
1/25/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# EN035

EN035
SOLP-META

SAMPLE ID ------->	628-S-B008-01	628-S-B008-02	628-S-B009-01	628-S-B009-02	628-S-B010-01	628-S-B010-02
ORIGINAL ID ----->	628SB00801	628SB00802	628SB00901	628SB00902	628SB01001	628SB01002
LAB SAMPLE ID --->	9912424-01	9912424-02	9912424-03	9912424-04	9912424-05	9912424-07
SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
DATE EXTRACTED -->	12/23/99	12/23/99	12/23/99	12/23/99	12/23/99	12/23/99
DATE ANALYZED --->	01/04/00	01/04/00	01/04/00	01/04/00	01/04/00	01/04/00
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	UG/L A	UG/L A	UG/L A	UG/L A	UG/L A	UG/L A
CAS # Parameter						
7429-90-5 Aluminum (Al)	58.7 ~~B~~ U J	382. J	383. J	1410. J	321. J	248. J
7440-36-0 Antimony (Sb)	2.4 U	29.5 ~~B~~ J	2.4 U	2.4 U	2.4 U	2.8 ~~B~~ J
7440-38-2 Arsenic (As)	3.9 ~~B~~ J	3.7 ~~B~~ J	4.3 ~~B~~ J	2.8 ~~B~~ J	2. U	2. U
7440-39-3 Barium (Ba)	186. ~~B~~ J	420.	155. ~~B~~ J	477.	541.	388.
7440-41-7 Beryllium (Be)	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
7440-43-9 Cadmium (Cd)	3.1 ~~B~~ U	3.2 ~~B~~ U	3.5 ~~B~~ U	3.4 ~~B~~ U	4. ~~B~~ U	2.8 ~~B~~ U
7440-70-2 Calcium (Ca)	122000.	11900.	12800.	19800.	19700.	23500.
7440-47-3 Chromium (Cr)	0.6 ~~B~~ U J	4.3 ~~B~~ J	1.2 ~~B~~ J	1.5 ~~B~~ J	0.6 ~~B~~ J	0.6 ~~B~~ U J
7440-48-4 Cobalt (Co)	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J
7440-50-8 Copper (Cu)	10.5 ~~B~~ J	1.9 ~~B~~ J	3.3 ~~B~~ J	2.8 ~~B~~ J	2.1 ~~B~~ J	1.5 ~~B~~ J
7439-89-6 Iron (Fe)	49. ~~B~~ J	488.	309.	582.	579.	360.
7439-92-1 Lead (Pb)	2.1 U	7. ~~B~~ J	3.6 ~~B~~ J	4.7 ~~B~~ J	4.5 ~~B~~ J	3. ~~B~~ J
7439-95-4 Magnesium (Mg)	19000.	2360. ~~B~~ J	189. ~~B~~ J	538. ~~B~~ J	857. ~~B~~ J	1780. ~~B~~ J
7439-96-5 Manganese (Mn)	67.1	4.2 ~~B~~ J	1.8 ~~B~~ J	2.3 ~~B~~ J	4.7 ~~B~~ J	2.5 ~~B~~ J
7439-97-6 Mercury (Hg)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
7440-02-0 Nickel (Ni)	1.1 ~~B~~ J	5.9 ~~B~~ J	1.1 U	2.3 ~~B~~ J	1.1 U	1.1 ~~B~~ J
7440-09-7 Potassium (K)	7660.	1330. ~~B~~ J	46.7 ~~B~~ J	122. ~~B~~ J	134. ~~B~~ J	837. ~~B~~ J
7782-49-2 Selenium (Se)	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~UN~~ U
7440-22-4 Silver (Ag)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7440-23-5 Sodium (Na)	35000.	8650.	3890. ~~B~~ J	4800. ~~B~~ J	5550.	6090.
7440-28-0 Thallium (Tl)	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J
7440-62-2 Vanadium (V)	0.5 U	3.5 ~~B~~ J	11.5 ~~B~~ J	8.5 ~~B~~ J	2.6 ~~B~~ J	3.3 ~~B~~ J
7440-66-6 Zinc (Zn)	41.9	23.3	21.7	60.9	17. ~~B~~ J	14.2 ~~B~~ J
7440-31-5 Tin (Sn)	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U

RBW 1/20/00

004

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# EN035

EN035 SPLP-META						
SAMPLE ID ------->	628-S-B010-03	628-S-B010-04	628-S-B011-01	628-S-B011-02	628-S-B012-01	628-S-B012-02
ORIGINAL ID ----->	628SB01003	628SB01004	628SB01101	628SB01102	628SB01201	628SB01202
LAB SAMPLE ID --->	9912424-06	9912424-12	9912424-08	9912424-09	9912424-10	9912424-11
SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
DATE EXTRACTED -->	12/23/99	12/23/99	12/23/99	12/23/99	12/23/99	12/23/99
DATE ANALYZED --->	01/04/00	01/04/00	01/04/00	01/04/00	01/04/00	01/04/00
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	UG/L A	UG/L A	UG/L A	UG/L A	UG/L A	UG/L A
CAS # Parameter						
7429-90-5 Aluminum (Al)	1720. J	888. J	125. ~~B~~ J	618. J	363. J	9810.
7440-36-0 Antimony (Sb)	2.4 U	2.4 U	2.4 U	14.1 ~~B~~ J	2.4 U	2.4 U
7440-38-2 Arsenic (As)	2. U	2.2 ~~B~~ J	2. U	3.1 ~~B~~ J	7.1 ~~B~~ J	11.4
7440-39-3 Barium (Ba)	494.	438.	191. ~~B~~ J	489.	339.	1360.
7440-41-7 Beryllium (Be)	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
7440-43-9 Cadmium (Cd)	3. ~~B~~ U	3.2 ~~B~~ U	3. ~~B~~ U	2.6 ~~B~~ U	3.3 ~~B~~ U	2.4 ~~B~~ U
7440-70-2 Calcium (Ca)	18700.	21300.	24900.	21300.	10200.	2590.
7440-47-3 Chromium (Cr)	2.7 ~~B~~ J	1.5 ~~B~~ J	0.6 ~~B~~ U J	1. ~~B~~ J	4.7 ~~B~~ J	14.7 ~~B~~ J
7440-48-4 Cobalt (Co)	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J	0.5 ~~B~~ U J
7440-50-8 Copper (Cu)	4.2 ~~B~~ J	1.6 ~~B~~ J	1.8 ~~B~~ J	3. ~~B~~ J	1.2 ~~B~~ J	15.5 ~~B~~ J
7439-89-6 Iron (Fe)	1270.	803.	269.	514.	330.	8250.
7439-92-1 Lead (Pb)	6.3 ~~B~~ J	4.1 ~~B~~ J	2.2 ~~B~~ J	6.9 ~~B~~ J	6.1 ~~B~~ J	9.9 ~~B~~ J
7439-95-4 Magnesium (Mg)	891. ~~B~~ J	1480. ~~B~~ J	1330. ~~B~~ J	1730. ~~B~~ J	173. ~~B~~ J	1600. ~~B~~ J
7439-96-5 Manganese (Mn)	6.5 ~~B~~ J	3.9 ~~B~~ J	1.1 ~~B~~ J	1.8 ~~B~~ J	1.3 ~~B~~ J	55.7
7439-97-6 Mercury (Hg)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
7440-02-0 Nickel (Ni)	1.5 ~~B~~ J	1.3 ~~B~~ J	1.3 ~~B~~ J	2.2 ~~B~~ J	1.1 U	7.5 ~~B~~ J
7440-09-7 Potassium (K)	175. ~~B~~ J	441. ~~B~~ J	166. ~~B~~ J	1680. ~~B~~ J	40.2 ~~B~~ U J	5760.
7782-49-2 Selenium (Se)	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~UN~~ U J	1.7 ~~BN~~ J	1.7 ~~UN~~ U J	2.9 ~~BN~~ J
7440-22-4 Silver (Ag)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
7440-23-5 Sodium (Na)	4530. ~~B~~ J	6010.	5060.	6730.	2220. ~~B~~ J	52600.
7440-28-0 Thallium (Tl)	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J	2.4 ~~B~~ U J
7440-62-2 Vanadium (V)	5.2 ~~B~~ J	4.6 ~~B~~ J	1.6 ~~B~~ J	2.9 ~~B~~ J	2.6 ~~B~~ J	30.3 ~~B~~ J
7440-66-6 Zinc (Zn)	36.5	24.8	21.1	29.3	22.9	209.**
7440-31-5 Tin (Sn)	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U

1/20/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# EN035

EN035 SPLP-META													
	SAMPLE ID ------->	636-S-B015-01		636-S-B015-02		636-S-B016-01		636-S-B016-02		636-S-B017-01		643-S-B024-01	
	ORIGINAL ID ----->	636SB01501		636SB01502		636SB01601		636SB01602		636SB01701		643SB02401	
	LAB SAMPLE ID --->	9912424-13		9912424-14		9912424-15		9912424-16		9912424-17		9912424-18	
	SAMPLE DATE ----->	12/17/99		12/17/99		12/17/99		12/17/99		12/17/99		12/17/99	
	DATE EXTRACTED -->	12/23/99		12/23/99		12/23/99		12/23/99		12/23/99		12/23/99	
	DATE ANALYZED --->	01/04/00		01/04/00		01/04/00		01/04/00		01/04/00		01/04/00	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/L	A	UG/L	A	UG/L	A	UG/L	A	UG/L	A	UG/L	A
CAS #	Parameter												
7429-90-5	Aluminum (Al)	1970.		3090.		1270.	J	3200.		3070.		2050.	
7440-36-0	Antimony (Sb)	2.4	U	36.7	~~B~~ J	2.4	U	2.4	U	6.8	~~B~~ J	2.4	U
7440-38-2	Arsenic (As)	2.	U	4.3	~~B~~ J	2.	U	4.1	~~B~~ J	3.3	~~B~~ J	7.	~~B~~ J
7440-39-3	Barium (Ba)	494.		767.		490.		770.		633.		519.	
7440-41-7	Beryllium (Be)	0.9	U	0.9	U	0.9	U	0.9	U	0.9	U	0.9	~~B~~ U
7440-43-9	Cadmium (Cd)	3.8	~~B~~ U	2.8	~~B~~ U	2.3	~~B~~ U	2.6	~~B~~ U	3.8	~~B~~ U	3.1	~~B~~ U
7440-70-2	Calcium (Ca)	13500.		10800.		1890.	~~B~~ J	12100.		16700.		12400.	
7440-47-3	Chromium (Cr)	1.4	~~B~~ J	5.5	~~B~~ J	0.6	~~B~~ J	4.	~~B~~ J	3.6	~~B~~ J	4.6	~~B~~ J
7440-48-4	Cobalt (Co)	0.5	~~B~~ U J	0.5	~~B~~ U J	0.5	~~B~~ U J	0.5	~~B~~ U J	0.5	~~B~~ U J	0.5	~~B~~ U J
7440-50-8	Copper (Cu)	0.6	~~B~~ U J	103.		1.2	~~B~~ J	3.6	~~B~~ J	5.3	~~B~~ J	3.8	~~B~~ J
7439-89-6	Iron (Fe)	932.		2900.		764.		2100.		1660.		1820.	
7439-92-1	Lead (Pb)	2.4	~~B~~ J	33.4		4.3	~~B~~ J	5.1	~~B~~ J	6.3	~~B~~ J	6.6	~~B~~ J
7439-95-4	Magnesium (Mg)	528.	~~B~~ J	2300.	~~B~~ J	205.	~~B~~ J	2040.	~~B~~ J	866.	~~B~~ J	613.	~~B~~ J
7439-96-5	Manganese (Mn)	1.5	~~B~~ J	12.1	~~B~~ J	1.6	~~B~~ J	11.	~~B~~ J	4.5	~~B~~ J	6.2	~~B~~ J
7439-97-6	Mercury (Hg)	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
7440-02-0	Nickel (Ni)	1.1	~~B~~ J	4.4	~~B~~ J	1.1	U	2.2	~~B~~ J	2.1	~~B~~ J	2.8	~~B~~ J
7440-09-7	Potassium (K)	121.	~~B~~ J	3900.	~~B~~ J	79.3	~~B~~ J	3340.	~~B~~ J	440.	~~B~~ J	156.	~~B~~ J
7782-49-2	Selenium (Se)	1.7	~~UN~~ UJ	1.7	~~UN~~ UJ	1.7	~~UN~~ UJ	1.7	~~UN~~ UJ	1.7	~~UN~~ UJ	1.7	~~UN~~ U
7440-22-4	Silver (Ag)	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
7440-23-5	Sodium (Na)	4320.	~~B~~ J	24400.		4950.	~~B~~ J	22200.		6150.		4460.	~~B~~ J
7440-28-0	Thallium (Tl)	2.4	~~B~~ U J	2.4	~~B~~ U J	2.4	~~B~~ U J	2.4	~~B~~ U J	2.4	~~B~~ U J	2.4	~~B~~ U J
7440-62-2	Vanadium (V)	2.9	~~B~~ J	13.7	~~B~~ J	2.6	~~B~~ J	9.9	~~B~~ J	7.	~~B~~ J	154.	
7440-66-6	Zinc (Zn)	23.2		100.		25.5		33.		33.9		33.1	
7440-31-5	Tin (Sn)	2.7	U	2.7	U	2.7	U	2.7	U	2.7	U	2.7	U

1/20/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# EN035

EN035
SPLP-META

SAMPLE ID ------->	643-S-B024-02			BLK-0-N035-01			BLK-0-N035-02				
ORIGINAL ID ----->	643SB02402			B122101			PBW1EN035				
LAB SAMPLE ID --->	9912424-19			B1221-01			PBW1-EN035				
SAMPLE DATE ----->	12/17/99			01/03/00			01/03/00				
DATE EXTRACTED -->	12/23/99			12/23/99			12/23/99				
DATE ANALYZED --->	01/04/00			01/04/00			01/04/00				
MATRIX ---------->	Soil			Water			Water				
UNITS ---------->	UG/L		A	UG/L		D	UG/L		D		
CAS # Parameter											
7429-90-5 Aluminum (Al)	2190.			58.7	U		-192.1	B			
7440-36-0 Antimony (Sb)	2.4	U		2.4	U		2.4	U			
7440-38-2 Arsenic (As)	3.9	~~B~~ J		2.	U		2.	U			
7440-39-3 Barium (Ba)	302.			116.	B		0.8	B			
7440-41-7 Beryllium (Be)	0.9	~~B~~ J		0.9	U		0.9	U			
7440-43-9 Cadmium (Cd)	2.3	~~B~~ U		2.9	B		3.6	B			
7440-70-2 Calcium (Ca)	11600.			269.	B		32.6	U			
7440-47-3 Chromium (Cr)	4.6	~~B~~ J		0.6	U		-0.7	B			
7440-48-4 Cobalt (Co)	0.5	~~B~~ U J		0.5	U		-1.4	B			
7440-50-8 Copper (Cu)	1.1	~~B~~ J		0.6	U		NR	B			
7439-89-6 Iron (Fe)	2360.			21.2	U		21.2	U			
7439-92-1 Lead (Pb)	2.1	U		2.1	U		2.1	U			
7439-95-4 Magnesium (Mg)	593.	~~B~~ J		13.6	U		-15.7	B			
7439-96-5 Manganese (Mn)	8.4	~~B~~ J		0.3	B		0.3	U			
7439-97-6 Mercury (Hg)	0.2	U		0.2	U		0.2	U			
7440-02-0 Nickel (Ni)	1.9	~~B~~ J		1.1	U		1.1	U			
7440-09-7 Potassium (K)	174.	~~B~~ J		40.2	U		-75.3	B			
7782-49-2 Selenium (Se)	1.7	~~UN~~ U J		1.7	UN		1.7	U			
7440-22-4 Silver (Ag)	0.5	U		0.5	U		0.5	U			
7440-23-5 Sodium (Na)	4320.	~~B~~ J		1760.	B		387.	U			
7440-28-0 Thallium (Tl)	2.4	~~B~~ U J		2.4	U		-7.1	B			
7440-62-2 Vanadium (V)	8.7	~~B~~ J		0.5	U		0.5	U			
7440-66-6 Zinc (Zn)	22.2			64.			1.5	U			
7440-31-5 Tin (Sn)	2.7	U		2.7	U		2.7	U			

PB 1/20/00

007

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

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

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

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

Craig G. Sewyson
for Paul B. Humburg, President

10-18-99.
Date

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

SDG# 39715

Samples and Fractions Reviewed

Sample Identifications | Analytical Fractions

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

VOA= Volatiles
SVOA= Semivolatiles
PEST= Pesticides
PCB= PCBs
SP-PEST= SPLP Pesticides
SP-PCB= SPLP PCBs
MET= Metals
SP-MET= SPLP Metals
TOC= Total Organic Carbons

CAN 10/22/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

LP-METAL

		SAMPLE ID ------->	642-S-B011-02		643-S-B013-02		BLK-0-9715-07		BLK-0-9715-08				
		ORIGINAL ID ----->	642SB01102		643SB01302		PBW		PBWT				
		LAB SAMPLE ID --->	39726.01		39726.02		PBW		PBWT				
		ID FROM REPORT -->	642SB01102		643SB01302		PBW		PBWT				
		SAMPLE DATE ----->	07/29/99		07/29/99		07/29/99		07/29/99				
		DATE EXTRACTED -->	08/03/99		08/03/99		08/03/99		08/03/99				
		DATE ANALYZED --->	08/04/99		08/04/99		08/04/99		08/04/99				
		MATRIX ---------->	Soil		Soil		Water		Water				
		UNITS ---------->	UG/L	A	UG/L	A	UG/L	D	UG/L	D			
CAS #	Parameter		39715		39715		39715		39715				
7439-97-6	Mercury (Hg)		1.4	~~B~~ J	1.2	~~B~~ J	1.	U	1.	U			
7429-90-5	Aluminum (Al)		307.		216.		32.1	U	42.5	B			
7440-36-0	Antimony (Sb)		5.	U	5.	U	5.	U	5.	U			
7440-38-2	Arsenic (As)		3.3	U	3.3	U	3.3	U	3.3	U			
7440-39-3	Barium (Ba)		288.		8.	~~B~~ J	0.4	U	1.	B			
7440-41-7	Beryllium (Be)		0.3	U	0.3	U	0.3	U	0.3	U			
7440-43-9	Cadmium (Cd)		1.4	~~B~~ J	0.3	U	0.3	U	17.5	B			
7440-70-2	Calcium (Ca)		1860.		2800.		394.	B	172.	U			
7440-47-3	Chromium (Cr)		0.5	U	0.68	~~B~~ J	0.5	U	0.95	B			
7440-48-4	Cobalt (Co)		1.7	U	1.7	U	1.7	U	1.7	U			
7440-50-8	Copper (Cu)		10.3	~~B~~ J	5.1	~~B~~ J	1.	B	1.4	B			
7439-89-6	Iron (Fe)		159.		462.		24.2	U	332.				
7439-92-1	Lead (Pb)		6.5	~~B~~ J	4.5	~~B~~ J	2.1	U	3.2				
7439-95-4	Magnesium (Mg)		216.	~~B~~ J	325.		37.	U	37.	U			
7439-96-5	Manganese (Mn)		1.6	~~B~~ J	4.3	~~B~~ J	1.2	U	1.3	B			
7440-02-0	Nickel (Ni)		1.3	~~B~~ J	1.	~~B~~ J	0.8	U	0.93	B			
7782-49-2	Selenium (Se)		2.9	U	2.9	U	2.9	U	2.9	U			
7440-22-4	Silver (Ag)		2.	U	2.	U	2.	U	2.	U			
7440-28-0	Thallium (Tl)		2.3	U	2.3	U	2.6	B	2.3	U			
7440-62-2	Vanadium (V)		1.1	~~B~~ J	2.2	~~B~~ J	0.9	U	0.9	U			
7440-66-6	Zinc (Zn)		74.6	U	19.5	~~B~~ U	34.3		11.2	B			
7440-31-5	Tin (Sn)		29.5	U	29.5	U	29.5	U	29.5	U			
7440-09-7	Potassium (K)		353.	U	353.	U	353.	U	353.	U			
7440-23-5	Sodium (Na)		3450.		8330.		67.	U	310.	B			

PBW 10/12/99

*** Lab Results - Unvalidat Data - Do NOT Cite ***

10-22-99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

P-P/PCB

	SAMPLE ID ------->	003-S-B014-02		633-S-B012-02		643-S-B013-02		BLK-0-9715-20		BLK-0-9715-21		BLK-0-9715-22	
	ORIGINAL ID ----->	003SB01402		633SB01202		643SB01302		BL0910WG		BL0910WH		TB0990908B	
	LAB SAMPLE ID --->	40227.03		40227.02		40227.01		BL0910WG		BL0910WH		TB0990908B	
	ID FROM REPORT -->	003SB01402		633SB01202		643SB01302		BL0910WG		BL0910WH		TB0990908B	
	SAMPLE DATE ----->	07/28/99		07/29/99		07/29/99		09/07/99		09/07/99		09/07/99	
	DATE EXTRACTED -->	09/11/99		09/11/99		09/11/99		09/10/99		09/10/99		09/10/99	
	DATE ANALYZED --->	09/14/99		09/14/99		09/14/99		09/16/99		09/13/99		09/13/99	
	MATRIX ---------->	Soil		Soil		Soil		Water		Water		Water	
	UNITS ---------->	UG/L	A	UG/L	A	UG/L	A	UG/L	D	UG/L	D	UG/L	D
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
674-11-2	Aroclor-1016	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
104-28-2	Aroclor-1221	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
141-16-5	Aroclor-1232	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
469-21-9	Aroclor-1242	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
672-29-6	Aroclor-1248	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
097-69-1	Aroclor-1254	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
096-82-5	Aroclor-1260	1.3	U	1.	U	1.2	U	??????????		1.	U	1.2	U
319-84-6	alpha-BHC	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
319-85-7	beta-BHC	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
319-86-8	delta-BHC	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
58-89-9	gamma-BHC (Lindane)	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
76-44-8	Heptachlor	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
309-00-2	Aldrin	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
1024-57-3	Heptachlor epoxide	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
959-98-8	Endosulfan I	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
60-57-1	Dieldrin	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
72-55-9	4,4'-DDE	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
72-20-8	Endrin	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
3213-65-9	Endosulfan II	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
72-54-8	4,4'-DDD	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
1031-07-8	Endosulfan sulfate	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
50-29-3	4,4'-DDT	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
72-43-5	Methoxychlor	0.38	U	??????????		0.51	U	0.38	U	??????????		??????????	
3494-70-5	Endrin ketone	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
7421-93-4	Endrin aldehyde	0.08	U	??????????		0.11	U	0.08	U	??????????		??????????	
5103-71-9	alpha-Chlordane	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
5103-74-2	gamma-Chlordane	0.04	U	??????????		0.053	U	0.04	U	??????????		??????????	
8001-35-2	Toxaphene	2.5	U	??????????		3.3	U	2.5	U	??????????		??????????	

SPLP-PCB ONLY

10/14/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

LP-P/PCB

SAMPLE ID ------->	BLK-0-9715-23
ORIGINAL ID ----->	TB9909088
LAB SAMPLE ID --->	TB9909088
ID FROM REPORT -->	TB9909088
SAMPLE DATE ----->	09/07/99
DATE EXTRACTED -->	09/10/99
DATE ANALYZED --->	09/16/99
MATRIX ---------->	Water
UNITS ---------->	UG/L D

CAS #	Parameter	39715
12674-11-2	Aroclor-1016	??????????
11104-28-2	Aroclor-1221	??????????
11141-16-5	Aroclor-1232	??????????
53469-21-9	Aroclor-1242	??????????
12672-29-6	Aroclor-1248	??????????
11097-69-1	Aroclor-1254	??????????
11096-82-5	Aroclor-1260	??????????
319-84-6	alpha-BHC	0.044 U
319-85-7	beta-BHC	0.044 U
319-86-8	delta-BHC	0.044 U
58-89-9	gamma-BHC (Lindane)	0.044 U
76-44-8	Heptachlor	0.044 U
309-00-2	Aldrin	0.044 U
1024-57-3	Heptachlor epoxide	0.044 U
959-98-8	Endosulfan I	0.044 U
60-57-1	Dieldrin	0.089 U
72-55-9	4,4'-DDE	0.089 U
72-20-8	Endrin	0.089 U
33213-65-9	Endosulfan II	0.089 U
72-54-8	4,4'-DDD	0.089 U
1031-07-8	Endosulfan sulfate	0.089 U
50-29-3	4,4'-DDT	0.089 U
72-43-5	Methoxychlor	0.42 U
53494-70-5	Endrin ketone	0.089 U
7421-93-4	Endrin aldehyde	0.089 U
5103-71-9	alpha-Chlordane	0.044 U
5103-74-2	gamma-Chlordane	0.044 U
8001-35-2	Toxaphene	2.8 U

JMC 10/4/99

*** Lab Results - Unvalidat Data - Do NOT Cite ***

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

6-META

SAMPLE ID ------->	642-S-B011-02	643-S-B013-02	BLK-0-9715-06	FDS-S-H028-01	FDS-S-H028-02	FDS-S-H029-01
ORIGINAL ID ----->	642SB01102	643SB01302	PBS	FDSSH02801	FDSSH02802	FDSSH02901
LAB SAMPLE ID --->	40420.01	40420.02	PBS	39715.10	39715.11	39726.11
ID FROM REPORT -->	642SB01102	643SB01302	PBS	FDSSH02801	FDSSH02802	FDSSH02901
SAMPLE DATE ----->	07/29/99	07/29/99	07/29/99	07/28/99	07/28/99	07/29/99
DATE EXTRACTED -->	09/23/99	09/23/99	08/10/99	08/17/99	08/17/99	08/17/99
DATE ANALYZED --->			08/12/99	08/18/99	08/18/99	08/18/99
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	MG/KG A	MG/KG A	MG/KG D	MG/KG A	MG/KG A	MG/KG A

CAS #	Parameter	39715	39715	39715	39715	39715	39715
429-90-5	Aluminum (Al)	4820.	5050.	2.8 U	4350.	15500.	11700.
440-36-0	Antimony (Sb)	0.38 ~~B~~ J	0.62 ~~B~~ J	0.27 U	0.31 ~~U~~ UJ	0.31 ~~U~~ UJ	0.34 ~~NU~~ UJ
440-38-2	Arsenic (As)	1.7	7.9	0.19 U	1.4	9.3	10.9
440-39-3	Barium (Ba)	14.	14.8	0.12 U	16.3	31.7	28.9
440-41-7	Beryllium (Be)	0.15 ~~B~~ J	0.6 ~~B~~ J	0.08 U	0.25 ~~B~~ J	0.52 ~~B~~ J	0.33 ~~B~~ J
440-43-9	Cadmium (Cd)	0.26 ~~B~~ J	0.36 ~~B~~ J	0.03 U	0.04 ~~B~~ J	0.03 U	0.04 U
440-70-2	Calcium (Ca)	579. ~~B~~ J	28900.	25.8 U	886.	647.	3680.
440-47-3	Chromium (Cr)	8.5	16.4	0.14 U	4.9	25.6	19.9
440-48-4	Cobalt (Co)	0.49 ~~B~~ J	2.2 ~~B~~ J	0.08 U	1.5 ~~B~~ J	3.1	2. ~~B~~ J
440-50-8	Copper (Cu)	47.6	59.5	0.36 B	1.8 ~~B~~ U	1.2 ~~B~~ U	8.
439-89-6	Iron (Fe)	4920.	10100.	3.3 U	2280.	19800.	15300.
439-92-1	Lead (Pb)	32.8	76.6	0.22 U	63.4	9.6	41.
439-95-4	Magnesium (Mg)	258.	1760.	9.2 U	194.	964.	944.
439-96-5	Manganese (Mn)	16.1	113.	0.06 U	15.4	72.6	47.1
439-97-6	Mercury (Hg)	0.36	0.03 ~~B~~ J	0.017 U	0.04	0.13	0.09
440-02-0	Nickel (Ni)	2.3 ~~B~~ J	8.	0.36 U	2.2 ~~B~~ J	5.1	5.2
440-09-7	Potassium (K)	119. ~~B~~ J	520.	15.2 U	89.6 ~~B~~ J	409.	325.
782-49-2	Selenium (Se)	0.39 U	0.53 U	0.33 U	0.37 U	0.47 ~~B~~ J	0.55 ~~B~~ J
440-22-4	Silver (Ag)	0.14 U	0.19 U	0.12 U	0.14 U	0.14 U	0.15 U
440-23-5	Sodium (Na)	362.	614.	50.2 U	232. ~~B~~ J	335. ~~B~~ J	209. ~~B~~ J
440-28-0	Thallium (Tl)	0.4 U	0.6 ~~B~~ J	0.34 U	0.38 U	0.39 U	0.42 U
440-31-5	Tin (Sn)	6.2 ~~B~~ U	16.6 ~~B~~ J	2.7 B	3. ~~B~~ U	3.2 ~~B~~ U	3.7 ~~B~~ U
440-62-2	Vanadium (V)	10.3	18.4	0.07 U	5.8	42.2	25.8
440-66-6	Zinc (Zn)	59.3	195.	1.5 B	16.	18.5	67.5

10/12/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-META

SAMPLE ID ------->	FDS-S-H029-02	FDS-S-H030-01	FDS-C-H030-01	FDS-S-H030-02	FDS-S-H031-01	FDS-C-H031-01
ORIGINAL ID ----->	FDSSH02902	FDSSH03001	FDSCH03001	FDSSH03002	FDSSH03101	FDSCH03101
LAB SAMPLE ID --->	39726.12	39715.07	39715.08	39715.09	39726.07	39726.08
ID FROM REPORT -->	FDSSH02902	FDSSH03001	FDSCH03001	FDSSH03002	FDSSH03101	FDSCH03101
SAMPLE DATE ----->	07/29/99	07/28/99	07/28/99	07/28/99	07/29/99	07/29/99
DATE EXTRACTED -->	08/17/99	08/17/99	08/17/99	08/17/99	08/17/99	08/17/99
DATE ANALYZED --->	08/18/99	08/18/99	08/18/99	08/18/99	08/18/99	08/18/99
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A

CAS #	Parameter	39715	39715	39715	39715	39715	39715
7429-90-5	Aluminum (Al)	17700.	7820.	16200.	7860.	8820.	12100.
7440-36-0	Antimony (Sb)	0.32 ~~NU~~ UJ	0.34 ~~U~~ UJ	0.35 ~~U~~ UJ	0.31 ~~U~~ UJ	0.31 ~~NU~~ UJ	0.3 ~~NU~~ UJ
7440-38-2	Arsenic (As)	7.8	4.8	6.5	2.4	3.9	6.9
7440-39-3	Barium (Ba)	24.6	23.4	24.7	13.6	22.6	25.1
7440-41-7	Beryllium (Be)	0.34 ~~B~~ J	0.37 ~~B~~ J	0.37 ~~B~~ J	0.17 ~~B~~ J	0.36 ~~B~~ J	0.59
7440-43-9	Cadmium (Cd)	0.04 U	0.28 ~~B~~ J	0.04 U	0.03 U	0.03 U	0.03 U
7440-70-2	Calcium (Ca)	1420.	101000.	6300.	1170.	853.	1100.
7440-47-3	Chromium (Cr)	31.6	17.	38.7	14.8	17.6	22.3
7440-48-4	Cobalt (Co)	3. ~~B~~ J	5.3	2.4 ~~B~~ J	1. ~~B~~ J	2.2 ~~B~~ J	2.6 ~~B~~ J
7440-50-8	Copper (Cu)	2.4 ~~B~~ J	5.1 ~~B~~ J	1.9 ~~B~~ J	0.69 ~~B~~ U	2. ~~B~~ J	3.3 ~~B~~ J
7439-89-6	Iron (Fe)	24600.	12000.	30000.	11200.	12500.	18200.
7439-92-1	Lead (Pb)	12.9	179.	15.1	22.2	8.4	10.1
7439-95-4	Magnesium (Mg)	2320.	1630.	992.	627.	845.	1140.
7439-96-5	Manganese (Mn)	78.1	117.	28.4	22.	36.5	60.5
7439-97-6	Mercury (Hg)	0.06	0.39	0.63	0.04 ~~B~~ J	0.05	0.03 ~~B~~ J
7440-02-0	Nickel (Ni)	5.8	7.6	4.5 ~~B~~ J	1.8 ~~B~~ J	3.4 ~~B~~ J	4.9
7440-09-7	Potassium (K)	666.	422.	555.	302.	394.	511.
7782-49-2	Selenium (Se)	0.39 U	0.42 U	0.84	0.38 U	0.38 U	0.36 U
7440-22-4	Silver (Ag)	0.14 U	0.15 U	0.16 U	0.14 U	0.14 U	0.13 U
7440-23-5	Sodium (Na)	185. ~~B~~ J	421.	403.	320. ~~B~~ J	240. ~~B~~ J	262. ~~B~~ J
7440-28-0	Thallium (Tl)	0.41 U	0.43 U	0.77 ~~B~~ J	0.39 U	0.39 U	0.64 ~~B~~ J
7440-31-5	Tin (Sn)	4.5 ~~B~~ U	3.6 ~~B~~ U	3.9 ~~B~~ U	4.2 ~~B~~ U	4.2 ~~B~~ U	3.3 ~~B~~ U
7440-62-2	Vanadium (V)	37.9	21.8	58.8	23.1	22.2	35.1
7440-66-6	Zinc (Zn)	34.2	47.8	21.	18.3	18.3	21.8

PBZ 10/12/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

.6-META

SAMPLE ID ------->	FDS-S-H031-02
ORIGINAL ID ----->	FDSSH03102
LAB SAMPLE ID --->	39726.09
ID FROM REPORT -->	FDSSH03102
SAMPLE DATE ----->	07/29/99
DATE EXTRACTED -->	08/17/99
DATE ANALYZED --->	08/18/99
MATRIX ---------->	Soil
UNITS ---------->	MG/KG A

CAS #	Parameter	39715		
29-90-5	Aluminum (Al)	15300.		
40-36-0	Antimony (Sb)	0.32	~~NU~~ U	J
40-38-2	Arsenic (As)	8.3		
40-39-3	Barium (Ba)	23.7		
40-41-7	Beryllium (Be)	0.38	~~B~~ J	
40-43-9	Cadmium (Cd)	0.04	U	
40-70-2	Calcium (Ca)	693.		
40-47-3	Chromium (Cr)	38.3		
40-48-4	Cobalt (Co)	2.1	~~B~~ J	
40-50-8	Copper (Cu)	1.4	~~B~~ U	
39-89-6	Iron (Fe)	28900.		
39-92-1	Lead (Pb)	9.6		
39-95-4	Magnesium (Mg)	963.		
39-96-5	Manganese (Mn)	18.8		
39-97-6	Mercury (Hg)	0.26		
40-02-0	Nickel (Ni)	4.1	~~B~~ J	
40-09-7	Potassium (K)	486.		
782-49-2	Selenium (Se)	1.7		
40-22-4	Silver (Ag)	0.14	U	
40-23-5	Sodium (Na)	278.	~~B~~ J	
40-28-0	Thallium (Tl)	0.62	~~B~~ J	
40-31-5	Tin (Sn)	3.6	~~B~~ U	
40-62-2	Vanadium (V)	48.4		
40-66-6	Zinc (Zn)	16.8		

10/12/99

CAW 10/22/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-PEST

SAMPLE ID ------->	003-S-B011-01	003-S-B011-01 DL	003-S-B011-02	003-S-B011-02 DL	003-S-B012-01	003-S-B012-01 DL
ORIGINAL ID ----->	003SB01101	003SB01101	003SB01102	003SB01102	003SB01201	003SB01201
LAB SAMPLE ID --->	39715.04	39715.04	39715.05	39715.05	39715.01	39715.01
ID FROM REPORT -->	003SB01101	003SB01101	003SB01102	003SB01102	003SB01201	003SB01201
SAMPLE DATE ----->	07/28/99	07/28/99	07/28/99	07/28/99	07/28/99	07/28/99
DATE EXTRACTED -->	07/30/99	07/30/99	07/30/99	07/30/99	07/30/99	08/02/99
DATE ANALYZED --->	08/05/99	08/24/99	08/05/99	08/24/99	08/05/99	08/18/99
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	UG/KG A	UG/KG C	UG/KG A	UG/KG C	UG/KG A	UG/KG C

CAS #	Parameter	39715	39715	39715	39715	39715	39715
319-84-6	alpha-BHC	1.4 U	14. U UR	1.4 U	14. U UR	14. U	2700. U UR
319-85-7	beta-BHC	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
319-86-8	delta-BHC	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
58-89-9	gamma-BHC (Lindane)	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
76-44-8	Heptachlor	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
309-00-2	Aldrin	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
024-57-3	Heptachlor epoxide	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
959-98-8	Endosulfan I	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
60-57-1	Dieldrin	2.7 U	27. U	2.7 U	27. U	26. U	5300. U
72-55-9	4,4'-DDE	72. 92. D ~~E~~	72. R	2.7 U	27. U	1100. J E	5300. U
72-20-8	Endrin	2.7 U	27. U UR	2.7 U	27. U	26. U	5300. U
213-65-9	Endosulfan II	2.7 U	27. U	2.7 U	27. U	26. U	5300. U
72-54-8	4,4'-DDD	2.7 U	27. U	2.7 U	27. U	5900 720. D ~~E~~	5900. R
031-07-8	Endosulfan sulfate	2.7 U	27. U	2.7 U	27. U	26. U	5300. U R
50-29-3	4,4'-DDT	71 140. D J E	71. R	20. J	27. U	78000. D ~~E~~	78000. R
72-43-5	Methoxychlor	14. U	140. U UR	14. U	140. U	140. U	27000. U UR
494-70-5	Endrin ketone	3. U	27. U	3. U	27. U	26. U	5300. U
421-93-4	Endrin aldehyde	2.7 U	27. U	2.7 U	27. U	26. U	5300. U
103-71-9	alpha-Chlordane	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
103-74-2	gamma-Chlordane	1.4 U	14. U	1.4 U	14. U	14. U	2700. U
001-35-2	Toxaphene	88. U	880. U	91. U	910. U	880. U	180000. U
674-11-2	Aroclor-1016	30. U	30. U	35. U	35. U	39. U	39. U
104-28-2	Aroclor-1221	30. U	30. U	35. U	35. U	39. U	39. U
141-16-5	Aroclor-1232	30. U	30. U	35. U	35. U	39. U	39. U
469-21-9	Aroclor-1242	30. U	30. U	35. U	35. U	39. U	39. U
672-29-6	Aroclor-1248	30. U	30. U	35. U	35. U	39. U	39. U
097-69-1	Aroclor-1254	30. U	30. U	35. U	35. U	39. U	39. U
096-82-5	Aroclor-1260	30. U	30. U	35. U	35. U	39. U	39. U

JC 10/14/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

S-PEST													
	SAMPLE ID ------->	003-C-B012-01		003-C-B012-01 DL		003-S-B012-02		003-S-B012-02 DL		003-S-B014-02		633-S-B011-01	
	ORIGINAL ID ----->	003CB01201		003CB01201		003SB01202		003SB01202		003SB01402		633SB01101	
	LAB SAMPLE ID --->	39715.02		39715.02		39715.03		39715.03		39715.06		39726.04	
	ID FROM REPORT -->	003CB01201		003CB01201		003SB01202		003SB01202		003SB01402		633SB01101	
	SAMPLE DATE ----->	07/28/99		07/28/99		07/28/99		07/28/99		07/28/99		07/29/99	
	DATE EXTRACTED -->	07/30/99		08/02/99		07/30/99		08/02/99		07/30/99		08/02/99	
	DATE ANALYZED --->	08/05/99		08/18/99		08/05/99		08/18/99		08/05/99		08/17/99	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	A
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
19-84-6	alpha-BHC	15.	U	6000.	U UR	14.	U	2800.	U UR	1.4	U	1.5	U
19-85-7	beta-BHC	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
19-86-8	delta-BHC	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
58-89-9	gamma-BHC (Lindane)	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
76-44-8	Heptachlor	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
09-00-2	Aldrin	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
24-57-3	Heptachlor epoxide	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
59-98-8	Endosulfan I	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
60-57-1	Dieldrin	29.	U	12000.	U	27.	U	5500.	U	2.7	U	2.8	U
72-55-9	4,4'-DDE	3200.	J E	12000.	U	1500.	J E	5500.	U	2.7	U	2.8	U
72-20-8	Endrin	29.	U	12000.	U	27.	U	5500.	U	2.7	U	2.8	U
213-65-9	Endosulfan II	29.	U	12000.	U	27.	U	5500.	U	2.7	U	2.8	U
72-54-8	4,4'-DDD	1900.	J PE	12000.	U	1200.	PE	6100.	P	2.7	U	2.8	U
031-07-8	Endosulfan sulfate	29.	U	12000.	U	27.	U	5500.	U UR	2.7	U	2.8	U
50-29-3	4,4'-DDT	96000.	D E	100000.	U	66000.	D E	73000.	P	2.7	U	2.8	U
72-43-5	Methoxychlor	150.	U	60000.	U UR	140.	U	28000.	U UR	14.	U	15.	U
94-70-5	Endrin ketone	29.	U	12000.	U	27.	U	5500.	U	3.	U	3.	U
421-93-4	Endrin aldehyde	29.	U	12000.	U	27.	U	5500.	U	2.7	U	2.8	U
103-71-9	alpha-Chlordane	15.	U	6000.	U	14.	U	2800.	U	1.4	U	1.5	U
103-74-2	gamma-Chlordane	28.	UL P	6000.	U	14.	U	2800.	U	2.4	P UL	1.5	U
001-35-2	Toxaphene	960.	U	380000.	U	910.	U	180000.	U	90.	U	94.	U
674-11-2	Aroclor-1016	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
104-28-2	Aroclor-1221	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
141-16-5	Aroclor-1232	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
469-21-9	Aroclor-1242	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
672-29-6	Aroclor-1248	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
097-69-1	Aroclor-1254	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U
096-82-5	Aroclor-1260	38.	U	38.	U	36.	U	36.	U	35.	U	36.	U

JC 10/14/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

846-PEST	SAMPLE ID ------->	633-S-B011-01 DL	633-C-B011-01	633-C-B011-01 DL	633-S-B011-02	633-S-B011-02 DL	633-S-B012-02
	ORIGINAL ID ----->	633SB01101	633CB01101	633CB01101	633SB01102	633SB01102	633SB01202
	LAB SAMPLE ID --->	39726.04	39726.05	39726.05	39726.06	39726.06	39726.03
	ID FROM REPORT -->	633SB01101	633CB01101	633CB01101	633SB01102	633SB01102	633SB01202
	SAMPLE DATE ----->	07/29/99	07/29/99	07/29/99	07/29/99	07/29/99	07/29/99
	DATE EXTRACTED -->	08/02/99	08/02/99	08/02/99	08/02/99	08/02/99	08/02/99
	DATE ANALYZED --->	08/18/99	08/17/99	08/18/99	08/17/99	08/18/99	08/17/99
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	UG/KG C	UG/KG A	UG/KG C	UG/KG A	UG/KG C	UG/KG A
CAS #	Parameter	39715	39715	39715	39715	39715	39715
319-84-6	alpha-BHC	15. U UR	1.5 U	15. U UR	1.7 U	17. U UR	??????????
319-85-7	beta-BHC	15. U	1.5 U	15. U	1.7 U	17. U	??????????
319-86-8	delta-BHC	15. U	1.5 U	15. U	1.7 U	17. U	??????????
58-89-9	gamma-BHC (Lindane)	15. U	1.5 U	15. U	1.7 U	17. U	??????????
76-44-8	Heptachlor	15. U	1.5 U	15. U	1.7 U	17. U	??????????
309-00-2	Aldrin	15. U	1.5 U	15. U	1.7 U	17. U	??????????
1024-57-3	Heptachlor epoxide	15. U	1.5 U	15. U	1.7 U	17. U	??????????
959-98-8	Endosulfan I	15. U	1.5 U	15. U	1.7 U	17. U	??????????
60-57-1	Dieldrin	28. U	2.9 U	29. U	3.3 U	33. U	??????????
72-55-9	4,4'-DDE	28. U	2.9 U	29. U	3.3 U	33. U	??????????
72-20-8	Endrin	29. DP	2.9 U	29. U	3.3 U	51. D	??????????
3213-65-9	Endosulfan II	28. U	2.9 U	29. U	3.3 U	33. U	??????????
72-54-8	4,4'-DDD	28. U	2.9 U	29. U	3.3 U	33. U	??????????
1031-07-8	Endosulfan sulfate	28. U	2.9 U	29. U	3.3 U	33. U	??????????
50-29-3	4,4'-DDT	28. U	2.9 U	29. U	3.3 U	33. U	??????????
72-43-5	Methoxychlor	150. U	15. U	150. U	17. U	170. U	??????????
3494-70-5	Endrin ketone	28. U	3. U	29. U	3. U	33. U	??????????
7421-93-4	Endrin aldehyde	28. U	2.9 U	29. U	3.3 U	33. U	??????????
5103-71-9	alpha-Chlordane	15. U	1.5 U	15. U	1.7 U	17. U	??????????
5103-74-2	gamma-Chlordane	15. U	1.5 U	15. U	1.7 U	17. U	??????????
8001-35-2	Toxaphene	940. U	96. U	960. U	110. U	1100. U	??????????
2674-11-2	Aroclor-1016	36. U	39. U	39. U	41. U	41. U	37. U
1104-28-2	Aroclor-1221	36. U	39. U	39. U	41. U	41. U	37. U
1141-16-5	Aroclor-1232	36. U	39. U	39. U	41. U	41. U	37. U
3469-21-9	Aroclor-1242	36. U	39. U	39. U	41. U	41. U	37. U
2672-29-6	Aroclor-1248	36. U	39. U	39. U	41. U	41. U	37. U
1097-69-1	Aroclor-1254	36. U	39. U	39. U	41. U	41. U	37. U
1096-82-5	Aroclor-1260	36. U	39. U	39. U	41. U	41. U	37. U

JLC 10/14/99

PCBs ONLY

C041

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-PEST

SAMPLE ID ------->	643-S-B013-02	643-S-B013-02 DL	BLK-0-9715-01	BLK-0-9715-02	BLK-0-9715-03	BLK-0-9715-04
ORIGINAL ID ----->	643SB01302	643SB01302 DL	BL0730SN	BL0730SO	BL0802SH	BL0802SI
LAB SAMPLE ID --->	39726.02	39726.02	BL0730SN	BL0730SO	BL0802SH	BL0802SI
ID FROM REPORT -->	643SB01302	643SB01302DL	BL0730SN	BL0730SO	BL0802SH	BL0802SI
SAMPLE DATE ----->	07/29/99	07/29/99	07/29/99	07/29/99	07/29/99	07/29/99
DATE EXTRACTED -->	08/02/99	08/02/99	07/30/99	07/30/99	08/02/99	08/02/99
DATE ANALYZED --->	08/17/99	08/18/99	08/05/99	08/11/99	08/16/99	08/18/99
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	UG/KG A	UG/KG C	UG/KG D	UG/KG D	UG/KG D	UG/KG D

CAS #	Parameter	39715		39715		39715		39715		39715		39715	
319-84-6	alpha-BHC	1.8	U	18.	U UR	??????????		1.3	U	??????????		1.3	U
319-85-7	beta-BHC	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
319-86-8	delta-BHC	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
58-89-9	gamma-BHC (Lindane)	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
76-44-8	Heptachlor	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
309-00-2	Aldrin	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
024-57-3	Heptachlor epoxide	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
959-98-8	Endosulfan I	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
60-57-1	Dieldrin	3.4	U	34.	U	??????????		2.5	U	??????????		2.4	U
72-55-9	4,4'-DDE	200 150. D E		200.	U	??????????		2.5	U	??????????		2.4	U
72-20-8	Endrin	3.4	U	57.	DPC	??????????		2.5	U	??????????		2.4	U
213-65-9	Endosulfan II	3.4	U	34.	U UR	??????????		2.5	U	??????????		2.4	U
72-54-8	4,4'-DDD	6.8		34.	U	??????????		2.5	U	??????????		2.4	U
031-07-8	Endosulfan sulfate	3.4	U	34.	U	??????????		2.5	U	??????????		2.4	U
50-29-3	4,4'-DDT	32.		88.	h	??????????		2.5	U	??????????		2.4	U
72-43-5	Methoxychlor	18.	U	180.	U UR	??????????		13.	U	??????????		13.	U
494-70-5	Endrin ketone	3.	U	34.	U	??????????		2.5	U	??????????		2.	U
421-93-4	Endrin aldehyde	3.4	U	34.	U	??????????		2.5	U	??????????		2.4	U
103-71-9	alpha-Chlordane	1.8	U	18.	U	??????????		1.3	U	??????????		1.3	U
103-74-2	gamma-Chlordane	4.6		18.	U	??????????		1.3	U	??????????		1.3	U
001-35-2	Toxaphene	110.	U	1100.	U	??????????		83.	U	??????????		81.	U
674-11-2	Aroclor-1016	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
104-28-2	Aroclor-1221	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
141-16-5	Aroclor-1232	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
469-21-9	Aroclor-1242	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
672-29-6	Aroclor-1248	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
097-69-1	Aroclor-1254	45.	U	45.	U	33.	U	??????????		33.	U	??????????	
096-82-5	Aroclor-1260	45.	U	45.	U	33.	U	??????????		33.	U	??????????	

JC 10/14/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

846-PEST

	SAMPLE ID ------->	FDS-S-H028-01			FDS-S-H028-01 DL			FDS-S-H028-02			FDS-S-H028-02 DL			FDS-S-H029-01			FDS-S-H029-01 DL		
	ORIGINAL ID ----->	FDSSH02801			FDSSH02801			FDSSH02802			FDSSH02802			FDSSH02901			FDSSH02901		
	LAB SAMPLE ID --->	39715.10			39715.10			39715.11			39715.11			39726.11			39726.11		
	ID FROM REPORT -->	FDSSH02801			FDSSH02801			FDSSH02802			FDSSH02802			FDSSH02901			FDSSH02901		
	SAMPLE DATE ----->	07/28/99			07/28/99			07/28/99			07/28/99			07/29/99			07/29/99		
	DATE EXTRACTED -->	07/30/99			07/30/99			07/30/99			07/30/99			08/02/99			08/02/99		
	DATE ANALYZED --->	08/05/99			08/24/99			08/05/99			08/12/99			08/17/99			08/18/99		
	MATRIX ---------->	Soil			Soil			Soil			Soil			Soil			Soil		
	UNITS ---------->	UG/KG		A	UG/KG		C	UG/KG		A	UG/KG		C	UG/KG		A	UG/KG		C
CAS #	Parameter	39715			39715			39715			39715			39715			39715		
319-84-6	alpha-BHC	1.5	U		15.	U	UR	1.5	U		15.	U	UR	1.6	U		16.	U	UR
319-85-7	beta-BHC	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
319-86-8	delta-BHC	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
58-89-9	gamma-BHC (Lindane)	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
76-44-8	Heptachlor	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
309-00-2	Aldrin	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
1024-57-3	Heptachlor epoxide	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
959-98-8	Endosulfan I	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	
60-57-1	Dieldrin	2.8	U		28.	U		2.9	U		29.	U		3.1	U		31.	U	
72-55-9	4,4'-DDE	49 29.	U	P	28.	U		2.9	U		29.	U		20 11 20 3.1	E U	U	31.	U	
72-20-8	Endrin	2.8	U		28.	U		2.9	U		29.	U		3.1	U		30 120.	U	UP
33213-65-9	Endosulfan II	2.8	U		28.	U		2.9	U		29.	U		3.1 24	U		31.	U	
72-54-8	4,4'-DDD	29.	UJ	P	28.	U		10.			29.	U		3.1	U		31.	U	
1031-07-8	Endosulfan sulfate	2.8	U		28.	U		2.9	U		29.	U		3.1	U		31.	U	
50-29-3	4,4'-DDT	23 46.	P	U	28.	U		2.9	U		29.	U		52 47.	P	J	52 31.	D	U P
72-43-5	Methoxychlor	15.	U		150.	U		15.	U		150.	U		140 110.	U	P	140 540.	U	D UR
53494-70-5	Endrin ketone	3.	U		28.	U		3.	U		29.	U		3.	U		31.	U	
7421-93-4	Endrin aldehyde	8.8	P		28.	U		2.9	U		29.	U		54 48.	P	J	56 31.	D	U R
5103-71-9	alpha-Chlordane	1.5	U		15.	U		1.5	U		15.	U		1.6	U		16.	U	UR
5103-74-2	gamma-Chlordane	2.5	P		15.	U		1.5	U		15.	U		1.6	U		16.	U	
8001-35-2	Toxaphene	94.	U		940.	U		96.	U		960.	U		100.	U		1000.	U	
12674-11-2	Aroclor-1016	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
11104-28-2	Aroclor-1221	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
11141-16-5	Aroclor-1232	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
53469-21-9	Aroclor-1242	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
12672-29-6	Aroclor-1248	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
11097-69-1	Aroclor-1254	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	
11096-82-5	Aroclor-1260	37.	U		37.	U		38.	U		38.	U		38.	U		38.	U	

Changes based on Form 10 results

JAC 10/14/99 results corrected based on Form 1 results

results corrected based on Form 1 results

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-PEST

	SAMPLE ID ------->	FDS-S-H029-02		FDS-S-H029-02 DL		FDS-S-H030-01		FDS-S-H030-01 DL		FDS-C-H030-01		FDS-C-H030-01 DL	
	ORIGINAL ID ----->	FDSSH02902		FDSSH02902		FDSSH03001		FDSSH03001		FDSCH03001		FDSCH03001	
	LAB SAMPLE ID --->	39726.12		39726.12		39715.07		39715.07		39715.08		39715.08	
	ID FROM REPORT -->	FDSSH02902		FDSSH02902		FDSSH03001		FDSSH03001		FDSCH03001		FDSCH03001	
	SAMPLE DATE ----->	07/29/99		07/29/99		07/28/99		07/28/99		07/28/99		07/28/99	
	DATE EXTRACTED -->	08/02/99		08/02/99		07/30/99		07/30/99		07/30/99		07/30/99	
	DATE ANALYZED --->	08/17/99		08/18/99		08/05/99		08/24/99		08/05/99		08/24/99	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
319-84-6	alpha-BHC	1.6	U	16.	U UR	1.5	U	15.	U UR	1.7	U	17.	U UR
319-85-7	beta-BHC	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
319-86-8	delta-BHC	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
58-89-9	gamma-BHC (Lindane)	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
76-44-8	Heptachlor	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
309-00-2	Aldrin	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
1024-57-3	Heptachlor epoxide	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
959-98-8	Endosulfan I	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
60-57-1	Dieldrin	3.1	U	31.	U	2.8 UJ	U	28.	U	4.7	J	32.	U
72-55-9	4,4'-DDE	3.1	U	31.	U	2.8	U	28.	U	3.2	U	32.	U
72-20-8	Endrin	3.1	U	31.	U	2.8	U	28.	U	3.2	U	32.	U
3213-65-9	Endosulfan II	3.1	U	31.	U	2.8	U	28.	U	3.2	U	32.	U
72-54-8	4,4'-DDD	3.1	U	31.	U	2.8 UJ	U	28.	U	14.	J	32.	U
1031-07-8	Endosulfan sulfate	3.1	U	31.	U	2.8	U	28.	U	3.2	U	32.	U
50-29-3	4,4'-DDT	72.31	PE U	31.	U	23. U		28.	U	23. U		32.	U
72-43-5	Methoxychlor	16.	U	160.	U	15.	U	150.	U	17.	U	170.	U
3494-70-5	Endrin ketone	3.	U	31.	U	3.	U	28.	U	3.	U	32.	U
7421-93-4	Endrin aldehyde	3.1	U	31.	U	2.8	U	28.	U	8.8 J		32.	U
5103-71-9	alpha-Chlordane	1.6	U	16.	U	1.5	U	15.	U	1.7	U	17.	U
5103-74-2	gamma-Chlordane	1.6	U	16.	U	2.3 U		15.	U	5.8 J		17.	U
8001-35-2	Toxaphene	100.	U	1000.	U	94.	U	940.	U	110.	U	1100.	U
2674-11-2	Aroclor-1016	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
1104-28-2	Aroclor-1221	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
1141-16-5	Aroclor-1232	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
3469-21-9	Aroclor-1242	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
2672-29-6	Aroclor-1248	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
1097-69-1	Aroclor-1254	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U
1096-82-5	Aroclor-1260	40.	U	40.	U	42.	U	42.	U	39.	U	39.	U

results corrected based on form I results

10/14/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-PEST

SAMPLE ID ------->	FDS-S-H030-02	FDS-S-H030-02 DL	FDS-S-H031-01	FDS-S-H031-01 DL	FDS-C-H031-01	FDS-C-H031-01 DL
ORIGINAL ID ----->	FDSSH03002	FDSSH03002	FDSSH03101	FDSSH03101	FDSCH03101	FDSCH03101
LAB SAMPLE ID --->	39715.09	39715.09	39726.07	39726.07	39726.08	39726.08
ID FROM REPORT -->	FDSSH03002	FDSSH03002	FDSSH03101	FDSSH03101	FDSCH03101	FDSCH03101
SAMPLE DATE ----->	07/28/99	07/28/99	07/29/99	07/29/99	07/29/99	07/29/99
DATE EXTRACTED -->	07/30/99	07/30/99	08/02/99	08/02/99	08/02/99	08/02/99
DATE ANALYZED --->	08/05/99	08/24/99	08/17/99	08/18/99	08/17/99	08/18/99
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	UG/KG A	UG/KG C	UG/KG A	UG/KG C	UG/KG A	UG/KG C
CAS # Parameter	39715	39715	39715	39715	39715	39715
319-84-6 alpha-BHC	1.5 U	15. U UR	1.4 U	270. U UR	1.5 U	750. U UR
319-85-7 beta-BHC	1.5 U	15. U	1.4 U	270. U	1.5 U	750. U
319-86-8 delta-BHC	1.5 U	15. U	1.4 U	270. U	1.5 U	750. U
58-89-9 gamma-BHC (Lindane)	1.5 U	15. U	1.4 U	270. U	1.5 U	750. U
76-44-8 Heptachlor	1.5 U	15. U	110. J E	270. U	220. J E	750. U
309-00-2 Aldrin	1.5 U	15. U	1.4 U	270. U	1.5 U	750. U
1024-57-3 Heptachlor epoxide	1.5 U	15. U	270. J PE	270. U	1.5 UJ U	750. U
959-98-8 Endosulfan I	1.5 U	15. U	1.4 U	270. U	1.5 U	750. U
60-57-1 Dieldrin	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
72-55-9 4,4'-DDE	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
72-20-8 Endrin	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
3213-65-9 Endosulfan II	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
72-54-8 4,4'-DDD	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
1031-07-8 Endosulfan sulfate	2.9 U	29. U	12.4 56. HJ EPU	520. U	42 170 HJ E P	1400. U
50-29-3 4,4'-DDT	2.9 U	29. U	54. J E	520. U	120. J E	1400. U
72-43-5 Methoxychlor	15. U	150. U	59. J	2700. U	180. J	7500. U
3494-70-5 Endrin ketone	3. U	29. U	3. U	520. U	3. U	1400. U
7421-93-4 Endrin aldehyde	2.9 U	29. U	2.6 U	520. U	2.9 U	1400. U
5103-71-9 alpha-Chlordane	1.5 U	15. U	2100 2000. DJ PE	2400. D R	7000 4300. DJ PE	7000. R U
5103-74-2 gamma-Chlordane	1.5 U	15. U	2700 2400. DJ E	2700. D R	7900 4800. DJ E	7900. R U
8001-35-2 Toxaphene	96. U	960. U	87. U	17000. U UR	96. U	48000. U
12674-11-2 Aroclor-1016	35. U	35. U	35. U	35. U	36. U	36. U
11104-28-2 Aroclor-1221	35. U	35. U	35. U	35. U	36. U	36. U
11141-16-5 Aroclor-1232	35. U	35. U	35. U	35. U	36. U	36. U
53469-21-9 Aroclor-1242	35. U	35. U	35. U	35. U	36. U	36. U
12672-29-6 Aroclor-1248	35. U	35. U	35. U	35. U	36. U	36. U
11097-69-1 Aroclor-1254	35. U	35. U	35. U	35. U	36. U	36. U
11096-82-5 Aroclor-1260	35. U	35. U	35. U	35. U	36. U	36. U

correction based on Form 10 results

correction based on Form 10 results

QJC 10/4/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-PEST

	SAMPLE ID ------->	FDS-S-H031-02			FDS-S-H031-02 DL								
	ORIGINAL ID ----->	FDSSH03102			FDSSH03102								
	LAB SAMPLE ID --->	39726.09			39726.09								
	ID FROM REPORT -->	FDSSH03102			FDSSH03102								
	SAMPLE DATE ----->	07/29/99			07/29/99								
	DATE EXTRACTED -->	08/02/99			08/02/99								
	DATE ANALYZED --->	08/17/99			08/18/99								
	MATRIX ---------->	Soil			Soil								
	UNITS ---------->	UG/KG		A	UG/KG		C						
CAS #	Parameter	39715			39715								
319-84-6	alpha-BHC	1.5	U		31.	U	UJ						
319-85-7	beta-BHC	1.5	U		31.	U							
319-86-8	delta-BHC	1.5	U		31.	U							
58-89-9	gamma-BHC (Lindane)	1.5	U		31.	U							
76-44-8	Heptachlor	18.			31.	U							
309-00-2	Aldrin	1.5	U		31.	U							
024-57-3	Heptachlor epoxide	29.		PE	31.	U							
959-98-8	Endosulfan I	1.5	U		31.	U							
60-57-1	Dieldrin	3.	U		60.	U							
72-55-9	4,4'-DDE	6.8		P	60.	U							
72-20-8	Endrin	3.	U		60.	U							
213-65-9	Endosulfan II	3.	U		60.	U							
72-54-8	4,4'-DDD	3.	U		60.	U							
031-07-8	Endosulfan sulfate	3.	U		60.	U							
50-29-3	4,4'-DDT	3.	U		60.	U							
72-43-5	Methoxychlor	15.	U		310.	U							
494-70-5	Endrin ketone	3.	U		60.	U							
421-93-4	Endrin aldehyde	3.	U		60.	U							
103-71-9	alpha-Chlordane	210.	D	PE	310.	U							
103-74-2	gamma-Chlordane	260.	D	E	330.	U							
001-35-2	Toxaphene	99.	U		2000.	U							
674-11-2	Aroclor-1016	38.	U		38.	U							
104-28-2	Aroclor-1221	38.	U		38.	U							
141-16-5	Aroclor-1232	38.	U		38.	U							
469-21-9	Aroclor-1242	38.	U		38.	U							
672-29-6	Aroclor-1248	38.	U		38.	U							
097-69-1	Aroclor-1254	38.	U		38.	U							
096-82-5	Aroclor-1260	38.	U		38.	U							

CW
10/22/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

846-SVOA													
	SAMPLE ID ------->	FDS-S-H028-01		FDS-S-H028-01 DL		FDS-S-H028-02		FDS-S-H028-02 DL		FDS-S-H029-01		FDS-S-H029-01 DL	
	ORIGINAL ID ----->	FDSSH02801		FDSSH02801		FDSSH02802		FDSSH02802		FDSSH02901		FDSSH02901	
	LAB SAMPLE ID --->	39715.10		39715.10		39715.11		39715.11		39726.11		39726.11	
	ID FROM REPORT -->	FDSSH02801		FDSSH02801		FDSSH02802		FDSSH02802		FDSSH02901		FDSSH02901	
	SAMPLE DATE ----->	07/28/99		07/28/99		07/28/99		07/28/99		07/29/99		07/29/99	
	DATE EXTRACTED -->	07/30/99		07/30/99		07/30/99		07/30/99		08/02/99		08/02/99	
	DATE ANALYZED --->	08/13/99		08/18/99		08/13/99		08/17/99		08/13/99		08/19/99	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
108-95-2	Phenol	360.	U	3600.	U UR	370.	U	3700.	U UR	410.	U	1600.	U UR
111-44-4	bis(2-Chloroethyl)ether	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
95-57-8	2-Chlorophenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
541-73-1	1,3-Dichlorobenzene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
106-46-7	1,4-Dichlorobenzene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
100-51-6	Benzyl alcohol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
95-50-1	1,2-Dichlorobenzene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
95-48-7	2-Methylphenol (o-Cresol)	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
106-44-5	4-Methylphenol (p-Cresol)	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
67-72-1	Hexachloroethane	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
98-95-3	Nitrobenzene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
78-59-1	Isophorone	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
88-75-5	2-Nitrophenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
105-67-9	2,4-Dimethylphenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
65-85-0	Benzoic acid	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
120-83-2	2,4-Dichlorophenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
120-82-1	1,2,4-Trichlorobenzene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
91-20-3	Naphthalene	3600 ~~3100.~~	E D	3600.	D	1300.		1500.	~~U~~ R	410.	U	1600.	U
106-47-8	4-Chloroaniline	360.	U	3600.	U	370.	U	3700.	U UR	410.	U	1600.	U
87-68-3	Hexachlorobutadiene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
59-50-7	4-Chloro-3-methylphenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
91-57-6	2-Methylnaphthalene	16000 ~~11000.~~	E D	16000. R	~~D~~	27000 ~~18000.~~	E D	27000.	~~D~~ R	410.	U	1600.	U
77-47-4	Hexachlorocyclopentadiene	360.	U	3600.	U UR	370.	U	3700.	U UR	410.	U	1600.	U
88-06-2	2,4,6-Trichlorophenol	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
95-95-4	2,4,5-Trichlorophenol	890.	U	8900.	U	930.	U	9300.	U	1000.	U	4100.	U
91-58-7	2-Chloronaphthalene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
88-74-4	2-Nitroaniline	890.	U	8900.	U	930.	U	9300.	U	1000.	U	4100.	U
131-11-3	Dimethyl phthalate	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
208-96-8	Acenaphthylene	360.	U	3600.	U	370.	U	3700.	U	410.	U	1600.	U
99-09-2	3-Nitroaniline	890.	U	8900.	U	930.	U	9300.	U	1000.	U	4100.	U
83-32-9	Acenaphthene	360.	U	640. R	~~U~~	980.		1300.	~~U~~ R	190.	J	150.	~~U~~ R
51-28-5	2,4-Dinitrophenol	890.	U	8900.	U UR	930.	U	9300.	U UR	1000.	U	4100.	U UR
100-02-7	4-Nitrophenol	890.	U	8900.	U	930.	U	9300.	U	1000.	U	4100.	U

11/01/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

-SVOA															
	SAMPLE ID ------->	FDS-S-H028-01			FDS-S-H028-01 DL			FDS-S-H028-02			FDS-S-H028-02 DL			FDS-S-H029-01			FDS-S-H029-01 DL		
	ORIGINAL ID ----->	FDSSH02801			FDSSH02801			FDSSH02802			FDSSH02802			FDSSH02901			FDSSH02901		
	LAB SAMPLE ID --->	39715.10			39715.10			39715.11			39715.11			39726.11			39726.11		
	ID FROM REPORT -->	FDSSH02801			FDSSH02801			FDSSH02802			FDSSH02802			FDSSH02901			FDSSH02901		
	SAMPLE DATE ----->	07/28/99			07/28/99			07/28/99			07/28/99			07/29/99			07/29/99		
	DATE EXTRACTED -->	07/30/99			07/30/99			07/30/99			07/30/99			08/02/99			08/02/99		
	DATE ANALYZED --->	08/13/99			08/18/99			08/13/99			08/17/99			08/13/99			08/19/99		
	MATRIX ---------->	Soil			Soil			Soil			Soil			Soil			Soil		
	UNITS ---------->	UG/KG		A	UG/KG		C	UG/KG		A	UG/KG		C	UG/KG		A	UG/KG		C
CAS #	Parameter	39715			39715			39715			39715			39715			39715		
32-64-9	Dibenzofuran	360.	U		620.	~~UJ~~ R		370.	U		770.	~~UJ~~ R		64.	J		1600.	~~U~~ UR	
21-14-2	2,4-Dinitrotoluene	360.	U		3600.	~~U~~ UR		370.	U		3700.	~~U~~ UR		410.	U		1600.	~~U~~	
06-20-2	2,6-Dinitrotoluene	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
84-66-2	Diethylphthalate	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
05-72-3	4-Chlorophenylphenylether	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
86-73-7	Fluorene	950.			1200.	~~UJ~~ R		2000.			2400.	~~UJ~~ R		130.	J		84.	~~UJ~~ R	
00-01-6	4-Nitroaniline	890.	U		8900.	~~U~~ UR		930.	U		9300.	~~U~~ UR		1000.	U		4100.	~~U~~ UR	
34-52-1	2-Methyl-4,6-Dinitrophenol	890.	U		8900.	~~U~~		930.	U		9300.	~~U~~		1000.	U		4100.	~~U~~	
86-30-6	N-Nitrosodiphenylamine	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
01-55-3	4-Bromophenyl-phenylether	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
18-74-1	Hexachlorobenzene	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
87-86-5	Pentachlorophenol	890.	U		8900.	~~U~~		930.	U		9300.	~~U~~		1000.	U		4100.	~~U~~	
85-01-8	Phenanthrene	1800.			2100.	~~J~~ R		4400 ~~3800.~~		~~E~~ D	4400.	~~D~~ R		3000.			2500.	~~D~~	
20-12-7	Anthracene	360.	U		3600.	~~U~~ UR		370.	U		3700.	~~U~~ UR		920.			560.	~~UJ~~ R	
84-74-2	Di-n-butylphthalate	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~ UR	
206-44-0	Fluoranthene	120.	J		3600.	~~U~~		370.	U		3700.	~~U~~		5700 ~~5500.~~		~~E~~ D	5700.	~~D~~ R	
129-00-0	Pyrene	130.	J		190.	~~UJ~~ R		210.	J		250.	~~UJ~~ R		5400 ~~5800.~~		~~E~~ D	5400.	~~D~~ R	
85-68-7	Butylbenzylphthalate	360.	U		3600.	~~U~~ UR		370.	U		3700.	~~U~~ UR		410.	U		1600.	~~U~~	
91-94-1	3,3'-Dichlorobenzidine	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
56-55-3	Benzo(a)anthracene	35.	J		3600.	~~U~~		24.	J		3700.	~~U~~		2900 ~~3600.~~		~~E~~ D	2900.	~~D~~ R	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	140.	J		3600.	~~U~~		24.	J		3700.	~~U~~		~~[illegible]~~ ~~70.~~ 410		~~JB~~ U	170.	~~UJ~~ B R	
218-01-9	Chrysene	75.	J		3600.	~~U~~		47.	J		3700.	~~U~~		2700 ~~3400.~~		~~E~~ D	2700.	~~U~~ UR	
117-84-0	Di-n-octyl phthalate	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		410.	U		1600.	~~U~~	
205-99-2	Benzo(b)fluoranthene	26.	J		3600.	~~U~~		370.	U		3700.	~~U~~		2200 ~~3800.~~		~~E~~ D	2200.	~~D~~	
207-08-9	Benzo(k)fluoranthene	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		2000.			2000.	~~D~~	
50-32-8	Benzo(a)pyrene	23.	J		3600.	~~U~~		370.	U		3700.	~~U~~		2600.			1900.	~~D~~	
193-39-5	Indeno(1,2,3-cd)pyrene	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		1300.			780.	~~UJ~~ R	
53-70-3	Dibenz(a,h)anthracene	360.	U		3600.	~~U~~		370.	U		3700.	~~U~~		690.			340.	~~UJ~~ R	
191-24-2	Benzo(g,h,i)perylene	18.	J		3600.	~~U~~		370.	U		3700.	~~U~~		1400.			830.	~~UJ~~ R	

UM101499

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

346-SVOA

	SAMPLE ID ------->	FDS-S-H029-02				FDS-S-H030-01				FDS-S-H030-01 DL				FDS-C-H030-01				FDS-S-H030-02				FDS-S-H031-01			
	ORIGINAL ID ----->	FDSSH02902				FDSSH03001				FDSSH03001				FDSCH03001				FDSSH03002				FDSSH03101			
	LAB SAMPLE ID --->	39726.12				39715.07				39715.07				39715.08				39715.09				39726.07			
	ID FROM REPORT -->	FDSSH02902				FDSSH03001				FDSSH03001				FDSCH03001				FDSSH03002				FDSSH03101			
	SAMPLE DATE ----->	07/29/99				07/28/99				07/28/99				07/28/99				07/28/99				07/29/99			
	DATE EXTRACTED -->	08/02/99				07/30/99				07/30/99				07/30/99				07/30/99				08/02/99			
	DATE ANALYZED --->	08/13/99				08/13/99				08/17/99				08/13/99				08/13/99				08/13/99			
	MATRIX ---------->	Soil				Soil				Soil				Soil				Soil				Soil			
	UNITS ---------->	UG/KG			A	UG/KG			A	UG/KG			C	UG/KG			A	UG/KG			A	UG/KG			A
CAS #	Parameter	39715				39715				39715				39715				39715				39715			
108-95-2	Phenol	420.	U			390.	U			780.	U	UR		410.	U			370.	U			340.	U		
111-44-4	bis(2-Chloroethyl)ether	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
95-57-8	2-Chlorophenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
541-73-1	1,3-Dichlorobenzene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
106-46-7	1,4-Dichlorobenzene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
100-51-6	Benzyl alcohol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
95-50-1	1,2-Dichlorobenzene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
95-48-7	2-Methylphenol (o-Cresol)	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
108-60-1	2,2'-oxybis(1-Chloropropane)	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
106-44-5	4-Methylphenol (p-Cresol)	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
621-64-7	N-Nitroso-di-n-propylamine	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
67-72-1	Hexachloroethane	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
98-95-3	Nitrobenzene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
78-59-1	Isophorone	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
88-75-5	2-Nitrophenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
105-67-9	2,4-Dimethylphenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
65-85-0	Benzoic acid	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
111-91-1	bis(2-Chloroethoxy)methane	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
120-83-2	2,4-Dichlorophenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
120-82-1	1,2,4-Trichlorobenzene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
91-20-3	Naphthalene	420.	U			390.	U			120.	J	R		34.	J			370.	U			340.	U		
106-47-8	4-Chloroaniline	420.	U			390.	U			780.	U	UR		410.	U			370.	U			340.	U		
87-68-3	Hexachlorobutadiene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
59-50-7	4-Chloro-3-methylphenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
91-57-6	2-Methylnaphthalene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
77-47-4	Hexachlorocyclopentadiene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
88-06-2	2,4,6-Trichlorophenol	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
95-95-4	2,4,5-Trichlorophenol	1000.	U			970.	U			1900.	U			1000.	U			930.	U			850.	U		
91-58-7	2-Chloronaphthalene	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
88-74-4	2-Nitroaniline	1000.	U			970.	U			1900.	U			1000.	U			930.	U			850.	U		
131-11-3	Dimethyl phthalate	420.	U			390.	U			780.	U			410.	U			370.	U			340.	U		
208-96-8	Acenaphthylene	420.	U			390.	U			130.	J	R		93.	J			370.	U			340.	U		
99-09-2	3-Nitroaniline	1000.	U			970.	U			1900.	U	UR		1000.	U			930.	U			850.	U		
83-32-9	Acenaphthene	420.	U			390.	U			170.	J	R		150.	J			370.	U			340.	U		
51-28-5	2,4-Dinitrophenol	1000.	U			970.	U			1900.	U	UR		1000.	U			930.	U			850.	U		
100-02-7	4-Nitrophenol	1000.	U			970.	U			1900.	U			1000.	U			930.	U			850.	U		

AMULGG

46-SVOA

	SAMPLE ID -------->	FDS-S-H029-02		FDS-S-H030-01		FDS-S-H030-01 DL		FDS-C-H030-01		FDS-S-H030-02		FDS-S-H031-01	
	ORIGINAL ID ----->	FDSSH02902		FDSSH03001		FDSSH03001		FDSCH03001		FDSSH03002		FDSSH03101	
	LAB SAMPLE ID --->	39726.12		39715.07		39715.07		39715.08		39715.09		39726.07	
	ID FROM REPORT -->	FDSSH02902		FDSSH03001		FDSSH03001		FDSCH03001		FDSSH03002		FDSSH03101	
	SAMPLE DATE ----->	07/29/99		07/28/99		07/28/99		07/28/99		07/28/99		07/29/99	
	DATE EXTRACTED -->	08/02/99		07/30/99		07/30/99		07/30/99		07/30/99		08/02/99	
	DATE ANALYZED --->	08/13/99		08/13/99		08/17/99		08/13/99		08/13/99		08/13/99	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ----------->	UG/KG	A	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	A	UG/KG	A
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
132-64-9	Dibenzofuran	420.	U	390.	U	780.	U UR	84.	J	370.	U	340.	U
121-14-2	2,4-Dinitrotoluene	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
606-20-2	2,6-Dinitrotoluene	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
84-66-2	Diethylphthalate	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
7005-72-3	4-Chlorophenylphenylether	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
86-73-7	Fluorene	420.	U	190.	J	210.	DJ C	180.	J	500.		340.	U
100-01-6	4-Nitroaniline	1000.	U	970.	U	1900.	U UR	1000.	U	930.	U	850.	U
534-52-1	2-Methyl-4,6-Dinitrophenol	1000.	U	970.	U	1900.	U	1000.	U	930.	U	850.	U
86-30-6	N-Nitrosodiphenylamine	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
101-55-3	4-Bromophenyl-phenylether	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
118-74-1	Hexachlorobenzene	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
87-86-5	Pentachlorophenol	1000.	U	970.	U	1900.	U	1000.	U	930.	U	850.	U
85-01-8	Phenanthrene	420.	U	1200.		1400.	D	1000.		290.	J	340.	U
120-12-7	Anthracene	420.	U	600.	X	630.	DJ R	410.	X	370.	U	340.	U
84-74-2	Di-n-butylphthalate	420.	U	390.	U	780.	U UR	410.	U	370.	U	17.	J
206-44-0	Fluoranthene	37.	J	4200 ~~4000.~~	E DJ	4200.	D	1700.	X	76.	J	99.	J
129-00-0	Pyrene	29.	J	3100.	X	3100.	D	1400.	X	79.	J	94.	J
85-68-7	Butylbenzylphthalate	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
91-94-1	3,3'-Dichlorobenzidine	420.	U	390.	U	780.	U	410.	U	370.	U	340.	U
56-55-3	Benzo(a)anthracene	22.	J	2200.	X	2200.	D R	770.	X	23.	J	82.	J
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	420 ~~65.~~	~~JB~~ U	44.	J	780.	U UR	80.	J	30.	J	340 ~~45.~~	~~JB~~ U
218-01-9	Chrysene	23.	J	2200.	X	2100.	D R	790.	X	26.	J	110.	J
117-84-0	Di-n-octyl phthalate	420.	U	390.	U X	780.	U UR	410.	U	370.	U	340.	U
205-99-2	Benzo(b)fluoranthene	35.	J	1900.	X	1900.	D R	800.	X	370.	U	140.	J
207-08-9	Benzo(k)fluoranthene	420.	U	1600.	X	2100.	D R	440.	X	370.	U	73.	J
50-32-8	Benzo(a)pyrene	420.	U	2000.	X	2300.	D R	730.	X	370.	U	94.	J
193-39-5	Indeno(1,2,3-cd)pyrene	420.	U	1200.	X	1200.	D R	420.	X	370.	U	39.	J
53-70-3	Dibenz(a,h)anthracene	420.	U	600.	X	700.	DJ R	230.	J	370.	U	340.	U
191-24-2	Benzo(g,h,i)perylene	420.	U	1200.	X	1300.	D R	550.	X	370.	U	39.	J

UM101499

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

8846-SVOA											
	SAMPLE ID ------->	FDS-C-H031-01		FDS-S-H031-02		SBL-0-9715-01		SBL-0-9715-02			
	ORIGINAL ID ----->	FDSCH03101		FDSSH03102		SBLK1		SBLK2			
	LAB SAMPLE ID --->	39726.08		39726.09		SBLK1		SBLK2			
	ID FROM REPORT -->	FDSCH03101		FDSSH03102		SBLK1		SBLK2			
	SAMPLE DATE ----->	07/29/99		07/29/99		07/29/99		07/29/99			
	DATE EXTRACTED -->	08/02/99		08/02/99		07/30/99		08/02/99			
	DATE ANALYZED --->	08/13/99		08/13/99		08/13/99		08/13/99			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	D	UG/KG	D		
CAS #	Parameter	39715		39715		39715		39715			
108-95-2	Phenol	340.	U	380.	U	330.	U	330.	U		
111-44-4	bis(2-Chloroethyl)ether	340.	U	380.	U	330.	U	330.	U		
95-57-8	2-Chlorophenol	340.	U	380.	U	330.	U	330.	U		
541-73-1	1,3-Dichlorobenzene	340.	U	380.	U	330.	U	330.	U		
106-46-7	1,4-Dichlorobenzene	340.	U	380.	U	330.	U	330.	U		
100-51-6	Benzyl alcohol	340.	U	380.	U	330.	U	330.	U		
95-50-1	1,2-Dichlorobenzene	340.	U	380.	U	330.	U	330.	U		
95-48-7	2-Methylphenol (o-Cresol)	340.	U	380.	U	330.	U	330.	U		
108-60-1	2,2'-oxybis(1-Chloropropane)	340.	U	380.	U	330.	U	330.	U		
106-44-5	4-Methylphenol (p-Cresol)	340.	U	380.	U	330.	U	330.	U		
621-64-7	N-Nitroso-di-n-propylamine	340.	U	380.	U	330.	U	330.	U		
67-72-1	Hexachloroethane	340.	U	380.	U	330.	U	330.	U		
98-95-3	Nitrobenzene	340.	U	380.	U	330.	U	330.	U		
78-59-1	Isophorone	340.	U	380.	U	330.	U	330.	U		
88-75-5	2-Nitrophenol	340.	U	380.	U	330.	U	330.	U		
105-67-9	2,4-Dimethylphenol	340.	U	380.	U	330.	U	330.	U		
65-85-0	Benzoic acid	340.	U	380.	U	330.	U	330.	U		
111-91-1	bis(2-Chloroethoxy)methane	340.	U	380.	U	330.	U	330.	U		
120-83-2	2,4-Dichlorophenol	340.	U	380.	U	330.	U	330.	U		
120-82-1	1,2,4-Trichlorobenzene	340.	U	380.	U	330.	U	330.	U		
91-20-3	Naphthalene	340.	U	380.	U	330.	U	330.	U		
106-47-8	4-Chloroaniline	340.	U	380.	U	330.	U	330.	U		
87-68-3	Hexachlorobutadiene	340.	U	380.	U	330.	U	330.	U		
59-50-7	4-Chloro-3-methylphenol	340.	U	380.	U	330.	U	330.	U		
91-57-6	2-Methylnaphthalene	340.	U	380.	U	330.	U	330.	U		
77-47-4	Hexachlorocyclopentadiene	340.	U	380.	U	330.	U	330.	U		
88-06-2	2,4,6-Trichlorophenol	340.	U	380.	U	330.	U	330.	U		
95-95-4	2,4,5-Trichlorophenol	850.	U	960.	U	830.	U	830.	U		
91-58-7	2-Chloronaphthalene	340.	U	380.	U	330.	U	330.	U		
88-74-4	2-Nitroaniline	850.	U	960.	U	830.	U	830.	U		
131-11-3	Dimethyl phthalate	340.	U	380.	U	330.	U	330.	U		
208-96-8	Acenaphthylene	340.	U	380.	U	330.	U	330.	U		
99-09-2	3-Nitroaniline	850.	U	960.	U	830.	U	830.	U		
83-32-9	Acenaphthene	340.	U	380.	U	330.	U	330.	U		
51-28-5	2,4-Dinitrophenol	850.	U	960.	U	830.	U	830.	U		
100-02-7	4-Nitrophenol	850.	U	960.	U	830.	U	830.	U		

UM101499

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-SVOA

SAMPLE ID ------->	FDS-C-H031-01		FDS-S-H031-02		SBL-0-9715-01		SBL-0-9715-02				
ORIGINAL ID ----->	FDSCH03101		FDSSH03102		SBLK1		SBLK2				
LAB SAMPLE ID --->	39726.08		39726.09		SBLK1		SBLK2				
ID FROM REPORT -->	FDSCH03101		FDSSH03102		SBLK1		SBLK2				
SAMPLE DATE ----->	07/29/99		07/29/99		07/29/99		07/29/99				
DATE EXTRACTED -->	08/02/99		08/02/99		07/30/99		08/02/99				
DATE ANALYZED --->	08/13/99		08/13/99		08/13/99		08/13/99				
MATRIX ---------->	Soil		Soil		Soil		Soil				
UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	D	UG/KG	D			
CAS # Parameter	39715		39715		39715		39715				
132-64-9 Dibenzofuran	340.	U	380.	U	330.	U	330.	U			
121-14-2 2,4-Dinitrotoluene	340.	U	380.	U	330.	U	330.	U			
606-20-2 2,6-Dinitrotoluene	340.	U	380.	U	330.	U	330.	U			
84-66-2 Diethylphthalate	340.	U	380.	U	330.	U	330.	U			
005-72-3 4-Chlorophenylphenylether	340.	U	380.	U	330.	U	330.	U			
86-73-7 Fluorene	340.	U	380.	U	330.	U	330.	U			
100-01-6 4-Nitroaniline	850.	U	960.	U	830.	U	830.	U			
534-52-1 2-Methyl-4,6-Dinitrophenol	850.	U	960.	U	830.	U	830.	U			
86-30-6 N-Nitrosodiphenylamine	340.	U	380.	U	330.	U	330.	U			
101-55-3 4-Bromophenyl-phenylether	340.	U	380.	U	330.	U	330.	U			
118-74-1 Hexachlorobenzene	340.	U	380.	U	330.	U	330.	U			
87-86-5 Pentachlorophenol	850.	U	960.	U	830.	U	830.	U			
85-01-8 Phenanthrene	340.	U	380.	U	330.	U	330.	U			
120-12-7 Anthracene	340.	U	380.	U	330.	U	330.	U			
84-74-2 Di-n-butylphthalate	17.	J	380.	U	330.	U	330.	U			
206-44-0 Fluoranthene	21.	J	380.	U	330.	U	330.	U			
129-00-0 Pyrene	340.	U	380.	U	330.	U	330.	U			
85-68-7 Butylbenzylphthalate	340.	U	380.	U	330.	U	330.	U			
91-94-1 3,3'-Dichlorobenzidine	340.	U	380.	U	330.	U	330.	U			
56-55-3 Benzo(a)anthracene	340.	U	380.	U	330.	U	330.	U			
117-81-7 bis(2-Ethylhexyl)phthalate (BEHP)	340 ~~89~~	~~JB~~ U	330 ~~87~~	~~JB~~ U	330.	U	330.	U			
218-01-9 Chrysene	340.	U	380.	U	330.	U	28.	J			
117-84-0 Di-n-octyl phthalate	340.	U	380.	U	330.	U	330.	U			
205-99-2 Benzo(b)fluoranthene	340.	U	380.	U	330.	U	330.	U			
207-08-9 Benzo(k)fluoranthene	340.	U	380.	U	330.	U	330.	U			
50-32-8 Benzo(a)pyrene	340.	U	380.	U	330.	U	330.	U			
193-39-5 Indeno(1,2,3-cd)pyrene	340.	U	380.	U	330.	U	330.	U			
53-70-3 Dibenz(a,h)anthracene	340.	U	380.	U	330.	U	330.	U			
191-24-2 Benzo(g,h,i)perylene	340.	U	380.	U	330.	U	330.	U			

UM101499

CAW
10/22/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

J846-VOA

	SAMPLE ID ------->	BLK-0-9715-05		BLK-0-9715-09		BLK-0-9715-10		BLK-0-9715-11		FDS-T-B031-01		FDS-S-H028-01	
	ORIGINAL ID ----->	N990803A		R990804A		R990805A		U990803A		FDSTB03101		FDSSH02801	
	LAB SAMPLE ID --->	N990803A		R990804A		R990805A		U990803A		39726.10		39715.10	
	ID FROM REPORT -->	N990803A		R990804A		R990805A		U990803A		FDSTB03101		FDSSH02801	
	SAMPLE DATE ----->	07/29/99		07/29/99		07/29/99		07/29/99		07/29/99		07/28/99	
	DATE ANALYZED --->	08/03/99		08/04/99		08/05/99		08/03/99		08/03/99		08/04/99	
	MATRIX ---------->	Soil		Soil		Soil		Water		Water		Soil	
	UNITS ---------->	UG/KG	D	UG/KG	D	UG/KG	D	UG/L	D	UG/L	B	UG/KG	A
CAS #	Parameter	39715		39715		39715		39715		39715		39715	
74-87-3	Chloromethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	~~U~~ UJ
74-83-9	Bromomethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	~~U~~ UJ
75-01-4	Vinyl chloride	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
75-00-3	Chloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	~~U~~ UJ
75-09-2	Methylene chloride	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
67-64-1	Acetone	5.	U	5.	U	5.	U	5.	U	5.	U	80.	
75-15-0	Carbon disulfide	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
75-35-4	1,1-Dichloroethene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
75-34-3	1,1-Dichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
540-59-0	1,2-Dichloroethene (total)	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
67-66-3	Chloroform	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
107-06-2	1,2-Dichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
78-93-3	2-Butanone (MEK)	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
71-55-6	1,1,1-Trichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
56-23-5	Carbon tetrachloride	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
108-05-4	Vinyl acetate	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
75-27-4	Bromodichloromethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
78-87-5	1,2-Dichloropropane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
79-01-6	Trichloroethene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
124-48-1	Dibromochloromethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
79-00-5	1,1,2-Trichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
71-43-2	Benzene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
110-75-8	2-Chloroethyl vinyl ether	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
75-25-2	Bromoform	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
591-78-6	2-Hexanone	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
127-18-4	Tetrachloroethene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
108-88-3	Toluene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
108-90-7	Chlorobenzene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
100-41-4	Ethylbenzene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	J
100-42-5	Styrene	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U
1330-20-7	Xylene (Total)	5.	U	5.	U	5.	U	5.	U	5.	U	6.	U

11/10/99

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

46-VOA

	SAMPLE ID ------->	FDS-S-H028-02				FDS-S-H029-01				FDS-S-H029-02				FDS-S-H030-01				FDS-C-H030-01				FDS-S-H030-02			
	ORIGINAL ID ----->	FDSSH02802				FDSSH02901				FDSSH02902				FDSSH03001				FDSCH03001				FDSSH03002			
	LAB SAMPLE ID --->	39715.11				39726.11				39726.12				39715.07				39715.08				39715.09			
	ID FROM REPORT -->	FDSSH02802				FDSSH02901				FDSSH02902				FDSSH03001				FDSCH03001				FDSSH03002			
	SAMPLE DATE ----->	07/28/99				07/29/99				07/29/99				07/28/99				07/28/99				07/28/99			
	DATE ANALYZED --->	08/05/99				08/03/99				08/04/99				08/05/99				08/05/99				08/05/99			
	MATRIX ---------->	Soil				Soil				Soil				Soil				Soil				Soil			
	UNITS ---------->	UG/KG			A	UG/KG			A	UG/KG			A	UG/KG			A	UG/KG			A	UG/KG			A
CAS #	Parameter	39715				39715				39715				39715				39715				39715			
74-87-3	Chloromethane		7.	U			5.	U			5.	UJ			5.	U			7.	U			7.	U	
74-83-9	Bromomethane		7.	U			5.	U			5.	UJ			5.	U			7.	U			7.	U	
75-01-4	Vinyl chloride		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
75-00-3	Chloroethane		7.	U			5.	U			5.	UJ			5.	U			7.	U			7.	U	
75-09-2	Methylene chloride		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
67-64-1	Acetone		7.	U			5.	U			5.	U			5.	U			7.	U			60.		
75-15-0	Carbon disulfide		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
75-35-4	1,1-Dichloroethene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
75-34-3	1,1-Dichloroethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
540-59-0	1,2-Dichloroethene (total)		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
67-66-3	Chloroform		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
107-06-2	1,2-Dichloroethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
78-93-3	2-Butanone (MEK)		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
71-55-6	1,1,1-Trichloroethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
56-23-5	Carbon tetrachloride		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
108-05-4	Vinyl acetate		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
75-27-4	Bromodichloromethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
79-34-5	1,1,2,2-Tetrachloroethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
78-87-5	1,2-Dichloropropane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
0061-02-6	trans-1,3-Dichloropropene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
79-01-6	Trichloroethene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
124-48-1	Dibromochloromethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
79-00-5	1,1,2-Trichloroethane		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
71-43-2	Benzene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
0061-01-5	cis-1,3-Dichloropropene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
110-75-8	2-Chloroethyl vinyl ether		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
75-25-2	Bromoform		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
591-78-6	2-Hexanone		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
108-10-1	4-Methyl-2-Pentanone (MIBK)		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
127-18-4	Tetrachloroethene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
108-88-3	Toluene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
108-90-7	Chlorobenzene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
100-41-4	Ethylbenzene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
100-42-5	Styrene		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	
1330-20-7	Xylene (Total)		7.	U			5.	U			5.	U			5.	U			7.	U			7.	U	

UM101499

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

8260B-VOA											
	SAMPLE ID ------->	FDS-S-H031-01		FDS-C-H031-01		FDS-S-H031-02					
	ORIGINAL ID ----->	FDSSH03101		FDSCH03101		FDSSH03102					
	LAB SAMPLE ID --->	39726.07		39726.08		39726.09					
	ID FROM REPORT -->	FDSSH03101		FDSCH03101		FDSSH03102					
	SAMPLE DATE ----->	07/29/99		07/29/99		07/29/99					
	DATE ANALYZED --->	08/03/99		08/04/99		08/03/99					
	MATRIX ---------->	Soil		Soil		Soil					
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A				
CAS #	Parameter	39715		39715		39715					
74-87-3	Chloromethane	5.	~~U~~ UJ	6.	U	5.	U				
74-83-9	Bromomethane	5.	~~U~~ UJ	6.	U	5.	U				
75-01-4	Vinyl chloride	5.	U	6.	U	5.	U				
75-00-3	Chloroethane	5.	~~U~~ UJ	6.	U	5.	U				
75-09-2	Methylene chloride	5.	U	6.	U	5.	U				
67-64-1	Acetone	5.	U	6.	U	5.	U				
75-15-0	Carbon disulfide	5.	U	6.	U	1.	J				
75-35-4	1,1-Dichloroethene	5.	U	6.	U	5.	U				
75-34-3	1,1-Dichloroethane	5.	U	6.	U	5.	U				
540-59-0	1,2-Dichloroethene (total)	5.	U	6.	U	5.	U				
67-66-3	Chloroform	5.	U	6.	U	5.	U				
107-06-2	1,2-Dichloroethane	5.	U	6.	U	5.	U				
78-93-3	2-Butanone (MEK)	5.	U	6.	U	5.	U				
71-55-6	1,1,1-Trichloroethane	5.	U	6.	U	5.	U				
56-23-5	Carbon tetrachloride	5.	U	6.	U	5.	U				
108-05-4	Vinyl acetate	5.	U	6.	U	5.	U				
75-27-4	Bromodichloromethane	5.	U	6.	U	5.	U				
79-34-5	1,1,2,2-Tetrachloroethane	5.	U	6.	U	5.	U				
78-87-5	1,2-Dichloropropane	5.	U	6.	U	5.	U				
10061-02-6	trans-1,3-Dichloropropene	5.	U	6.	U	5.	U				
79-01-6	Trichloroethene	5.	U	6.	U	5.	U				
124-48-1	Dibromochloromethane	5.	U	6.	U	5.	U				
79-00-5	1,1,2-Trichloroethane	5.	U	6.	U	5.	U				
71-43-2	Benzene	5.	U	6.	U	5.	U				
10061-01-5	cis-1,3-Dichloropropene	5.	U	6.	U	5.	U				
110-75-8	2-Chloroethyl vinyl ether	5.	U	6.	U	5.	U				
75-25-2	Bromoform	5.	U	6.	U	5.	U				
591-78-6	2-Hexanone	5.	U	6.	U	5.	U				
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.	U	6.	U	5.	U				
127-18-4	Tetrachloroethene	5.	U	6.	U	5.	U				
108-88-3	Toluene	5.	U	6.	U	5.	U				
108-90-7	Chlorobenzene	5.	U	6.	U	5.	U				
100-41-4	Ethylbenzene	5.	U	6.	U	5.	U				
100-42-5	Styrene	5.	U	6.	U	5.	U				
1330-20-7	Xylene (Total)	5.	U	6.	U	5.	U				

UM101499

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 39715

		SAMPLE ID ------->	003-S-B014-02		633-S-B012-02		642-S-B011-02		643-S-B013-02			
		ORIGINAL ID ----->	003SB01402		633SB01202		642SB01102		643SB01302			
		LAB SAMPLE ID --->	40420.04		40420.03		40420.01		40420.02			
		ID FROM REPORT -->	003SB01402		633SB01202		642SB01102		643SB01302			
		SAMPLE DATE ----->	07/28/99		07/29/99		07/29/99		07/29/99			
		DATE EXTRACTED -->	09/23/99		09/23/99		09/23/99		09/23/99			
		DATE ANALYZED --->	09/27/99		09/27/99		09/27/99		09/27/99			
		MATRIX ---------->	Soil		Soil		Soil		Soil			
		UNITS ---------->	MG/KG	A	MG/KG	A	MG/KG	A	MG/KG	A		
CAS #	Parameter		39715	NV	39715	NV	39715	NV	39715	NV		
9900-01-4	Total Organic Carbon (TOC)		??????????		??????????		??????????		??????????			
9900-04-2	TOC (EPA 415.1)		2180.		2100.		4420.		17200.			

Julie
Change name to
Total Organic Carbon
Cas # 9999900-01-4

RB 10/12/99

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	EN036
Date:	January 28, 2000
Client Name:	Ensafe
Project/Site Name:	Charleston Zone G
Date Sampled:	December 17, 1999
Number of Samples:	20 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 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 — 2-3-00.

Paul B. Humburg, President — Date

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

SDG# EN036

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

ENSAFE ID	MATRIX	SVOA		MET		TOC	
628SB00601	SOIL		X		X		X
628SB00602	SOIL		X		X		X
628SB00701	SOIL		X		X		X
628SB00801	SOIL				X		X
628SB00802	SOIL				X		X
628SB00901	SOIL				X		X
628SB00902	SOIL				X		X
628SB01001	SOIL				X		X
628CB01001	SOIL				X		X
628SB01002	SOIL				X		X
628CB01002	SOIL				X		X
628SB01101	SOIL				X		X
628SB01102	SOIL				X		X
628SB01201	SOIL				X		X
628SB01202	SOIL				X		X
636SB01501	SOIL		X		X		X
636SB01502	SOIL		X		X		X
636SB01601	SOIL		X		X		X
636SB01602	SOIL		X		X		X
636SB01701	SOIL		X		X		X
Total Billable Samples (Water/Soil)		0	8	0	20	0	20

SVOA= Semivolatiles
MET= Metals
TOC= Total Organic Carbon

CW
2-7-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036
SW846-META

	SAMPLE ID ------->	628-S-B006-01			628-S-B006-02			628-S-B007-01			628-S-B008-01			628-S-B008-02			628-S-B009-01		
	ORIGINAL ID ----->	628SB00601			628SB00602			628SB00701			628SB00801			628SB00802			628SB00901		
	LAB SAMPLE ID --->	9912425-01			9912425-02			9912425-03			9912425-04			9912425-05			9912425-06		
	SAMPLE DATE ----->	12/17/99			12/17/99			12/17/99			12/17/99			12/17/99			12/17/99		
	DATE EXTRACTED -->	01/06/00			01/06/00			01/06/00			01/06/00			01/06/00			01/06/00		
	DATE ANALYZED --->	01/07/00			01/07/00			01/07/00			01/07/00			01/07/00			01/07/00		
	MATRIX ---------->	Soil			Soil			Soil			Soil			Soil			Soil		
	UNITS ---------->	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A
AS #	Parameter																		
29-90-5	Aluminum (Al)	2280.			873.			4650.			13700.			3880.			5840.		
40-36-0	Antimony (Sb)	7.1	N*	J	9.3	N*	J	15.8	N*	J	0.82	BN*	U	2.9	BN*	J	0.73	BN*	U
40-38-2	Arsenic (As)	9.6			2.8			8.4			16.9			4.4			4.4		
40-39-3	Barium (Ba)	81.2			12.9	B*	J	127.			39.3			20.3			22.7		
40-41-7	Beryllium (Be)	0.31	B*	J	0.26	B*	J	1.2		J	1.1		J	0.26	B*	J	0.29	B*	
40-43-9	Cadmium (Cd)	0.25	B	U	1.5			0.03	U		0.04	U		0.16	B*	U	0.41	B*	U
40-70-2	Calcium (Ca)	19900.			1850.		J	11600.		J	16600.		J	17000.		J	116000.		
40-47-3	Chromium (Cr)	42.1			44.2			125.			35.6			63.			25.9		
40-48-4	Cobalt (Co)	5.1			3.3	B*	J	22.5			5.5	B*	J	3.8	B*	J	2.4	B*	J
40-50-8	Copper (Cu)	776.		J	66.3		J	459.		J	180.		J	51.7		J	12.3		J
39-89-6	Iron (Fe)	9500.		J	4070.		J	21200.		J	20400.		J	9230.		J	6480.		J
39-92-1	Lead (Pb)	191.			188.			458.			54.9			148.			27.4		
39-95-4	Magnesium (Mg)	547.		J	127.	B*	J	585.		J	3980.		J	821.		J	2280.		J
39-96-5	Manganese (Mn)	66.1			20.2			59.2			141.			99.2			130.		
39-97-6	Mercury (Hg)	0.1		J	2.2		J	0.05		J	0.1		J	0.13		J	0.1		J
40-02-0	Nickel (Ni)	36.6		J	14.3		J	38.		J	12.8		J	76.6		J	8.4		J
40-09-7	Potassium (K)	405.	BE	J	56.1	BE	J	535.	E	J	2590.	E	J	365.	BE	J	963.	E	J
782-49-2	Selenium (Se)	0.77	B*	U	0.56	B*	U	1.7		J	2.		J	0.8	B*	U	0.44	B*	U
440-22-4	Silver (Ag)	0.04	U		0.05	B	U	0.66	B	J	0.07	U		0.05	U		0.05	U	
440-23-5	Sodium (Na)	270.	B	J	252.	B	J	590.			1410.			262.	B	J	400.	B	J
440-28-0	Thallium (Tl)	0.21	U	UJ	0.24	U	UJ	0.21	U	UJ	0.32	U	UJ	0.23	U	UJ	0.22	U	UJ
440-31-5	Tin (Sn)	10.4		U	13.3		U	72.8		J	5.5	B*	U	10.7		U	3.7	B*	U
440-62-2	Vanadium (V)	9.1			3.7	B	J	12.4			45.2			10.6			15.2		
440-66-6	Zinc (Zn)	211.		J	598.		J	1200.		J	243.		J	252.		J	200.		J

1/27/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036 SW846-META																			
	SAMPLE ID ------->	628-S-B009-02			628-S-B010-01			628-C-B010-01			628-S-B010-02			628-C-B010-02			628-S-B011-01		
	ORIGINAL ID ----->	628SB00902			628SB01001			628CB01001			628SB01002			628CBD1002			628SB01101		
	LAB SAMPLE ID --->	9912425-07			9912425-08			9912425-09			9912425-10			9912425-15			9912425-11		
	SAMPLE DATE ----->	12/17/99			12/17/99			12/17/99			12/17/99			12/17/99			12/17/99		
	DATE EXTRACTED -->	01/06/00			01/06/00			01/06/00			01/06/00			01/06/00			01/06/00		
	DATE ANALYZED --->	01/07/00			01/07/00			01/07/00			01/07/00			01/07/00			01/07/00		
	MATRIX ---------->	Soil			Soil			Soil			Soil			Soil			Soil		
	UNITS ---------->	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A	MG/KG		A
CAS #	Parameter																		
7429-90-5	Aluminum (Al)	4110.			8450.			6820.			8890.			8260.			1410.		
7440-36-0	Antimony (Sb)	0.39	BN*	UJ	0.68	BN*	UJ	0.68	BN*	UJ	0.93	BN*	UJ	0.98	BN*	UJ	0.37	BN*	UJ
7440-38-2	Arsenic (As)	1.7			5.4			3.7			7.8			6.9			2.5		
7440-39-3	Barium (Ba)	12.7	B*	J	17.7	B*	J	14.2	B*	J	21.1			19.6	B*	J	9.7	B*	J
7440-41-7	Beryllium (Be)	0.14	B*	J	0.4	B*	J	0.24	B*	J	0.43	B*	J	0.37	B*	J	0.08	B*	J
7440-43-9	Cadmium (Cd)	0.07	B	UJ	0.03	U		0.17	B	UJ	0.19	B	UJ	0.58	B	UJ	1.2		UJ
7440-70-2	Calcium (Ca)	17500.		J	26900.		J	44700.		J	50600.		J	52600.		J	314000.		J
7440-47-3	Chromium (Cr)	6.7		J	15.1		J	13.4		J	23.7		J	19.3		J	4.6		J
7440-48-4	Cobalt (Co)	1.1	B*	J	2.7	B*	J	1.9	B*	J	3.5	B*	J	2.9	B*	J	2.4	B*	J
7440-50-8	Copper (Cu)	4.3		J	14.8		J	13.2		J	21.		J	21.2		J	3.7		J
7439-89-6	Iron (Fe)	2360.		J	9010.		J	6250.		J	12100.		J	9910.		J	2280.		J
7439-92-1	Lead (Pb)	13.6		J	72.3		J	25.6		J	52.9		J	45.2		J	3.3		J
7439-95-4	Magnesium (Mg)	394.	B*	J	1440.		J	1270.		J	2000.		J	1750.		J	4830.		J
7439-96-5	Manganese (Mn)	28.6		J	99.6		J	108.		J	340.		J	194.		J	247.		J
7439-97-6	Mercury (Hg)	0.07		J	0.07		J	0.08		J	0.2		J	0.14		J	0.04	U*	J
7440-02-0	Nickel (Ni)	3.	B*	J	6.4		J	5.3		J	9.1		J	8.7		J	7.5		J
7440-09-7	Potassium (K)	166.	BE	J	713.		J	572.	E	J	1030.		J	840.		J	874.	E	J
7782-49-2	Selenium (Se)	0.63	B*	UJ	0.94		J	0.54	B*	UJ	0.82	B*	UJ	0.85	B*	UJ	0.15	U*	
7440-22-4	Silver (Ag)	0.05	U		0.05	U		0.05	U		0.05	U		0.05	U		0.04	U	
7440-23-5	Sodium (Na)	132.	B	J	199.	B	J	228.	B	J	325.	B	J	314.	B	J	713.		
7440-28-0	Thallium (Tl)	0.23	B	UJ	0.22	B	UJ	0.22	B	UJ	0.24	B	UJ	0.25	B	UJ	0.21	B	UJ
7440-31-5	Tin (Sn)	2.5	B*	UJ	3.7	B*	UJ	3.6	B*	UJ	5.	B*	UJ	4.2	B*	UJ	2.8	B*	UJ
7440-62-2	Vanadium (V)	5.5			20.1			13.3			22.6			19.8			4.	B	J
7440-66-6	Zinc (Zn)	37.8		J	68.1		J	66.5		J	107.		J	104.		J	19.3		J

1/27/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036
SW846-META

SAMPLE ID ------->	628-S-B011-02	628-S-B012-01	628-S-B012-02	636-S-B015-01	636-S-B015-02	636-S-B016-01
ORIGINAL ID ----->	628SB01102	628SB01201	628SB01202	636SB01501	636SB01502	636SB01601
LAB SAMPLE ID --->	9912425-12	9912425-13	9912425-14	9912425-16	9912425-17	9912425-18
SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
DATE EXTRACTED -->	01/06/00	01/06/00	01/06/00	01/06/00	01/06/00	01/06/00
DATE ANALYZED --->	01/07/00	01/07/00	01/07/00	01/07/00	01/07/00	01/07/00
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A	MG/KG A
AS # Parameter						
29-90-5 Aluminum (Al)	7870.	2600.	23000.	4390.	7140.	5020.
40-36-0 Antimony (Sb)	2.2 BN*	1.3 BN*	1.4 BN*	0.43 BN*	4. BN*	0.33 BN*
40-38-2 Arsenic (As)	9.3	5.	25.5	1.9	5.4	1.5
40-39-3 Barium (Ba)	35.3	26.	39.1	8.1 B*	225.	16.5 B*
40-41-7 Beryllium (Be)	0.98	0.18 B*	1.6	0.17 B*	0.31 B*	0.11 B*
40-43-9 Cadmium (Cd)	0.25 B	1.2	0.04 U	0.03 U	0.58 B	0.03 U
40-70-2 Calcium (Ca)	15000.	11500.	8690.	7150.	19300.	1290.
40-47-3 Chromium (Cr)	32.1	22.9	45.2	5.9	18.2	5.1
40-48-4 Cobalt (Co)	4.4 B*	2.1 B*	8.5	0.84 B*	2.1 B*	0.47 B*
40-50-8 Copper (Cu)	151.	51.9	34.3	8.3	247.	3.4
39-89-6 Iron (Fe)	14500.	4130.	44000.	3250.	11700.	4100.
39-92-1 Lead (Pb)	418.	57.8	47.9	5.3	883.	6.9
39-95-4 Magnesium (Mg)	1530.	301. B*	5110.	192. B*	1010.	194. B*
39-96-5 Manganese (Mn)	153.	39.7	1710.	9.4	97.4	14.4
39-97-6 Mercury (Hg)	0.41	0.07	0.25	0.04	0.97	0.04
40-02-0 Nickel (Ni)	21.9	13.2	14.5	1.9	12.1	1.8
40-09-7 Potassium (K)	733.	134. BE	2910.	81.8 BE	454. BE	68.8 BE
782-49-2 Selenium (Se)	1.4	0.48 B*	3.3	0.51 B*	0.99	0.58 B*
40-22-4 Silver (Ag)	0.05 U	0.05 B	0.07 U	0.05 U	0.16 B	0.05 U
40-23-5 Sodium (Na)	299. B	113. B	3020.	150. B	763.	95.5 B
40-28-0 Thallium (Tl)	0.24 U	0.22 U	0.32 U	0.22 U	0.23 U	0.23 U
40-31-5 Tin (Sn)	13.7	7.4 B*	5.9 B*	2.5 B*	8.7 B*	2.6 B*
40-62-2 Vanadium (V)	24.6	6.6	79.	5.9	21.6	7.8
40-66-6 Zinc (Zn)	437.	139.	115.	18.	451.	6.7

1/27/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036
SW846-META

	SAMPLE ID ------->	636-S-B016-02			636-S-B017-01				BLK-O-N036-03								
	ORIGINAL ID ----->	636SB01602			636SB01701				PBS1EN036								
	LAB SAMPLE ID --->	9912425-19			9912425-20				PBS1-EN036								
	SAMPLE DATE ----->	12/17/99			12/17/99				01/07/00								
	DATE EXTRACTED -->	01/06/00			01/06/00				01/06/00								
	DATE ANALYZED --->	01/07/00			01/07/00				01/07/00								
	MATRIX ---------->	Soil			Soil				Soil								
	UNITS ---------->	MG/KG		A	MG/KG			A	MG/KG			D					
CAS #	Parameter																
7429-90-5	Aluminum (Al)	11900.			7370.				-6.3		B						
7440-36-0	Antimony (Sb)	0.74	BN*	UJ	0.94	BN*	UJ		0.25		B						
7440-38-2	Arsenic (As)	9.9			3.6				0.2		U						
7440-39-3	Barium (Ba)	25.9			22.8				0.13		B						
7440-41-7	Beryllium (Be)	0.65		J	0.21	B*	J		0.09		U						
7440-43-9	Cadmium (Cd)	0.03	U		0.18	B	J		0.41		B						
7440-70-2	Calcium (Ca)	12400.		J	30500.		J		17.83		B						
7440-47-3	Chromium (Cr)	27.8		J	13.7		J		0.08		B						
7440-48-4	Cobalt (Co)	4.1	B*	J	1.8	B*	J		-0.06		B						
7440-50-8	Copper (Cu)	19.3		J	46.4		J		0.08		B						
7439-89-6	Iron (Fe)	15100.		J	5710.		J		5.44		B						
7439-92-1	Lead (Pb)	30.3		J	57.7		J		0.38		B						
7439-95-4	Magnesium (Mg)	1890.		J	989.		J		1.36		U						
7439-96-5	Manganese (Mn)	172.		J	50.6		J		0.08		B						
7439-97-6	Mercury (Hg)	0.18		J	0.06		J		0.1		U						
7440-02-0	Nickel (Ni)	9.1		J	6.7		J		0.11		U						
7440-09-7	Potassium (K)	945.	B	J	390.	BS	J		4.02		U						
7782-49-2	Selenium (Se)	1.4		J	0.67	B*	U		0.18		B						
7440-22-4	Silver (Ag)	0.05	U		0.04	U			0.06		B						
7440-23-5	Sodium (Na)	756.			266.	B	J		38.7		U						
7440-28-0	Thallium (Tl)	0.25	B*	UJ	0.21	B*	UJ		-0.79		B						
7440-31-5	Tin (Sn)	3.7	B*	U	4.2	B*	U		3.18		B						
7440-62-2	Vanadium (V)	36.8			14.8				0.05		U						
7440-66-6	Zinc (Zn)	77.3		J	71.		J		0.58		B						

PBS 1/27/00

CAW
2-7-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

N036 / 0846-SVOA															
	SAMPLE ID ------->	628-S-B006-01		628-S-B006-02		628-S-B007-01		636-S-B015-01		636-S-B015-02		636-S-B015-02DL	
	ORIGINAL ID ----->	628SB00601		628SB00602		628SB00701		636SB01501		636SB01502		636SB01502	
	LAB SAMPLE ID --->	9912425-01		9912425-02		9912425-03		9912425-16		9912425-17		991242517DL	
	SAMPLE DATE ----->	12/17/99		12/17/99		12/17/99		12/17/99		12/17/99		12/17/99	
	DATE EXTRACTED -->	12/21/99		12/21/99		12/21/99		12/21/99		12/21/99		12/21/99	
	DATE ANALYZED --->	12/29/99		12/28/99		12/29/99		12/28/99		12/29/99		01/03/00	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	C
S #	Parameter												
08-95-2	Phenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
11-44-4	bis(2-Chloroethyl)ether	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
95-57-8	2-Chlorophenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
41-73-1	1,3-Dichlorobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
06-46-7	1,4-Dichlorobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
00-51-6	Benzyl alcohol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
95-50-1	1,2-Dichlorobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
95-48-7	2-Methylphenol (o-Cresol)	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
08-60-1	2,2'-oxybis(1-Chloropropane)	1500.	U	410.	U	350.	~~U~~	390.	U	400.	~~U~~	800.	U
06-44-5	4-Methylphenol (p-Cresol)	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
21-64-7	N-Nitroso-di-n-propylamine	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
67-72-1	Hexachloroethane	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
98-95-3	Nitrobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
78-59-1	Isophorone	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
88-75-5	2-Nitrophenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
05-67-9	2,4-Dimethylphenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
65-85-0	Benzoic acid	7600.	U	2000.	U	1800.	U	1900.	U	2000.	U	4000.	U
11-91-1	bis(2-Chloroethoxy)methane	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
20-83-2	2,4-Dichlorophenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
20-82-1	1,2,4-Trichlorobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
91-20-3	Naphthalene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
06-47-8	4-Chloroaniline	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
87-68-3	Hexachlorobutadiene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
59-50-7	4-Chloro-3-methylphenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
91-57-6	2-Methylnaphthalene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
77-47-4	Hexachlorocyclopentadiene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
88-06-2	2,4,6-Trichlorophenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
95-95-4	2,4,5-Trichlorophenol	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
91-58-7	2-Chloronaphthalene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
88-74-4	2-Nitroaniline	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
31-11-3	Dimethyl phthalate	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
208-96-8	Acenaphthylene	1300.	J	410.	U	350.	U	390.	U	400.	U	800.	U
99-09-2	3-Nitroaniline	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U
83-32-9	Acenaphthene	330.	J	410.	U	350.	U	390.	U	400.	U	800.	U
51-28-5	2,4-Dinitrophenol	3000.	U	810.	U	710.	U	780.	U	800.	U	1600.	U
00-02-7	4-Nitrophenol	3000.	U	810.	U	710.	U	780.	U	800.	U	1600.	U
32-64-9	Dibenzofuran	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U

UR

1MM020100

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036 SW846-SVOA																	
	SAMPLE ID ------->	628-S-B006-01		628-S-B006-02		628-S-B007-01		636-S-B015-01		636-S-B015-02		636-S-B015-02DL		
	ORIGINAL ID ----->	628SB00601		628SB00602		628SB00701		636SB01501		636SB01502		636SB01502		
	LAB SAMPLE ID --->	9912425-01		9912425-02		9912425-03		9912425-16		9912425-17		991242517DL		
	SAMPLE DATE ----->	12/17/99		12/17/99		12/17/99		12/17/99		12/17/99		12/17/99		
	DATE EXTRACTED -->	12/21/99		12/21/99		12/21/99		12/21/99		12/21/99		12/21/99		
	DATE ANALYZED --->	12/29/99		12/28/99		12/29/99		12/28/99		12/29/99		01/03/00		
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil		
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	C	
CAS #	Parameter													
121-14-2	2,4-Dinitrotoluene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	UR
606-20-2	2,6-Dinitrotoluene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
84-66-2	Diethylphthalate	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
7005-72-3	4-Chlorophenylphenylether	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
86-73-7	Fluorene	530.	J	410.	U	350.	U	390.	U	400.	U	800.	U	
100-01-6	4-Nitroaniline	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
534-52-1	2-Methyl-4,6-Dinitrophenol	3000.	U	810.	U	710.	U	780.	U	800.	U	1600.	U	
86-30-6	N-Nitrosodiphenylamine	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
101-55-3	4-Bromophenyl-phenylether	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
118-74-1	Hexachlorobenzene	1500.	U	410.	U	350.	U	390.	U	400.	U	800.	U	
87-86-5	Pentachlorophenol	3000.	U	810.	U	710.	U	780.	U	800.	U	1600.	U	
85-01-8	Phenanthrene	5200.		410.	U	350.	U	390.	U	150.	J	800.	U	
120-12-7	Anthracene	2500.		410.	U	350.	U	390.	U	400.	U	800.	U	
84-74-2	Di-n-butylphthalate	1500.	U	410.	U	87.	J	570.		400.	U	800.	U	
206-44-0	Fluoranthene	15000.		410.	U	350.	U	390.	U	210.	J	240.	JD	
129-00-0	Pyrene	18000.		90.	J	350.	U	390.	U	300.	J	280.	JD	
85-68-7	Butylbenzylphthalate	1500.	J	410.	U	350.	U	390.	U	400.	U	800.	U	
91-94-1	3,3'-Dichlorobenzidine	3000.	U	810.	U	710.	U	780.	U	800.	U	1600.	U	
56-55-3	Benzo(a)anthracene	6800.		410.	U	350.	U	390.	U	120.	J	800.	U	
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	870.	J	210.	J	300.	J	390.	U	400.	U	800.	U	
218-01-9	Chrysene	12000.		410.	U	350.	U	390.	U	170.	J	190.	JD	
117-84-0	Di-n-octyl phthalate	1500.	U	410.	U	350.	U	390.	U	400.	~~U~~UJ	800.	U	
205-99-2	Benzo(b)fluoranthene	15000.	~~U~~ J	410.	U	86.	~~J~~ J	390.	U	200.	~~J~~ J	240.	JD	
207-08-9	Benzo(k)fluoranthene	8400.	~~U~~ J	85.	~~J~~ J	350.	U	390.	U	200.	~~J~~ J	800.	U	
50-32-8	Benzo(a)pyrene	8300.		410.	U	350.	U	390.	U	160.	J J	160.	JD	
193-39-5	Indeno(1,2,3-cd)pyrene	540.	J	410.	U	350.	U	390.	U	400.	~~U~~ UJ	800.	U	
53-70-3	Dibenz(a,h)anthracene	1200.	J	410.	U	350.	U	390.	U	400.	~~U~~ UJ	800.	U	
191-24-2	Benzo(g,h,i)perylene	2700.		410.	U	350.	U	390.	U	400.	~~U~~ UJ	800.	U	

011

WK 020100

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

036 / 846-SVOA													
	SAMPLE ID ------->	636-S-B016-01		636-S-B016-02		636-S-B017-01		BLK-0-N036-02					
	ORIGINAL ID ----->	636SB01601		636SB01602		636SB01701		B122199MSV					
	LAB SAMPLE ID --->	9912425-18		9912425-19		9912425-20		B122199MSV					
	SAMPLE DATE ----->	12/17/99		12/17/99		12/17/99		12/21/99					
	DATE EXTRACTED -->	12/21/99		12/21/99		12/21/99		12/21/99					
	DATE ANALYZED --->	12/29/99		12/29/99		12/29/99		12/29/99					
	MATRIX ---------->	Soil		Soil		Soil		Soil					
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	D				
#	Parameter												
8-95-2	Phenol	390.	U	420.	U	370.	U	330.	U				
1-44-4	bis(2-Chloroethyl)ether	390.	U	420.	U	370.	U	330.	U				
5-57-8	2-Chlorophenol	390.	U	420.	U	370.	U	330.	U				
1-73-1	1,3-Dichlorobenzene	390.	U	420.	U	370.	U	330.	U				
6-46-7	1,4-Dichlorobenzene	390.	U	420.	U	370.	U	330.	U				
0-51-6	Benzyl alcohol	390.	U	420.	U	370.	U	330.	U				
5-50-1	1,2-Dichlorobenzene	390.	U	420.	U	370.	U	330.	U				
5-48-7	2-Methylphenol (o-Cresol)	390.	U	420.	U	370.	U	330.	U				
8-60-1	2,2'-oxybis(1-Chloropropane)	390.	U	420.	U	370.	U	330.	U				
6-44-5	4-Methylphenol (p-Cresol)	390.	U	420.	U	370.	U	330.	U				
1-64-7	N-Nitroso-di-n-propylamine	390.	U	420.	U	370.	U	330.	U				
7-72-1	Hexachloroethane	390.	U	420.	U	370.	U	330.	U				
8-95-3	Nitrobenzene	390.	U	420.	U	370.	U	330.	U				
8-59-1	Isophorone	390.	U	420.	U	370.	U	330.	U				
8-75-5	2-Nitrophenol	390.	U	420.	U	370.	U	330.	U				
5-67-9	2,4-Dimethylphenol	390.	U	420.	U	370.	U	330.	U				
5-85-0	Benzoic acid	2000.	U	2100.	U	1800.	U	1700.	U				
1-91-1	bis(2-Chloroethoxy)methane	390.	U	420.	U	370.	U	330.	U				
0-83-2	2,4-Dichlorophenol	390.	U	420.	U	370.	U	330.	U				
0-82-1	1,2,4-Trichlorobenzene	390.	U	420.	U	370.	U	330.	U				
1-20-3	Naphthalene	390.	U	420.	U	370.	U	330.	U				
6-47-8	4-Chloroaniline	390.	U	420.	U	370.	U	330.	U				
7-68-3	Hexachlorobutadiene	390.	U	420.	U	370.	U	330.	U				
9-50-7	4-Chloro-3-methylphenol	390.	U	420.	U	370.	U	330.	U				
1-57-6	2-Methylnaphthalene	390.	U	420.	U	370.	U	330.	U				
7-47-4	Hexachlorocyclopentadiene	390.	U	420.	U	370.	U	330.	U				
8-06-2	2,4,6-Trichlorophenol	390.	U	420.	U	370.	U	330.	U				
5-95-4	2,4,5-Trichlorophenol	390.	U	420.	U	370.	U	330.	U				
1-58-7	2-Chloronaphthalene	390.	U	420.	U	370.	U	330.	U				
8-74-4	2-Nitroaniline	390.	U	420.	U	370.	U	330.	U				
1-11-3	Dimethyl phthalate	390.	U	420.	U	370.	U	330.	U				
8-96-8	Acenaphthylene	390.	U	420.	U	370.	U	330.	U				
9-09-2	3-Nitroaniline	390.	U	420.	U	370.	U	330.	U				
3-32-9	Acenaphthene	390.	U	420.	U	370.	U	330.	U				
1-28-5	2,4-Dinitrophenol	780.	U	840.	U	730.	U	670.	U				
[illegible]	4-Nitrophenol	780.	U	840.	U	730.	U	670.	U				
[illegible]	Dibenzofuran	390.	U	420.	U	370.	U	330.	U				

UM020100

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036 SW846-SVOA													
	SAMPLE ID ------->	636-S-B016-01		636-S-B016-02		636-S-B017-01		BLK-O-N036-02					
	ORIGINAL ID ----->	636SB01601		636SB01602		636SB01701		B122199MSV					
	LAB SAMPLE ID --->	9912425-18		9912425-19		9912425-20		B122199MSV					
	SAMPLE DATE ----->	12/17/99		12/17/99		12/17/99		12/21/99					
	DATE EXTRACTED -->	12/21/99		12/21/99		12/21/99		12/21/99					
	DATE ANALYZED --->	12/29/99		12/29/99		12/29/99		12/29/99					
	MATRIX ---------->	Soil		Soil		Soil		Soil					
	UNITS ---------->	UG/KG	A	UG/KG	A	UG/KG	A	UG/KG	D				
CAS #	Parameter												
121-14-2	2,4-Dinitrotoluene	390.	U	420.	U	370.	U	330.	U				
606-20-2	2,6-Dinitrotoluene	390.	U	420.	U	370.	U	330.	U				
84-66-2	Diethylphthalate	390.	U	420.	U	370.	U	330.	U				
7005-72-3	4-Chlorophenylphenylether	390.	U	420.	U	370.	U	330.	U				
86-73-7	Fluorene	390.	U	420.	U	370.	U	330.	U				
100-01-6	4-Nitroaniline	390.	U	420.	U	370.	U	330.	U				
534-52-1	2-Methyl-4,6-Dinitrophenol	780.	U	840.	U	730.	U	670.	U				
86-30-6	N-Nitrosodiphenylamine	390.	U	420.	U	370.	U	330.	U				
101-55-3	4-Bromophenyl-phenylether	390.	U	420.	U	370.	U	330.	U				
118-74-1	Hexachlorobenzene	390.	U	420.	U	370.	U	330.	U				
87-86-5	Pentachlorophenol	780.	U	840.	U	730.	U	670.	U				
85-01-8	Phenanthrene	390.	U	420.	U	370.	U	330.	U				
120-12-7	Anthracene	390.	U	420.	U	370.	U	330.	U				
84-74-2	Di-n-butylphthalate	390.	U	420.	U	370.	U	330.	U				
206-44-0	Fluoranthene	390.	U	420.	U	370.	U	330.	U				
129-00-0	Pyrene	390.	U	420.	U	75.	J	330.	U				
85-68-7	Butylbenzylphthalate	390.	U	420.	U	370.	U	330.	U				
91-94-1	3,3'-Dichlorobenzidine	780.	U	840.	U	730.	U	670.	U				
56-55-3	Benzo(a)anthracene	390.	U	420.	U	370.	U	330.	U				
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	390.	U	420.	U	370.	U	330.	U				
218-01-9	Chrysene	390.	U	420.	U	370.	U	330.	U				
117-84-0	Di-n-octyl phthalate	390.	U	420.	U	370.	~~U~~ UJ	330.	U				
205-99-2	Benzo(b)fluoranthene	390.	U	420.	U	370.	~~U~~	330.	U				
207-08-9	Benzo(k)fluoranthene	390.	U	420.	U	370.	~~U~~	330.	U				
50-32-8	Benzo(a)pyrene	390.	U	420.	U	370.	~~U~~	330.	U				
193-39-5	Indeno(1,2,3-cd)pyrene	390.	U	420.	U	370.	~~U~~	330.	U				
53-70-3	Dibenz(a,h)anthracene	390.	U	420.	U	370.	~~U~~	330.	U				
191-24-2	Benzo(g,h,i)perylene	390.	U	420.	U	370.	~~U~~	330.	U				

UM020100

CW 2-7-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

N036							
OC	SAMPLE ID ------->	628-S-B006-01	628-S-B006-02	628-S-B007-01	628-S-B008-01	628-S-B008-02	628-S-B009-01
	ORIGINAL ID ----->	628SB00601	628SB00602	628SB00701	628SB00801	628SB00802	628SB00901
	LAB SAMPLE ID --->	9912425-01	9912425-02	9912425-03	9912425-04	9912425-05	9912425-06
	SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
	DATE EXTRACTED -->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
	DATE ANALYZED --->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A
S #	Parameter						
01 01 4	Total Organic Carbon (TOC)	6.5	2.	2.9	4.8	2.4	0.7

1/27/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036 TOC						
SAMPLE ID ------->	628-S-B009-02	628-S-B010-01	628-C-B010-01	628-S-B010-02	628-C-B010-02	628-S-B011-01
ORIGINAL ID ----->	628SB00902	628SB01001	628CB01001	628SB01002	628CB01002	628SB01101
LAB SAMPLE ID --->	9912425-07	9912425-08	9912425-09	9912425-10	9912425-15	9912425-11
SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
DATE EXTRACTED -->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
DATE ANALYZED --->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
UNITS ---------->	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A
CAS # Parameter						
7440-01-4 Total Organic Carbon (TOC)	1.7	0.8	0.9	2.1	1.4	0.3

1/27/00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

4036	SAMPLE ID ------->	628-S-B011-02	628-S-B012-01	628-S-B012-02	636-S-B015-01	636-S-B015-02	636-S-B016-01
OC	ORIGINAL ID ----->	628SB01102	628SB01201	628SB01202	636SB01501	636SB01502	636SB01601
	LAB SAMPLE ID --->	9912425-12	9912425-13	9912425-14	9912425-16	9912425-17	9912425-18
	SAMPLE DATE ----->	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
	DATE EXTRACTED -->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
	DATE ANALYZED --->	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00	01/13/00
	MATRIX ---------->	Soil	Soil	Soil	Soil	Soil	Soil
	UNITS ---------->	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A	%, DR A
S #	Parameter						
0 01-4	Total Organic Carbon (TOC)	2.6	3.7	0.4	0.5	2.	0.4

RB 1/27/00

020

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
EN036

EN036 TOC						
	SAMPLE ID ------->	636-S-B016-02	636-S-B017-01	BLK-O-N036-01		
	ORIGINAL ID ----->	636SB01602	636SB01701	B011300_TO		
	LAB SAMPLE ID --->	9912425-19	9912425-20	B011300_TO		
	SAMPLE DATE ----->	12/17/99	12/17/99	01/13/00		
	DATE EXTRACTED -->	01/13/00	01/13/00	01/13/00		
	DATE ANALYZED --->	01/13/00	01/13/00	01/13/00		
	MATRIX ---------->	Soil	Soil	Soil		
	UNITS ---------->	%, DR A	%, DR A	PERCE D		
CAS #	Parameter					
7440-01-4	Total Organic Carbon (TOC)	1.8	0.8	0.1 U		

1/27/00

HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#:	41892
Date:	February 17, 2000
Client Name:	Ensafe
Project/Site Name:	Charleston Zone G
Date Sampled:	January 27, 2000
Number of Samples:	12 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 Pesticides/PCBs

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. Sawyer — 2-24-00.

Paul B. Humburg, President — Date

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

SDG# 41892

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

ENSAFE ID	MATRIX	SVOA		P/P	
628SB01301	SOIL		X		
628SB01401	SOIL		X		
003SB01601	SOIL				X
003SB01602	SOIL				X
003SB01701	SOIL				X
003SB01702	SOIL				X
003SB01801	SOIL				X
003SB01802	SOIL				X
003SB01901	SOIL				X
003SB01902	SOIL				X
003SB02001	SOIL				X
003SB02002	SOIL				X
Total Billable Samples (Water/Soil)		0	2	0	10

SVOA= Semivolatiles
P/P= Pesticides/PCBs

CAO
2-26-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

46 SVOA

	SAMPLE ID ------->	628-S-B013-01		628-S-B013-01 DL		628-S-B014-01		SBL-0-1892-01			
	ORIGINAL ID ----->	628SB01301		628SB01301		628SB01401		SBLK1			
	LAB SAMPLE ID --->	41892.02		41892.02		41892.01		SBLK1			
	ID FROM REPORT -->	628SB01301		628SB01301		628SB01401		SBLK1			
	SAMPLE DATE ----->	01/27/00		01/27/00		01/27/00		01/27/00			
	DATE EXTRACTED -->	01/29/00		01/29/00		01/29/00		01/29/00			
	DATE ANALYZED --->	02/01/00		02/02/00		02/01/00		02/01/00			
	MATRIX ---------->	Soil		Soil		Soil		Soil			
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	D		
CAS #	Parameter	41892	NV	41892	NV	41892	NV	41892	NV		
108-95-2	Phenol	370.	U	740.	U UL	370.	U	330.	U		
111-44-4	bis(2-Chloroethyl)ether	370.	U	740.	U	370.	U	330.	U		
95-57-8	2-Chlorophenol	370.	U	740.	U	370.	U	330.	U		
541-73-1	1,3-Dichlorobenzene	370.	U	740.	U	370.	U	330.	U		
106-46-7	1,4-Dichlorobenzene	370.	U	740.	U	21.	J	330.	U		
100-51-6	Benzyl alcohol	370.	U	740.	U	370.	U	330.	U		
95-50-1	1,2-Dichlorobenzene	370.	U	740.	U	370.	U	330.	U		
95-48-7	2-Methylphenol (o-Cresol)	370.	U	740.	U	29.	J	330.	U		
108-60-1	2,2'-oxybis(1-Chloropropane)	370. UJ	U	740.	U	370. UJ	U	330.	U		
106-44-5	4-Methylphenol (p-Cresol)	370.	U	740.	U	26.	J	330.	U		
621-64-7	N-Nitroso-di-n-propylamine	370.	U	740.	U	370.	U	330.	U		
67-72-1	Hexachloroethane	370.	U	740.	U	370.	U	330.	U		
98-95-3	Nitrobenzene	370.	U	740.	U	370.	U	330.	U		
78-59-1	Isophorone	370.	U	740.	U	370.	U	330.	U		
88-75-5	2-Nitrophenol	370.	U	740.	U	370.	U	330.	U		
105-67-9	2,4-Dimethylphenol	370.	U	740.	U	370.	U	330.	U		
65-85-0	Benzoic acid	920.	U	1800.	U	940.	U	830.	U		
111-91-1	bis(2-Chloroethoxy)methane	370.	U	740.	U	370.	U	330.	U		
120-83-2	2,4-Dichlorophenol	370.	U	740.	U	370.	U	330.	U		
120-82-1	1,2,4-Trichlorobenzene	370.	U	740.	U	370.	U	330.	U		
91-20-3	Naphthalene	370 ~~39.~~	U	740.	U	950.		20.	J		
106-47-8	4-Chloroaniline	370.	U	740.	U	370.	U	330.	U		
87-68-3	Hexachlorobutadiene	370.	U	740.	U	370.	U	330.	U		
59-50-7	4-Chloro-3-methylphenol	370.	U	740.	U	370.	U	330.	U		
91-57-6	2-Methylnaphthalene	370.	U	740.	U	1300.	J	330.	U		
77-47-4	Hexachlorocyclopentadiene	370.	U	740.	U	370.	U	330.	U		
88-06-2	2,4,6-Trichlorophenol	370.	U	740.	U	370.	U	330.	U		
95-95-4	2,4,5-Trichlorophenol	920.	U	1800.	U	940.	U	830.	U		
91-58-7	2-Chloronaphthalene	370.	U	740.	U	370.	U	330.	U		
88-74-4	2-Nitroaniline	920.	U	1800.	U	940.	U	830.	U		
131-11-3	Dimethyl phthalate	370.	U	740.	U	370.	U	330.	U		
208-96-8	Acenaphthylene	370.	U	740.	U	70.	J	330.	U		
99-09-2	3-Nitroaniline	920.	U	1800.	U	940.	U	830.	U		
83-32-9	Acenaphthene	370.	U	740.	U	120.	J	330.	U		
51-28-5	2,4-Dinitrophenol	920.	U	1800.	U	940.	U	830.	U		
100-02-7	4-Nitrophenol	920.	U	1800.	U	940.	U	830.	U		

gc 2-22-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

46_SVOA

SAMPLE ID ------->	628-S-B013-01		628-S-B013-01 DL		628-S-B014-01		SBL-0-1892-01		
ORIGINAL ID ----->	628SB01301		628SB01301		628SB01401		SBLK1		
LAB SAMPLE ID --->	41892.02		41892.02		41892.01		SBLK1		
ID FROM REPORT -->	628SB01301		628SB01301		628SB01401		SBLK1		
SAMPLE DATE ----->	01/27/00		01/27/00		01/27/00		01/27/00		
DATE EXTRACTED -->	01/29/00		01/29/00		01/29/00		01/29/00		
DATE ANALYZED --->	02/01/00		02/02/00		02/01/00		02/01/00		
MATRIX ---------->	Soil		Soil		Soil		Soil		
UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	D	

CAS #	Parameter	41892	NV	41892	NV	41892	NV	41892	NV		
132-64-9	Dibenzofuran	370.	U	740.	U UR	420.		330.	U		
121-14-2	2,4-Dinitrotoluene	370.	U	740.	U	370.	U	330.	U		
606-20-2	2,6-Dinitrotoluene	370.	U	740.	U	370.	U	330.	U		
84-66-2	Diethylphthalate	24.	J	740.	U	370.	U	330.	U		
7005-72-3	4-Chlorophenylphenylether	370.	U	740.	U	370.	U	330.	U		
86-73-7	Fluorene	370.	U	740.	U	84.	J	330.	U		
100-01-6	4-Nitroaniline	920.	U	1800.	U	940.	U	830.	U		
534-52-1	2-Methyl-4,6-Dinitrophenol	920.	U	1800.	U	940.	U	830.	U		
86-30-6	N-Nitrosodiphenylamine	370.	U	740.	U	370.	U	330.	U		
101-55-3	4-Bromophenyl-phenylether	370.	U	740.	U	370.	U	330.	U		
118-74-1	Hexachlorobenzene	370.	U	740.	U	370.	U	330.	U		
87-86-5	Pentachlorophenol	920.	U	1800.	U	940.	U	830.	U		
85-01-8	Phenanthrene	28.	J	740.	U	1400.		330.	U		
120-12-7	Anthracene	370.	U	740.	U	390.		330.	U		
84-74-2	Di-n-butylphthalate	910.		620.	DJ R	49.	J	330.	U		
206-44-0	Fluoranthene	42.	J	64.	DJ R	2600.		330.	U		
129-00-0	Pyrene	51.	J	52.	DJ R	3000.	J ~~E~~	330.	U		
85-68-7	Butylbenzylphthalate	370.	U	740.	U UR	290.	J	330.	U		
91-94-1	3,3'-Dichlorobenzidine	370.	U	740.	U	370.	U	330.	U		
56-55-3	Benzo(a)anthracene	23.	J	740.	U	1600.		330.	U		
117-81-7	bis(2-Ethylhexyl)phthalate (BEHP)	3100 ~~4800.~~	D ~~EB~~	3100.	D R	370 ~~240.~~	U ~~JB~~	67.	J		
218-01-9	Chrysene	36.	J	42.	D R	1700.		330.	U		
117-84-0	Di-n-octyl phthalate	370.	U	740.	U UR	140.	J	330.	U		
205-99-2	Benzo(b)fluoranthene	25.	J	740.	U	1300.		330.	U		
207-08-9	Benzo(k)fluoranthene	28.	J	740.	U	650.		330.	U		
50-32-8	Benzo(a)pyrene	21.	J	740.	U	960.		330.	U		
193-39-5	Indeno(1,2,3-cd)pyrene	370.	U	740.	U	540.		330.	U		
53-70-3	Dibenz(a,h)anthracene	370.	U	740.	U	280.	J	330.	U		
191-24-2	Benzo(g,h,i)perylene	20.	J	740.	U	570.		330.	U		

JPC 2-22-00

014

CAW
2-26-00

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

EST

SAMPLE ID ------->		003-S-B016-01		003-S-B016-01 DL		003-S-B016-02		003-S-B016-02 DL		003-S-B017-01		003-S-B017-01 DL	
ORIGINAL ID ----->		003SB01601		003SB01601		003SB01602		003SB01602		003SB01701		003SB01701	
LAB SAMPLE ID --->		41892.09		41892.09		41892.10		41892.10		41892.07		41892.07	
ID FROM REPORT -->		003SB01601		003SB01601		003SB01602		003SB01602		003SB01701		003SB01701	
SAMPLE DATE ----->		01/27/00		01/27/00		01/27/00		01/27/00		01/27/00		01/27/00	
DATE EXTRACTED -->		01/30/00		01/30/00		01/30/00		01/30/00		01/30/00		01/30/00	
DATE ANALYZED --->		02/04/00		02/04/00		02/04/00		02/04/00		02/04/00		02/04/00	
MATRIX ---------->		Soil		Soil		Soil		Soil		Soil		Soil	
UNITS ---------->		UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV
319-84-6	alpha-BHC	1500.	U	15000.	U UR	1.4	U	14.	U UR	150.	U	1500.	U UR
319-85-7	beta-BHC	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
319-86-8	delta-BHC	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
58-89-9	gamma-BHC (Lindane)	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
76-44-8	Heptachlor	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
309-00-2	Aldrin	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
024-57-3	Heptachlor epoxide	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
959-98-8	Endosulfan I	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
60-57-1	Dieldrin	2900.	U	29000.	U	2.8	U	28.	U	280.	U	2800.	U
72-55-9	4,4'-DDE	3600.		29000.	U	8.2		28.	U	410.		2800.	U
72-20-8	Endrin	2900.	U	29000.	U	2.8	U	28.	U	280.	U	2800.	U
33-65-9	Endosulfan II	2900.	U	29000.	U	2.8	U	28.	U	280.	U	2800.	U
72-54-8	4,4'-DDD	17000.		36000.	U R	20.		33.	U R	770.		2800.	U
031-07-8	Endosulfan sulfate	2900.	U	29000.	U UR	2.8	U	28.	U UR	280.	U	2800.	U
50-29-3	4,4'-DDT	200000 ~~150000.~~	~~E~~ D	200000.	U R	24D ~~320.~~	~~E~~ D	240.	U R	7400 ~~5100.~~	~~E~~ D	7400.	U R
72-43-5	Methoxychlor	15000.	U	150000.	U UR	14.	U	140.	U UR	1500.	U	15000.	U UR
494-70-5	Endrin ketone	2900.	U	29000.	U	2.8	U	28.	U	280.	U	2800.	U
421-93-4	Endrin aldehyde	2900.	U	29000.	U	2.8	U	28.	U	280.	U	2800.	U
103-71-9	alpha-Chlordane	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
103-74-2	gamma-Chlordane	1500.	U	15000.	U	1.4	U	14.	U	150.	U	1500.	U
001-35-2	Toxaphene	98000.	U	980000.	U	93.	U	930.	U	9400.	U	94000.	U

EVK
2/22/00

01

*** Lab Results - Unvalidated Data - Do NOT Cite ***

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

PEST													
	SAMPLE ID ------->	003-S-B017-02		003-S-B017-02 DL		003-S-B018-01		003-S-B018-01 DL		003-S-B018-02		003-S-B018-02 DL	
	ORIGINAL ID ----->	003SB01702		003SB01702		003SB01801		003SB01801		003SB01802		003SB01802	
	LAB SAMPLE ID --->	41892.08		41892.08		41892.05		41892.05		41892.06		41892.06	
	ID FROM REPORT -->	003SB01702		003SB01702		003SB01801		003SB01801		003SB01802		003SB01802	
	SAMPLE DATE ----->	01/27/00		01/27/00		01/27/00		01/27/00		01/27/00		01/27/00	
	DATE EXTRACTED -->	01/30/00		01/30/00		01/30/00		01/30/00		01/30/00		01/30/00	
	DATE ANALYZED --->	02/04/00		02/04/00		02/04/00		02/08/00		02/04/00		02/04/00	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV
319-84-6	alpha-BHC	14.	U	140.	U UR	15000.	U	150000.	U UR	15.	U	150.	U UR
319-85-7	beta-BHC	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
319-86-8	delta-BHC	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
58-89-9	gamma-BHC (Lindane)	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
76-44-8	Heptachlor	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
309-00-2	Aldrin	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
1024-57-3	Heptachlor epoxide	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
959-98-8	Endosulfan I	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
60-57-1	Dieldrin	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
72-55-9	4,4'-DDE	28.	U	280.	U	44000.		290000.	U	60.		280.	U
72-20-8	Endrin	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
5213-65-9	Endosulfan II	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
72-54-8	4,4'-DDD	74.		280.	U	310000.		290000.	U	190.		570.	U
1031-07-8	Endosulfan sulfate	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
50-29-3	4,4'-DDT	310 ~~490.~~	~~E~~ D	340.	U R	2500000 ~~3500000.~~	~~E~~ D	2500000.	D R	3700 ~~4900.~~	~~E~~ D	3700.	U
72-43-5	Methoxychlor	140.	U	1400.	U UR	150000.	U	1500000.	U UR	150.	U	1500.	U
3494-70-5	Endrin ketone	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
7421-93-4	Endrin aldehyde	28.	U	280.	U	29000.	U	290000.	U	28.	U	280.	U
5103-71-9	alpha-Chlordane	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
5103-74-2	gamma-Chlordane	14.	U	140.	U	15000.	U	150000.	U	15.	U	150.	U
8001-35-2	Toxaphene	930.	U	9300.	U	950000.	U	9500000.	U	940.	U	9400.	U

EM 2/22/00

*** Unvalidated Data - Do NOT Cite ***

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

PEST													
	SAMPLE ID ------->	003-S-B019-01		003-S-B019-01 DL		003-S-B019-02		003-S-B019-02 DL		003-S-B020-01		003-S-B020-01 DL	
	ORIGINAL ID ----->	003SB01901		003SB01901		003SB01902		003SB01902		003SB02001		003SB02001	
	LAB SAMPLE ID --->	41892.03		41892.03		41892.04		41892.04		41892.11		41892.11	
	ID FROM REPORT -->	003SB01901		003SB01901		003SB01902		003SB01902		003SB02001		003SB02001	
	SAMPLE DATE ----->	01/27/00		01/27/00		01/27/00		01/27/00		01/27/00		01/27/00	
	DATE EXTRACTED -->	01/30/00		01/30/00		01/30/00		01/30/00		01/30/00		01/30/00	
	DATE ANALYZED --->	02/04/00		02/04/00		02/04/00		02/04/00		02/04/00		02/04/00	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C	UG/KG	A	UG/KG	C
CAS #	Parameter	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV	41892	NV
319-84-6	alpha-BHC	1.5	U	15.	U UR	1.5	U	15.	U UR	15.	U	150.	U UR
319-85-7	beta-BHC	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
319-86-8	delta-BHC	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
58-89-9	gamma-BHC (Lindane)	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
76-44-8	Heptachlor	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
309-00-2	Aldrin	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
024-57-3	Heptachlor epoxide	2.5		15.	U	1.5	U	15.	U	15.	U	150.	U
959-98-8	Endosulfan I	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
60-57-1	Dieldrin	2.9	U	29.	U	2.9	U	29.	U	29.	U	290.	U
72-55-9	4,4'-DDE	150 ~~150.~~	~~E~~ D	130.	U R	2.9	U	29.	U	56.		290.	U
72-20-8	Endrin	2.9	U	29.	U UR	2.9	U	29.	U	29.	U	290.	U
3213-65-9	Endosulfan II	2.9	U	29.	U	2.9	U	29.	U	29.	U	290.	U
72-54-8	4,4'-DDD	17.	~~P~~ J	29.	U	8.1		29.	U	66.		290.	U
1031-07-8	Endosulfan sulfate	2.9	U	29.	U	2.9	U	29.	U	29.	U	290.	U
50-29-3	4,4'-DDT	340 ~~390.~~	~~E~~ D	340.	U R	150 ~~220.~~	~~E~~ D	180.	U R	360 ~~640.~~	~~E~~ D	360.	U R
72-43-5	Methoxychlor	15.	U	150.	U UR	15.	U	150.	U UR	150.	U	1500.	U UR
3494-70-5	Endrin ketone	2.9	U	29.	U	2.9	U	29.	U	29.	U	290.	U
7421-93-4	Endrin aldehyde	2.9	U	29.	U	2.9	U	29.	U	29.	U	290.	U
5103-71-9	alpha-Chlordane	1.5	U	15.	U	1.5	U	15.	U	15.	U	150.	U
5103-74-2	gamma-Chlordane	2.	~~P~~ U	15.	U	1.5	U	15.	U	15.	U	150.	U
8001-35-2	Toxaphene	95.	U	950.	U	95.	U	950.	U	950.	U	9500.	U

EK
2/22/00

017

CHARLESTON - ZONE G
CHARLESTON ZONE G SOIL (ONLY)
SDG# 41892

PESI

SAMPLE ID ------->	003-S-8020-02		BLK-0-1892-01					
ORIGINAL ID ----->	003SB02002		BL0130SB					
LAB SAMPLE ID --->	41892.12		BL0130SB					
ID FROM REPORT -->	003SB02002		BL0130SB					
SAMPLE DATE ----->	01/27/00		01/27/00					
DATE EXTRACTED -->	01/30/00		01/30/00					
DATE ANALYZED --->	02/04/00		02/03/00					
MATRIX ---------->	Soil		Soil					
UNITS ---------->	UG/KG	A	UG/KG	D				
CAS # Parameter	41892	NV	41892	NV				
319-84-6 alpha-BHC	1.5	U	1.3	U				
319-85-7 beta-BHC	1.5	U	1.3	U				
319-86-8 delta-BHC	1.5	U	1.3	U				
58-89-9 gamma-BHC (Lindane)	1.5	U	1.3	U				
76-44-8 Heptachlor	1.5	U	1.3	U				
309-00-2 Aldrin	1.5	U	1.3	U				
1024-57-3 Heptachlor epoxide	1.5	U	1.3	U				
959-98-8 Endosulfan I	1.5	U	1.3	U				
60-57-1 Dieldrin	2.9	U	2.5	U				
72-55-9 4,4'-DDE	2.9	U	2.5	U				
72-20-8 Endrin	2.9	U	2.5	U				
33213-65-9 Endosulfan II	2.9	U	2.5	U				
72-54-8 4,4'-DDD	2.9	U	2.5	U				
1031-07-8 Endosulfan sulfate	2.9	U	2.5	U				
50-29-3 4,4'-DDT	39.		2.5	U				
72-43-5 Methoxychlor	15.	U	13.	U				
53494-70-5 Endrin ketone	2.9	U	2.5	U				
7421-93-4 Endrin aldehyde	2.9	U	2.5	U				
5103-71-9 alpha-Chlordane	1.5	U	1.3	U				
5103-74-2 gamma-Chlordane	1.5	U	1.3	U				
8001-35-2 Toxaphene	98.	U	83.	U				

EAK 2/22/00

018

EN SAFE

800-588-7943
MEMPHIS, TENNESSEE
LESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
ASTER, AL; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL;
RALEIGH, NC; 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

JENT Naval Base Charleston
PROJECT MANAGER Charlie Vernay
OCATION Zone G
TELE/FAX NO. 843-884-6029
AMPLERS: (SIGNATURE)

ANALYSIS REQUIRED

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	SVOC									REMARKS
CG6435B0210 1	1-25-00	1035	S	4oz. JARS	4°C	None	2	X	X									
CG6435B0210 2		1041					2	X	X									
CG6435B0270 1		1105					2	X	X									
CG6435B0270 2		1110					2	X	X									
CG6435B0260 1		1135					2	X	X									
CG6435B0260 2		1141					2	X	X									
CG6435B0250 1		1200					2	X	X									
CG6435B0250 2		1208					2	X	X									
CG6435B0140 1		1221					2		X									
CG120SB0160 1		1500					2		X									
CG120SB0160 2		1505					2		X									
CG120SB0150 1		1516					2		X									
CG120SB0150 2		1519					2		X									
CG120SB0140 1		1530					2		X									
CG120SB0140 2		1535					2		X									
CG120SB0130 1		1550					2		X									

	DATE		DATE		DATE		DATE
QUISHED: Rachel M. White	1-25-00	RECEIVED:		RELINQUISHED:		RECEIVED:	
D: Rachel M. White	TIME 1755	PRINTED:	TIME	PRINTED:	TIME	PRINTED:	TIME
ANY: EnSafe		COMPANY:		COMPANY:		COMPANY:	

THOD OF SHIPMENT: Fed Ex
PMENT NO. 4849147870
D RESULTS TO: Charlie Vernay

COMMENTS:

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

EN'SAFE

800-588-7867
MEMPHIS, TENNESSEE
ATLANTA, GA; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN; LEXINGTON, KY; NASHVILLE, TN; NORFOLK, VA; PADUCAH, KY; PENSACOLA, FL; PHILADELPHIA; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

PROJECT/JOB NO: 2907-001-L,420-0

COC NO:

PO NO: 4

REL NO: 139

LAB NAME: SWL

NT Naval Base Charleston

PROJECT MANAGER Charlie Verney

ATION Zone G

TELE/FAX NO. 843-884-0025

PLERS: (SIGNATURE)

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals	REMARKS
CG12Ø5BØ13Ø2	Ø1-25-ØØ	1557	S	4 oz. JARS	4°C	None	2	X		
CG638SBØ11Ø1		1626					2	X		
CG638SBØ11Ø2		1633					2	X		
CG638SBØ1ØØ1		1645					2	X		
CG638SBØ1ØØ2		1653					2	X		
CG638SBØØ6Ø1		1713					2		X	
CG638SBØØ6Ø2		1721					2		X	

Rachel M. White
1-25-00

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

DD OF SHIPMENT: Fed EX

ENT NO. 4849147870

RESULTS TO: Charlie Verney

COMMENTS:

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

EN SAFE

800-526-7942
MEMPHIS, TENNESSEE
LESTON, SC; CINCINNATI, OH; DALLAS, TX; JACKSON, TN; KNOXVILLE, TN;
LTER, PA; NASHVILLE, TN; NORFOLK, VA; PROVIDENCE, RI; PENSACOLA, FL;
RALEIGH, NC; COLOGNE, GERMANY

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2
PROJECT/JOB NO: 2907-05-08420
COC NO:
PO NO: 4
REL NO: 139
LAB NAME: SWL

JENT Naval Base Charleston
PROJECT MANAGER Charlie Vernay
OCATION Zone G
TELE/FAX NO. 843-884-5029
AMPLERS: (SIGNATURE)

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	Metals	SVOC									REMARKS
CG6435B0210 1	01-25-00	1035	S	4 oz. JARS	4°C	None	2	X	X									
CG6435B0210 2		1041					2	X	X									
CG6435B0270 1		1105					2	X	X									
CG6435B0270 2		1110					2	X	X									
CG6435B0260 1		1135					2	X	X									
CG6435B0260 2		1141					2	X	X									
CG6435B0250 1		1200					2	X	X									
CG6435B0250 2		1208					2	X	X									
CG6435B0140 1		1221					2		X									
CG1205B0160 1		1500					2		X									
CG1205B0160 2		1505					2		X									
CG1205B0150 1		1516					2		X									
CG1205B0150 2		1519					2		X									
CG1205B0140 1		1530					2		X									
CG1205B0140 2		1535					2		X									
CG1205B0130 1		1550					2		X									

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

HOD OF SHIPMENT: Fed Ex
MENT NO. 4849147870
O RESULTS TO: Charlie Vernay

COMMENTS:

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

EN SAFE

800-[illegible]-7067
MEMPHIS, TENNESSEE
[illegible] SC; CINCINNATI OH; DALLAS TX; JACKSON TN; KNOXVILLE TN; [illegible] PA; NASHVILLE TN; NORFOLK VA; PAGUDENA NY; PENSACOLA FL; PHILADELPHIA; 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

T Naval Base Charleston

PROJECT MANAGER Charlie Verney

TION Zone G

TELE/FAX NO. 843-884-0029

LERS: (SIGNATURE)

ANALYSIS REQUIRED

FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION TEMP.	PRESERVATION CHEMICAL	NO. OF CONTAINERS	SVOC	Metals										REMARKS
G12Ø5BØ13Ø2	Ø1-25-ØØ	1557	S	4oz. JARS	4°C	None	2	X											
G638SBØ11Ø1		1626					2	X											
G638SBØ11Ø2		1633					2	X											
G638SBØ1ØØ1		1645					2	X											
G63BSBØ1ØØ2		1653					2	X											
G638SBØØ6Ø1		1713					2		X										
G638SBØØ6Ø2		1721					2		X										

Rachel M. White
1-25-00

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

D OF SHIPMENT: Fed EX

ON NO. 48 147870

RESULTS TO: Charlie Verney

COMMENTS:

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

Appendix D

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB008	628SB008S1	Aluminum, SPLP	58.7	UJ
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	3.9	J
		Barium, SPLP	186	J
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.1	U
		Calcium, SPLP	122,000	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	10.5	J
		Iron, SPLP	49	J
		Lead, SPLP	2.1	U
		Magnesium, SPLP	19,000	=
		Manganese, SPLP	67.1	=
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.1	J
		Potassium, SPLP	7,660	=
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	35,000	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	0.5	U
		Zinc, SPLP	41.9	=
G628SB008	628SB008S2	Aluminum, SPLP	382	J
		Antimony, SPLP	29.5	J
		Arsenic,SPLP	3.7	J
		Barium, SPLP	420	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.2	U
		Calcium, SPLP	11,900	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	1.9	J
		Iron, SPLP	488.0	=
		Lead, SPLP	7.0	J
		Magnesium, SPLP	2,360	J
		Manganese, SPLP	4.2	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	5.9	J
		Potassium, SPLP	1,330	J

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB008	628SB008S2	Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	8,650	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	3.5	J
		Zinc, SPLP	23.3	=
G628SB009	628SB009S1	Aluminum, SPLP	383	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	4.3	J
		Barium, SPLP	155	J
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.5	U
		Calcium, SPLP	12,800	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	3.3	J
		Iron, SPLP	309	=
		Lead, SPLP	3.6	J
		Magnesium, SPLP	189	J
		Manganese, SPLP	1.8	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.1	U
		Potassium, SPLP	46.7	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	3,890	J
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	11.5	J
		Zinc, SPLP	21.7	=
G628SB009	628SB009S2	Aluminum, SPLP	1,410	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	2.8	J
		Barium, SPLP	477	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.4	U
		Calcium, SPLP	19,800	=
		Cobalt, SPLP	0.5	UJ

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB009	628SB009S2	Copper, SPLP	2.8	J
		Iron, SPLP	582	=
		Lead, SPLP	4.7	J
		Magnesium, SPLP	538	J
		Manganese, SPLP	2.3	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	2.3	J
		Potassium, SPLP	122	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	4,800	J
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	8.5	J
		Zinc, SPLP	60.9	=
G628SB010	628CB010S1	Aluminum, SPLP	1,720	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	2.0	U
		Barium, SPLP	494	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.0	U
		Calcium, SPLP	18,700	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	4.2	J
		Iron, SPLP	1,270	=
		Lead, SPLP	6.3	J
		Magnesium, SPLP	891	J
		Manganese, SPLP	6.5	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.5	J
		Potassium, SPLP	175	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	4,530	J
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	5.2	J
		Zinc, SPLP	36.5	=

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB010	628CB010S2	Aluminum, SPLP	888	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	2.2	J
		Barium, SPLP	438	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.2	U
		Calcium, SPLP	21,300	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	1.6	J
		Iron, SPLP	803	=
		Lead, SPLP	4.1	J
		Magnesium, SPLP	1,480	J
		Manganese, SPLP	3.9	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.3	J
		Potassium, SPLP	441	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	6,010	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	4.6	J
		Zinc, SPLP	24.8	=
G628SB010	628SB010S1	Aluminum, SPLP	321	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	2.0	U
		Barium, SPLP	541	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	4.0	U
		Calcium, SPLP	19,700	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	2.1	J
		Iron, SPLP	579	=
		Lead, SPLP	4.5	J
		Magnesium, SPLP	857	J
		Manganese, SPLP	4.7	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.1	U
		Potassium, SPLP	134	J

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB010	628SB010S1	Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	5,550	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	2.6	J
		Zinc, SPLP	17	J
G628SB010	628SB010S2	Aluminum, SPLP	248	J
		Antimony, SPLP	2.8	J
		Arsenic,SPLP	2	U
		Barium, SPLP	388	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	2.8	U
		Calcium, SPLP	23,500	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	1.5	J
		Iron, SPLP	360	=
		Lead, SPLP	3.0	J
		Magnesium, SPLP	1,780	J
		Manganese, SPLP	2.5	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.1	J
		Potassium, SPLP	837	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	6,090	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	3.3	J
		Zinc, SPLP	14.2	J
G628SB011	628SB011S1	Aluminum, SPLP	125	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	2.0	U
		Barium, SPLP	191	J
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.0	U
		Calcium, SPLP	24,900	=
		Cobalt, SPLP	0.5	UJ

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB011	628SB011S2	Copper, SPLP	1.8	J
		Iron, SPLP	269	=
		Lead, SPLP	2.2	J
		Magnesium, SPLP	1,330	J
		Manganese, SPLP	1.1	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.3	J
		Potassium, SPLP	166	J
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	5,060	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	1.6	J
		Zinc, SPLP	21.1	=
		Aluminum, SPLP	618	J
		Antimony, SPLP	14.1	J
		Arsenic,SPLP	3.1	J
		Barium, SPLP	489	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	2.6	U
		Calcium, SPLP	21,300	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	3.0	J
		Iron, SPLP	514	=
		Lead, SPLP	6.9	J
		Magnesium, SPLP	1,730	J
		Manganese, SPLP	1.8	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	2.2	J
		Potassium, SPLP	1,680	J
		Selenium, SPLP	1.7	J
		Silver, SPLP	0.5	U
		Sodium, SPLP	6,730	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	2.9	J
		Zinc, SPLP	29.3	=

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB012	628SB012S1	Aluminum, SPLP	363	J
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	7.1	J
		Barium, SPLP	339	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	3.3	U
		Calcium, SPLP	10,200	=
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	1.2	J
		Iron, SPLP	330	=
		Lead, SPLP	6.1	J
		Magnesium, SPLP	173	J
		Manganese, SPLP	1.3	J
		Mercury, SPLP	0.2	U
		Nickel, SPLP	1.1	U
		Potassium, SPLP	40.2	UJ
		Selenium, SPLP	1.7	UJ
		Silver, SPLP	0.5	U
		Sodium, SPLP	2,220	J
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	2.6	J
		Zinc, SPLP	22.9	=
G628SB012	628SB012S2	Aluminum, SPLP	9,810	=
		Antimony, SPLP	2.4	U
		Arsenic,SPLP	11.4	=
		Barium, SPLP	1,360	=
		Beryllium, SPLP	0.9	U
		Cadmium, SPLP	2.4	U
		Calcium, SPLP	2,590	J
		Cobalt, SPLP	0.5	UJ
		Copper, SPLP	15.5	J
		Iron, SPLP	8,250	=
		Lead, SPLP	9.9	J
		Magnesium, SPLP	1,600	J
		Manganese, SPLP	55.7	=
		Mercury, SPLP	0.2	U
		Nickel, SPLP	7.5	J
		Potassium, SPLP	5,760	=

APPENDIX D
SPLP Metals in Surface and Subsurface Soils
RFI Report Addendum, AOC 628, Zone G, Charleston Naval Complex

Station ID	Sample ID	Parameter	Concentration (µg/L)	Qualifier
G628SB012	628SB012S2	Selenium, SPLP	2.9	J
		Silver, SPLP	0.5	U
		Sodium, SPLP	52,600	=
		Thallium, SPLP	2.4	UJ
		Tin (Sn), SPLP	2.7	U
		Vanadium, SPLP	30.3	J
		Zinc, SPLP	209	=

SPLP Synthetic Precipitation Leaching Procedure
U Analyte is not detected, the reported value is the detection limit.
UJ Analyte is not detected, the reported value is an estimated detection limit.
= Analyte isetected at the concentration shown.
µg/L Micrograms per liter
J Analyte is detected, the reported value is an estimated concentration.

Appendix E

Stacey French Comments

SCDHEC Specific Comment 7:

Section 10.1.1 Site Geology, Page 10.1.1, Line 9

The sentence that states that geologic and hydrogeologic data gathered from the immediately adjacent AOC 620 in Zone f is presented. However, the proximity of AOC 620 to AOC 628 is unknown. To clarify the location of AOC 620 should be included on the figures.

> **Navy/EnSafe Response 7:**
> **The figure will be revised to indicate the locations of AOC 620 in Zone F and AOC 628 in Zone G.**
>
> **CH2M-Jones Response 7:**
> *The figures presented in this CH2M-Jones RFI Report Addendum illustrate the spatial relationship between AOC 620 and AOC 628.*

Susan Peterson Comments

SCDHEC Specific Comment 1:

AOC 628

The Navy should move the proposed locations of 682SB006 and 628SB007 about 100 feet to the northwest. The Department proposes adding SB008 and SB009. SB008 should be located at the approximate midpoint between SB003 and SB004. SB009 should be located by what appears (via Figure) to be concrete pads adjacent to the sanitary water supply. One might expect the operations to be conducted on or about the concrete pads. These comments are also explained on a photocopy, attached.

Navy/EnSafe Response 1: (draft)
The Navy received an electronic version of the comments, which did not include a photocopy of the figure showing recommended locations. Issues for additional sample locations will be discussed during the April 2000 Project Team meeting.

CH2M-Jones Response 1:
Additional borings 628SB006 through 628SB012 were installed during the RFI Work Plan Addendum work, with locations as shown on figures in Section 4.0 of this RFI Report Addendum. CH2M-Jones' review of historical Navy Public Works Maps from the period of operation of this unit do not indicate any permanent structures such as concrete slabs present during that period. It is suspected that these structures were added at a later date as part of the equipment storage operations at this site.

Michael Danielson Comments

SCDHEC General Comment:

"...furthermore, the Navy has not completed groundwater characterizations for AOCs 628, 633,638, 643, 646, 706, and SMWUs 3, 11,12, and 24.

Navy/EnSafe Response (draft):
The Navy does not agree that groundwater characterization is needed at every site. At a number of sites the objective was to collect a number of samples and screen against regulatory values such as site-specific SSLs and RBCs. The Navy does agree that groundwater contamination needs to be adequately addressed at sites where groundwater contamination is an issue.

CH2M-Jones Response:
CH2M-Jones believes that SPLP data indicate that groundwater contamination is not a major issue at this AOC, and that existing wells in AOC 620 and/or FDS wells to the east are adequate to have detected any major releases from AOC 628.